

# ENVIRONMENTAL ASSESSMENT AND SECTION 4(F) EVALUATION

## I-70 WEST VAIL PASS AUXILIARY LANES

Project Number: NHPP 0701-240, Project Code: 21865  
Eagle and Summit Counties, Colorado

### Lead Agencies

Federal Highway Administration



Colorado Department of Transportation



**COLORADO**  
Department of Transportation

### Cooperating Agencies

United States Forest Service



United States Fish and Wildlife Service



September 2020



**ENVIRONMENTAL ASSESSMENT SIGNATURES**

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## PUBLIC COMMENT PERIOD

The public comment period for this document begins September 22, 2020 and ends October 21, 2020. Written comments on this document can be submitted through the project website [www.bit.ly/WestVailPass](http://www.bit.ly/WestVailPass), by calling the project hotline (970-331-0200), or by mail or email to:

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Virtual public engagement for this Project will be held in the form of a video on the project website [www.bit.ly/WestVailPass](http://www.bit.ly/WestVailPass), which will be available beginning September 22, 2020.



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A6	Social Resources Technical Memorandum	A16	Wetland Technical Memorandum
A7	Historic Resources Documentation	A17	Visual Impact Assessment
A8	Archaeological Resources Documentation	A18	Geologic Resources and Soil Technical Memorandum
A9	Section 4(f) Evaluation	A19	Paleontological Assessment
A10	Hazardous Material Review Technical Memorandum	A20	Cumulative Impacts Technical Memorandum

Appendix B1: Agency Coordination

Appendix B2: Public Comments Summary

Appendix C: Proposed Action Alternative Preliminary Plans





## LIST OF ACRONYMS AND ABBREVIATIONS

AADT	Average Annual Daily Traffic	LOMR	Letter of Map Revision
ACHP	Advisory Council on Historic Preservation	LOS	Level of Service
ACM	Asbestos-Containing Material	LOSS	Level of Service of Safety
AGS	Advanced Guideway System	LU	Landscape Unit
ALIVE	A Landscape-Level Inventory of Valued Ecosystems	LUST	Leaking Underground Storage Tank
APCD	Air Pollutant Control Division	MBTA	Migratory Bird Treaty Act
APE	Area of Potential Effect	M&E	Monitoring and Evaluation
APEN	Air Pollutant Emissions Notice	MMP	Material Management Plan
BMP	Best Management Practice	MOU	Memorandum of Understanding
CASDP	Construction Activity Stormwater Discharge Permit	MP	Mile Post
CDOT	Colorado Department of Transportation	MPH	Miles per Hour
CDPHE	Colorado Department of Public Health and Environment	NEPA	National Environmental Policy Act
CFR	Code of Federal Regulation	PA	Programmatic Agreement
CLOMR	Conditional Letter of Map Revision	PEIS	Programmatic Environmental Impact Statement
CMCA	Colorado Motor Carriers Association	PLT	Project Leadership Team
Corps	U.S. Army Corps of Engineers	ROD	Record of Decision
CPW	Colorado Parks and Wildlife	ROW	Right-of-Way
CSS	Contest Sensitive Solutions	SB 40	Senate Bill 40
CWA	Clean Water Act	SCAP	Sediment Control Action Plan
DEA	David Evans & Associates, Inc.	SCP	Stormwater Construction Permit
EB	Eastbound	SH	State Highway
EIS	Environmental Impact Statement	SHPO	State Historic Preservation Officer
EJ	Environmental Justice	SPF	Safety Performance Function
ESP	Emergency Service Provider	SWEEP	Stream and Wetland Ecological Enhancement Program
FHWA	Federal Highway Administration	SWMP	Stormwater Management Plan
HASP	Health and Safety Plan	TT	Technical Team
I-70	Interstate 70	USFS	U.S. Forest Service
ITF	Issue Task Force	USFWS	U.S. Fish and Wildlife Service
ITS	Intelligent Transportation System	VMS	Variable Message Sign
LBP	Lead-based Paint	WB	Westbound
LIZ	Linkage Interference Zone	WVC	Wildlife-Vehicle Collision



## INTRODUCTION AND BACKGROUND

The Colorado Department of Transportation (CDOT) and Federal Highway Administration (FHWA) are conducting an Environmental Assessment (EA) and conceptual design for the Interstate-70 (I-70) West Vail Pass Auxiliary Lanes project (Project), in Eagle and Summit Counties, Colorado. The Project's eastern terminus is just east of the Vail Pass Rest Area and the western terminus is in the eastern portion of the Town of Vail. The Project study limits include eastbound (EB) and westbound (WB) I-70 from mile post (MP) 179.5 to MP 191.5. The Project location and general study area are shown in **Figure 1**.

As part of the initial National Environmental Policy Act (NEPA) analysis, a Tier 1 Environmental Impact Statement (EIS) for the I-70 Mountain Corridor (C-470 to Glenwood Springs) was completed in 2011. This EIS, the *I-70 Mountain Corridor Programmatic Final Environmental Impact Statement* (PEIS), recommended the addition of auxiliary lanes EB and WB on the west side of Vail Pass from MP 180 to MP 190 as part of the Preferred Alternative's Minimum Program of Improvements. The PEIS also identified the potential for an elevated Advanced Guideway System (AGS) for transit along the I-70 corridor, including the West Vail Pass project corridor. A follow-up AGS Feasibility Study in 2014 analyzed potential alignments and costs for an AGS system and determined there were three feasible alignments for future AGS. While AGS is not part of the West Vail Pass Auxiliary Lanes project, the AGS Feasibility Study was used to ensure the project did not preclude the favored alignment of the three, which would be partially within CDOT right-of-way (ROW).

This Tier 2 NEPA analysis is the next step required to move highway improvements forward. The Project is following the CDOT and FHWA NEPA process to confirm the needs for improvements to West Vail Pass, identify a Proposed Action, investigate the anticipated benefits and impacts of the proposed improvements, identify mitigation

measures, produce conceptual design plans, and make funding, scheduling, and phasing recommendations.

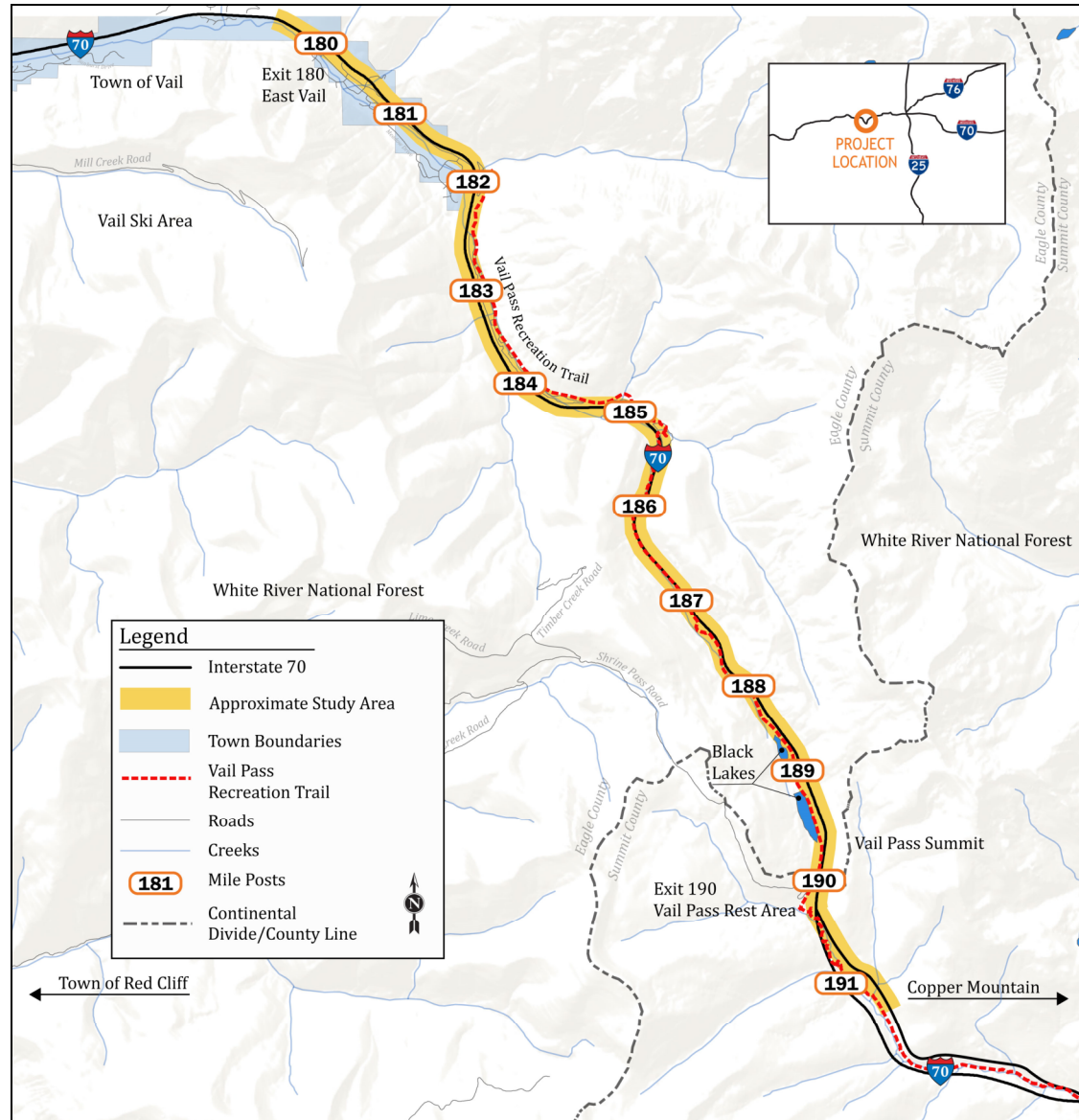
For the Project, the study area was established early in the planning process and extends approximately 200 feet on both sides of I-70. Some resources analyzed for the EA have different study areas and are described in their respective technical memoranda.

The I-70 Mountain Corridor is a critical part of the Primary Highway Freight System and I-70 is Colorado's only east-west interstate, providing a critical interstate commerce link for Colorado and the country. It also provides the only direct route between the Front Range and western Colorado. Area residents and visitors travel the corridor to access growing mountain communities, as well as local and regional recreational opportunities.

The existing roadway has two EB and two WB lanes (each 12 feet in width), an inside shoulder typically 4 feet in width, and an outside shoulder typically 10 feet in width. The speed limit is posted at 65 miles per hour (MPH) with a 45 mph truck speed limit in the WB (downhill) direction. The average annual daily traffic (AADT) on West Vail Pass is approximately 22,000 vehicles per day.

The Project Purpose and Need statement was developed based on the I-70 Final PEIS Purpose and Need, which identified safety and mobility issues on West Vail Pass related to speed differentials due to slow-moving vehicles. Mobility was defined as the ability to travel along the I-70 Mountain Corridor safely and efficiently in a reasonable amount of time. The Purpose and Need was confirmed with the initial outreach for the EA phase with general concurrence from the Project Leadership Team (PLT) and Technical Team (TT), as well as the general public at the initial Project public meeting.

**Figure 1. Project Location and Study Area**



Source: DEA Project Team

## 1. WHAT IS THE PURPOSE OF THE PROJECT?

The purpose of the Project is to improve safety and operations on EB and WB I-70 on West Vail Pass. Operations is defined as the optimal flow of traffic taking into consideration geometric and weather conditions.

## 2. WHAT ARE THE NEEDS FOR THE PROJECT?

This Project is needed to address safety concerns and operational issues due to geometric conditions (steep grades and tight curves) and slow-moving vehicle and passenger vehicle interactions that result in inconsistent and slow travel times along the corridor. The corridor is frequently closed by vehicle incidents, due to lack of width to maintain a single lane of traffic adjacent to emergency responders, resulting in substantial traffic backups and delays. The wide speed variations with no pull-off areas for incidents and response and no breakdown areas for uphill drivers creates turbulence in traffic flow.

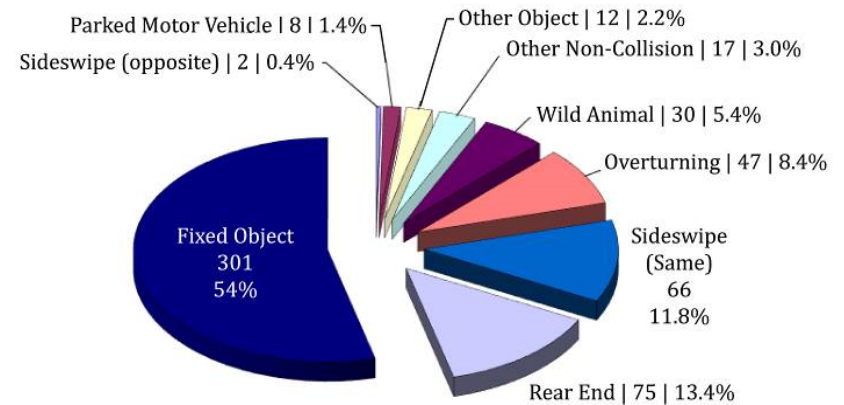
### SAFETY CONCERNS

Current traffic issues were identified in the *Safety Assessment Report I-70: MP 179.00 to MP 191.00 West Vail Pass Auxiliary Lanes Environmental Assessment* (January 2018). The safety assessment focused on crashes that occurred from January 1, 2014 through December 31, 2016 on I-70 between MP 179 and 191.

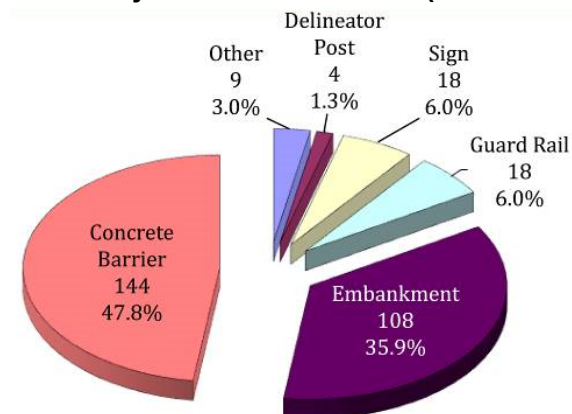
A high number of crashes occur along the corridor related to speed, tight curves, narrow roadway area, and inclement weather/poor road conditions. Speed differentials between passenger vehicles and slow-moving vehicles cause erratic lane changes and braking maneuvers resulting in crashes and spin outs. Emergency response is hampered by vehicular speeds and lack of roadway width to provide room for incident response and for emergency vehicles to pass.

A total of 566 crashes were reported during the three-year time period, including mainline, ramp, and ramp terminal crashes. Of these crashes, there were 121 injury crashes with 205 injured. There were a total of 558 mainline crashes in the corridor. Fixed object crashes were the most common crash type (54 percent), followed by rear end (13.4 percent) and sideswipe same direction crashes (11.8 percent). **Figure 2** shows the I-70 crash distribution type and **Figure 3** shows the breakdown of the typed of fixed object crashes.

**Figure 2. Mainline Crash Distribution Type (2014 – 2016)**



**Figure 3. Fixed Object Crash Breakdown (2014 – 2016)**



Source: CDOT Safety Assessment Report I-70: MP 179.00 – MP 191.00 (January 2018)



CDOT has developed Highway Segment Safety Performance Functions (SPFs) to estimate the average crash frequency for a specific site type as it relates to the annual average daily traffic of the segment. These SPFs are used to predict the potential that a corridor has for crash reduction based on the observed versus the predicted crash frequency, which is called the Level of Service of Safety (LOSS). It provides a crash frequency and severity comparison with the expected norm. West Vail Pass has an LOSS III from MP 179 to 182, indicating a moderate to high potential for crash reduction, and a LOSS IV from MP 182 to 191, indicating a substantially worse than average safety record and a high potential for crash reduction with the application of appropriate safety measures.

Notable crash patterns within shorter sections of the corridor include:

- MP 181-181.6: Wild animal crashes (deer, May-August, dawn-dusk)
- MP 181.8-182: Concrete barrier/embankment crashes during inclement road conditions
- MP 182-182.7: Rear-end crashes due to speed differentials
- MP 182.5-184: Side swipe same direction crashes due to speed differentials or losing control in adverse weather conditions
- MP 184-184.5: Concrete barrier crashes on bridges during inclement road conditions (mostly WB)
- MP 185.5-186.1: Concrete barrier/embankment crashes during inclement road conditions with inexperienced/unfamiliar drivers (mostly WB)
- MP 187-187.5: Side swipe same direction crashes due to losing control in adverse weather conditions
- MP 188.6-189.1: Overturning crashes during inclement road conditions (mostly WB)

In the context of Vail Pass and the adverse road conditions that are regularly experienced in the winter, losing control and hitting another car (instead of a fixed object) are indicative of conditions where lane departures cannot be avoided. Fixed object crashes are indicative of vehicles losing control, which in this corridor is often found to be related to grade, bridges, sharp curves, and inclement road conditions.

From MP 182.01 to MP 186.5, trucks are involved in a higher percentage of corridor crashes (16 percent) than the percentage of trucks in the overall traffic volumes (12 percent), which indicates potential safety issues related to truck interactions. They are more than twice as likely to be involved in multi-vehicle crashes as other vehicles; and slightly more likely than other vehicles to be involved in dry road crashes. These patterns reinforce the obvious notion that larger vehicles take up more space and are not as nimble as smaller vehicles, thus being involved in more crashes with other vehicles.

A comparison of the crash history along the West Vail Pass study segment was made with the segment of I-70 at Straight Creek (located on the west side of the Eisenhower-Johnson Tunnel from MP 205.5 to MP 213.6). On Straight Creek, the total number of mainline crashes for the three-year period was 335 crashes, resulting in a LOSS III for total crashes and a crash rate of 1.16 crashes per million vehicle-miles. West Vail Pass had a LOSS IV for total crashes and a crash rate of 1.93 crashes per million vehicle-miles. Thus, safety on West Vail Pass is worse when both are compared in terms of crash rates and LOSS. The main difference between Straight Creek and West Vail Pass is that Straight Creek has three lanes in each direction and West Vail Pass has two.

### **OPERATIONAL ISSUES**

The steep grades and resulting speed differentials cause slow and unreliable travel times through the corridor. Tight curves also cause drivers to slow down. The corridor is frequently closed by vehicle incidents, due to lack of width to maintain a single lane of traffic adjacent to emergency responders, resulting in substantial traffic



backups and delays. During winter months, the travel lanes and shoulders are severely impacted by snow accumulation, impacting the overall capacity of the corridor.

**LANE UTILIZATION AND SPEED DIFFERENTIAL**

CDOT collects a significant amount of field data in the I-70 Mountain Corridor using electronic devices. These data are valuable in recording hour-by-hour status of traffic operations in the corridor. Data collected at MP 182 and 183.6 during peak summer traffic conditions (July 2016) indicates speed differences between the left and right lane are up to 9 mph. With slow-moving vehicles in the right lane, the majority of traffic travels in the left lane. The data collected in July 2016 shows around 60 percent of the traffic traveled in the left lane. Looking at similar data for January 2016, there does not appear to be a seasonal difference in lane usage.

Trucks make up almost 12 percent of traffic on I-70 at West Vail Pass. There is a notable 10 – 20 mph speed differential between passenger vehicles and heavy trucks and/or recreational vehicles on the steep grades. These wide speed variations with limited recovery and break down areas creates turbulence in traffic flow.

**TRAVEL TIMES**

Travel times on West Vail Pass are impacted by recurring congestion in the EB direction as well as incident-based delays in both directions. EB recurring congestion takes two forms: everyday backups from slow-moving vehicles traversing the ten miles of steep uphill grades, and Sunday afternoon congestion from recreational traffic returning to the Front Range from the mountains. Under existing traffic volumes, EB trucks traveling uphill decelerate by as much as 30 mph under the speed limit and all traffic slows as much as 15 mph under the speed limit when a truck is traversing the pass on EB I-70. The Sunday afternoon congestion along West Vail Pass from recreational traffic peaks in the summer months but occurs throughout the year.

**HIGHWAY CLOSURES AND TRAFFIC MANAGEMENT**

I-70 at West Vail Pass experiences relative frequent partial (one-lane) or full highway closures due to crashes, weather, vehicle breakdowns, and other incidents. When incidents force a full closure of the 24 miles between Copper Mountain and Vail (including West Vail Pass), the detour route is 54 miles long and follows State Highway (SH) 91 and US 24 via Leadville. This route is entirely on high-elevation two-lane highways with non-freeway design thresholds and speed limits between 25 and 65 mph. Additionally, when Vail Pass full closures are weather-related, the detour route typically experiences similar weather conditions. This detour route has much higher impacts, both in travel time and crash rates, to detoured traffic than a “standard” detour.

CDOT maintains datasets documenting partial and full closures with date, location, duration, and type (reason for closure). **Table 1** shows a summary for duration of closures from 2014 through 2017. In recent years CDOT has implemented a more proactive incident management policy to close the highway, called a “safety closure” when crashes occur and during weather events to reduce secondary crashes and to provide more space and time for emergency response along the corridor. The number of highway closures each year has increased, but the overall duration of closures has been reduced.

**Table 1. Closures due to Incidents 2014 - 2017**

YEAR	NUMBER OF FULL CLOSURES	NUMBER OF PARTIAL CLOSURES	DURATION OF CLOSURES (HOURS)
2014	15	25	400.0
2015	33	98	476.7
2016	71	144	307.9
2017	91	163	363.5
Total	210	430	1,548

Source: CDOT



**Table 2** summarizes the types of incidents documented for full closures on I-70 at West Vail Pass from 2014 through 2017. Over those years, 61 of the 210 incident full closures involved trucks/ commercial motor vehicles.

**Table 2. Types of Incidents for Full Closures 2014 - 2017**

TYPE OF INCIDENT	NUMBER OF FULL CLOSURES
Crash	86
Avalanche Control	3
Blocked	1
Closed	13
Disabled Semi Trailer	1
Jackknifed Semi Trailer	1
Mechanical	6
Outside Agency Activity	2
Runaway Ramp Closure	6
Safety Closure	82
Spun Out/Slide Off	9

Source: CDOT

Full closure data for West Vail Pass was compared with closures for I-70 at the Straight Creek segment between Silverthorne (elevation about 9,035 feet) and the Eisenhower-Johnson Memorial Tunnel (elevation about 11,013 feet). The elevations are similar to the West Vail Pass segment and winter weather conditions are roughly similar. The average grade along Straight Creek is 4.6 percent, compared to 3.4 percent for West Vail Pass. I-70 at Straight Creek has three lanes in each direction with relatively narrow shoulders while I-70 at West Vail Pass has two lanes in each direction with standard shoulders. In 2017, West Vail Pass had 91 full closures lasting 114 hours while Straight Creek had only 19 full closures lasting 36 hours. Even with narrower

shoulders, the Straight Creek segment with three lanes in each direction experienced substantially less full closures.

### 3. WHAT ALTERNATIVES WERE EVALUATED?

In addition to the PEIS Preferred Alternative that included EB and WB auxiliary lanes on West Vail Pass, additional alternatives were developed based on purpose and need data, such as high crash rates on curves, and stakeholder input.

The five alternatives listed below were evaluated. The descriptions of each alternative can be found in **Appendix A1: I-70 West Vail Pass Auxiliary Lanes Alternatives Evaluation**:

- No Action
- Existing Two Lanes with Curve Modifications and Intelligent Transportation System (ITS) Improvements
- Auxiliary Lanes with Full Shoulders, Curve Modifications, and ITS Improvements
- Existing Two Lanes and Operational Lanes with Curve Modifications and ITS Improvements (operational lanes would only be opened as travel lanes when needed due to an incident, emergency response, or unusually high traffic volumes.)
- Auxiliary Lanes with WB I-70 Realignment, Curve Modifications, and ITS Improvements

The Project team developed screening criteria for the alternatives screening. The purpose of the first level of screening was to eliminate fatally flawed or unreasonable alternatives and alternatives that do not meet the Project Purpose and Need. In addition to criteria based on the Purpose and Need, the Project team identified screening criteria based on the Project’s Core Values and Success Factors that could be assessed based on the limited amount of design available during the screening process. More information on the Project Core Values and Success Factors and can be found on page 72.



The alternatives screening was supported by the baseline data collected for the study. The evaluation process was conducted by the Project team, composed of CDOT, FWHA, and consultant staff with expertise relevant to the various resource categories. These evaluations were based upon the best available information at the time of the screening. The draft results of the screening were presented to the PLT and TT for feedback and discussion.

The corridor alternatives were evaluated with a “Yes” or “No” answer to the following questions to demonstrate each alternative’s ability to meet the individual Project needs.

- Purpose and Need Criteria
  - » Safety
    - Does the alternative reduce crashes?
  - » Operations
    - Does the alternative improve traffic flow?
    - Does the alternative maintain or improve access for emergency response?
    - Does the alternative reduce number of full closures?
- Additional Core Values Criteria
  - » Enhanced Environment
    - Does the alternative maintain existing terrestrial wildlife connectivity?
    - Does the alternative include trail relocation away from directly adjacent to I-70?
  - » Collaborative Decision-making
    - Is the alternative consistent with the Record of Decision?

In addition, detailed comparative screening criteria based on the Purpose and Need and Core Values was developed, should an additional level of screening have been required to identify a preferred alternative.

After the first level of screening, it was determined that only one of the five alternatives fully met the Purpose and Need, based on the applied screening criteria. The additional Core Values criteria were not considered fatal flaws and did not prevent any alternatives from potentially moving forward into further evaluation. The Auxiliary Lanes with Full Shoulders, Curve Modifications, and ITS Improvements alternative was recommended as the Proposed Action, confirming the Preferred Alternative from the PEIS. The screening showed that it is the only alternative that will improve safety and operations based on the Purpose and Need screening criteria. Further alternative screening was not needed to identify the Proposed Action.

The Proposed Action underwent minor design refinements to shift the alignment slightly in places to minimize impacts and maximize crossover locations. Additional substandard curve modification locations were also added, in addition to the modifications at highest crash curve locations. The shoulders were defined as described below, instead of “standard” as included in the original alternative description.

The Project PLT and TT agreed to the recommendation of the Auxiliary Lanes with Full Shoulders, Curve Modifications, and ITS Improvements as the Proposed Action. A summary of the alternatives evaluation and the recommendation of the Auxiliary Lanes with Full Shoulders, Curve Modifications, and ITS Improvements Alternative was presented at the second public meeting for the EA (held November 28, 2018) to solicit feedback on the alternatives evaluation process and the preliminary recommendation. General comments received from the public indicated that there was overall agreement with the need for improvements, but concern about impacts to natural resources, since those design details were not yet determined or presented.





Once the Auxiliary Lanes with Full Shoulders, Curve Modifications, and ITS Improvements Alternative was identified, the Project team evaluated numerous design options for incorporation into the Proposed Action based on the Project's Core Values (see Page 69 for more information). Design options relating to chain-up stations, emergency truck ramps, emergency turnarounds, truck parking, pull-off areas, water quality, wildlife crossings, and trail relocation were developed and discussed at the TT meetings and at the appropriate Issue Task Force (ITF) meetings. These design options are included as part of the Proposed Action.

#### 4. WHAT IS THE PROPOSED ACTION?

The Proposed Action (**Figures 4 and 5**) will add a 12-foot auxiliary lane, both EB and WB, for 10 miles from approximately the East Vail exit (MP 180) to the Vail Pass Rest Area exit (MP 190). Existing lanes will be maintained at 12 feet and the shoulders would be widened to a minimum of 6 feet for inside shoulders and maintained at 10 feet for outside shoulders. All existing curves will be modified as needed to meet current federal design standards.

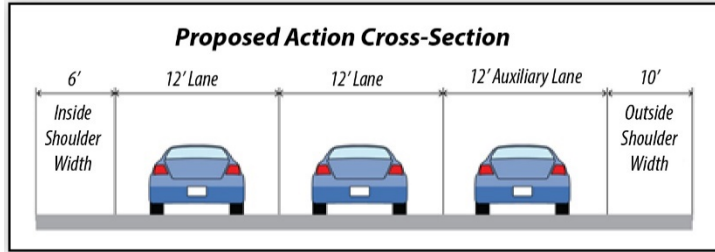
ITS equipment will also be installed along the I-70 Project corridor, consistent with recent study recommendations. Additional variable message signs (VMSs) will be installed at key locations to warn drivers of upcoming curves, grades, and incidents. Additional variable speed limit signs will be installed to manage driver speeds to conditions. Automated lane closure signage will be installed approaching the East Vail exit on EB I-70 and approaching the WB I-70 Vail Pass Rest Area exit to quickly and efficiently close lanes when needed.

Additional elements of the Proposed Action include:

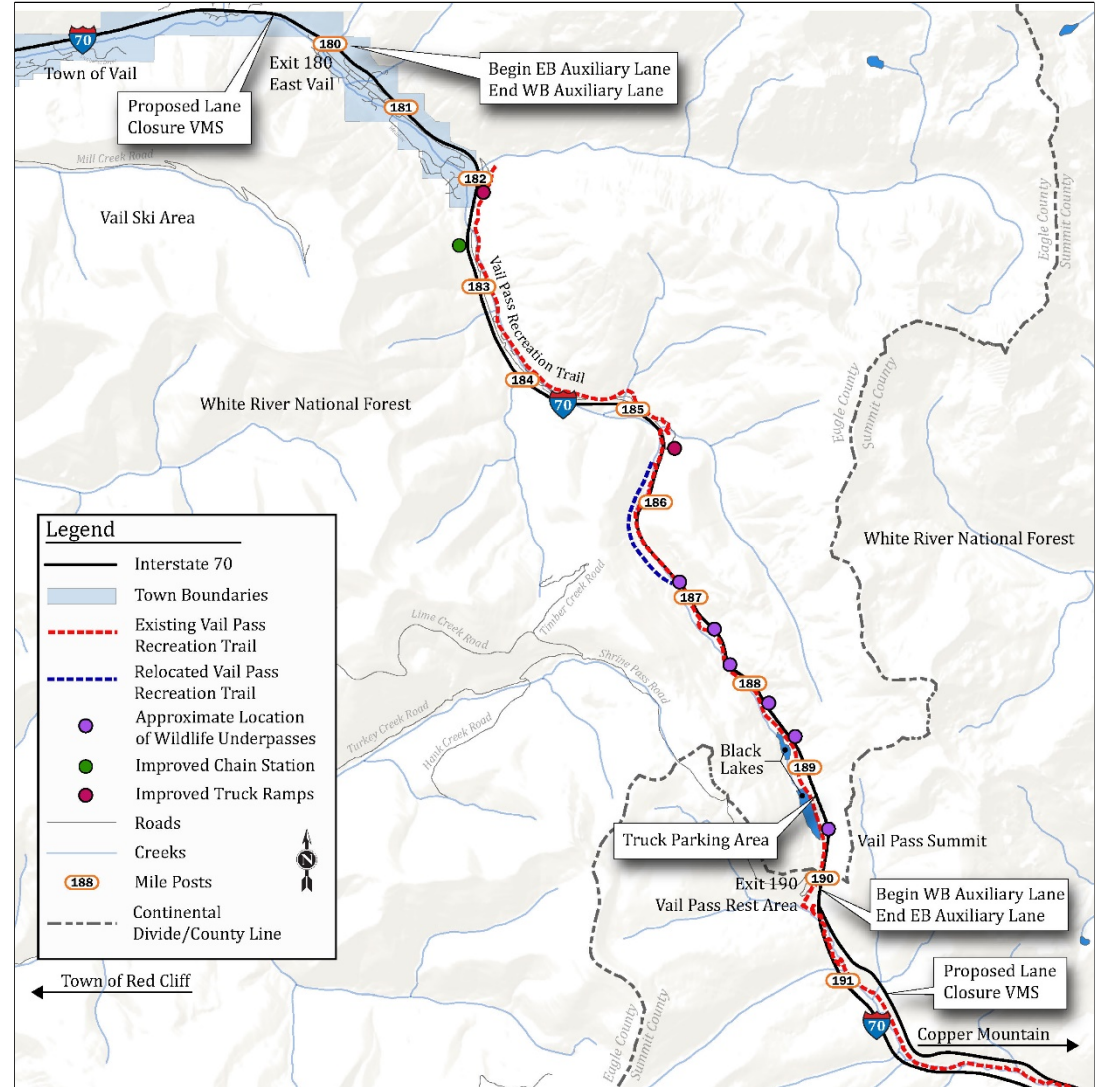
- The Vail Pass Recreation Trail will be relocated for approximately two miles, from MP 185 to MP 187, due to direct impacts from the addition of the I-70 auxiliary lane.
- Existing emergency truck ramps, located at approximately MP 182.2 and 185.5, will be upgraded to current design standards.
- Six wildlife underpasses and wildlife fencing will be constructed throughout the corridor.
- Additional capacity will be added to the existing commercial truck parking area at the top of Vail Pass on EB I-70.
- Widened shoulders (minimum of eight feet of additional width beyond the 10' shoulder) will be constructed at multiple locations to accommodate emergency pull-offs, emergency truck parking, and staging for tow trucks.
- Median emergency turnaround locations will be improved to accommodate emergency and maintenance vehicle turnaround maneuvers.
- Chain station located at approximately MP 182.5 will be improved with additional parking, signage, lighting, and separation from the I-70 mainline.
- Avalanche protection will be installed at approximately MP 186.

Easements (temporary and permanent) and an updated highway easement deed from the U.S. Forest Service (USFS) will be required to accommodate these improvements. No full acquisitions of private property are anticipated but temporary construction easements may be required. ROW needs will be evaluated during preliminary design.

**Figure 4. Proposed Action Cross Section**



**Figure 5. Proposed Action Map**





## **5. WHAT WILL HAPPEN IF THE PROPOSED ACTION IS NOT IMPLEMENTED?**

Under the No Action Alternative, only programmed projects that are planned and funded by CDOT or other entities would be completed. Currently, there are no large-scale transportation projects to add safety improvements, operational improvements, vehicular capacity, and/or multimodal facilities along I-70 within the Project area. The No Action Alternative would leave West Vail Pass as it currently is configured and would not provide substantial improvements beyond typical current maintenance (e.g. resurfacing and plowing) activities. The roadway would remain the same, with two EB and two WB lanes (each 12 feet in width), an inside shoulder typically 4 feet in width, and an outside shoulder typically 10 feet in width.

The AADT in 2045 is estimated to be 37,400 vehicles per day (two-way) with a summer Sunday experiencing approximately 52,000 vehicles per day and an average summer weekday experiencing about 40,000 vehicles per day. Future travel demand estimates are expected to remain the same with or without the Project.

In the future No Action condition, the increase in AADT described above and the continued presence of trucks and other slow-moving vehicles in the traffic stream results in degraded traffic operations along the study corridor by 2045, particularly in the EB (uphill) direction during the peak travel periods. I-70 drivers would experience increasingly unreliable travel times as interactions with slow-moving vehicles increase.

The geometry of the roadway would remain the same in the No Action condition, resulting in worsening safety conditions. The number of crashes per year with the No Action would increase as much as 34 percent. Response by emergency vehicles would continue to be challenging due to limited areas to access crashes or respond to disabled vehicles.

I-70 at West Vail Pass would continue to experience relative frequent partial (one-lane) or full highway closures due to crashes, weather, vehicle breakdowns, and other incidents. When incidents force a full closure of the 24 miles between Copper Mountain and Vail (including West Vail Pass), the detour route is 54 miles long and follows SH 91 and US 24 via Leadville. The number of full I-70 closures at West Vail Pass would continue to increase with the expected increase in crashes and the need to implement safety closures to provide more space and time for emergency response.



## 6. HOW WELL DO THE NO ACTION ALTERNATIVE AND PROPOSED ACTION MEET THE PURPOSE AND NEED?

The No Action Alternative would not provide transportation improvements within the study area. Other separate projects already planned and funded by CDOT, Eagle or Summit County, the cities, or other agencies would occur with either the No Action Alternative or the Proposed Action. The No Action Alternative does not meet the Purpose and Need, but was carried forward as a baseline comparison for environmental analysis purposes. Only the Proposed Action would meet the Purpose and Need of the Project. As the No Action Alternative offers no improvements to Vail Pass beyond the existing conditions, the Purpose and Need would not be met by choosing this alternative. **Table 3** summarizes the specific Project needs and how they are addressed by the No Action Alternative and the Proposed Action.

**Table 3. Purpose and Need Summary for the No Action Alternative and Proposed Action**

PROJECT NEEDS	NO ACTION ALTERNATIVE	PROPOSED ACTION
Safety	<ul style="list-style-type: none"> <li>• Safety issues would persist and worsen as volumes increase along the corridor.</li> <li>• Number of crashes per year with the No Action conditions would increase as much as 34 percent by 2045.</li> </ul>	<ul style="list-style-type: none"> <li>• Auxiliary lanes, wider shoulders, ITS improvements, improved signage, and curve modifications would improve driver safety and reduce fixed object, rear-end, and sideswipe same direction type crashes.</li> <li>• The Proposed Action infrastructure improvements are expected to reduce the number of crashes experienced each year along the corridor by 37 to 41 percent.</li> </ul>
Operations	<ul style="list-style-type: none"> <li>• Travel delays due to backups from slow-moving vehicles would increase as traffic volumes increase, particularly in the peak travel periods. Traffic operations would degrade along the study corridor by 2045, particularly in the EB (uphill) direction where the corridor would operate at Level of Service (LOS) F in 2045.</li> <li>• I-70 drivers would experience increasingly unreliable travel times as interactions with slow-moving vehicles increase.</li> <li>• Emergency response would continue to remain challenged with limited area to access crashes or disabled vehicles.</li> <li>• Partial and full highway closures would be expected to increase as more crashes and other incidents occur.</li> </ul>	<ul style="list-style-type: none"> <li>• Auxiliary lanes would reduce travel delays caused by slow-moving vehicles by providing another lane for passing maneuvers. Even with the expected traffic growth, traffic operations would remain at LOS C or better in both directions in 2045.</li> <li>• Emergency response would improve with reduced crashes and increased area for disabled vehicles to be moved out of the travel lanes and into the shoulder. Shoulders and auxiliary lanes would also provide more space for first responders and law enforcement to access crashes or disabled vehicles/breakdowns.</li> <li>• ITS applications would increase the effectiveness and reduce the overall duration of highway closures due to weather events and other incidents. Highway closures due to minor crashes and vehicle breakdowns would be reduced because vehicles could use the shoulder as a refuge area with the auxiliary providing more space while keeping at least one lane of traffic open.</li> </ul>

Source: I-70 West Vail Pass Transportation Resources Technical Memorandum



## 7. Why are FHWA and CDOT Recommending the Proposed Action?

FHWA and CDOT are recommending that the Proposed Action be implemented because it improves safety and operations on West Vail Pass.

## 8. WHAT ARE THE IMPACTS ASSOCIATED WITH THE NO ACTION ALTERNATIVE AND PROPOSED ACTION?

The No Action Alternative and Proposed Action were evaluated for impacts to various resources present within the study area. **Table 4** provides a summary of impacts to these resources for the No Action Alternative and Proposed Action. Temporary impacts would occur only during construction of the Proposed Action while permanent impacts would last throughout the Project horizon year (2045) with either the No Action Alternative or Proposed Action. For more detailed information on the impacts, see the corresponding technical documentation in **Appendix A**. Data compiled for the Project determined that the following resources are either not present or not impacted in the study area: Energy, Farmlands, and Section 6(f).

**Table 4. Environmental Impacts of the No Action Alternative and Proposed Action**

RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
Context Sensitive Solutions (DEA, 2020a – Appendix A2)	The 6-Step Context Sensitive Solutions (CSS) Process applies to all CDOT projects on I-70 within the I-70 Mountain Corridor. The Project is currently in Life Cycle Phase 2, Project Development.	<p><b><u>Permanent Impacts:</u></b></p> <p>None</p>	<p><b><u>Permanent Impacts:</u></b></p> <p>The Project would require exceptions to the following CSS design criteria in discrete locations throughout the corridor: alignment, slope cut and fill, and disturbance. Additional impacts and mitigation related to the CSS process are discussed under other resource summaries.</p> <p><b><u>Temporary Impacts:</u></b></p> <p>None</p>	1



RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
<p>Transportation-Travel Delays (DEA and Apex Design, 2020b – Appendix A3)</p>	<p>Travel times on West Vail Pass are currently impacted by recurring congestion as well as incident-based delays. Recurring congestion takes two forms: everyday backups from slow-moving vehicles traversing the ten miles of steep uphill grades, and Sunday afternoon congestion from recreational traffic returning to the Front Range from the mountains.</p>	<p><b><u>Permanent Impacts:</u></b></p> <ul style="list-style-type: none"> <li>• Travel delays due to backups from slow-moving vehicles would increase as volumes increase, particularly in peak travel periods.</li> <li>• I-70 drivers would experience increasingly unreliable travel times as interactions with slow-moving vehicles increase.</li> </ul>	<p><b><u>Permanent Impacts:</u></b></p> <ul style="list-style-type: none"> <li>• Auxiliary lanes would reduce travel delays caused by slow-moving vehicles by providing another lane for passing maneuvers.</li> <li>• Delays due to incidents blocking a lane or shoulder would be reduced with more space for passing.</li> </ul> <p><b><u>Temporary Impacts:</u></b> Traffic delays and backups may increase during construction with lane shifts, restrictions, and closures.</p>	2
<p>Transportation – Emergency Response (DEA and Apex Design, 2020b – Appendix A3)</p>	<p>Emergency response is currently hampered by vehicular speeds and lack of roadway width to provide room for emergency vehicles to pass.</p>	<p><b><u>Permanent Impacts:</u></b> Emergency response would continue to remain challenged with limited area to access crashes or disabled vehicles.</p>	<p><b><u>Permanent Impacts:</u></b></p> <ul style="list-style-type: none"> <li>• Emergency response would improve with reduced crashes and increased area for disabled vehicles to be moved out of the travel lanes and into the shoulder.</li> <li>• Shoulders and auxiliary lanes would provide more space for first responders and law enforcement to access crashes or disabled vehicles/breakdowns.</li> </ul> <p><b><u>Temporary Impacts:</u></b> First responders and law enforcement may have limited shoulder area for emergency response during construction.</p>	3



RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
Transportation – Highway Closures (DEA and Apex Design, 2020b – Appendix A3)	From 2014 to 2017, I-70 at West Vail Pass experienced 430 partial closures and 210 full closures, resulting in a total closure duration of 1,548 hours.	<p><b><u>Permanent Impacts:</u></b></p> <p>Partial and full highway closures would be expected to increase as more crashes and other incidents occur.</p>	<p><b><u>Permanent Impacts:</u></b></p> <ul style="list-style-type: none"> <li>ITS applications would increase the effectiveness and reduce the overall duration of highway closures due to weather events and other incidents.</li> <li>Highway closures due to minor crashes and vehicle breakdowns would be reduced because vehicles and trucks could use the shoulder as a refuge area with the auxiliary providing more space while keeping at least one lane of traffic open.</li> </ul> <p><b><u>Temporary Impacts:</u></b></p> <p>Traffic delays and backups may increase during construction with partial and full highway closures.</p>	4
Transportation – Safety (DEA and Apex Design, 2020b – Appendix A3)	From 2014 to 2016, a total of 566 crashes were reported. Of these crashes, there were 121 injury crashes with 205 injured. There were a total of 558 mainline crashes in the corridor. Fixed object crashes were the most common crash type (54 percent), followed by rear end (13.4 percent) and sideswipe same direction crashes (11.8 percent).	<p><b><u>Permanent Impacts:</u></b></p> <ul style="list-style-type: none"> <li>Safety issues would persist and worsen as volumes increase along the corridor.</li> <li>I-70 would continue to have segments with grades exceeding the standard maximum five percent grade.</li> </ul>	<p><b><u>Permanent Impacts:</u></b></p> <ul style="list-style-type: none"> <li>Auxiliary lanes, wider shoulders, ITS improvements, improved signage, and curve modifications would improve driver safety and reduce fixed object, rear-end, and sideswipe same direction type crashes.</li> <li>Concrete median and outside barrier would limit the sight distance on some curves below the standard, requiring FHWA design exceptions, but would improve sight distance over existing conditions.</li> </ul>	5-6



RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
			<ul style="list-style-type: none"> <li>The I-70 alignment would closely follow the existing roadway profile and segments would continue to have grades exceeding the standard maximum five percent grade, requiring an FHWA design exception.</li> </ul> <p><b>Temporary Impacts:</b> Construction delays and lane restriction may increase potential for crashes during construction</p>	
Air Quality (Illingworth & Rodkin, Inc. 2019 – Appendix A4)	The western portion of the study area, between the Big Horn Road interchange and Big Horn Road underpass, includes residential areas that are within 500 feet of the Project and are considered sensitive receptors for air quality. Particulate matter emissions (i.e., primarily PM <sub>10</sub> ) are a concern from windblown dust and wood burning in Eagle and Summit counties.	<p><b>Permanent Impacts:</b> None – no change to the roadway facility would occur that would increase emissions. While traffic levels would increase, emission rates are anticipated to decrease as newer vehicles replace older vehicles. New vehicles have lower emission rates due to improved emission control technology and greater fuel efficiency that reduces the amount of fuel combustion. There is also an increase in the volume of electric and hybrid vehicles that have little to no tailpipe or emissions</p>	<p><b>Permanent Impacts:</b> None – the Project would slightly change the roadway alignment but not increase traffic volumes or change vehicle fleet mix more than what would occur under the No Action; therefore, traffic emissions would not increase.</p> <p><b>Temporary Impacts:</b> Would impact air quality during construction due to diesel-powered equipment emissions and dust from ground-disturbing activities.</p>	7-8
Noise (Illingworth & Rodkin, Inc. 2020 – Appendix A5)	Receivers with the following Activity Categories were modeled in the existing condition and design year scenarios for the Noise Study Zone, which extends 500 feet in all direction from the proposed edge of travel lanes throughout the Project extent.	<p><b>Permanent Impacts:</b> Future (2045) modeled noise levels for the No Action Alternative range from 52.8 dBA to 75.8 dBA.</p>	<p><b>Permanent Impacts:</b> Future (2045) modeled noise levels for the Proposed Action range from 54.1 dBA to 76.2 dBA at 202 receptors.</p>	9-10





RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
	<ul style="list-style-type: none"> <li>Activity Category B (Residential): 190 receptors.</li> <li>Activity Category C (Individual buildings or gathering areas such as hospitals, libraries, playgrounds, and parks): 12 Receptors.</li> </ul> <p>Under existing conditions, modeled noise levels range from 50.5 to 73.4 dBA</p>		<p>The Proposed Action is expected to impact the following receptors:</p> <ul style="list-style-type: none"> <li>29 Activity Category B receptors</li> <li>6 Activity Category C receptors</li> </ul> <p><b>Temporary Impacts:</b> Construction noise would temporarily affect adjoining properties within and adjacent to the Proposed Action.</p>	
Social Resources- Land Use/ ROW (DEA, 2020c – Appendix A6)	<p>Land use in and around the study area is largely uninhabited due to I-70's location within the White River National Forest and adjacency to Eagles Nest Wilderness Area.</p> <p>There are numerous privately owned parcels in East Vail that are adjacent to I-70. The Town of Vail owns three parcels of land, which I-70 currently crosses in East Vail. These parcels were provided to the Town by the USFS through a patent and are subject to the highway easement deed described below. The USFS owns the majority of the land surrounding I-70 in the study area and CDOT has an existing highway easement deed with the USFS.</p>	<p><b>Permanent Impacts:</b> None</p>	<p><b>Permanent Impacts:</b> Approximately 24 acres of additional USFS land to be included in the highway easement deed with the USFS for I-70. A portion of the Vail Pass Recreation Trail would be realigned, impacting land adjacent to I-70 in the White River National Forest. No impacts outside the highway easement deed to the Town of Vail properties are anticipated.</p> <p><b>Temporary Impacts:</b> Temporary easements during construction may be required and will be identified during final design.</p>	11-12



RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
Social Resources- Economic Resources (DEA, 2020c – Appendix A6)	<p>Between 2000 and 2017, the population, number of households, median household income, and number of employed individuals all increased in the Project area. The arts, entertainment, recreation, accommodation and food services (collectively servicing tourism) currently employs the most individuals compared to other industries. Recreation opportunities are plentiful in the White River National Forest and there are numerous companies who hold special use permits from the USFS to perform commercial recreation services.</p> <p>In addition to I-70 being of economic importance for vehicle traffic, truck traffic (freight) makes up almost 12 percent of the average daily volumes.</p>	<p><b><u>Permanent Impacts:</u></b></p> <p>Continued safety and operational issues resulting in substantial traffic backups and delays, which impacts patronage at local and regional businesses by travelers who may avoid the interstate. Tourism is similarly affected by visitors who may choose to vacation in other areas with easier access. Vehicle-based costs (fuel and maintenance) and driver-based costs (wages and per diem) of freight commerce would also continue to be affected by operational issues on I-70</p>	<p><b><u>Permanent Impacts:</u></b></p> <ul style="list-style-type: none"> <li>Improved mobility and access to recreational and tourist amenities by both workers and visitors, particularly during periods of snow accumulation in winter months.</li> <li>Reduced freight trucking delays on Vail Pass associated with congestion and highway closures.</li> </ul> <p><b><u>Temporary Impacts:</u></b></p> <ul style="list-style-type: none"> <li>Detours, lane closures, and an increase in I-70 congestion during construction could affect mobility to local businesses and tourist destinations.</li> <li>Dust, noise, and vibration could negatively affect businesses that rely on outdoor recreation.</li> <li>Commercial recreation outfitters/ guides that utilize the trail may also be affected due to possible closures and access issues.</li> </ul>	13-14
Social Resources- Environmental Justice (EJ) (DEA, 2020c – Appendix A6)	<p>Four block groups that intersect the study area exceed the county percentage of extremely low-income households and therefore constitute EJ populations. Within two of those block groups, no households occur within the Project area. One block group exceeds the County and State percentage of minority populations, but no households counted within the block group occur within the Project area. Two block groups exceed the County and State percentage of</p>	<p><b><u>Permanent Impacts:</u></b></p> <p>None</p>	<p><b><u>Permanent Impacts:</u></b></p> <p>The Proposed Action would not result in disproportionately high and adverse effects to the surrounding EJ populations. Noise impacts occur northeast of I-70 between MP 180 and 182; however, the impacts are not disproportionate because the noise impacts are distributed across all populations and not just the EJ populations. Furthermore, EJ populations are not more sensitive to noise than other populations in the area.</p>	7-8, 10, 12, 15



RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
	Limited-English Proficient (LEP) populations with individuals who do not speak English as their primary language and have a limited ability to read, write, speak, and understand English.		<p><b><u>Temporary Impacts:</u></b></p> <ul style="list-style-type: none"> <li>The local community adjoining the project area, including EJ populations, may be exposed to increased noise, dust, vibration, and impaired mobility during construction.</li> <li>Temporary construction easements may be required.</li> </ul>	
Social Resources- Parks and Recreation  (DEA, 2020c – Appendix A6)	There are 20 parks and recreation resources within or adjacent to the Project area.	<p><b><u>Permanent Impacts:</u></b></p> <p>None</p>	<p><b><u>Permanent Impacts:</u></b></p> <ul style="list-style-type: none"> <li>Two miles (MP 185-187) of the Vail Pass Recreation Trail would be relocated due to direct impacts to the existing trail from the construction of the EB auxiliary lane. The trail would also have minor realignments at MP 184.5 and 184.9 due to proximity to the proposed auxiliary lane.</li> </ul> <p><b><u>Temporary Impacts:</u></b></p> <ul style="list-style-type: none"> <li>Short-term closures of access to Deluge Lake Trail, Gore Creek Trail, Gore Valley Trail, the east trailhead for Two Elk Trail, and Gore Creek Campground due to safety-critical work on the I-70 bridges over Bighorn Road.</li> <li>Access to Bighorn Creek Trail may be closed due to construction work on the Columbine Drive concrete box culvert crossing under I-70. The trail would also be impacted where it crosses under I-70 near MP 184 due to safety-critical bridge work.</li> </ul>	16-17



RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
<p>Historic Resources (Mead &amp; Hunt, 2019 – Appendix A7)</p>	<p>Three properties were determined eligible for the National Register: the Bradley Residence (5EA.3607), Old US 6 (5EA.2587.9), and I-70 at Vail Pass (5EA.1826.4 and 5ST.982.5) within the Area of Potential Effect (APE).</p>	<p><b><u>Permanent Impacts:</u></b> None</p>	<p><b><u>Permanent Impacts:</u></b> The Proposed Action would have an “adverse effect” on I-70 at Vail Pass and “no adverse effect” on the Bradley Residence and Old US 6. I-70 will be directly impacted as a result of widening and realignment, bridge and retaining wall replacement, and modification of ancillary features such as ramps and culverts. At the Bradley Residence, widening I-70 brings the interstate closer to the property and would increase noise levels. US 6 will be impacted where it shares a footprint with the Vail Pass Recreation Trail and truck ramps, which will be realigned.</p> <p><b><u>Temporary Impacts:</u></b> None</p>	18
<p>Archaeological Resources (CDOT, 2020a – Appendix A7)</p>	<p>One eligible archaeological resource (5ST85) is located within the APE.</p>	<p><b><u>Permanent Impacts:</u></b> None</p>	<p><b><u>Permanent Impacts:</u></b> The project will have no impact (“no historic properties affected”) on archaeological resources.</p> <p><b><u>Temporary Impacts:</u></b> None</p>	19



RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
<p>Section 4(f)- Non-historic (DEA and Mead &amp; Hunt, 2020d – Appendix A9)</p>	<p>There non-historic Section 4(f) resources in the study area are:</p> <ul style="list-style-type: none"> <li>• Bighorn Creek Trail</li> <li>• Bighorn Park</li> <li>• Black Lake Number 1 and 2</li> <li>• Corral Creek Trail</li> <li>• Deluge Lake Trail</li> <li>• Gore Creek Campground</li> <li>• Gore Creek Trail</li> <li>• Gore Valley Trail</li> <li>• Katsos Ranch Open Space (only the trails within the open space are Section 4(f) resources)</li> <li>• Pitkin Creek Trail</li> <li>• Shrine Pass Road</li> <li>• Two Elk Trail</li> <li>• Vail Pass Recreation Trail</li> <li>• Vail Pass Winter Recreation Area</li> <li>• Wilder Gulch Trail</li> </ul>	<p><b><u>Permanent Impacts:</u></b> None</p>	<p>The following Section 4(f) uses would occur from construction of the Proposed Action:</p> <p><b><u>Permanent Impacts:</u></b> Two miles (MP 185 to 187) of the Vail Pass Recreation Trail would be relocated due to direct impacts to the existing trail from the construction of the EB auxiliary lane. The trail would also have minor realignments at MP 184.5 and 184.9 due to proximity to the proposed auxiliary lane.</p> <p><b><u>Temporary Impacts:</u></b></p> <ul style="list-style-type: none"> <li>• Short-term closures of access to Deluge Lake Trail, Gore Creek Trail, Gore Valley Trail, the east trailhead for Two Elk Trail, east trailhead for the Vail Pass Recreation Trail and Gore Creek Campground due to safety-critical work on the I-70 bridges over Bighorn Road.</li> <li>• Access to Bighorn Creek Trail may be closed due to construction work on the Columbine Drive concrete box culvert crossing under I-70. The trail would also be impacted where it crosses under I-70 near MP 184 due to safety-critical bridge work.</li> </ul>	<p>16-17</p>



RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
Section 4(f)- Historic (DEA and Mead & Hunt, 2020d – Appendix A9)	There are three historic Section 4(f) properties: the Bradley Residence (5EA.3607), Old US 6 (5EA.2587.9), and I-70 at Vail Pass (5EA.1826.4 and 5ST.982.5) within the APE.	<b><u>Permanent Impacts:</u></b>  None	<b><u>Permanent Impacts:</u></b>  I-70 at Vail Pass (5EA.1826.4 and 5ST.982.5) would have a Section 4(f) use due adverse effects to the historic highway and contributing features.  <b><u>Temporary Impacts:</u></b>  None	18
Hazardous Materials (Wood, 2020a – Appendix A10)	Eighteen spills of petroleum products, two acid spills, and one alcohol spill have been reported within the study area. There have been two releases of petroleum fuel from Leaking Underground Storage Tanks (LUSTs) located at the CDOT maintenance facility at the summit of Vail Pass (MP 189.5). Both releases have been closed, one of the LUST releases was closed in 1997 with a No Further Action determination from the Colorado Department of Public Health and Environment (CDPHE), and the other LUST release was closed in 2011 with a Tier I closure from the CDPHE. There are bridges, walls, and roadway that will be disturbed during the Project potentially exposing hazardous material to the environment. There are also two former mines located near, but not within, the study area.	<b><u>Permanent Impacts:</u></b>  Hazardous material currently remaining would pose risks during ongoing roadway maintenance projects.	<b><u>Permanent Impacts:</u></b>  Much of the hazardous material that would be encountered during the construction would be removed and replaced with approved materials. Future projects would have less likelihood of encountering the existing hazardous material, but some hazardous material would remain, and future spills and releases can occur.  <b><u>Temporary Impacts:</u></b>  Potential to encounter subsurface contamination (including mine materials), lead based paint (LBP) , asbestos-containing material (ACM), and illegal drug laboratory waste.	20-23



RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
Utilities (Wood, 2019b – Appendix A11)	Utilities in the study area include cable television lines, electric transmission and distribution lines, fiber optic lines, gas pipelines, irrigation systems, sanitary and storm sewers, and water lines.	<b><u>Permanent Impacts:</u></b>  None	<b><u>Permanent Impacts:</u></b> <ul style="list-style-type: none"> <li>• Utilities may need to be relocated or adjusted to accommodate the roadway construction.</li> <li>• If widening occurs to the north, it may impact the CDOT fiber that was installed in 2007.</li> <li>• Relocation of the Vail Pass Recreation Trail would impact the utilities that run along it.</li> </ul> <b><u>Temporary Impacts:</u></b> Potential for temporary loss of utility service during construction.	24-25
Vegetation (Colorado Wildlife Science, LLC 2020b – Appendix A13)	The vegetation cover types in the study area are dominated by mountain grassland, followed by (in descending order of cover percentage): Engelmann spruce-subalpine fir forest, lodgepole pine forest, quaking aspen forest, willow shrubland, aspen-mixed conifer forest, and mountain big sagebrush shrubland. Existing stressors on vegetation from the highway include excess road sand sedimentation, pollutants, and changes in water distribution.  There are Senate Bill 40 (SB 40) jurisdictional streams and wetlands located within the study area, which have riparian and hydrophytic vegetation associated with them.	<b><u>Permanent Impacts:</u></b>  Impacts to vegetation, primarily wetland and riparian species, from sedimentation would continue to occur.	<b><u>Permanent Impacts:</u></b>  Would affect riparian and wetland vegetation from widening the highway footprint, increasing impervious surfaces resulting in increased runoff, potential soil erosion, and exposure of vegetation to potential higher levels of pollutants.  <b><u>Temporary Impacts:</u></b>  Removal of vegetation would be required during construction.	26, 36-43, 46-47



RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
<p>Noxious Weeds (Colorado Wildlife Science, LLC 2020b – Appendix A13)</p>	<p>A total of 17 Colorado-listed noxious weeds were observed in the wetland mapping study area. All but three species of weeds observed are List B (requires management to stop their continued spread) and the remaining are List C (not required to be managed but are monitored to provide additional education and research). Most were located along the immediate roadside, in areas recently disturbed by roadway operation and maintenance. Noxious weeds typically occur in discrete pockets, but those pockets are widespread from approximately MP 180 to MP 188.</p>	<p><b><u>Permanent Impacts:</u></b> None</p>	<p><b><u>Permanent Impacts:</u></b> Construction activities could lead to spreading noxious weed species and land disturbance could create conditions suitable for weed establishment.</p> <p><b><u>Temporary Impacts:</u></b> Grading activities from construction and equipment staging areas may create favorable conditions conducive to the introduction and spread of noxious weeds.</p>	27
<p>Wildlife (Colorado Wildlife Science, LLC 2020b – Appendix A13)</p>	<p>Three Linkage Interference Zones (LIZs) occur within the study area: Vail (East), Gore Creek, and West Vail Pass. Wildlife species known to occur within the study area include: American marten, bobcat, Canada lynx, coyote, elk, hoary bats, moose, mountain lion, mule deer, and numerous migratory bird species.</p> <p>The lower portion of the pass has a series of bridge structure, allowing for wildlife movement across the highway without the need for animals to traverse the roadway. The upper portion of the study area (MP 186 to MP 191.5) does not have any structures that allow for unimpeded wildlife movement.</p>	<p><b><u>Permanent Impacts:</u></b> Habitat loss, physical barriers, and other perceived risks to wildlife such as bright headlights, noise, and air emissions (psychological barriers) would continue to exist due to ongoing maintenance projects.</p>	<p><b><u>Permanent Impacts:</u></b> New and wider barriers to wildlife movement and additional habitat fragmentation from highway widening, glare screens, guardrail, new retaining walls, and drainage improvements. See the project Biological Evaluation (Appendix A13) for more impact details.</p> <p><b><u>Temporary Impacts:</u></b></p> <ul style="list-style-type: none"> <li>A variety of temporary impacts would occur during the construction phase. These include areas temporarily fenced such as staging areas and areas that inherently disrupt movement such as spoil sites.</li> </ul>	28-31





RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
	<p>Additionally, there are multiple barriers along the roadway that wildlife must negotiate (e.g., guardrails, median barriers, and grade separation of the EB and WB lanes of I-70).</p> <p>Habitat for migratory birds and raptors is present within the study area and numerous species were observed during site visits.</p>		<ul style="list-style-type: none"> <li>• Construction could result in disturbance to daytime roosting of hoary bats.</li> <li>• Construction could result in temporary displacement and auditory disturbance of birds and other wildlife from habitat near construction areas</li> </ul>	
<p>Fish (Colorado Wildlife Science, LLC 2020b – Appendix A13)</p>	<p>The study area contains portions of intermittent and perennial streams including Bighorn Creek, Black Gore Creek, Gore Creek, Miller Creek, Pitkin Creek, and Polk Creek. Several species of fish inhabit these streams, including speckled dace, roundtail chub, and several species of native and non-native trout: Colorado River (Blue Lineage) cutthroat trout, brook trout, brown trout, and rainbow trout. Within the study area, conservation populations of Colorado River (Blue Lineage) cutthroat trout have been recorded in Pitkin, Polk, and Miller Creeks.</p>	<p><b><u>Permanent Impacts:</u></b></p> <p>Habitat loss due to sedimentation and contaminants would continue to exist due to ongoing maintenance projects.</p>	<p><b><u>Permanent Impacts:</u></b></p> <p>While permanent impacts to fish are expected to continue, there are three conservation streams with pure populations of Colorado River (Blue Lineage) cutthroat trout within the Project area, which would not be impacted from the Proposed Action.</p> <p><b><u>Temporary Impacts:</u></b></p> <p>Potential for impacts to fish species during construction in and near waterways.</p>	<p>32, 39</p>



RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
<p>Threatened, Endangered, and Special Status Species (including Wildlife, Birds, Fish, Pollinators) (Colorado Wildlife Science, LLC 2020a – Appendix A12)</p>	<p>One federally listed wildlife species is known to occur in the study area- Canada lynx. Approximately 150 acres of lynx habitat occur within the Project area.</p> <p>The following USFS Region 2 Sensitive species are known or suspected to occur as well: American marten, Colorado River cutthroat trout, Boreal Owl, boreal toad, hoary bat, monarch butterfly, Northern Goshawk, northern leopard frog, pygmy shrew, Olive-sided Flycatcher, western bumblebee, and White-tailed Ptarmigan.</p> <p>Twenty bird species may occur in the study area, three of which are U.S. Fish and Wildlife Service (USFWS) birds of conservation concern: Golden Eagle, Peregrine Falcon, and Williamson’s Sapsucker.</p>	<p><b><u>Permanent Impacts:</u></b></p> <p>Habitat loss, and physical and psychological barriers would continue to exist due to ongoing maintenance projects.</p>	<p><b><u>Permanent Impacts:</u></b></p> <ul style="list-style-type: none"> <li>• Canada Lynx: The Project may affect, and is likely to adversely affect, Canada lynx. This determination is based on the direct loss of winter forage, denning, and other habitat, increase in barrier effect and linkage area disturbance, light pollution, and likelihood of future lynx strikes resulting from the Project. The increase in barrier due to the wider highway footprint, avalanche mitigation, VMS cantilevers, lighting, glare screens, guardrails, bridge rails, and retaining walls have the potential to adversely affect lynx. No critical habitat has been designated in Colorado; therefore, none would be affected.</li> <li>• The Proposed Action “may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability range-wide” of the monarch butterfly, western bumblebee, Boreal Owl, Northern Goshawk, Olive-sided Flycatcher, American Marten, pygmy shrew, boreal toad, and Colorado River cutthroat trout. These effects are largely due to some direct habitat loss and potential avoidance of the area by the species during construction.</li> </ul>	<p>28-34</p>



RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
			<p><b><u>Temporary Impacts:</u></b></p> <ul style="list-style-type: none"> <li>• Canada Lynx: Temporary noise, lighting, and increased human activity could cause lynx to avoid habitat adjacent to the study area during construction but this would be temporary, intermittent and localized. Minor vegetation clearing would remove disturbed roadside habitat that has already been degraded and provides little habitat value to lynx or lynx prey.</li> <li>• No critical habitat has been designated in Colorado; therefore, none would be affected.</li> <li>• A variety of temporary impacts would occur during the construction phase. These include areas that would be temporarily fenced such as staging areas and areas that inherently disrupt movement such as spoil sites.</li> </ul>	
<p>Threatened, Endangered, and Special Status Species – Plants (Colorado Wildlife Science, LLC 2020b – Appendix A13)</p>	<p>Twenty USFS sensitive plants have suitable habitat in or near the study area:</p> <ul style="list-style-type: none"> <li>• Sphagnum</li> <li>• Baltic sphagnum</li> <li>• Triangle lobe moonwort</li> <li>• Narrowleaf grapefern</li> <li>• Lesser panicked sedge</li> <li>• Livid sedge</li> <li>• Yellow lady’s slipper</li> </ul>	<p><b><u>Permanent Impacts:</u></b></p> <p>Impacts due to sedimentation and contaminants would continue to exist due to ongoing maintenance projects.</p>	<p><b><u>Permanent Impacts:</u></b></p> <ul style="list-style-type: none"> <li>• Potential for loss of individual plants and their habitats; trampling of individuals; and/or breaking, crushing, or uprooting plants by driving machinery or skidding material over them. Impacted plants could experience reduced growth and development as well as reduced, or eliminated, seed-set and reproduction. Such impacts may result in mortality of individuals or whole populations.</li> </ul>	<p>35</p>



RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
	<ul style="list-style-type: none"> <li>• Whitebristle cottongrass</li> <li>• Chamisso's cottongrass</li> <li>• Slender cottongrass</li> <li>• Simple bog sedge</li> <li>• Porter feathergrass</li> <li>• Park milkvetch</li> <li>• Roundleaf sundew</li> <li>• Colorado tansyaster</li> <li>• Kotzebue's grass of Parnassus</li> <li>• Dwarf raspberry</li> <li>• Sageleaf willow</li> <li>• Autumn willow</li> <li>• Lesser bladderwort</li> </ul>		<ul style="list-style-type: none"> <li>• Impacts occurring in spring, prior to the release of spores or seeds, could result in reduced population size, changed meta-population structure, and potentially affect USFS sensitive species viability in the study area or range-wide.</li> <li>• Indirect effects to these species (if present) could be caused by increasing dust, vectoring and creating habitat for competitive invasive plant species, changing local hydrologic patterns in plant habitat, changing soil characteristics of the habitat, changing the distribution of recreation or other activities in the area, and/or impacting associated pollinators or mycorrhizae. Such habitat modifications may cause shifts in hydrologic, solar, and soil characteristics of plant habitats.</li> </ul> <p><b><u>Temporary Impacts:</u></b></p> <p>Temporary impacts from construction activities may occur including localized damage to foliage, branches, or roots but would not result in permanent loss of vegetation.</p>	



RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
<p>Water Quality – Sediment Runoff and Erosion (Wood, 2020b – Appendix A14)</p>	<p>The primary receiving waterbodies from the Project are Black Gore Creek and Gore Creek. There are two reservoirs referred to as Black Lake Number 1 and Black Lake Number 2 within the watershed.</p> <p>Two forms of sediment originate from the roadway, traction sand and sediment loss due to embankment erosion, especially at the outlets of culverts or other drainage structures. Existing control measures include numerous basins, ponds, and sediment traps,</p> <p>Black Gore Creek, below Miller Creek is on Colorado’s Monitoring and Evaluation (M&amp;E) List for aquatic life water supply and on the Clean Water Act (CWA) 303(d) list for sediment and arsenic (total). Black Gore Creek, adjacent to I-70 above Miller Creek is on the M&amp;E list for water supply and on the 303(d) list for arsenic (total). The mainstem of Gore Creek from the confluence with Black Gore Creek to the confluence with the Eagle River is on the M&amp;E list for aquatic life and on the 303(d) list for macroinvertebrates (provisional).</p>	<p><b><u>Permanent Impacts:</u></b></p> <ul style="list-style-type: none"> <li>Existing eroded areas would continue to degrade</li> <li>Areas of sheet flow would continue to lead to erosion problems and sediment deposition.</li> <li>Winter maintenance activities would continue to occur and deposit traction sand and deicers to the roadway.</li> <li>Existing control measures would continue to collect sediment and require ongoing monitoring and maintenance.</li> </ul>	<p><b><u>Permanent Impacts:</u></b></p> <ul style="list-style-type: none"> <li>Increased sediment load from traction sand due to additional impervious surface.</li> <li>Increased runoff flows from the roadway due to additional impervious surface.</li> <li>Control measures would continue to collect sediment and require ongoing monitoring and maintenance.</li> <li>Previously eroded areas would be stabilized, but erosion could occur again, or new eroded areas develop.</li> <li>Localized erosion may occur on embankments and at the downstream end of new or replaced culverts.</li> <li>Increase in impervious surface, and therefore more storm runoff/sedimentation, would likely result in additional phosphorus loading.</li> </ul> <p><b><u>Temporary Impacts:</u></b></p> <p>During construction, sheet flow may pick up additional sediment caused by construction activities and could also cause rill erosion in areas.</p>	<p>36-39</p>



RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
Water Quality – Sediment Accumulation (Wood, 2020b – Appendix A14)	Sediment accumulation currently occurs under bridges and other inaccessible areas, including wetlands and waterways.	<p><b><u>Permanent Impacts:</u></b></p> <p>Sediment accumulation would continue under bridges and other inaccessible areas and additional sediment would be deposited, impacting vegetation and water quality in the immediate vicinity.</p>	<p><b><u>Permanent Impacts:</u></b></p> <p>Sediment accumulation would continue under bridges and other inaccessible areas and additional sediment would be deposited, impacting vegetation and water quality in the immediate vicinity.</p> <p><b><u>Temporary Impacts:</u></b></p> <p>During construction, areas under bridges and other inaccessible areas may see additional sediment loading caused by construction or would be disturbed by construction resulting in the sediment moving further downstream.</p>	40-41
Water Quality – Drinking Water Supplies and Wastewater Treatment Facilities (Wood, 2020b – Appendix A14)	Black Gore Creek supplies surface water to the Gore Valley Drinking Water Facility in East Vail. There are two reservoirs referred to as Black Lake Number 1 and Black Lake Number 2 within the watershed, which deliver water during low flow periods to Black Gore Creek, Gore Creek, Eagle River, and eventually to the Colorado River. Over the years, the lakes have accumulated sediment and traction sand. Vail is primarily served by seven groundwater wells and the Upper Eagle Regional Water Authority operates ten groundwater wells on a seasonal basis to serve the needs of the communities west of Vail.	<p><b><u>Permanent Impacts:</u></b></p> <p>Sediment would continue to accumulate in the Black Lakes.</p>	<p><b><u>Permanent Impacts:</u></b></p> <p>Sediment loading in Black Lakes is anticipated to be minor and would not directly impact water quality. No impacts to drinking water extraction from Black Gore Creek and Gore Creek are anticipated.</p> <p><b><u>Temporary Impacts:</u></b></p> <p>Construction activities may increase sedimentation of Black Lakes, Black Gore Creek, and Gore Creek.</p>	42-43



RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
Floodplains (Wood, 2019a – Appendix A15)	Zone AE 100-year floodplains (areas subject to inundation by the 1-percent-annual-chance flood event) have been mapped for Gore Creek, Pitkin Creek, Bighorn Creek, and a 20-foot reach of Black Gore Creek near its confluence with Gore Creek. Gore Creek is the only stream that contains a floodway.	<b><u>Permanent Impacts:</u></b>  None	<b><u>Permanent Impacts:</u></b>  Base flood elevations would rise or be lowered and/or flood risk in adjacent parcels would increase. The rise is anticipated to be no more than 0.5 foot, but it will be determined in final design.  <b><u>Temporary Impacts:</u></b>  Construction materials may reduce floodplain conveyance.	44-45
Wetlands/Other Waters (AlpineEco, 2020 – Appendix A16)	130.10 acres of wetlands (including 20.79 acres of fens) and 59.80 acres of other water features were mapped in the 1,251-acre study area.	<b><u>Permanent Impacts:</u></b>  Continued sedimentation from maintenance activities and runoff.	<b><u>Permanent Impacts:</u></b>  Approximately 9.44 acres of wetlands (including 0.42 acre of fen) and 0.19 acre of other water features would be permanently impacted. This will be confirmed during final design. Some indirect impacts to wetlands may also occur but are not quantifiable.  <b><u>Temporary Impacts:</u></b>  Some temporary impacts for access or installation of control measures may occur during construction.	40, 46-47



RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
<p>Visual Resources (DEA, 2020e – Appendix A17)</p>	<p>The Area of Visual Effect is organized into three separate landscape units (LUs) based on vegetation, landforms, and elevation: The Valley Floor, Mid-Pass Valley, and Top of the Pass, and the viewer types include interstate travelers, local residents, visitors, and recreationalists.</p> <p>The Valley Floor LU spans from MP 180 to MP 182 and the visual quality can be characterized as a large, relatively untouched natural setting that surrounds a low-density neighborhood bisected by a typical four-lane interstate highway. The natural environment is visually accessible from almost any location within the LU, while at the same time maintaining a coherence with I-70 and visual elements.</p> <p>The Mid-Pass Valley LU stretches from just of MP 182 to MP 187 and represents a transitional landscape unit that connects the Valley Floor to the Top of the Pass. This LU can be considered the most pristine due to the lack of human development and undisturbed visual environment.</p> <p>The Top of the Pass LU is located from MP 187 to MP 190 and offers expansive foreground, middle ground, and background views. The natural and cultural visual environments work together along with I-70 to compose a vivid and visually inviting LU.</p>	<p><b><u>Permanent Impacts:</u></b> None</p>	<p><b><u>Permanent Impacts:</u></b></p> <p><b><u>Retaining walls and bridges:</u></b> New walls and bridge structures would impact the natural harmony of West Vail Pass, detracting from the experience of all users.</p> <p><b><u>New Barriers and Guardrails:</u></b> New alignments of the roadway would necessitate new roadway barriers and guardrail. If not constructed to match historic norms then barriers and rails would detract from Project coherence and natural harmony.</p> <p><b><u>Rock cuts:</u></b> For roadway widening additional rock cuts may be required. If not designed in accordance with historic practices and if not implemented with aesthetics in mind, rock cuts could have a substantial impact on the natural harmony of the Project area.</p> <p><b><u>Earthwork and Embankments:</u></b> For roadway widening it can be assumed that new earthwork and embankments would be required. If not performed to historic norms or if not performed in a way that mimics natural landforms the natural harmony of the visual environment would be impacted.</p> <p><b><u>Boulders, Riprap, and Talus Slopes:</u></b> During I-70's original construction geologic features such as boulders, riprap, and Talus slopes were created to blend into the natural environment. If not repeated, the expanded roadway would depart visually from the established natural harmony of the area.</p>	<p>18</p> <p>No mitigation required for temporary impacts</p>





RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
			<p><u>Native Plant Revegetation:</u> If not restored to their pre-Project condition, all disturbed areas would have a substantial impact on the natural harmony and Project coherence of West Vail Pass. Using revegetation practices initiated during its original construction would provide a visually agreeable environment for travelers and neighbors alike.</p> <p><u>Avalanche Mitigation:</u> In some areas avalanche mitigation measures may be required. If not constructed in accordance with the Project’s overarching visual aesthetic, avalanche infrastructure could disrupt the natural harmony and project coherence of the Project visual environment.</p> <p><u>Night Skies/Lighting:</u> It may be necessary to include new/additional lights during final design and construction. If designed improperly these elements could have a substantial impact on the pristine and natural character of Vail Pass’s night sky.</p> <p><u>Alignment:</u> During I-70’s original design EB and WB lanes were intentionally separated to minimize impacts on the natural visual environment. Reduction of this separation, in combination with widening from four to six lanes, would have an impact on the existing visual character of the roadway and the natural environment.</p> <p><b><u>Temporary Impacts:</u></b> All viewer types would be impacted during construction.</p>	



RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
<p>Geologic Resources and Soils (Yeh &amp; Associates, 2020 – Appendix A18)</p>	<p>Geologic hazards in the West Vail Pass corridor include, but are not limited to, landslides, rockfall, avalanches, frost heave and associated possible debris flow. Specific hazards include:</p> <ul style="list-style-type: none"> <li>• Soil erosion occurs from existing cut slope primarily in the “Narrows” (MP 185.5 to 186.3)</li> <li>• Existing landslide features, including debris flows, are relatively inactive due to design considerations in the original I-70 corridor construction.</li> <li>• Frost heave has adversely affected the pavement in the Narrows areas.</li> <li>• Frequent rock fall and avalanche activity occurs in the Narrows area MP 185.5 to 186.3. Existing highway ditch contains much of the fallen material.</li> </ul>	<p><b><u>Permanent Impacts:</u></b></p> <p>Geologic conditions in the Project area will persist at their current state and hazards will continue at their existing risk level.</p>	<p><b><u>Permanent Impacts:</u></b></p> <ul style="list-style-type: none"> <li>• Potential permanent impact from additional excavation at the existing cut slopes in the “Narrows”.</li> <li>• Existing landslides can be affected during construction and in the final configuration. Removal of material at the base of the slide or changes in the surface and ground water conditions can lead to instability.</li> <li>• Additional excavation of the rock slope in the “Narrows” can increase rockfall and avalanche activity.</li> <li>• Disturbance of debris flow/alluvial fans may expose collapsible soils.</li> <li>• Potential to encounter and impede groundwater, which could result in associated frost heave.</li> </ul> <p><b><u>Temporary Impacts:</u></b></p> <ul style="list-style-type: none"> <li>• Construction of new slopes and new retaining walls can cause erosion and transport sediments through stormwater runoff.</li> <li>• Existing landslides can be affected during construction and in the final configuration. Removal of material at the base of the slide or changes in the surface and ground water conditions can lead to instability.</li> </ul>	<p>40, 48-51</p>



RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
			<ul style="list-style-type: none"> <li>• Additional excavation of the rock slope in the “Narrows” can increase rockfall and avalanche activity.</li> <li>• Disturbance of debris flow/alluvial fans may expose collapsible soils.</li> <li>• Potential to encounter and impede groundwater, which could result in associated frost heave.</li> </ul>	
<p>Paleontological Resources (CDOT, 2020b – Appendix A19)</p>	<p>According to the best available geologic maps, the Project is underlain by the following units: artificial fill; Holocene and Pleistocene landslide and colluvial deposits; Pleistocene alluvium and glacial moraine deposits; Permian and Pennsylvanian Maroon Formation; Pennsylvanian and Mississippian Minturn Formation; and Pre-Cambrian igneous and metamorphic bedrock.</p> <p>Artificial fill, Holocene, and Pre-Cambrian igneous and metamorphic bedrock are considered non-sensitive for paleontological resources while the other units are moderately sensitive. There are no known previously recorded paleontological localities in the Project area.</p>	<p><b><u>Permanent Impacts:</u></b> None</p>	<p><b><u>Permanent Impacts:</u></b> The likelihood that fossil vertebrates would be encountered in the Maroon and Minturn Formations near the road at the truck ramp at MP 185.5 is low, but there is a potential for impacts during excavation.</p> <p><b><u>Temporary Impacts:</u></b> No temporary impacts to paleontological resources are expected.</p>	<p>52</p>



RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
<p>Cumulative Impacts (DEA, 2020f – Appendix A20)</p>	<p>Cumulative impacts to climate change, biological resources, wetlands and other surface waters, water quality, economics, recreation, and historic resources were assessed have been assessed for the Proposed Action and past, present, and reasonably foreseeable future projects. The timeframe for the analysis is from the 1870s to 2045. The population of Eagle Country grew from 3,725 in 1890 to over 55,000 in 2019; the initial population boom was from mining, followed by residential, commercial, and recreation developments, including four ski resorts.</p>	<p><b>Permanent Impacts:</b> Not applicable as the No Action Alternative is included in the past, present, and reasonably foreseeable future actions.</p>	<p><b>Permanent Impacts:</b> Climate Change – As the Proposed Action is not increasing roadway capacity, it would not contribute to cumulative impacts from greenhouse gases. Biological Resources- While the Proposed Action is likely to have only incremental effects on wildlife, the combination with other past, present, and reasonable foreseeable future projects such as forest management activities, increasing traffic volumes, concurrent residential and commercial development, adjacent roads and fencing, recreation trails, and increasing human activity results in a cumulative impact to wildlife movement and mortality. Continued human population growth and associated developments have the potential to affect aquatic habitats from increased runoff rates and the amount of sedimentation and contamination that would occur in area streams. Rapid runoff rates also cause stream channelization, which, along with decreases in water quality, could reduce fishery habitat values. However, the past, present, and reasonably foreseeable projects, when combined with the Proposed Action, are unlikely to contribute to substantial negative cumulative impacts to these species. The combination of the Proposed Action mitigation with the ongoing restoration and water quality enhancement efforts of</p>	<p>No mitigation beyond the mitigation measures listed for each individual resource.</p>



RESOURCE	CONTEXT	NO ACTION ALTERNATIVE	PROPOSED ACTION	MITIGATION NUMBER
			<p>organizations such as the Eagle River Watershed Council and the Town of Vail, the Proposed Action could, over time, show a beneficial result to fisheries and aquatic habitat within the study area.</p> <p>Water Quality - When combined with other past, present, and reasonably foreseeable future projects, the Proposed Action would contribute cumulatively to an increase in impervious surface, which can result in increased stormwater runoff and sedimentation through a larger amount of traction sand used during winter months. Combined with the ongoing restoration and water quality enhancement efforts of organizations such as the Eagle River Watershed Council and the Town of Vail, the Proposed Action could, over time, show a beneficial result to water quality within the study area.</p> <p>Historic- The Proposed Action would have an adverse effect to I-70 at Vail Pass, and when combined with past, present, and reasonably foreseeable future projects, the Proposed Action is anticipated to contribute to cumulative impacts on historic resources.</p> <p><b><u>Temporary Impacts:</u></b> None</p>	



## 9. WHAT MITIGATION COMMITMENTS WILL BE MADE FOR THE PROPOSED ACTION?

Table 5 provides a summary of impacts and mitigation for the Proposed Action. Additional details regarding the methodology and analysis of impacts and mitigations are found in their respective technical memorandums in **Appendix A**.

**Table 5. Summary of Impacts and Mitigation for the Proposed Action, I-70 West Vail Pass Auxiliary Lanes**

#	MITIGATION CATEGORY	IMPACT	MITIGATION COMMITMENT FROM SOURCE DOCUMENT	RESPONSIBLE BRANCH	TIMING/PHASE MITIGATION WILL BE IMPLEMENTED
1	CSS	CSS design criteria exceptions	CDOT will create a CSS Design Criteria Exception ITF to further examine and refine the design criteria exceptions. The ITF will be multidisciplinary and will consist, at a minimum, of members with expertise in the following disciplines, similar to the existing Project TT: engineering, wildlife, water quality, recreation, freight, aesthetics, and representatives from CDOT, USFS, and FHWA. This ITF will be convened during the final design life cycle phase of the project and will focus on the CSS design exceptions that are pertinent to the design work at that time.	CDOT Design Engineering and CDOT Environmental	Design
2	Transportation – Travel Delays	Increases traffic delays and backups during construction	<ul style="list-style-type: none"> <li>• Extensive warning signage for work zone will warn drivers of downstream traffic delays and backups.</li> <li>• CDOT will work with the Contractor to avoid closures to the greatest extent possible during peak periods.</li> </ul>	CDOT Design Engineering, CDOT Traffic, and CDOT Construction Engineering Contractor	Design Construction



#	MITIGATION CATEGORY	IMPACT	MITIGATION COMMITMENT FROM SOURCE DOCUMENT	RESPONSIBLE BRANCH	TIMING/PHASE MITIGATION WILL BE IMPLEMENTED
3	Transportation – Emergency Response	Limited shoulder area for emergency response during construction	CDOT will work with the Contractor to maximize the number and frequency of emergency pull-off areas to the greatest extent possible through the work zone.	CDOT Design Engineering, CDOT Traffic, and CDOT Construction Engineering Contractor	Design Construction
4	Transportation – Highway Closures	Increased traffic delays and backups during construction	<ul style="list-style-type: none"> <li>• CDOT will work with the Contractor to avoid closures to the greatest extent possible during peak periods.</li> <li>• CDOT and the Contractor will notify emergency service providers of the timing of impending highway closures during construction.</li> </ul>	CDOT Design Engineering, CDOT Traffic, and CDOT Construction Engineering Contractor	Design Construction
5	Transportation – Safety	FHWA Design Criteria Exceptions for sight distance and grades at several locations	<ul style="list-style-type: none"> <li>• Providing six-foot inside shoulders, wider outside shoulder width at several locations, the added auxiliary lane in each direction, improved curve radii and superelevation, and improved signage with dynamic and enhanced advance curve signs will minimize the minimal safety impacts of the reduced sight distance.</li> <li>• Providing lower truck chain station improvements, truck emergency ramp improvements, the added auxiliary lane in each direction, improved curve radii and superelevation, and improved signage with dynamic and enhanced advance curve signs will minimize the safety impacts of maintaining the existing I-70 grades.</li> </ul>	CDOT Design Engineering, CDOT Traffic, and CDOT Construction Engineering Contractor	Design Construction



#	MITIGATION CATEGORY	IMPACT	MITIGATION COMMITMENT FROM SOURCE DOCUMENT	RESPONSIBLE BRANCH	TIMING/PHASE MITIGATION WILL BE IMPLEMENTED
6	Transportation - Safety	Increased potential for crashes during construction	<ul style="list-style-type: none"> <li>Extensive warning signage for work zone will warn drivers of downstream traffic delays and backups and provide information on appropriate speeds.</li> <li>Work requiring lane closures will follow CDOT's lane closure policy. CDOT will work with the Contractor to avoid closures to the greatest extent possible and closures will be minimized to the greatest extent possible during peak periods.</li> </ul>	CDOT Design Engineering, CDOT Traffic, and CDOT Construction Engineering Contractor	Design Construction
7	Air Quality	Dust from ground-disturbing activities during construction	<ul style="list-style-type: none"> <li>An Air Pollutant Emissions Notice (APEN) for projects over 25 acres and that last more than 6 months in length may be needed. A permit may be needed if emissions exceed permit thresholds. If needed, the APEN and permit will cover Air Pollution Control Division (APCD) required mitigation measures for active construction. If required, prepare a Fugitive Dust Control Plan.</li> </ul> <p>Contractor will utilize dust control methods such as:</p> <ul style="list-style-type: none"> <li>Apply water or wetting agents to manage dust when appropriate.</li> <li>Use wind barriers and wind screens to minimize the spread of dust in areas where large amounts of materials are stored.</li> <li>Use of a wheel wash station and/or large-diameter cobble apron at egress/ingress areas to minimize dirt being tracked onto public streets.</li> </ul>	CDOT Construction Engineering Contractor	Pre-Construction Construction





#	MITIGATION CATEGORY	IMPACT	MITIGATION COMMITMENT FROM SOURCE DOCUMENT	RESPONSIBLE BRANCH	TIMING/PHASE MITIGATION WILL BE IMPLEMENTED
			<ul style="list-style-type: none"> <li>• Use of pick-up brooms to control dirt tracked onto public streets.</li> <li>• Cover or wet temporary excavated materials.</li> <li>• Use a binding agent for long-term excavated materials.</li> <li>• Properly tune and maintain construction vehicle engines.</li> <li>• Water active grading and parking areas as required</li> <li>• Apply best management practices (BMPs) to stockpiles.</li> <li>• Cover loads on all trucks hauling dirt, sand, or other loose material.</li> </ul>		
8	Air Quality	Diesel-powered equipment emissions during construction	<p>In areas near sensitive receptors (western Project limits to just east of the Gore Creek), measures to reduce diesel emissions from construction equipment should be included, such as:</p> <ul style="list-style-type: none"> <li>• Prohibit unnecessary idling of construction equipment.</li> <li>• Locate construction diesel engines as far away as possible from residential areas.</li> <li>• Locate staging areas as far away as possible from residential areas.</li> <li>• Limit unnecessary idling to less than 5 minutes by posting signage.</li> </ul>	CDOT Construction Engineering Contractor	Construction



#	MITIGATION CATEGORY	IMPACT	MITIGATION COMMITMENT FROM SOURCE DOCUMENT	RESPONSIBLE BRANCH	TIMING/PHASE MITIGATION WILL BE IMPLEMENTED
			<ul style="list-style-type: none"> <li>• Install engine pre-heater devices to eliminate any idling for cold season construction.</li> <li>• Prohibit tampering with equipment to increase horsepower or defeat an emissions control device's effectiveness.</li> </ul>		
9	Noise	Permanent noise impacts	<p>One noise barrier located along the WB I-70 edge of shoulder near MP 180, 20 feet high by 1,350 feet long was found to be reasonable and feasible. A benefitted receptor survey will be conducted during final design to determine if a majority want the barrier constructed.</p>	<p>CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor</p>	<p>Design Construction</p>
10	Noise	Construction noise	<ul style="list-style-type: none"> <li>• Adhere to Town of Vail noise ordinance, where applicable, and Colorado Noise Statute 25-12-103 for the unincorporated areas. If construction activities must occur outside of ordinance hours, Contractor must apply for a noise variance.</li> </ul> <p>Contractor will utilize methods, such as the following, to minimize impacts during construction:</p> <ul style="list-style-type: none"> <li>• Notify neighbors in advance when construction noise may occur.</li> <li>• Keep noisy activities as far from sensitive receptors as possible.</li> </ul>	<p>CDOT Construction Engineering Contractor</p>	<p>Construction</p>



#	MITIGATION CATEGORY	IMPACT	MITIGATION COMMITMENT FROM SOURCE DOCUMENT	RESPONSIBLE BRANCH	TIMING/PHASE MITIGATION WILL BE IMPLEMENTED
			<ul style="list-style-type: none"> <li>• Keep exhaust systems on equipment in good working order. Maintain equipment on a regular basis; it should be subject to inspection by the construction project manager to ensure maintenance is being conducted.</li> <li>• Use properly designed engine enclosures and intake silencers if appropriate.</li> <li>• Place stationary equipment as far from sensitive receptors as possible.</li> <li>• Perform construction activities in noise sensitive areas during hours that are least disturbing to nearby residents, as feasible.</li> </ul>		
11	Social Resources - Land Use/ROW	Permanent ROW impacts to USFS property	<ul style="list-style-type: none"> <li>• FHWA and the USFS will modify the Highway Easement Deed with agreed upon terms and conditions.</li> </ul>	CDOT Design Engineering and CDOT ROW	Design Construction
12	Social Resources - Land Use/ROW	Temporary easements during construction	The acquisition of any property interests will comply fully with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act), applicable Colorado statutes, and CDOT's ROW manual.	CDOT Design Engineering and CDOT ROW	Design Construction



#	MITIGATION CATEGORY	IMPACT	MITIGATION COMMITMENT FROM SOURCE DOCUMENT	RESPONSIBLE BRANCH	TIMING/PHASE MITIGATION WILL BE IMPLEMENTED
13	Social Resources - Economic Resources	Impacts to local businesses and tourist destinations during construction	<ul style="list-style-type: none"> <li>• Coordination will occur with local jurisdictions, and the traveling public, businesses, and residents will be notified in advance of any access changes</li> <li>• Coordinate with the local jurisdictions to prepare for construction including public safety and security measures, signed detours, lane closures, and alternate access information.</li> <li>• Community, business, and recreation access will be maintained to the highest degree possible.</li> <li>• When lane restrictions and closures are required, CDOT will follow the most current lane closure strategy to minimize traffic disruptions</li> </ul>	CDOT Design Engineering and CDOT Construction Engineering Contractor	Design Construction
14	Social Resources - Economic Resources	Impacts during construction to commercial recreation outfitters/guides	<ul style="list-style-type: none"> <li>• Closures to Vail Pass Recreation Trail will be minimized to the highest degree possible. Closures and other impacts to trail use will be coordinated with the USFS and recreation outfitters in advance of when they will occur.</li> </ul>	CDOT Design Engineering and CDOT Construction Engineering Contractor	Design Construction
15	Social Resources - EJ	Exposure to increased noise, dust, vibration, and impaired mobility during construction	<ul style="list-style-type: none"> <li>• Notify neighbors in advance when construction noise may occur. Language assistance will be made available upon request. All written materials will be provided in English and Spanish.</li> </ul>	CDOT Construction Engineering Contractor	Construction



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			<ul style="list-style-type: none"> <li>Coordinate with the local jurisdictions, residents, businesses, and traveling public to prepare for construction including public safety and security measures, signed detours, lane closures, and alternate access information.</li> </ul>		
16	Social Resources-Parks and Recreation (including Section 4(f))	Vail Pass Recreation Trail relocation	<ul style="list-style-type: none"> <li>In order to minimize disruption to trail users, access on the re-aligned portion of the trail will not be closed for extended durations and will utilize flaggers during any additional work or conduct the work at night when the trail is not in use.</li> <li>All potential detours and closures will be confirmed during final design and coordinated with the USFS and recreation outfitters.</li> <li>Where the trail requires minor realignment, flaggers will be used as necessary keep the path operable during construction.</li> </ul>	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor	Design Construction
17	Social Resources-Parks and Recreation (including Section 4(f))	Closures of trails and accesses to trails and campground	<ul style="list-style-type: none"> <li>All closures of Bighorn Road, Columbine Drive, and Two Elk Trail at MP 184 will be minimized in duration to the maximum extent practicable and full closures will only be for the safety of trail and campground users during construction.</li> <li>Contractor parking will only be allowed on Bighorn Road if it is in an active traffic control zone to not further impact access to trails and campground.</li> </ul>	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor	Design Construction



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18	Historic Resources (including Section 4(f))	Adverse effect to I-70 at Vail Pass	<ul style="list-style-type: none"> <li>As part of the mitigation measures for anticipated impacts to Vail Pass, CDOT prepared a historic context statement in 2019 detailing the history and significance of the Vail Pass route of I-70. This report provides detailed documentation on the design and construction of the highway segment and its contributing features.</li> <li>CDOT will develop a supplement to the 2008 I-70 Mountain Corridor Section 106 PA that outlines historic properties mitigation commitments for the adverse effect finding for this project. Proposed mitigation includes the historic context and site forms for the Vail Pass Segment of I-70; efforts to honor the aesthetic of the original design in the new design; and an interpretive panel that outlines the construction history of I-70 over Vail Pass. Additional mitigation may be identified in consultation with the State Historic Preservation Officer (SHPO) and the consulting parties during the review of the PA.</li> <li>CDOT will create an Aesthetics ITF during final design of the project, which will include the Section 106 consulting parties. This ITF will be responsible for developing project-specific aesthetic guidance that builds on the <i>Memorandum of Understanding (MOU) Between the Bureau of Land Management, The Colorado Department of Transportation, The Federal Highway Administration and the USDA,</i></li> </ul>	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor	Design Construction



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			<i>Forest Service Rocky Mountain Region and Crest of the Rockies Aesthetic Guidance and incorporates the historic context of West Vail Pass. The guidance will include, but is not limited to: aesthetic treatments for structures, materials, colors, planting, site grading forms, and maintenance recommendations.</i>		
19	Archaeological Resources	SHPO concurred with the finding of “no historic properties affected” as long as the Vail Pass Rest Area is not used for staging or materials storage	<ul style="list-style-type: none"> <li>The Vail Pass Rest Area may not be used as staging, materials storage, or any other potentially impactful activity during construction.</li> <li>Should unidentified archaeological resources be discovered during any phase of construction, work will stop until the CDOT senior staff archaeologist is contacted and the resources have been evaluated in terms of the National Register of Historic Places eligibility criteria. The Contractor shall comply with CDOT Standard Specification 107.23 (Archaeological and Paleontological Discoveries), as identified in the project construction plans.</li> </ul>	CDOT Environmental and CDOT Construction Engineering Contractor	Design Construction
20	Hazardous Materials	Potential to encounter subsurface contamination (including mine materials)	<ul style="list-style-type: none"> <li>A Material Management Plan (MMP), as required by CDOT Standard Specifications subsection 250.03, will be prepared, which will also include a dust control plan.</li> <li>A Health and Safety Plan (HASP) will be completed to address potentially hazardous wastes that could be uncovered during construction.</li> </ul>	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering	Design Construction



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			<ul style="list-style-type: none"> <li>• Surveying, sampling, managing hazardous material and using BMPs will be performed if contamination is suspected or discovered.</li> <li>• Known or suspected contamination, primarily from previous petroleum spills, occur in the Project area and may pose a health or safety risk during construction, and the Contractor will conduct additional investigations in these locations.</li> <li>• During subsurface activities, workers must be alert for visual and olfactory signs of contamination. This includes visual signs of mine waste, which are usually mud-like and a different color than the surrounding soils. If contamination is encountered, work will stop, and procedures established in the MMP will be followed. Any contaminated soils will be properly handled and sampled prior to disposal.</li> <li>• Structural excavation, such as caisson and retaining wall construction, may require the dewatering of contaminated groundwater. If dewatering is necessary, groundwater brought to the surface will be managed according to CDOT Standard Specifications subsection 107.25 and permitted by the CDPHE Water Quality Control Division, in accordance with Section 402 of the CWA.</li> </ul>	Contractor	





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21	Hazardous Materials	Potential to encounter hazardous materials – lead-based paint	Prior to demolition of any painted structure within the study area, a State Certified Lead-Based Paint Inspector shall inspect, and if necessary, sample for the presence of LBP or other heavy metal paints. If LBP/heavy metal paint is present on any highway structures or other painted surfaces, the requirements of CDOT Standard Specification subsections 250.03 and 250.04.	CDOT Environmental and CDOT Construction Engineering Contractor	Construction
22	Hazardous Materials	Potential to encounter hazardous materials –asbestos containing material (ACM)	<ul style="list-style-type: none"> <li>• Prior to demolition of any structure within the study area, a State Certified Asbestos Inspector shall inspect, and if necessary, sample for the presence of ACM. If asbestos is found, all further work shall proceed in accordance with CDOT Standard specification 250.07.</li> <li>• If ACM is identified, the Air Quality Control Commission Regulation Number 8 Part B, and the Colorado Department of Public Health and Environment Hazardous Materials and Waste Management Division Section 5.5 of the Regulations (6 Colorado Code of Regulations 1007-2) must be followed.</li> </ul>	CDOT Environmental and CDOT Construction Engineering Contractor	Construction
23	Hazardous Materials	Potential to encounter subsurface contamination (including mine materials) and illegal drug laboratory waste	<ul style="list-style-type: none"> <li>• During construction, workers will be alert for visual signs of illegal drug laboratories' waste. Many different chemicals are used in the production of these illegal drugs, and CDOT has available a video to help identify these wastes at: <a href="http://www.youtube.com/watch?v=kF25d0Gnvjo">http://www.youtube.com/watch?v=kF25d0Gnvjo</a></li> </ul>	CDOT Environmental and CDOT Construction Engineering Contractor	



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			<ul style="list-style-type: none"> <li>If illegal drug laboratory waste is encountered, work will stop, and procedures established in the MMP will be followed. Any contaminated waste will be properly handled and sampled prior to disposal.</li> </ul>		
24	Utilities	Utilities may need to be relocated or adjusted to accommodate the roadway construction	<ul style="list-style-type: none"> <li>Coordinate with CDOT Utilities Unit regarding required permits and clearances during final design.</li> <li>A qualified subsurface utility engineering provider will designate the utilities early in the final design process.</li> <li>Where conflicts are identified, relocations or adjustments will be coordinated with the affected utility owners. Advance notice will be provided to allow delivery of uninterrupted utility service during construction.</li> <li>During final design, CDOT will determine the need to establish a utility corridor.</li> </ul>	CDOT Design Engineering, and CDOT Construction Engineering Contractor	Design Construction
25	Utilities	Potential for temporary loss of utility service during construction	Coordinate utility relocation with utility companies during final design to minimize service interruptions and to inform utility users as part of the Public Information Outreach campaign during construction.	CDOT Construction Engineering Contractor	



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26	Vegetation	Removal of vegetation would be required during construction	<ul style="list-style-type: none"> <li>• A vegetation survey will be completed during final design to determine the number and type of SB 40 trees and shrubs.</li> <li>• Replace riparian trees removed as stipulated in CDOT’s Guidelines for Senate Bill 40 Wildlife Certification, which states that riparian trees removed during construction, whether native or non-native, shall be replaced with a goal of 1:1 replacement based on a preconstruction stem count of all trees with a diameter at breast height of two inches or greater.</li> <li>• Riparian shrubs removed during construction, whether native or non-native, will be replaced with native species based on their preconstruction aerial coverage. In all cases, CDOT will replace all such trees and shrubs with native species.</li> <li>• Avoid disturbance of native trees, shrubs, and vegetation to the extent possible. When disturbance is unavoidable, replace native and non-native species with native species.</li> <li>• Develop a revegetation plan during final design in coordination with the USFS and CDOT. The revegetation plan will be incorporated into the Stormwater Management Plan (SWMP) and seed mixes (also identified in the SWMP) to be used will be specific to upland areas, riparian areas, and wetland areas. Specific objectives of the revegetation plan will be identified, such as selecting native plants and seed mixes for</li> </ul>	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor	Design Construction



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			<p>revegetation that blend the vegetation with existing vegetation, are consistent with vegetation types, growth habits, and soil types, use of native species, mimic surrounding native plant densities and minimizing the spread of noxious and invasive weeds. The seed mix used for revegetation will be approved by the USFS and CDOT.</p> <ul style="list-style-type: none"> <li>• Minimize the amount and time period of disturbance to allow revegetation of disturbed areas.</li> <li>• Revegetate all disturbed areas with native grass and forb species. Apply seed, mulch, and mulch tackifier in phases throughout construction.</li> <li>• Use temporary erosion control blankets with flexible natural fibers.</li> </ul>		
27	Noxious Weeds	Introduction and spread of noxious weeds during construction	<ul style="list-style-type: none"> <li>• Manage the clearing and earthmoving operations to minimize the potential for weeds to infest new areas and/or increase in abundance through the construction disturbance area. This includes the application of BMPs to all construction sites to manage open soil surfaces and topsoil stockpiled for reuse, including landscape and planning designs that incorporate the use of native vegetation and integrated noxious weed controls.</li> </ul>	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor	Design Construction



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			<ul style="list-style-type: none"> <li>Prepare and implement Noxious Weed Management Plans for the Project, which will be completed prior to construction so they reflect the most recent federal and local noxious weed lists and guidance. Noxious Weed Management Plans will identify the status and location of noxious weed infestations in and near individual Project areas and identify control methods (e.g., herbicides) and BMPs that will be used to eradicate or control weeds during and after construction. These BMPs generally include, but are not limited to, minimization of soil disturbance, use of native species in seeding and revegetation plans, use of weed-free hay, topsoil management, equipment cleaning and management, and coordination with relevant stakeholders such as County Weed Managers.</li> </ul>		
28	Wildlife	Creation of new barriers to wildlife movement and habitat fragmentation from highway widening, glare screens, guardrail, new retaining walls, and drainage improvements.	<ul style="list-style-type: none"> <li>Fulfill responsibilities set forth in the ALIVE MOU to address issues related to improving wildlife movement and reducing habitat fragmentation in the study area. Responsibilities include but are not limited to, working to actively support and implement the MOU concepts, provide wildlife expertise to support wildlife betterments and passages, establish efficient processes for regulatory review and permitting, and work collaboratively to pursue funding and new opportunities for wildlife passages.</li> </ul>	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor	Design Construction



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			<ul style="list-style-type: none"> <li>• Six new wildlife crossing structures (underpasses) constructed at approximately the following MPs: 186.9, 187.4, 187.8, 188.3, 188.7, 189.7.</li> <li>• Wildlife fencing to be installed on both sides of the highway from MP 181 to 190 to reduce wildlife-vehicle collisions (WVCs) and guide animals to crossing structures.</li> <li>• Small mammal shelves will be installed within drainage and stream crossing culverts wherever feasible to increase below grade crossing opportunities for smaller animals.</li> <li>• Determine bat use of bridges prior to work being conducted and if evidence of use is present, features will be added to promote day and night roosting for bats where appropriate.</li> <li>• Wildlife escape ramps will be installed throughout the Project area at a minimum of every 0.25 miles. Ramps will be built following the most current design specifications to improve wildlife use. Where ramps are not feasible due to topographical and/or other limitations other measures such as wildlife gates will be installed at a similar spacing.</li> <li>• Measures to minimize snow loading in front of crossing structures will be included in crossing structure design.</li> </ul>		



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			<ul style="list-style-type: none"> <li>Coarse woody material and rocks will be placed at the entry and within each crossing structure to provide cover and promote use by smaller animals.</li> <li>Where site conditions allow, "wildlife lanes" will be incorporated within any crossing structure intended for or that may otherwise be used by people. Such lanes will be separated by grade from crossing intended for people (i.e., trail) and will include coarse woody material and rocks at entry and within crossing structure to provide cover and promote use by smaller animals.</li> <li>Snow deflection devices will be placed above wildlife crossing structures to keep the crossing structures clear of snow and debris. Crossing structures shall be kept clear during winter. Where possible, retaining walls will be placed such that they do not impede wildlife movement or use of crossing structures and outside of primary and secondary vegetation.</li> </ul>		
29	Wildlife	Habitat impacts from temporary ground disturbance and vegetation impacts during construction	<ul style="list-style-type: none"> <li>Construction should be concentrated to as small of an area as possible in order to minimize the amount of habitat affected at one time and keep adjacent habitat areas available for use by the species to forage, hide, or travel.</li> <li>Recontour and restore all temporarily impacted habitats on the Project site so that they become available for use.</li> </ul>	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor	Design Construction



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30	Wildlife	Impacts to bats during construction on bridges	Bat surveys will be conducted on all bridges planned for demolition or significant modification. If bats are found, demolition or construction will be suspended during that species maternity season, approximately May 15 – July 15.	CDOT Environmental, CDOT Construction Engineering Contractor	Construction
31	Wildlife	Impacts to migratory birds during construction	Follow Migratory Bird Treaty Act nest survey guidelines during the nesting season, which are outlined in Revision of Section 240 Protection of Migratory Birds. Include specifics on bird nest surveys within these project specials and/or general notes and within in the contract/project plans.	CDOT Design Engineering and CDOT Environmental	Prior to Construction
32	Fish	Impacts to fish species during construction in and near waterways	<ul style="list-style-type: none"> <li>• Fulfill responsibilities set forth in the SWEEP MOU to address issues related aquatic habitat in the study area. Responsibilities include but are not limited to, following the CSS Process, identify and prioritize species and habitats, establish mitigation recommendations and determine how they will be implemented, and work effectively and collaboratively.</li> <li>• Fish barriers between Black Gore Creek and conservation streams should be inspected and repaired/improved where necessary.</li> </ul>	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor	Design Construction





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			<ul style="list-style-type: none"> <li>In no instance allow construction activities or equipment to work in flowing water or disturb sediment during recognized trout spawning seasons unless in coordination with Colorado Parks and Wildlife (CPW), as follows:               <ul style="list-style-type: none"> <li>Cutthroat &amp; Rainbow Trout: March 1-May 31</li> <li>Brown Trout: October 1-November 30</li> </ul> </li> <li>Prevent the spread of invasive aquatic nuisance species, including Eurasian watermilfoil, zebra mussel, and New Zealand mudsnail by following CDOT's Guidelines for SB 40 Wildlife Certification.</li> </ul>		
33	Threatened, Endangered, and Special Status Species	Adverse effects to Canada lynx from permanent lighting	Ensure that permanent lighting is "dark sky" compliant and shines only on the area(s) that need to be illuminated. Do not direct lighting into areas of lynx or snowshoe hare habitat to prevent disturbing these species' foraging behaviors. Ensure that lights are on only when necessary (i.e., at chain stations ensure that lights are on only when chain-up or chain-down is necessary). Monitor lighting to ensure that it does not exceed the approved lighted area and that lights are on only when necessary to reduce the effects of the Project on Canada lynx populations to an insignificant amount.	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor	Design Construction



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34	Threatened, Endangered, and Special Status Species	Temporary impacts to Canada lynx from noise, lighting, and increased human activity	<ul style="list-style-type: none"> <li>Conduct work during daylight hours as much as possible when lynx are less active to avoid disrupting this nocturnal species foraging and travel behaviors. For night work, concentrate the activity in as small an area as possible, and work for four (4) consecutive nights separated by three (3) consecutive nights of no work to allow any individuals in the vicinity to recover and potentially use the site for foraging or travel.</li> <li>Temporary lighting will be used with directional shielding to focus the lighting onto the driving surface to avoid disrupting foraging and travel behaviors of this primarily nocturnal species.</li> </ul>	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor	Design Construction
	Threatened, Endangered, and Special Status Species	Incidental take of Canada lynx	<ul style="list-style-type: none"> <li>Provide an annual report documenting the project progress and its impact on Canada lynx</li> <li>Notify the USWS Colorado Field Office in the event that a Canada lynx, or any other federally listed species is killed or injured during project activities.</li> </ul>	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor	Design Construction
35	Threatened, Endangered, and Special Status Species	Temporary and permanent impacts to sensitive plant species from construction	<p>Conduct presence/absence surveys during final design, using USFS survey protocol, in the following areas that will be impacted under the Proposed Action:</p> <p>Fens, natural slope wetlands, and riverine wetlands (not wetlands with stormwater as their primary water source) sphagnum, Baltic</p>	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering	Design Construction



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			<p>sphagnum, lesser paniced sedge, livid sedge, whitebristle cottongrass, Chamisso's cottongrass, slender cottongrass, simple bog sedge, Porter feathergrass, roundleaf sundew, Kotzebue's grass of Parnassus, dwarf raspberry, both willows, and lesser bladderwort</p> <ul style="list-style-type: none"> <li>• Moist meadows and open natural wetland edges for park milkvetch</li> <li>• Aspen forest areas for yellow lady slipper</li> <li>• Open slopes, forest edges and historically disturbed areas for triangle lobe moonwort and narrowleaf grapefern</li> <li>• Open, gravelly slopes for Colorado tansyaster</li> </ul>	Contractor	
36	Water Quality – Sediment Runoff and Erosion	Control measures will continue to collect sediment and require ongoing monitoring and maintenance.	In conjunction with final design and prior to the construction of any new impervious surface, the Black Gore Creek Sediment Control Action Plan (SCAP) will be updated, in coordination with the SWEEP ITF. SCAP control measures will be implemented as appropriate when an improvement feature triggers the need for sediment collection, such as an increase in impervious area.	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor	Design Construction
37	Water Quality – Sediment Runoff and Erosion	Increased sediment load and runoff from additional impervious surface	Improvements identified in the SCAP update will be designed and constructed as mitigation in areas of new construction where there are impacts of additional traction sand and additional runoff.	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor	Design Construction



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38	Water Quality – Sediment Runoff and Erosion	Potential for new areas of erosion	<ul style="list-style-type: none"> <li>Riprap aprons or other appropriate control measures will be used below outlets of stormwater infrastructure.</li> <li>Sheet flow will be consolidated into channels and swales, where feasible, and conveyed to dedicated discharge points through a sediment control measure to reduce riling/rutting of the slope.</li> <li>Utilize grading and revegetation with native species to achieve permanent stabilization.</li> <li>Permanent control measures will be implemented in areas of historic erosion or suspected future erosion.</li> </ul>	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor	Design Construction
39	Water Quality – Sediment Runoff and Erosion	Sheet flow and rill erosion during construction	<ul style="list-style-type: none"> <li>Temporary control measures will be required within the disturbance area during construction to minimize disturbed sediment from entering the adjacent creeks.</li> <li>A Stormwater Construction Permit (SCP) through CDPHE will be obtained prior to construction.</li> <li>A SWMP will be prepared and implemented through observations and updates to the plan during construction.</li> <li>» CDOT will implement appropriate control measures for erosion and sediment control according the CDOT Erosion Control and Storm Water Quality Guide, and CDOT Specifications requirements.</li> </ul>	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor	Design Construction



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40	Water Quality – Sediment Accumulation	Continued sediment accumulation	<ul style="list-style-type: none"> <li>As part of the SCAP update, CDOT will identify opportunities to improve maintenance access to these areas in Zone 1 (as defined by the SCAP) by incorporating improvements into the roadway and structure design.</li> <li>During construction of the Proposed Action, collected sediment in these areas will be removed where feasible and the areas will be revegetated. Alternative stabilization measures will be evaluated for use in shaded areas where vegetation may not grow. Areas that are suitable for riparian or wetland enhancement have been identified and will be further evaluated for enhancement feasibility as part of the CWA Section 404 permitting process, as discussed in the <i>I-70 West Vail Pass Auxiliary Lanes Wetlands Technical Memorandum</i>.</li> </ul>	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor	Design Construction
41	Water Quality – Sediment Accumulation	Additional sediment loading from construction	<ul style="list-style-type: none"> <li>See mitigation commitment 39.</li> <li>SWMP will identify methods to mitigate disturbance to deposits during construction including, but not limited to, remediation practices under bridges (in areas impacted by construction activities), sediment removal, and stabilization practices. Practices will be employed where possible and only in areas where the situation can be improved by intervening.</li> </ul>	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor	Design Construction



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42	Water Quality – Drinking Water Supplies and Wastewater Treatment Facilities	Minor sediment loading in Black Lakes	Permanent control measures will be designed and installed to minimize the amount of sediment entering the Black Lakes.	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor	Design Construction
43	Water Quality – Drinking Water Supplies and Wastewater Treatment Facilities	Increased sedimentation of Black Lakes, Black Gore Creek, and Gore Creek during construction	Temporary control measures during construction installed to minimize the amount of sediment entering the Black Lakes, Black Gore Creek, and Gore Creek.	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor	Design Construction
44	Floodplains	Change in base flood elevations	Project will be designed to seek a No-Rise Certification by ensuring adequate structure openings and pier locations where feasible. If not feasible, Conditional Letter of Map Revision (CLOMR)/Letter of Map Revision (LOMR) process will be followed to comply with federal regulation.	CDOT Design Engineering	Design



#	MITIGATION CATEGORY	IMPACT	MITIGATION COMMITMENT FROM SOURCE DOCUMENT	RESPONSIBLE BRANCH	TIMING/PHASE MITIGATION WILL BE IMPLEMENTED
45	Floodplains	Construction materials may reduce floodplain conveyance.	Construction materials will not be stored in the floodplain, and construction activities will be limited within the floodplain as feasible to reduce the potential impacts to the floodplain. A construction stormwater and a floodplain permit will be obtained from Eagle County.	CDOT Design Engineering CDOT Construction Engineering Contractor	Design Construction
46	Wetlands/Other Water Features	Approximately 9.44 acres of wetlands (including 0.42 acre of fen) and 0.19 acre of other water features would be permanently impacted. This will be confirmed during final design. Some indirect impacts to wetlands may also occur but are not quantifiable.	<ul style="list-style-type: none"> <li>• Prior to construction, all wetlands/waters of the US will be formally delineated using the US Army Corps of Engineers (Corps) standards and the Section 404 permitting process will be followed. During refinement of the Proposed Action in final design, all efforts will be made to avoid any additional wetland impacts, minimize potential impacts to the maximum extent practicable, and then provide compensatory mitigation for unavoidable impacts.</li> <li>• All permanently impacted non-fen wetlands will be replaced at a 1:1 ratio.</li> <li>• CDOT Environmental staff will be consulted during preliminary/final design to confirm specific compensatory wetland mitigation strategies and locations. CDOT is committed to utilizing onsite compensatory mitigation as its first priority and will work with the Corps to confirm the specific wetland mitigation strategy.</li> <li>• Fens may need to be replaced at a higher ratio, if determined by the Corps.</li> </ul>	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor	Design Construction



#	MITIGATION CATEGORY	IMPACT	MITIGATION COMMITMENT FROM SOURCE DOCUMENT	RESPONSIBLE BRANCH	TIMING/PHASE MITIGATION WILL BE IMPLEMENTED
47	Wetlands/Other Water Features	Some temporary impacts for access or installation of control measures may occur during construction	<ul style="list-style-type: none"> <li>• Use temporary soil stabilization measures and structures to prevent and/or slow runoff across disturbed areas and/or divert untreated runoff to sediment basins</li> <li>• Use sediment control measures, including erosion logs, check dams, silt fences, sediment traps and/or sediment basins</li> <li>• Use water quality treatment measures to capture and treat runoff and to prevent runoff from entering wetlands and other water features (see mitigation commitments 36-39)</li> <li>• Drainage patterns will be preserved by maintaining existing roadside ditches or constructing new ditches as needed.</li> <li>• Use designated areas for vehicle staging to minimize disturbance of wetlands and vegetated areas</li> <li>• Avoid unnecessary impacts to wetlands and other water features by fencing the limits of construction. There shall be no vehicle access in wetland or other water feature areas outside the limits of construction.</li> <li>• Do not store or stockpile construction equipment, fuels, lubricants, and other petroleum distillates within 50 horizontal feet of wetlands or other water features.</li> <li>• Equipment fueling and servicing shall occur only within approved designated areas.</li> </ul>	CDOT Design Engineering, CDOT Environmental, and CDOT Construction Engineering Contractor	Design Construction





#	MITIGATION CATEGORY	IMPACT	MITIGATION COMMITMENT FROM SOURCE DOCUMENT	RESPONSIBLE BRANCH	TIMING/PHASE MITIGATION WILL BE IMPLEMENTED
			<ul style="list-style-type: none"> <li>• Use chemicals such as soil stabilizers, dust palliatives, herbicides, growth inhibitors, fertilizers, deicing salts, etc., in accordance with the manufacturer’s recommended application rates, frequency, and instructions. These chemicals shall not be used, stored, or stockpiled within 50 horizontal feet of wetlands or other water features.</li> <li>• Revegetate disturbed areas as quickly as possible with native vegetation known to occur in the vicinity.</li> </ul>		
48	Geologic Resources and Soils	Instability of existing landslides and exposure of collapsible soils	<ul style="list-style-type: none"> <li>• Manage erosion and stormwater runoff and ensure control measures are in place to prevent migration of sediment from waste piles, slopes and excavations during construction.</li> <li>• Minimize slope excavation of the undisturbed slopes and follow natural topography and slope angle when new cuts are constructed.</li> <li>• Using excavation and landscaping techniques, such as slope rounding, terracing, and seeding to establish vegetation to minimize soil loss.</li> <li>• Avoid destabilizing existing landslides, debris flow/alluvial fans during roadway construction, which includes minimizing cut slopes and selectively locating embankments.</li> </ul>	CDOT Design Engineering, CDOT Construction Engineering Contractor	Design Construction



#	MITIGATION CATEGORY	IMPACT	MITIGATION COMMITMENT FROM SOURCE DOCUMENT	RESPONSIBLE BRANCH	TIMING/PHASE MITIGATION WILL BE IMPLEMENTED
49	Geologic Resources and Soils	Potential permanent impact to existing cut slopes from additional excavation	<ul style="list-style-type: none"> <li>Using rock sculpting, which involves blasting rock by using the existing rock structure to control overbreak and blast damage to create a more natural-looking cut. Aesthetic treatments for rock cuts will be determined during the Aesthetic ITF (see mitigation commitment 18)</li> </ul>	CDOT Design Engineering, CDOT Construction Engineering Contractor	Design Construction
50	Geologic Resources and Soils	Increased rockfall and avalanche activity	<ul style="list-style-type: none"> <li>Using proven mitigation techniques as well as scaling and blasting, to address rockfall from cut slope areas. Determination of rockfall mitigation measures will be based on the slope configuration at final design. Aesthetic treatments for rock cuts will be determined during the Aesthetic ITF (see mitigation commitment 18).</li> <li>Use avalanche fencing to manage avalanches.</li> </ul>	CDOT Design Engineering, CDOT Construction Engineering Contractor	Design Construction
51	Geologic Resources and Soils	Potential to encounter and impede groundwater, which could result in associated frost heave	<ul style="list-style-type: none"> <li>Frost heave mitigation includes methods to prevent water from pooling under pavement such as over-excavation down to frost depth of frost susceptible soils and replacement with non-frost susceptible soils or rigid foam insulation, improve surface and subsurface drainage, and reduce infiltration of water.</li> </ul>	CDOT Design Engineering, CDOT Construction Engineering Contractor	Design Construction



#	MITIGATION CATEGORY	IMPACT	MITIGATION COMMITMENT FROM SOURCE DOCUMENT	RESPONSIBLE BRANCH	TIMING/PHASE MITIGATION WILL BE IMPLEMENTED
52	Paleontological Resources	Potential for fossil vertebrates impacts during excavation	<ul style="list-style-type: none"> <li>Notify CDOT staff Paleontologist, Nicole Peavey at 303.757.9632 of the schedule of work planned at MP 185.5 a minimum of 2 weeks/10 business days prior for her to either conduct a survey prior to construction or to monitor a portion of the construction there.</li> <li>Should vertebrate fossil materials be encountered during excavation, work should be halted and the CDOT staff Paleontologist, Nicole Peavey be notified immediately at 303.757.9632.</li> </ul>	CDOT Environmental and CDOT Construction Engineering Contractor	Construction



## 10. WHAT PERMITS AND APPROVALS ARE REQUIRED FOR THIS PROJECT?

In addition to the NEPA evaluation of environmental impacts provided by this EA, the Proposed Action must comply with federal and state laws and regulations. This includes obtaining all of the required permits, performing preliminary and construction surveys, completing reviews, and obtaining other approvals as required by local agency, state, and federal regulations. All CDOT requirements, such as survey, utilities, and traffic approvals, will be granted during final design.

The following permits and approvals are likely to be required prior to construction, but this list may change during and after final design:

- **APEN and Permit** - Contractor will be required to submit an APEN to CDPHE and if predicted emissions are above established thresholds an air permit may be required.
- **Construction Dewatering Operations Permit** - Contractor will obtain a Colorado Discharge Permit System Construction Dewatering Permit from CDPHE.
- **Demolition Permit** - Prior to demolishing a bridge or structure, CDPHE's APCD must issue a demolition permit to the Contractor.
- **Easements** - The existing highway easement deed between CDOT, FHWA, and the USFS will need to be modified to include additional lands adjacent to I-70. In addition, temporary easements may be required from adjacent properties and will be identified during final design.
- **Floodplain Development Permit** - CDOT will be required to obtain a permit for any construction activities within a designated floodplain. Based on final design, permits may be required by Eagle and Summit counties.
- **No-rise Certification** - During final design, CDOT will determine if the Project will increase flood heights. If it will not, a No-rise Certification will be sought from Eagle County. **CLOMR/LOMR** - If a No-rise Certification is not feasible, the CLOMR/LOMR process will be followed through the Federal Emergency Management Agency.
- **Section 401 Permit** - A Section 401 Water Quality Certification is required in conjunction with a Section 404 Individual Permit. The requirements for obtaining Section 401 Certification from the CDPHE will be determined based on the final design and resulting impacts.
- **Section 404 Permit** - Prior to impacting wetlands or other water features, the Contractor must obtain a permit from the Corps. The type of permit (Individual or Nationwide) is based on the total area of impacts and will be determined during final design.
- **SB 40 Wildlife Certification** - Prior to impacting any streams or their associated riparian areas, Contractor will obtain SB 40 from the CPW.
- **Stormwater Permit associated with Construction Activities** - A Colorado Discharge Permit System - SCP is required to protect state waters and ensure the quality of stormwater runoff on any construction activity that disturbs at least one acre of land. Depending on how the project is delivered, CDOT or the Contractor will obtain the permit from CDPHE's Water Quality Control Division.



## 11. WHAT OUTREACH AND OPPORTUNITIES FOR STAKEHOLDER AND PUBLIC PARTICIPATION WERE PROVIDED?

CDOT developed a CSS process for the I-70 Mountain Corridor (C-470 to Glenwood Springs) as a way to engage and solicit feedback from stakeholders for projects on the I-70 Mountain Corridor. All CDOT projects on the I-70 Mountain Corridor are required to follow the process throughout each phase of a project, including planning, NEPA, design, construction, and maintenance. Additional detail regarding the Project CSS process can be found in **Appendix A2**. As part of the CSS process, the groups described below were formed.

### PROJECT LEADERSHIP TEAM

The PLT is a collaborative stakeholder team that leads the project, champions CSS, and enables decision-making. The PLT for the Project included members from the following jurisdictions and organizations:

- CDOT Region 3 Engineering, Environmental, and Maintenance
- FHWA
- Colorado Motor Carriers Association (CMCA)
- Eagle County
- Summit County
- Town of Vail
- USFS

PLT meetings were held as outlined in **Table 6**.

### TECHNICAL TEAM

The TT is composed of experts in the Core Values (see Page 71) relevant to the Project goals. The TT was formed to work through the technical decision-making process and included members from the following jurisdictions and organizations:

- Local/Regional Agencies
  - » Colorado State Patrol
  - » Eagle County
  - » Eagle River Water & Sanitation District
  - » Northwest Colorado Council of Governments
  - » Summit County
  - » Town of Vail
  - » I-70 Coalition
- Resource Agencies
  - » CPW
  - » FHWA
  - » Corps
  - » USFWS
  - » USFS
- Trail Recreation
  - » Bicycle Colorado
  - » Colorado Snowmobile Association
  - » ECO Trails
- Business/Industry Representatives
  - » CMCA
  - » Vail Chamber and Business Association
- CDOT
  - » CDOT Region 3 Program Engineer
  - » CDOT Region 3 Eagle Residency
  - » CDOT Region 3 Environmental
  - » CDOT Region 3 I-70 Joint Operation Area
  - » CDOT Region 3 Maintenance

TT meetings were held as outlined in **Table 7**.



**Table 6. PLT Meetings**

DATE	MEETING	TOPIC
July 27, 2017	PLT meeting #1	Context Statement, Values, and Vision
January 17, 2018	PLT meeting #2	Context Statement, Values, and Vision; Chartering; Purpose and Need
August 27, 2018	PLT meeting #3	CSS Process Review
December 3, 2019	PLT meeting #4	CSS Design Exception Discussion
March 5, 2020	PLT meeting #5	CSS Design Exception Discussion and Public Noise Meeting Debrief
August 12, 2020	PLT meeting #6	Draft EA Summary and Next Steps

**Table 7. TT Meetings**

DATE	MEETING	TOPIC
February 7, 2018	TT meeting #1	Context Statement, Values, & Vision; Chartering
March 7, 2018	TT meeting #2	Alternatives Process; Traffic and Safety
March 21, 2018	TT meeting #3	Constructability issues
April 4, 2018	TT meeting #4	East Vail Design Issues; Trail Relocation
June 26, 2018	TT meeting #5	Screening Criteria; Draft Alternatives
August 27, 2018	TT meeting #6	Level 1 Screening Results
October 23, 2018	TT meeting #7	Refine Recommended Alternatives; Design Options
May 8, 2019	TT meeting #8	Proposed Action & Design Options
February 6, 2020	TT meeting #9	CSS Design Exception Discussion
August 12, 2020	TT meeting #10	Draft EA Summary & Next Steps

**ISSUE TASK FORCES**

ITFs were formed to study and provide feedback on specific topics critical to the Project. Members of the ITFs includes stakeholder representatives with relevant expertise, members of the consultant team, CDOT, and FHWA. The following lists the ITFs that were formed for the Project, a brief description of the ITF, and organizations/jurisdictions, in addition to CDOT and FHWA, that were invited to be part of the ITF:

- SWEEP - ensured that this EA fulfilled the responsibilities set forth in the SWEEP MOU, which focuses on enhancing stream and wetland ecology in the I-70 Mountain Corridor.
  - » CDPHE
  - » Colorado Trout Unlimited
  - » CPW
  - » Eagle County
  - » Eagle River Watershed Council
  - » Eagle River Water and Sanitation District
  - » Environmental Protection Agency
  - » Town of Vail
  - » Corps
  - » USFS
  - » USFWS



- ALIVE - established to fulfill the commitments set forth in the ALIVE MOU of identifying mitigation and conservation measures during Tier 2 processes that could reduce animal-vehicle collisions and increase habitat connectivity for terrestrial and aquatic species.
  - » CPW
  - » Eagle County
  - » ECO-resolutions
  - » Rocky Mountain Wild
  - » Town of Vail
  - » USFS
  - » USFWS
- Section 106 (cultural resources)- responsible for applying the conditions set forth in the I-70 Mountain Corridor Programmatic Agreement (PA) among the consulting parties involving Section 106 of the National Historic Preservation Act.
  - » Breckenridge Heritage Alliance
  - » Colorado Preservation Inc.
  - » Copper Mountain Consolidated Metropolitan District
  - » Eagle County Historical Society
  - » National Park Service
  - » National Trust for Historic Preservation – Denver Field Office
  - » SHPO
  - » Summit County Historical Society
  - » Summit County Preservation Commission
  - » Town of Breckenridge Planning Commission
  - » Town of Breckenridge
  - » Town of Vail Design Review Board
  - » USFS
- Emergency Service Providers (ESP) - Provided input and recommendations regarding emergency response and access as it relates to the study area, alternatives, and the Proposed Action.
  - » CMCA
  - » Colorado State Patrol
  - » Eagle County Emergency Management
  - » Eagle County Paramedic Services
  - » Eagle County Sheriff's Office
  - » Eagle River Fire Protection District
  - » Summit Fire and Emergency Medical Services Authority
  - » Town of Vail Fire & Emergency Services
  - » Town of Vail Police Department
- Recreation- Provided input and recommendations regarding potential temporary and permanent impacts to recreation facilities, including the relocation of the Vail Pass Recreation Trail.
  - » Bicycle Colorado
  - » Colorado Snowmobile Association
  - » Colorado Mountain Club
  - » ECO Trails
  - » Nova Guides
  - » USFS
  - » Vail Chamber and Business Association
  - » Vail Powder Guides

ITF meetings were held as outlined in **Table 8**.



**Table 8. ITF Meetings**

DATE	MEETING	TOPIC
March 28, 2018	ESP Meeting #1	Existing Conditions
April 18, 2018	ALIVE Meeting #1	MOU/LIZ Review
May 16, 2018	SWEEP Meeting #1	MOU/Implementation Matrix Review
May 30, 2018	Section 106 Meeting #1	APE and Methodology
November 6, 2018	Recreation Meeting #1	Trail Realignment; Recreation Impacts
December 14, 2018	ALIVE Meeting #2	Connectivity and Trail Alignment Review
February 8, 2019	ESP Meeting #2	Proposed Action
February 11, 2019	SWEEP Meeting #2	Implementation Matrix; Trail Realignment
October 30, 2019	Section 106 Meeting #2	Effects and Mitigation

### DEVELOPMENT OF CONTEXT STATEMENT AND CORE VALUES

The PLT developed a Context Statement and Core Values for the Project, which were presented to the TT for their review, feedback, and endorsement. The Context Statement and Core Values helped to frame the unique context of the Project as well as the concerns and values to be considered during the EA and future decision-making.

A Context Statement seeks to capture in words the special qualities and attributes that define a place as unique. It should capture in words that which was true fifty years ago and that which must be considered during the development of improvements in order to sustain truth in those same words for fifty years to come.

A Core Value describes something of significant importance to stakeholders; something they respect and will work to protect and preserve. Core Values can be considered as goals for the project and they should influence decisions and choices made along the project corridor. The Context Statement and Core Values (**Figure 6**) helped shape the screening criteria, alternatives, design options, and mitigation for the Project.



**Figure 6. Context Statement and Core Values**

**Corridor Context**

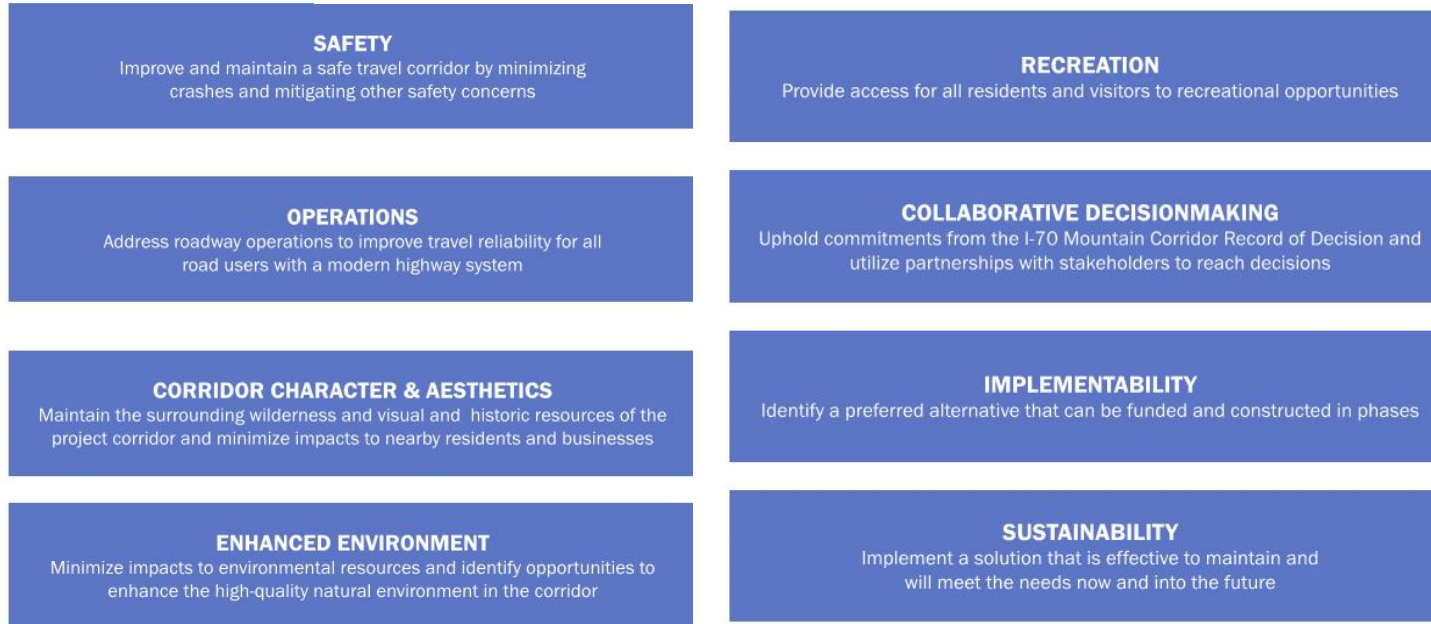
I-70 is Colorado's only east-west Interstate, providing a critical interstate economic link for the country. It also provides the only direct route between the Front Range and western Colorado. Area residents and visitors travel the corridor to access growing mountain communities, as well as local and regional recreational opportunities. Vail Pass is rich in natural beauty and unique environmental, wildlife, historic, and recreational resources.

The I-70 corridor over Vail Pass has a natural scenic beauty and dramatic views as it winds through U.S. Forest Service land. The corridor is recognized as a nationally and exceptionally significant feature of the federal interstate highway system due to its early implementation of context sensitive design, integrating a modern transportation facility with the surrounding natural environment. This section of highway is considered a historic resource due to these elements.

The steep grades, roadside terrain, and extreme weather events make I-70 over Vail Pass a challenging mountain pass to travel and maintain. Conflicts between vehicles traveling at substantially different speeds create safety problems and operational issues. Transportation improvements must preserve the natural beauty and unique resources in the corridor while improving safety and the travel experience for commerce, residents and visitors.

**Core Values**

WHAT IS IMPORTANT?





## SECTION 106 OUTREACH

Section 106 of the National Historic Preservation Act (as amended) and the Advisory Council on Historic Preservation regulations (36 Code of Federal Regulations [CFR] 800.2[c][ii]) mandate that federal agencies coordinate with interested Native American tribes in the planning process for federal undertakings. Consultation with Native American tribes recognizes the government-to-government relationship between the United States government and sovereign tribal groups. In that context, federal agencies must acknowledge that historic properties of religious and cultural significance to one or more tribes may be located on ancestral, aboriginal, or ceded lands beyond modern reservation boundaries.

Consulting tribes are offered the opportunity to identify concerns about cultural resources and comment on how the project might affect them. If it is found that the project will impact properties that are eligible for inclusion on the National Register of Historic Places and are of religious or cultural significance to one or more consulting tribes, their role in the consultation process may also include participation in resolving how best to avoid, minimize, or mitigate those impacts. By describing the proposed undertaking and the nature of any known cultural sites, and consulting with the interested Native American community, FHWA and CDOT strive to effectively protect areas important to American Indian people.

In August 2018, FHWA contacted five federally recognized tribes with an established interest in Eagle and Summit Counties, Colorado, and invited them to participate as consulting parties, including:

- Cheyenne & Arapaho Tribes of Oklahoma
- Kiowa Tribe of Oklahoma
- Southern Ute Indian Tribe
- Ute Mountains Ute Tribe
- Ute Indian Tribe (Uintah & Ouray Reservation)

The Cheyenne & Arapaho Tribes, and Kiowa Tribe responded to the solicitation, indicating they were not interested in participating as a consulting tribe. The Southern Ute Tribe indicated they were interested in being a consulting party and requested additional information. CDOT sent the eligibility and effects determinations to them on November 1, 2019. The Tribe responded on December 5, 2019 that they had no further questions and that they supported the nomination of the documented archaeological site and agreed with the effects determination. They requested to be contacted if any of the undisturbed sites with the area were impacted.

The study team also coordinated with the SHPO, Advisory Council on Historic Preservation (ACHP), and Section 106 consulting parties regarding historic properties. This coordination included:

- October 3, 2019, correspondence from CDOT to SHPO with proposed APE, and Determinations of Eligibility and Effects on historic properties.
- October 7, 14, 16, 2019, correspondence from CDOT to the consulting parties with proposed APE, and Determinations of Eligibility and Effects on historic properties.
- October 10, 2019, email correspondence from USFS to CDOT concurring with APE, and Determinations of Eligibility and Effects.
- October 17, 2019, correspondence from SHPO to CDOT concurring with APE and Determinations of Eligibility and Effects.
- March 12, 2020, correspondence from CDOT to SHPO with additional information to support Determinations of Effects.
- March 13, 2020, correspondence from CDOT to consulting parties with additional information to support Determinations of Effects.
- March 18, 2020, email correspondence from SHPO to CDOT accepting additional information.



- March 23, 2020, correspondence from CDOT to FHWA notifying of adverse effect determinations to historic properties.
- March 27, 2020, ACHP e106 form completed by FHWA, notifying ACHP of the finding by CDOT acting on behalf of FHWA, of adverse effect determination.
- April 14, 2020, correspondence from ACHP to FHWA stating they will not be participating further in the consultation for the project.
- June 16 and 18, 2020, correspondence from CDOT to SHPO and consulting parties with updated Section 106 consultation.
- July 9, 2020 correspondence from SHPO to CDOT concurring with the updated consultation.
- July 30 and 31, 2020 correspondence from CDOT to SHPO and consulting parties requesting review of the I-70 Mountain Corridor Section 106 PA supplement.

The PA supplement among CDOT, FHWA, and Colorado SHPO (will be executed prior to and included in the decision document).

The consulting parties for the Project include:

- Copper Mountain Consolidated Metropolitan District
- Eagle County
- Eagle County Historical Society
- Frisco Preservation Board
- National Park Service
- National Trust for Historic Preservation – Denver Field Office
- SHPO
- Summit County Historical Society
- Summit County Preservation Commission
- Town of Vail
- Town of Breckenridge Planning Commission

- Town of Vail Design Review Board
- USFS Arapaho and Roosevelt National Forest
- USFS White River National Forest
- Breckenridge Heritage Alliance

**Appendix A7** contains documentation of Section 106 consultation for historic resources. Section 106 coordination for archaeological resources and Tribal Consultation information is available in **Appendix A8**.

### **PUBLIC AND STAKEHOLDER PARTICIPATION**

A combination of outreach tools was used to reach the large number and wide variety of West Vail Pass users and impacted stakeholders. The stakeholder contact database included more than 3,000 property owners and tenants in the Project and East Vail area, as well as approximately 400 agency partners, stakeholders and citizens who attended meetings, provided written comments, or expressed interest.

A Project web page was available for two-way information sharing ([www.bit.ly/WestVailPass](http://www.bit.ly/WestVailPass)) and comments were accepted throughout the Project duration. At key points prior to public meetings, a news release was sent to local media outlets, and CDOT, local agency, and group partners distributed information to their email list serves and through social media posts.

Project announcements were distributed via mail and/or email at the following key points:

- Notification of public meeting #1 – February 2018
- Notification of public meeting #2 – November and December 2018
- Notification of East Vail noise public meeting – January and February, 2020



The first public meeting was held on February 22, 2018 to inform the community of the Project background and the NEPA process, and to gather public comments regarding West Vail Pass safety improvements. General comments received from the public indicated that there was overall agreement with the need for improvements, but concern about impacts to natural resources.

Many suggestions for using the Project to implement wildlife, traffic operational, noise and recreational trail improvements were made.

An intercept survey of Vail Pass Recreation Trail users was conducted on August 25, 2018, along the trail near the entrance to the Gore Creek Campground in East Vail. Trail users stopped to learn about the Project and provide their input on a survey regarding their trail use and aspects of the trail most important to them.

A second public meeting was held on December 13, 2018 to present the alternatives evaluation and draft Proposed Action for public comment. Both meetings were held in open house format.

A public meeting focused on traffic noise impacts and mitigation in East Vail was held on February 13, 2020. A presentation provided a Project overview and explanation of the noise analysis process and preliminary noise mitigation recommendations. Attendees were invited to stay following the presentation to view open house exhibits and provide comments. Attendees noted desire for noise mitigation and emphasized the impact of heavy truck engine brakes.

In addition to these general public meetings, many other meetings were held with agency stakeholders, elected officials and community members. These meetings, outlined in **Table 9**, served to inform stakeholders of the planned interchange improvements and gather feedback to be used by the Project team related to desired design refinements, potential impacts, and possible mitigation techniques.

**Table 9. Public and Stakeholder Involvement Activities**

DATE	PUBLIC/STAKEHOLDER INVOLVEMENT ACTIVITY
June 21, 2017	Colorado State Patrol coordination meeting
July 19, 2017	USFS coordination meeting
February 2, 2018	FHWA alternatives development and screening meeting
February 12, 2018	Environmental resource agency scoping meeting
February 22, 2018	Public Meeting #1
March 2018	Town of Vail town meeting
March 15, 2018	USFS coordination meeting
April 12, 2018	I-70 Coalition presentation
May 21, 2018	FHWA alternatives screening meeting
July 6, 2018	Eagle River Water and Sanitation District coordination meeting
July 18, 2018	East Vail community picnic
July 27, 2018	FHWA coordination meeting
August 25, 2018	Vail Pass Recreation Trail intercept surveys
November 26, 2018	USFS and CPW coordination meeting
December 4, 2018	Vail Town Council presentation
December 10, 2018	USFS coordination meeting
December 13, 2018	Public Meeting #2
January 3, 2019	Corps coordination meeting
February 6, 2019	FHWA coordination meeting
March 7, 2019	FHWA Section 106 and 4(f) meeting
March 18, 2019	FHWA variances meeting
April 11, 2019	USFS coordination meeting



DATE	PUBLIC/STAKEHOLDER INVOLVEMENT ACTIVITY
June 24, 2019	FHWA Section 4(f) meeting
July 25, 2019	USFS coordination meeting
October 25, 2019	FHWA Section 4(f) meeting
January 8, 2020	Executive Oversight Committee meeting
January 23, 2020	FHWA EJ and Section 4(f) meeting
February 13, 2020	East Vail traffic noise meeting

Frequent Project team meetings were also held between the consultant team and CDOT to allow for continuous coordination. **Appendix B2** contains documentation of the public comments received to date.

## 12. WHAT ADDITIONAL OPPORTUNITIES FOR STAKEHOLDER AND PUBLIC PARTICIPATION WILL BE PROVIDED?

Public and stakeholder coordination will continue through completion of the EA, final design, and construction. This coordination will include the PLT, TT and ITF agencies, impacted property owners, tenants, area businesses and commuters. The general public will be kept informed at key points through news releases, and those subscribed to the EA Project mailing list will receive email notices, at a minimum. Notice of the EA’s final public meeting and notice of the decision document availability will be sent electronically to the Project mailing list and distributed through CDOT and Town of Vail communication channels.

The public review and comment period for this EA will last 30 days and occur between September 22, 2020 and October 21, 2020. Comments can be submitted in the following ways:

Online: [www.bit.ly/WestVailPass](http://www.bit.ly/WestVailPass)

By email: [cdot\\_wvailpassauxlanes@state.co.us](mailto:cdot_wvailpassauxlanes@state.co.us)

By phone: (970) 331-0200

In writing: John Kronholm, P.E.  
Colorado Department of Transportation  
P.O. Box 298  
Eagle, CO 81631

A fourth public engagement opportunity will be held during the 30-day public review period for the EA. The purpose of this engagement will be to gather public input for consideration prior to preparation of a decision document. Comments received during the 30-day review period will be considered by CDOT and FHWA before a decision document is issued. Responses to comments formally submitted through the aforementioned channels will be included in the decision document, which will be made available on the Project web page ([www.bit.ly/WestVailPass](http://www.bit.ly/WestVailPass)) once it is finalized.

Due to current limitations on public events during the novel coronavirus pandemic and the need to provide a safe, convenient way for the public to participate, this engagement will be held virtually and consist of a video on the project web page. Printed copies of the video presentation will be made available in English and Spanish at the two EA public review locations.



### **13. WHAT ARE THE NEXT STEPS?**

As mentioned above, after the 30-day public-comment period concludes for the EA, CDOT and FHWA will evaluate the public comments and prepare responses to substantive comments. If comments are received during the public-comment period that necessitate changes to the Proposed Action, those changes and any changes to impacts and mitigation will be included in the decision document.

Upon completion of the decision document, CDOT will commence final design of a phase of the Project. Based on the conceptual design completed for the EA, the Proposed Action is anticipated to cost approximately \$700 million to construct. It is unlikely to be funded all at once and will therefore be designed and constructed in phases. CDOT is actively pursuing funding for the Project and will determine the elements of the first phase of the Project based on the amount of funding available. Each phase that is designed and constructed will need to have independent utility and logical termini, which means that it can be constructed and function as an independent project with rational end points if no other transportation improvements are constructed.

CDOT will confirm the impacts and mitigation for each phase of the Project, ensuring that the mitigation for impacts is appropriate for that phase. The CSS process will also be implemented during design and construction of each phase, including the SWEEP, ALIVE, Section 106, and CSS Design Criteria Exception ITFs.



## REFERENCES

- DEA 2019. *Alternatives Evaluation Summary Technical Memorandum for I-70 West Vail Pass Auxiliary Lanes* Appendix A1
- Illingworth & Rodkin, Inc. 2019. *Air Quality Technical Memorandum for I-70 West Vail Pass Auxiliary Lanes* Appendix A4
- Mead & Hunt. 2019. *Historic Resources Documentation for I-70 West Vail Pass Auxiliary Lanes* Appendix A7
- Wood. 2019a. *Floodplain Technical Memorandum for I-70 West Vail Pass Auxiliary Lanes* Appendix A15
- Wood. 2019b. *Utility Technical Memorandum for I-70 West Vail Pass Auxiliary Lanes* Appendix A11
- AlpineEco. 2020. *Wetland Technical Memorandum for I-70 West Vail Pass Auxiliary Lanes* Appendix A16
- CDOT. 2011b. *I-70 Mountain Corridor Final Programmatic Environmental Impact Statement (PEIS)*.
- CDOT. 2020a. *Archaeological Resources Documentation for I-70 West Vail Pass Auxiliary Lanes* Appendix A8
- CDOT. 2020b. *Paleontological Assessment for I-70 West Vail Pass Auxiliary Lanes* Appendix A19
- Colorado Wildlife Science, LLC. 2020a. *Biological Assessment for I-70 West Vail Pass Auxiliary Lanes* Appendix A12
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