

TOP OF VAIL PASS - AREA OF SPECIAL ATTENTION REPORT

CREST OF THE ROCKIES

DRAFT FEBRUARY 2011

Areas of Special Attention are locations or stretches along the Interstate 70 (I-70) Mountain Corridor that have been identified with multiple or unique issues. These areas were identified by stakeholders during the Aesthetic Working Group.

Addressing the various issues and integrating them into design solutions requires further understanding of stakeholder concerns, the issues, and some of the suggested solutions. These concerns, issues, and suggested solutions (when available) have been recorded and provided in a report for each Area of Special Attention.



How to Use this Report

The intent of this report is to provide to planners and designers of the I-70 Mountain Corridor a record of the discussions focused on the Top of Vail Pass Area of Special Attention. To that end, this report includes the concerns expressed by many stakeholders: citizens, business owners, property owners, organizations, and agencies. This report also includes a description of the area, the goals and objectives for the area, relevant plans that must be reviewed, and the suggested process for moving forward.

This report is not an exhaustive list of alternatives and may not include recent comments and issues.

Issues and Proposed Improvements

Vail Pass is the gateway to Eagle and Summit Counties and serves as a major transit route across the Rocky Mountains, providing access to numerous ski resorts. Dramatic views can be found throughout the length of Vail Pass to adjacent peaks and valleys. The area faces high accident rates due to steep topography, significant truck traffic, mountain weather conditions, and the presence of drivers unfamiliar with the area. By 2025, increased congestion on weekends and westbound traffic on Fridays will exceed capacity, resulting in a level of service rating of E. The area has a

WHY TOP OF VAIL PASS IS AN AREA OF SPECIAL ATTENTION

- *Major transportation route*
- *Forest and wildlife conflicts*
- *Dramatic views*
- *Gateway to Eagle and Summit Counties*
- *Relocation of CDOT maintenance facility*
- *Recreational activities*
- *Proposed AGS*
- *Proposed I-70 improvements*
- *Access to major ski resorts*

high level of recreational use year round as well, creating confusion between recreational access, maintenance activities, and access to traveler services.

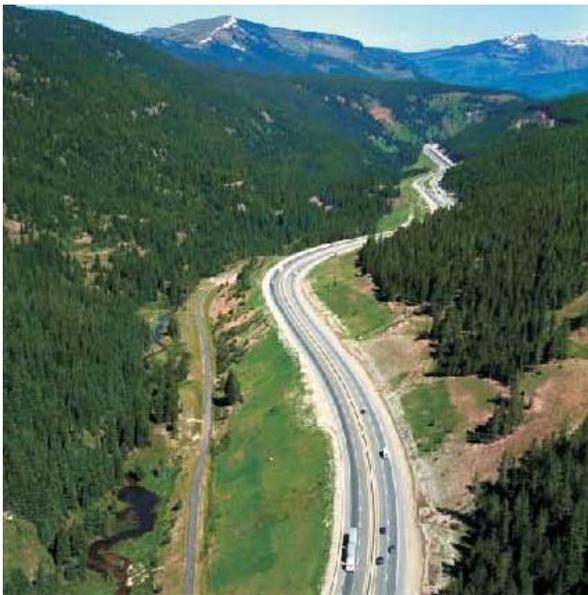
Maintenance activities have a detrimental effect on water quality as sand build-up on the roadway shoulder causes sedimentation of nearby waterways. The existing sand storage structure at mile 189 causes a negative visual impact to the scenic view from the top of Vail Pass.

Proposed I-70 improvements include eastbound auxiliary lane locations, westbound auxiliary lane locations, Advanced Guideway System (AGS), potential maintenance facility relocation, and potential interchange modification at Copper Mountain.

Area Limits and Description

Important contextual features and places within Vail Pass add to its unique character. These include panoramic views of the Rocky Mountains, views to adjacent peaks and valleys, forest and wildlife, access to major ski resort destinations such as Copper Mountain and Vail Resort, Colorado Department of Transportation (CDOT) maintenance facilities, Eagles Nest Wilderness and White River National Forest, and habitat and recreational trails that exist within the median of the roadway on the eastern side of the pass.

The functional aspects of Vail Pass are graphically represented on the Local Functional Context Map, which illustrates the layout and operational aspects of the area -- including land use, circulation and access interrelationships, and operational priorities.



Top of Vail Pass traveling west

TOP OF VAIL PASS - AREA OF SPECIAL ATTENTION REPORT

CREST OF THE ROCKIES

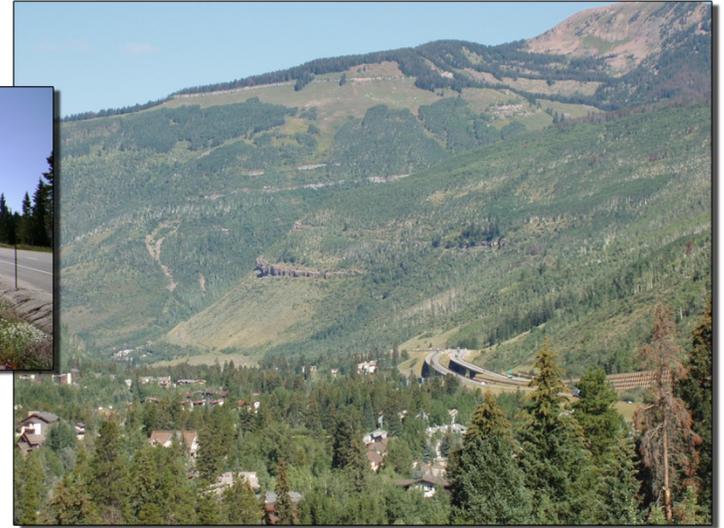
DRAFT FEBRUARY 2011



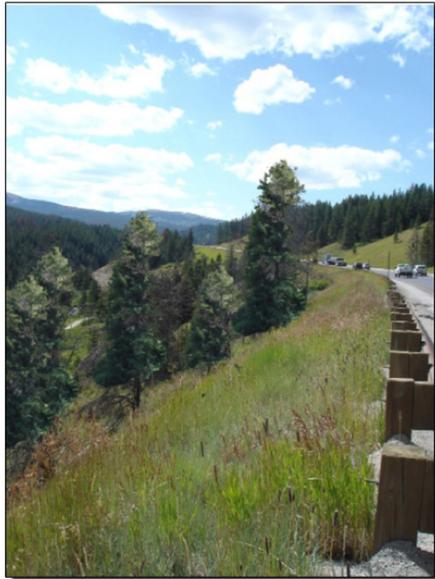
VIEW EASTBOUND ALONG VAIL PASS



VIEW FACING EAST AT CDOT MAINTENANCE FACILITY



VIEW WEST FROM VAIL PASS INTO VAIL VALLEY



VIEW WESTBOUND ALONG VAIL PASS



VIEW EASTBOUND OF VAIL PASS BRIDGE



WESTBOUND ENTRANCE TO EAGLE COUNTY



VIEW EASTBOUND ALONG VAIL PASS

TOP OF VAIL PASS
CONTEXT
PHOTOGRAPHS



Transportation Vision Elements to Be Considered

Future improvements and studies in the I-70 Mountain Corridor through the Top of Vail Pass Area should consider each of the elements outlined below.

- Advanced Guideway System (AGS)
- I-70 Improvements
 - **Road Improvements**
 - Eastbound and westbound auxillary lane locations
 - Conceptual AGS crossing of I-70

Goals and Objectives

- Define points of cultural history, recreation, natural history, or landmarks for travelers and note them along the corridor, also noting the national importance of Vail Pass as an historically designated roadway.
- Ensure the relocation of the CDOT maintenance facility does not hinder access to or functionality of the recreational area near the rest area.
- Mitigate unfavorable visual appearances (i.e., the CDOT maintenance facility) by utilizing landform and landscaped buffers.
- Focus pedestrian-scaled lighting at recreation portals such as the Vail Pass rest area (exit 190), but ensure preservation of the night sky.
- Improve safety and reduce confusion of the shared-use facility by minimizing conflicts between maintenance activities, travelers, and recreational users.
- Preserve areas of high visual value or recreational value by restricting the stockpile of construction materials in these locations.
- Provide for wildlife movement corridors with fencing, overpasses, and/or underpasses.
- Preserve and restore significant stands of vegetation, especially along adjacent riparian corridors.
- Utilize strategies to restore disturbed areas (rock cuts, grading) to a naturalized appearance.
- Improve the consistency in design and color schemes for roadway structures (sound walls, retaining walls, barriers, guardrails, bridges, and wildlife fencing).
- Improve the water quality of adjacent waterways, including aesthetic restoration after construction.

TOP OF VAIL PASS - AREA OF SPECIAL ATTENTION REPORT

CREST OF THE ROCKIES

DRAFT FEBRUARY 2011

- Preserve major site resources and features such as topography, views, unique vegetation, geological features, wetlands, and other qualities native to the site and its surroundings.

Design and Engineering Guidance

I-70 Mountain Corridor Design Criteria - Overview

The following overarching principles apply to the entire I-70 Mountain Corridor. These principles are supported by the Aesthetic Guidance, which is divided into Design Segments and which presents specific objectives and strategies. The principles are provided to the future managers and designers of transportation facilities within the corridor to guide the desired outcomes of individual projects.

A. Corridor Design Character

Elegantly engineered transportation facilities will reflect function, simplicity, and integrated design throughout the corridor. The landscape under, adjacent to, and beyond the structures supporting transportation facilities shall be rugged, organic, and made of natural materials. Designers will not attempt to make facilities falsely appear natural with the application of materials. The linkage of land and transportation features will be visualized as a single design effort, rendering a cohesive quality for the entire corridor. The geometry of the road should maintain a continuous flow and fit existing land forms.

B. Integrated and Complete Design

All facilities included in a project -- whether primary or auxiliary to the function of the corridor -- will be identified, programmed, and conceptually designed prior to completion of 30% design. This will include consideration of the entire construction disturbance zone. A comprehensive design is necessary in order to plan for all construction disturbances and create an integrated, sustainable corridor that accounts for each project. Aesthetic objectives and functionality are optimized when all elements are included in the design at inception. Integrated design includes considerations such as drainage and hydrology, water quality, wildlife crossings, rock cuts, life cycle costs, and long-term maintenance.

C. Partnerships to Create the Corridor

Corridor design will include consideration of a buffer and transition area between transportation facilities and community-oriented land uses. The landscape planting, earthwork, structural solutions, and location of the transportation facilities need to be fully examined in order to avoid potential visual and scenic impacts, buffer highway noise, and preserve community character and patterns. Road and trail connections and multi-modal travel corridor opportunities should be considered. Reinforcement of alternative methods of travel such as pedestrian and biking paths should be incorporated and coordinated with community and recreational planning efforts.

D. Using the Programmatic Environmental Impact Statement (PEIS)

The I-70 Mountain Corridor PEIS contains critical background and reference information foundational to design. The PEIS should be reviewed throughout the entire design process

for insight into the detailed assessments of various corridor aspects. This will ensure alignment and consistency with the analyses and recommendations determined by the PEIS.

E. Corridor-Wide Projects

Projects that will be implemented across the entire corridor have the potential to create elegant consistency. These projects should be approached with an additional level of care and scrutiny, and should address the ideas set forth in the Aesthetic Guidance for all four corridor Design Segments. The goal should be a project that yields an overall aesthetic benefit to the corridor.

Engineering the I-70 Mountain Corridor

Design Criteria

Seven required Engineering Design Criteria have been developed to address the unique characteristics of the I-70 Mountain Corridor. These criteria are intended to influence the alignment of the transportation facilities and are an essential component of the engineering design.

The Engineering Design Criteria have been developed and adopted by the Colorado Department of Transportation (CDOT) because they represent an approach that enhances safety, mobility, and sustainability while reducing maintenance through design and engineering.

Design Criteria Categories

The following Design Criteria categories direct the development of both I-70 and the Advanced Guideway Systems (AGS)*:

- Design Speed
- Alignment
- Slope Cut and Fill
- Disturbance
- Rock Cut
- Bridge Structures
- Sound Attenuation

*As the AGS for the I-70 Mountain Corridor is further defined, developed, and refined, the criteria may be updated to match the chosen technology.

Application of Design Criteria

All of the Design Criteria must be met in Life Cycle Phase 2: Project Planning. Alternatives may be refined in Life Cycle Phase 3: Project Design, when the designer is able to determine which criteria may require an exception and why. The one exception for this requirement is

in Areas of Special Attention, where a design exception may be considered in Phase 2 due to the complexity of the issues involved.

Federal, state, and local agencies will neither officially review nor grant design exceptions until Life Cycle Phase 3: Project Design.

Project Leadership Team Role

The Project Leadership Team (PLT) must be apprised of the Design Criteria being used on its I-70 Mountain Corridor project.

Justification for any criteria that would not be met as determined during design must be presented, discussed, and agreed upon by the PLT. Consideration will be given to the I-70 Mountain Corridor Core Values; safety; operation; compatibility with the overall network; character of traffic; cost implications; and impacts to scenic, historic, and environmental features. Other variables to consider include the amount of change to the criteria, its effect on other criteria, and any additional impacts that one change may make.

Design Exception Process

Due to challenges presented within the I-70 Mountain Corridor, a situation may arise in which the existing Design Criteria cannot be met, or in which the impact of meeting the criteria would be too great. Should this be the case, a design exception must be requested. Design exceptions may assist a designer in finding a transportation solution that balances impacts to scenic, historic, and culturally or environmentally sensitive areas while still providing for safety and mobility. Designers should think innovatively, consider the Core Values, and take into account the flexibility available to them when designing a transportation solution for the I-70 Mountain Corridor.

Design exceptions may be granted for the following justifications:

- Complementing surrounding physical characteristics
- Enhancing safety
- Increasing capacity
- Reducing costs
- Protecting the environment
- Preserving historic and scenic elements
- Interfacing with multiple modes of transportation
- Utilizing new technology or innovative approaches
- Doing the right thing

TOP OF VAIL PASS - AREA OF SPECIAL ATTENTION REPORT

CREST OF THE ROCKIES

DRAFT FEBRUARY 2011

I-70 Mountain Corridor Design Criteria

Design Criteria		Remarks
Design Speed	For I-70, 65 MPH design speed. For Advanced Guideway System (AGS), dependent on technology.	<ol style="list-style-type: none"> 1) Posted speed of 55 MPH on I-70. 2) Federal Highway Administration (FHWA) 13 controlling criteria and Colorado Department of Transportation (CDOT) Design Criteria apply. 3) Technology-appropriate Design Criteria will apply to AGS.
Alignment	<p>Eastbound highway lanes, westbound highway lanes, and the AGS will be designed as separate, independent alignments.</p> <p>The three alignments will maintain no less than the existing median width or create a clear zone that does not require a guardrail or barrier.</p> <p>No loss of existing vertical separation of highway lanes will occur in any section.</p>	<ol style="list-style-type: none"> 1) Provides a recovery zone. 2) Median required for snow removal and maintenance. 3) Separation prevents headlight glare, improving safety and maintenance conditions. 4) Separate alignments will adapt to topographic conditions. 5) See Illustration 1 for highway cross section.
Slope Cut and Fill	<p>Limits of physical disturbance shall be less than 40 vertical feet from the top of the pavement or rail platform to the farthest edge of cut or fill.</p> <p>Cut and fill embankment will not exceed a slope of 2.5:1 (H:V).</p> <p>All roadway retaining walls over 12' in height will be installed below the elevation of the roadway.</p>	<ol style="list-style-type: none"> 1) Planting, re-vegetation, and restoration of slopes will be successful with flatter slope embankment. 2) Slopes will be more easily maintained and erosion and sediment transport will be manageable. 3) See Illustrations 1 and 2.

TOP OF VAIL PASS - AREA OF SPECIAL ATTENTION REPORT

CREST OF THE ROCKIES

DRAFT FEBRUARY 2011

Design Criteria		Remarks
Disturbance	<p>Construction will be fully contained with areas of historic or current disturbance if no centerline change occurs.</p> <p>New alignments must be consistent with Design Criteria for slope cut and fill.</p>	<ol style="list-style-type: none">1) Existing maintenance problems will be resolved or improved by staying within the existing limits of disturbance.2) Construct without increasing the disturbance zone.
Rock Cut	<p>A geotechnical analysis report will be completed and reviewed prior to any proposal to create rock cuts for an alignment.</p> <p>If rock cuts are required, naturalized custom cuts methods are required. Rock cuts shall be constructed using scatter blasting techniques and provide for adequate rockfall area at the base.</p>	<ol style="list-style-type: none">1) Allows for understanding of rock formations at an early planning stage to potentially avoid rock cuts.2) Avoids rockfall mesh and reduces maintenance.3) Scatter blasting techniques provide a naturalized cut and allow safety from rockfall to be incorporated in the design.

TOP OF VAIL PASS - AREA OF SPECIAL ATTENTION REPORT

CREST OF THE ROCKIES

DRAFT FEBRUARY 2011

Design Criteria		Remarks
Bridge Structures	<p>Bridge structures will not utilize slope paving techniques and will require a closed-end abutment design with a minimum vertical height of 8', measured below the bridge girder.</p> <p>Bridge embankments shall be 2.1:1 maximum.</p>	<ol style="list-style-type: none"> 1) Avoids the maintenance of slope paving. 2) Provides a method of incorporating re-vegetation and landscape into bridge slopes. 3) A clear span over streams and drainages avoids water quality construction impacts and reduces maintenance and pier scour. 4) Provides benefits below bridges for vehicle clearance, wildlife crossing, solar access, and re-vegetation success. 5) See Illustrations 3 and 4.
Sound Attenuation	<p>Sound buffering and attenuation will be designed in conjunction with the horizontal and vertical alignment to eliminate the need for noise mitigation.</p> <p>Mitigation, if required, will integrate landforms, landscape planting buffers, and walls.</p>	<ol style="list-style-type: none"> 1) Design can minimize or eliminate additional noise mitigation. 2) If sound walls are required, see Illustrations 5 and 6.

TOP OF VAIL PASS - AREA OF SPECIAL ATTENTION REPORT

CREST OF THE ROCKIES

DRAFT FEBRUARY 2011

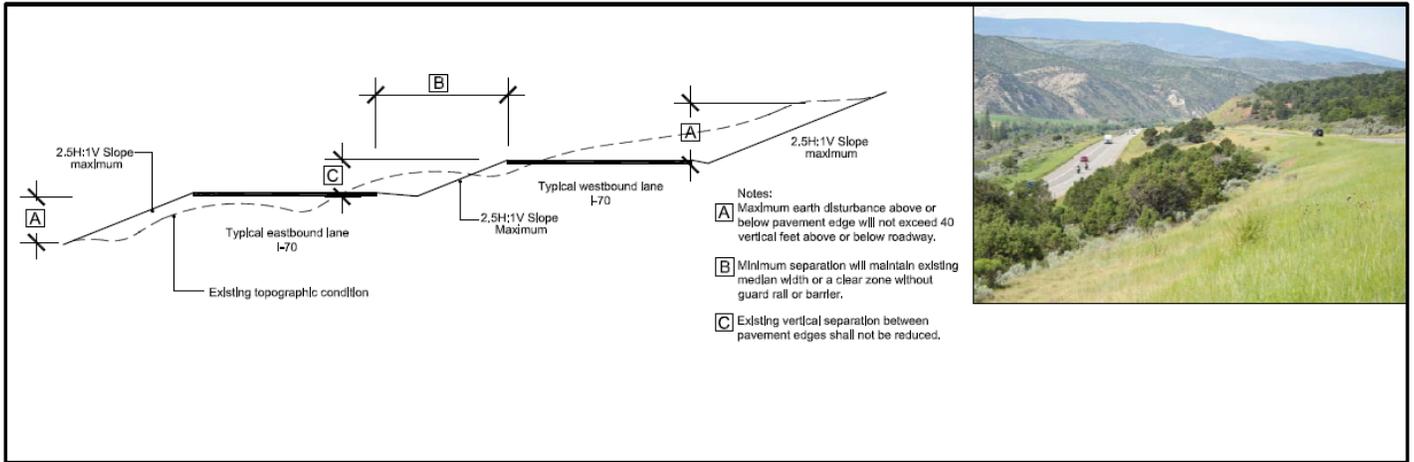


ILLUSTRATION 1: DESIGN CRITERIA FOR ALIGNMENT AND CUT AND FILL

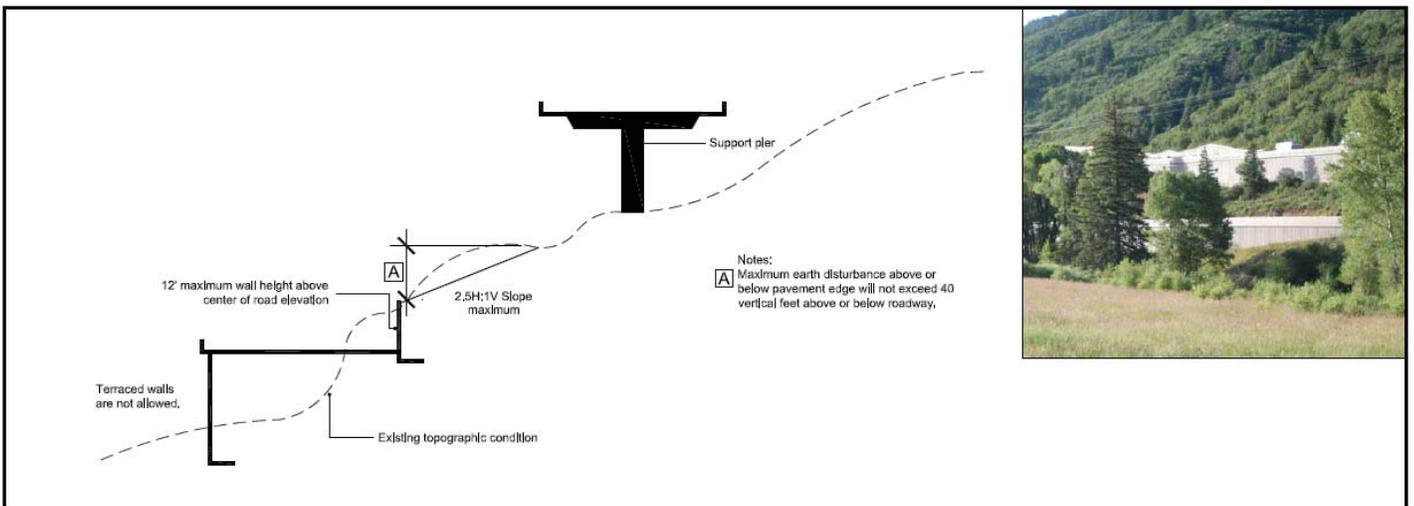


ILLUSTRATION 2: DESIGN CRITERIA FOR CUT AND FILL

TOP OF VAIL PASS - AREA OF SPECIAL ATTENTION REPORT

CREST OF THE ROCKIES

DRAFT FEBRUARY 2011

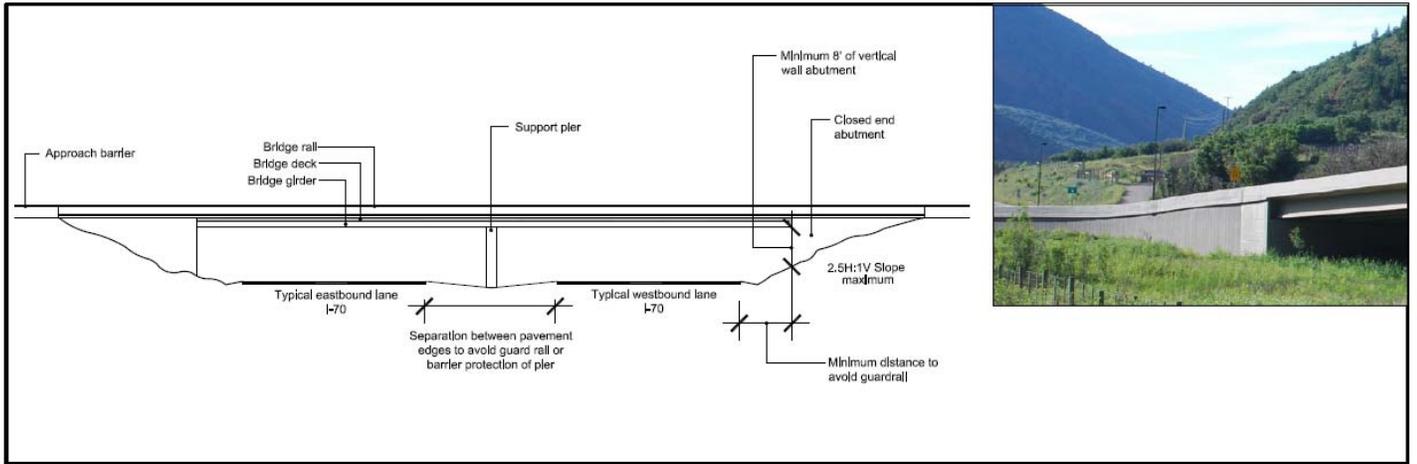


ILLUSTRATION 3: DESIGN CRITERIA FOR BRIDGE STRUCTURES OVER I-70

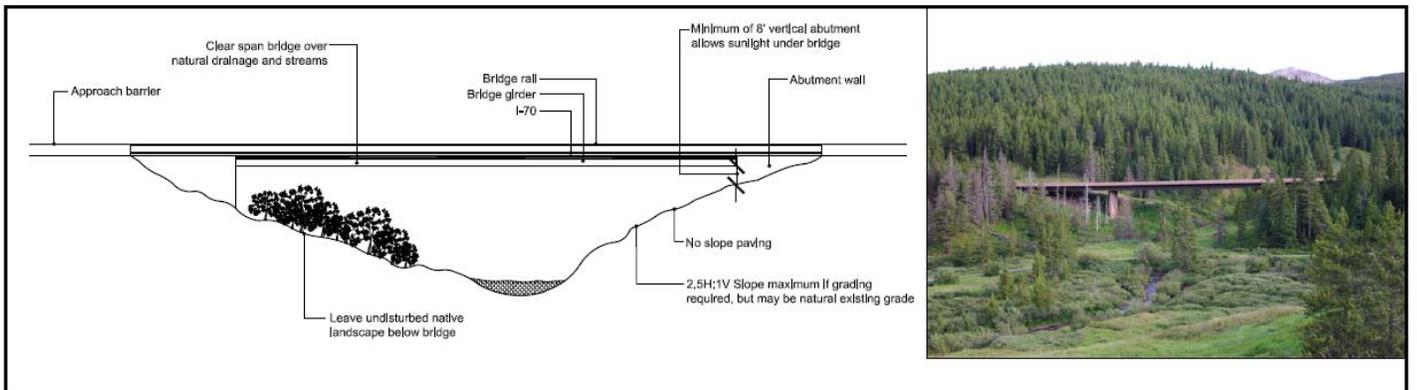


ILLUSTRATION 4: DESIGN CRITERIA FOR I-70 BRIDGE OVER NATURAL FEATURES OR OTHER ROADWAYS

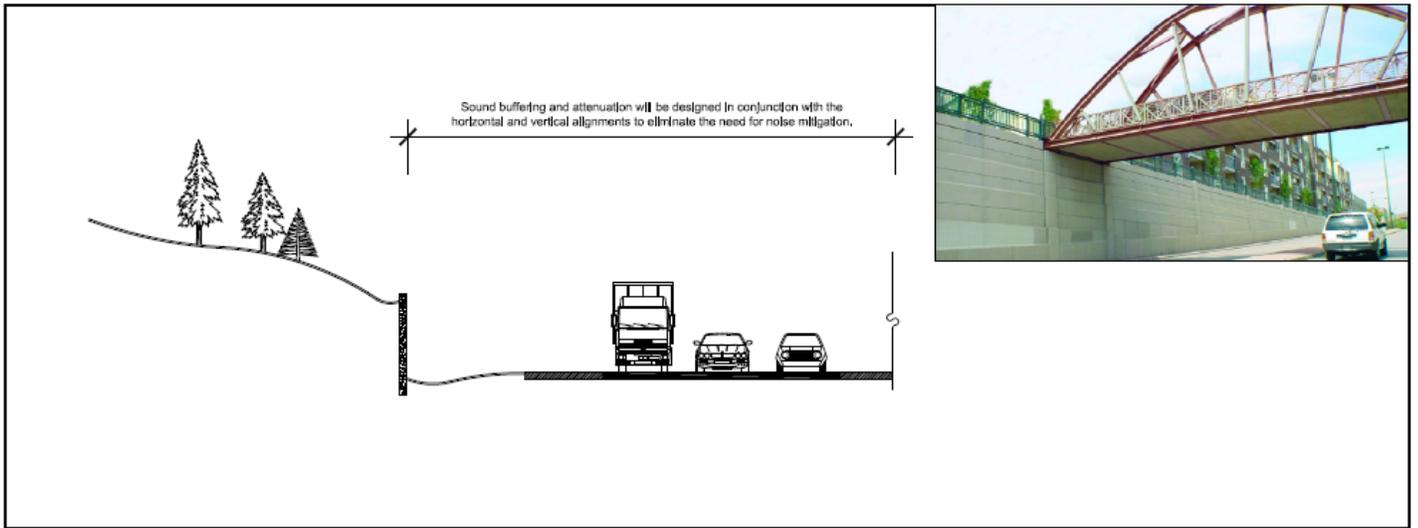


ILLUSTRATION 5: DESIGN CRITERIA FOR SOUND ATTENUATION

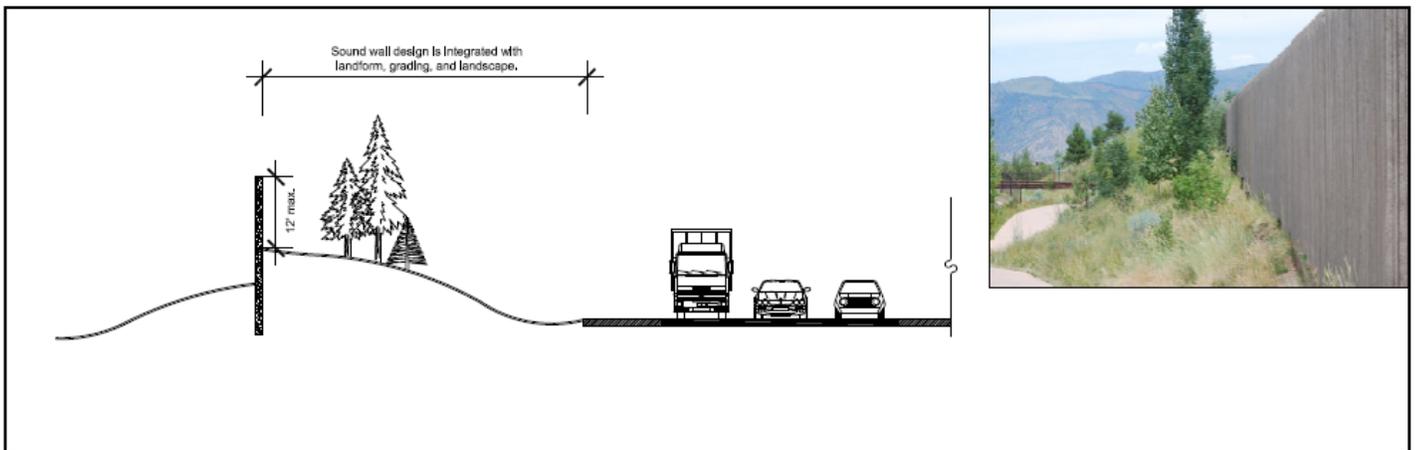


ILLUSTRATION 6: DESIGN CRITERIA FOR SOUND WALL DESIGN

Who Should Be Involved?

Stakeholders in the Top of Vail Pass Area include citizens, business owners, property owners, organizations, travelers, transporters, and agencies. Future studies, planning, and design work should continue to involve not only these stakeholders, but also planning, design, landscape architecture, operations, environment, public process, and communication experts. This involvement and collaboration will allow the stakeholders to look for common ground and provide opportunities to develop partnerships to further the shared vision.

The following is an initial list of agencies and organizations. Additional stakeholders and partners should be involved as they are identified.

- Community members
- Town of Vail
- Eagle County staff
- Summit County staff
- Copper Mountain Resort
- Vail Resorts
- Colorado Department of Transportation
- Federal Highway Administration
- Federal Railroad Administration
- US Forest Service
- Colorado Division of Wildlife
- Colorado Historical Society
- I-70 Coalition
- Northwest Council of Governments
- US Army Corps of Engineers
- US Fish and Wildlife Service
- Colorado Department of Public Health and Environment
- Colorado Motor Carriers
- National Trust for Historic Preservation
- Audubon Society
- Colorado Rail Passenger Association
- OmniTrax
- Trout Unlimited
- Colorado Preservation Inc.
- ECO-Resolutions
- Center for Native Ecosystems
- Colorado Association of Transit Agencies

Other Relevant Materials to Be Included in the Process

For all studies along the I-70 Mountain Corridor, a primary source of information must be the Programmatic Environmental Impact Statement (PEIS). The Top of Vail Pass Area of Special Attention includes the PEIS elements of the Advanced Guideway System (AGS) and planned highway improvements.