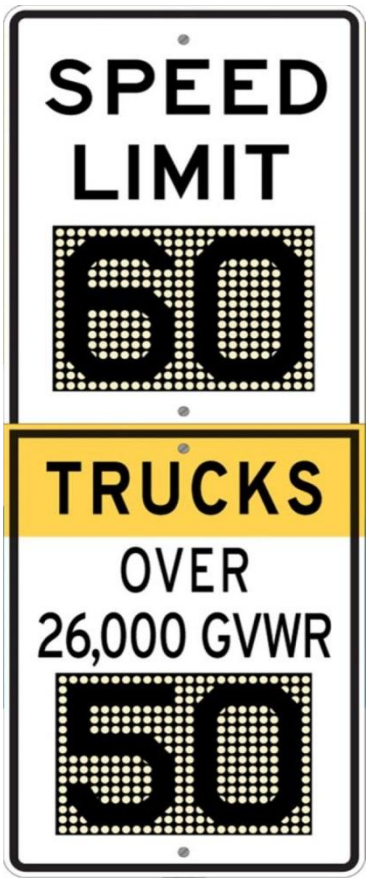
I-70 GLENWOOD CANYON
VARIABLE SPEED LIMITS

ABBREVIATED VISUAL IMPACT ASSESSMENT

FINAL



June 27, 2017

Prepared for:

Stolfus and Associates, Inc.
and
CDOT Region 3

Prepared by:

AECOM

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1. INTRODUCTION

1.1 Project Overview and Purpose of the Report and Related Analysis

The Interstate 70 (I-70) Glenwood Canyon, Variable Speed Limits (VSL) Project (Project) is described in the Concept of Operations report dated August, 2015. The project would be implemented within a 14-mile segment of I-70 spanning Glenwood Canyon in western Colorado. The Project involves replacing existing standard (static/fixed) speed limit signs with new VSL signs, installing three weather stations for live monitoring and reporting of weather conditions, installing 72 standard static signs, removing 35 existing static signs, installing12 closed circuit cameras for live monitoring and viewing of roadway conditions and adding other surface and subsurface conduit and related improvements to guide the display of the variable speed limits. The VSL signs, rather than the other improvements, are the focus of this report because the visual effects of the project are primarily due to the new VSL signs.

This report has been prepared to document visual impacts that will occur as part of the Project in accordance with the National Environmental Policy Act (NEPA), Section 106 of the National Historic Preservation Act Section 106 (NHPA), and Section 4(f) of the Department of Transportation Act (Section 4(f). Additionally, the report was requested by White River National Forest and to support documentation of the finding of adverse effect determined between CDOT and the State Historic Preservation Officer (SHPO) in consultation under Section 106 (See Appendix 1). As part of the consultation, SHPO identified concerns about the cumulative visual effects of the Project. The Section 106 correspondence and this report will be attached to a NEPA Categorical Exclusion (CatEx) for the project.

The intent of preparing this report and the associated analysis is not to change the adverse effect determination, but rather to address and minimize to the extent possible the visual impacts of the Project within the visually significant and historic Glenwood Canyon. Mitigation under Section 106 is outlined in a Memorandum of Agreement, not included in this report.

Although there are other historic properties in the project corridor, including the Shoshone Hydroelectric Plant and the Denver & Rio Grande Railroad, only two historic properties were adversely affected by the Project: 1) Glenwood Canyon Interstate Resource and 2) Glenwood Canyon Transportation Corridor.

Glenwood Canyon Interstate Resource (5GF5099): The segment of I-70 from milepost 118.5 to 130.3 is a nationally significant feature of the Interstate Highway system. It has not been formally documented in the field but was found to be significant for its innovative design that met American Association of State Highway and Transportation Officials (AASHTO) design standards while taking into account the surrounding canyon environment. The highway through Glenwood Canyon was completed in 1993 and features stepped travel lanes, cantilevered roadbeds to reduce visibility of retaining walls, use of narrow camouflaged bridge and viaduct columns and piers, and landscaping that involved replanting native shrubs and trees where there were construction impacts. This resource has the potential for eligibility under National Register Criterion Consideration G for properties that have gained significance within the past 50 years, as well as Criteria A and C. The bridges within the limits of this resource are treated as contributing elements to the overall resource.

Glenwood Canyon Transportation Corridor (5GF2752/5EA1585): This resource was determined officially eligible in 2012. It extends through both Garfield and Eagle Counties and its broader boundary includes the Glenwood Canyon Interstate resource (5GF5099) and sections of the canyon walls.

The intended outcome of the visual analysis is to optimize the location of the required signs so the final specific locations avoid or minimize the identified visual effects. As part of the process, mitigation measures are identified for unavoidable effects, where feasible. These mitigation measures will become part of the Project requirements and obligations when this report is finalized, the CatEx is approved, and the Project is approved.

Chapter 1, Sections 1.2 and 1.3 address guidance for preparing this report. Chapter 2 describes the Project's setting, background, details and context. Chapter 3 characterizes the overall findings of this report covering existing conditions in Sections 3.1 and 3.2, impact methodology and the effects in Section 3.3 and mitigation in Section 3.4.

1.2 CDOT Visual Impact Assessment Guidance

The Colorado Department of Transportation (CDOT) and the Federal Highway Administration (FHWA) implement the *Guidelines for the Visual Impact Assessment of Highway Projects* dated January 2015. The FHWA guidelines are found at this website:

https://www.environment.fhwa.dot.gov/guidebook/documents/VIA_Guidelines_for_Highway_Projects.asp

Section 9.23 CDOT's NEPA Manual dated July 2015 provides guidance on addressing Visual Resources/ Aesthetics. CDOT is currently evaluating the 2015 FHWA guidelines to determine if changes are necessary to internal guidance for the preparation of Visual Impact Assessments (VIAs). In June of 2017, it is anticipated that the NEPA Manual will be revised to include an updated CDOT approach to visual impact assessment. In 2016, CDOT has established a Visual Resources Program website.

https://www.codot.gov/programs/environmental/visual-resources

In May of 2016, CDOT signed a Memorandum of Understanding to establish procedures for coordinating activities affecting the state transportation system and lands administered by the U.S. Forest Service (USFS) and the Bureau of Land Management (BLM) within the State of Colorado. Chapter III Environmental Coordination and NEPA Document Preparation and Appendix A-3 Supplemental Visual and Scenic Resource Guide for CDOT Maintenance and Operations address how CDOT, USFS and BLM will work together on visual and aesthetic resource analysis.

The BLM and USFS have their own guidance on visual impact assessment that applies to projects where they are the Federal Lead Agency. This Abbreviated VIA has been prepared in compliance with the FHWA VIA guidelines.

The FHWA and CDOT guidance requires consideration of other resource types and different units of government and cites examples, including the following:

Section 106 of the National Historic Preservation Act
Section 4(f) of the Department of Transportation Act
Section 6(f) of the Land and Water Conservation Fund Act

1.3 Visual Impact Assessment Questionnaire and Results

The VIA process described in the FHWA VIA Guidelines begins with a VIA Scoping Questionnaire. The VIA Scoping Questionnaire for the Project is presented in Appendix 2. The Questionnaire result is that an Abbreviated VIA documentation approach is recommended for the Project.

2. PROJECT DESCRIPTION

2.1 Project Setting and Background

The Project occurs within a 14 mile portion of I-70 that includes the 12 mile stretch of Glenwood Canyon. Glenwood Canyon is characterized by the presence of the Colorado River, steep cliffs that rise up approximately 2,000 feet from the river, natural vegetation, I-70, a railroad, and a bicycle/pedestrian path. Glenwood Canyon is known for its scenery, history and the roadway engineering that has occurred within the canyon.

Taylor State Road was completed between Denver and Grand Junction in 1902. It was the first improved vehicle road through Glenwood Canyon. Over the years, various roadway improvements were made. The final link of I-70 through Glenwood Canyon, completed over 12 years, has been hailed as an engineering marvel because of the care taken to incorporate the interstate improvements into the fragile canyon environment while leaving as much of the flora and fauna intact as possible. Additional details are provided in Section 2.4 and on CDOT's website:

https://www.codot.gov/about/CDOTHistory/50th-anniversary/interstate-70/glenwood-canyon

2.2 Project Description

As described in Section 1.1, the Project involves:

- Replacing existing standard (static/fixed) speed limit signs with new VSL signs
- Installing three weather stations for live monitoring and reporting of weather conditions
- Installing 72 standard static signs
- Removing 35 existing static signs
- Installing12 closed circuit cameras for live monitoring and viewing of roadway conditions and
- Adding other surface and subsurface conduit and related improvements to guide the display of the variable speed limits.

The VSL signs are the focus of this report because the visual effects of the project are primarily due to these signs.

The Project's purpose and description is summarized as follows:

> To increase safety along this corridor, CDOT proposes to install technology that has the ability to control and change speed limits. The project limits are anticipated to span approximately 14 miles in the eastbound direction, from milepost (MP) 116.91 to MP 130.93, and approximately 15 miles in the westbound direction, from MP 115.88 to MP 131.08. This length of I-70 extends through the Glenwood Canyon corridor, including the Hanging Lake Tunnel (HLT) area, where inclement weather commonly causes poor roadway conditions. In addition to improving safety during weather events, the system will lower the speed limit to assist with incident management, maintenance, and construction activities. VSL signs will be strategically placed throughout the corridor to increase safety by controlling and reducing speed limits as appropriate.

The Project's need is summarized as follows:

> This section of I-70 experiences a range of weather conditions throughout the year, causing unsafe conditions for drivers if they are not taking proper precautions. Based on a recent safety assessment by CDOT, the number and severity of crashes that occur in this area are below average, compared to similar facilities. However, the number of fixed-object crashes, especially during inclement weather, is high.

Figure 1 shows an example of a standard CDOT Interstate Highway speed limit sign, an example of an existing variable speed limit sign in the canyon and the proposed VSL sign. Each sign is required to be compliant with the Manual on Uniform Traffic Control Devices (MUTCD).

The proposed VSL signs will be four feet wide and ten feet high. Details regarding the type of sign (whether the numbers are made up of LEDs or scrolling film, for example) will be finalized as part of the design process. The signs will be placed in the I-70 median or along the outer lane within CDOT right of way. The signs will be mounted in three general configurations:

1. Standard Ground Mount
2. Ground Mount Extending Above Elevated Roadway
3. Cantilever Mount

Support for the ground mounted signs may involve one or two posts. Signs must be placed at least four feet above the surrounding ground to address sign visibility relative to potential snow levels. In addition, the bottom of the sign should be a minimum of seven feet above the project edge of the roadway travel surface, which is the road elevation at the white line at the edge of the road. Final sign placement details will be resolved during final design and installation.

In total, the Project involves the installation of 23 new VSL signs and removal of the corresponding existing static speed limit signs. There are six VSL signs already in the corridor. The existing VSL signs will be replaced.

Figure 1 Existing Speed Limit Signs and Proposed VSL Sign

Existing Speed Limit Sign

Existing VSL Sign

Proposed VSL Sign (Front)

Four of the existing VSL signs are mounted on sign bridges. These four signs are not the subject of the site optimization portion of this analysis because their locations are fixed on the traffic structure. After the VIA workshop, staff of Hanging Lake Tunnel (HLT) requested that these signs on their system also be replaced. These VSL signs are located in the westbound direction of I-70 on either side of HLT and are a part of HLT's tunnel control system. These signs are used to manage speeds in the vicinity of the tunnel during maintenance operations, lane closures, and other routine activities. The visual effects of replacing these signs were considered unavoidable and minimal even though the new VSL signs would be larger. Relocation of these signs on the sign bridge would be inconsequential in terms of visual effects. Relocation elsewhere is not possible given their purpose and would add visual impact.

Consequently, the focus of the site optimization portion of this analysis is on the 19 sites where the new VSL signs will be installed. There will be 11 new VSL signs for eastbound motorists and 8 for westbound motorists.

All new VSL sign locations were selected to meet applicable engineering safety requirements given roadway conditions. The originally proposed locations (excluding the VSL signs currently operated by HLT) were identified in the Project's Concept of Operations (ConOps) and were sited based upon crash history, FHWA's Manual on Uniform Traffic Control Devices (MUTCD) and Traffic Control Handbook, and the recommendations of CDOT Staff Traffic and Colorado State Patrol. The original locations as identified in the ConOps are shown in Figure 2. The proposed VSL sign sites were then subjected to further refinement based upon engineering considerations such as access to CDOT's fiber optic communications network, availability of electrical power, roadside conditions, and feedback received during a field review of the locations.

In light of concerns raised by stakeholders during development of the ConOps and the Project's preliminary engineering phase, the possibility that additional signs could be eliminated or moved to an entirely different location to avoid visual impacts was analyzed. Based upon this analysis, three sign locations were eliminated; by eliminating the double posting of signs at two locations, and entirely eliminating a third sign in a non-essential location. No additional changes of this type were considered allowable or permitted even under variance conditions given the applicable roadway and MUTCD requirements.

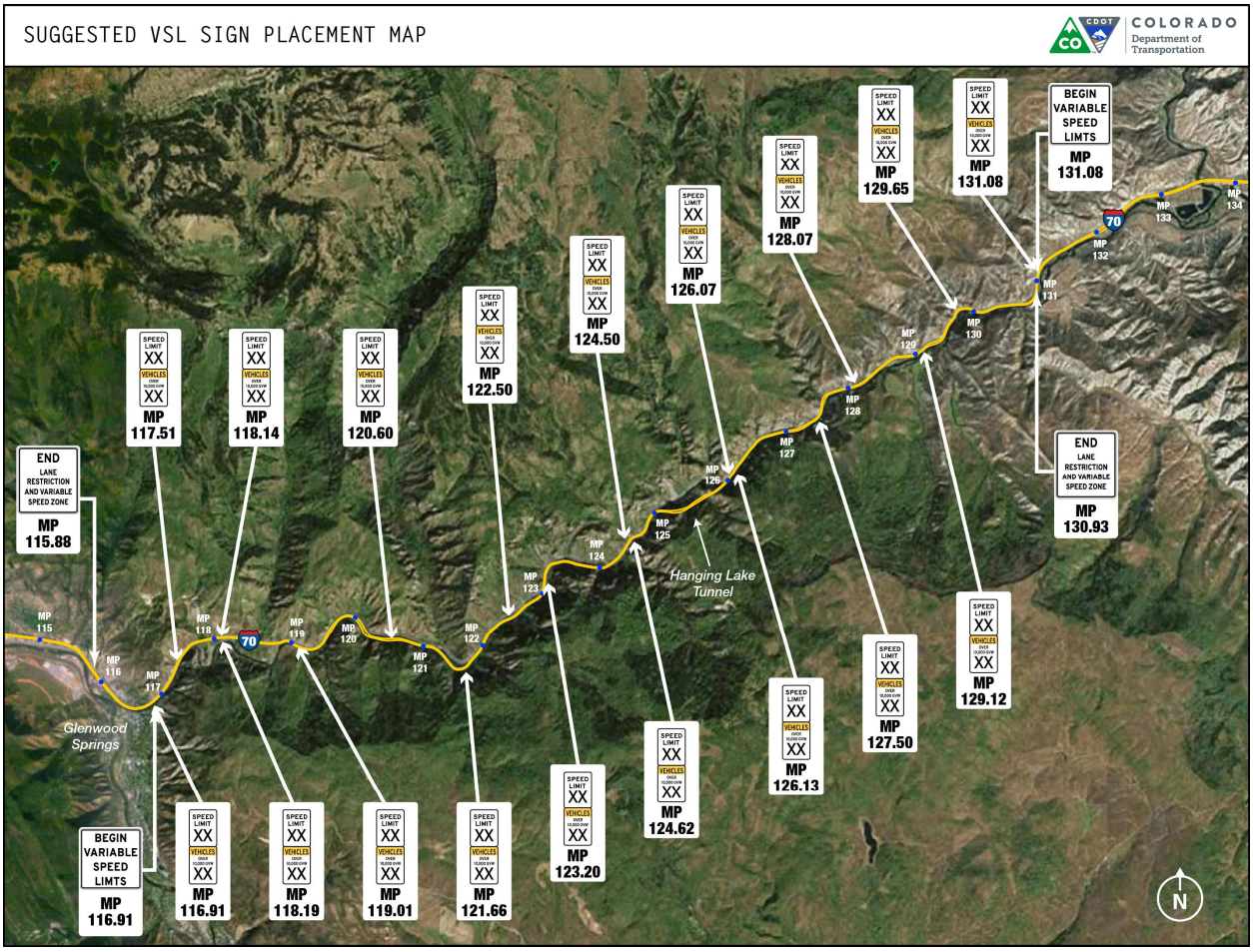
The idea that the size of the sign itself could be reduced was also analyzed previously, but did not have the support of project stakeholders, including FHWA. The VSL signs must be consistent with applicable design standards. No changes to the sign design were advanced for further consideration.

The 19 VSL sign locations were defined with precise MP indicators, but these locations offered some flexibility in terms of selecting the exact site location. Most of this flexibility, and all of it in some cases, is generally east/west. The north/south flexibility is more limited due to MUTCD sign placement guidelines.

Each sign includes a control box connecting the sign to CDOT fiber optic communications network. The control box will be placed on the ground near the sign. These control boxes will be visible, but the signs themselves create the dominant visual impact and are the focus of this analysis.

A photo log based on the images in the Project's original Online Transportation Information System (OTIS) document shows each of the 19 VSL sign locations from different vantage points. The photo log is presented in Figure 3.

Figure 2 Originally Proposed VSL Sign Placement



Note: VIA-based sign site adjustments discussed later in this report are not shown here or elsewhere because those adjustments are not distinguishable at this scale (See Table 2).

Figure 3 Photo Log

Site 1 – 116.89 EB

View looking east toward Glenwood Canyon with the Colorado River visible to eastbound motorists. Commercial buildings associated with the Yampah Hot Springs and vapor caves located at the eastern end of Glenwood Springs are located on the left.

Site 1 – 116.89 EB

View of the Colorado River looking at the approximate location where the VSL sign would be placed.

Site 2 – 117.68 WB

View looking west at the Colorado River and canyon slopes visible to westbound motorists. A utility access roadway that also serves as a segment of the Glenwood Canyon Hiking Biking Trail is visible on the right. The Glenwood Canyon Hiking Biking Trail bridge over I-70 and an I-70 tunnel is located behind this vantage point.

Site 2 – 117.68 WB

View of a light pole and utility cabinet located where the VSL sign would be placed. The retaining wall for the utility road and trail is visible beyond the pole on the right.

Site 3 – 118.12 WB

View looking west at the Colorado River and canyon slopes visible to westbound motorists. A pull off area with a gravel surface is located on the right. An existing speed limit sign is visible on the right. An overhead gantry is visible on the left.

Site 3 – 118.12 WB

View of the approximate location where the VSL sign would be placed. The existing speed limit sign is partially visible on the left.

Site 4 – 118.19 EB

View looking east at the vegetated slope between I-70 and the Colorado River and steep canyon slopes visible to eastbound motorists.

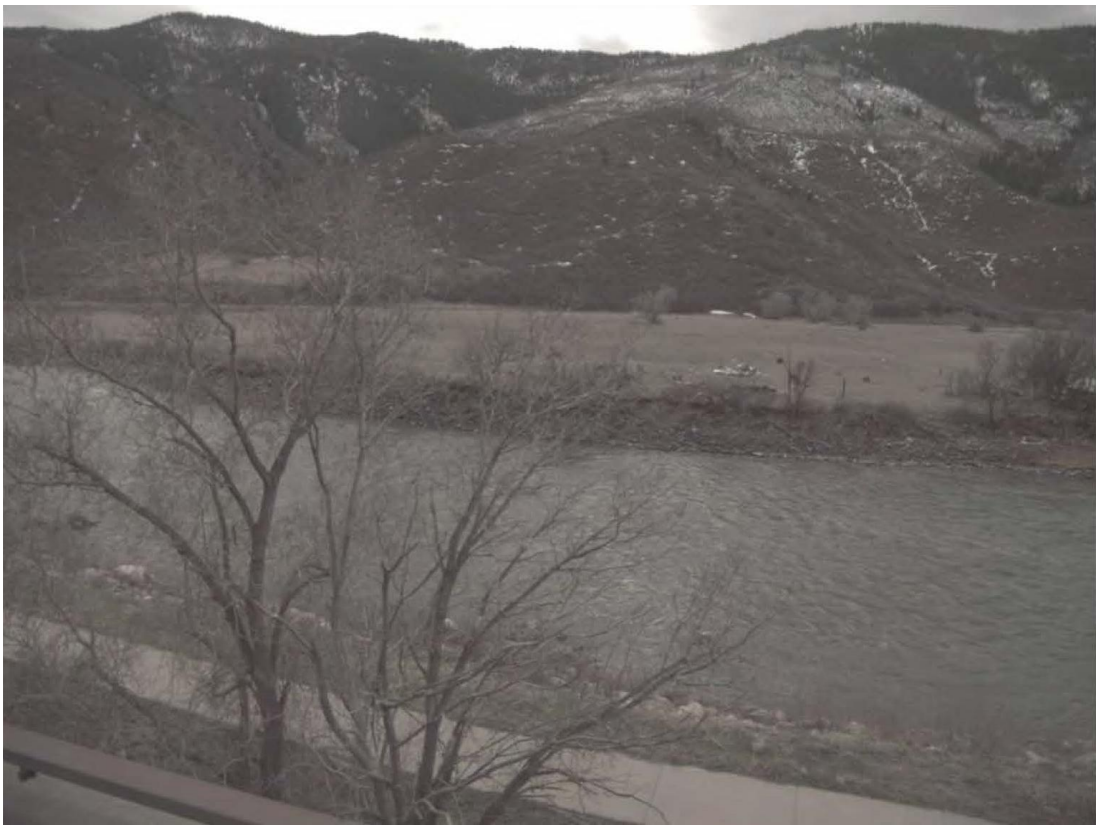
Site 4 – 118.19 EB

View of the approximate location where the VSL sign would be placed along the guardrail. The lack of leaves on the trees and resulting increases in visibility and views during the late fall, winter and early spring seasons is clear is this image. The railroad alignment on the over side of the Colorado River is visible in distance.

Site 5 – 118.98 EB

View looking east at the split vertical alignment of I-70 with broad views of Glenwood Canyon and the Colorado River.

Site 5 – 118.98 EB



View of the approximate location where the VSL sign would be placed along the guardrail. The adjacent walking and cycling path is visible between I-70 and the Colorado River.

Site 6 –120.68 WB

View looking west at the primary features of Glenwood Canyon including steep rocky slopes, cliffs, natural vegetation and the Colorado River. The eastbound lanes are barely visible from this vantage point.

Site 6 –120.68 WB

View of the approximate location where the VSL sign would be placed along the retaining wall. The sign on the right is a yellow diamond deer crossing (warning) sign

Site 7 – 121.73 EB

View looking east at canyon slopes and the Colorado River to the right and the split level construction of I-70 (retaining wall) to the left. The trail is located directly below the guardrail on the right.

Site 7 – 121.73 EB

View of the approximate location where the VSL sign would be placed along the guardrail. The trail is located directly below the proposed sign. The railroad tracks are visible in the distance.

Site 8 - 122.45 WB

View looking west at the forested slopes on the left and rocky outcrops on the right. The westbound lanes and trail are located directly below the guardrail between the eastbound lanes and the Colorado River. The existing speed limit sign is visible on the right.

Site 8 - 122.45 WB

View of the approximate location where the VSL sign would be placed along the right shoulder.

Site 9 - 123.20 EB

View looking east at distinct I-70 construction design elements on the left, the Colorado River on the right, and canyon cliffs and slopes visible in the distance.

Site 9 - 123.20 EB

View of the approximate location where the VSL sign would be placed along the guardrail. The trail is located directly below the guardrail.

Site 10 - 124.50 WB

View looking west at the Colorado River on the left and scenic vistas including large cliffs and vegetated slopes of Glenwood Canyon in the distance.

Site 10 - 124.50 WB

View of the approximate location where the VSL sign would be placed along the shoulder.

Site 11 and 12 - 124.64 EB

View looking east at exemplary I-70 construction design elements on the left, the Colorado River corridor on the right, and canyon cliffs in the distance. An existing VSL sign and overhead gantry sign are visible in the center of this image.

Site 11 and 12 - 124.64 EB

View of the approximate location where the VSL sign would be placed along the shoulder. The trail is located below the guardrail.

Site 13 - 126.07 EB

View looking east at classic I-70 construction design elements on the left, the Colorado River corridor on the right, and canyon walls framing the scene.

Site 13 - 126.07 EB

View of the approximate location where the VSL sign would be placed along the shoulder. The trail is located below the guardrail. The railroad tracks located along the other side of the Colorado River are visible through the center of this image.

Site 14 - 127.56 EB

View looking east at iconic I-70 construction design elements on the left and the vegetated Glenwood Canyon corridor below and to the right.

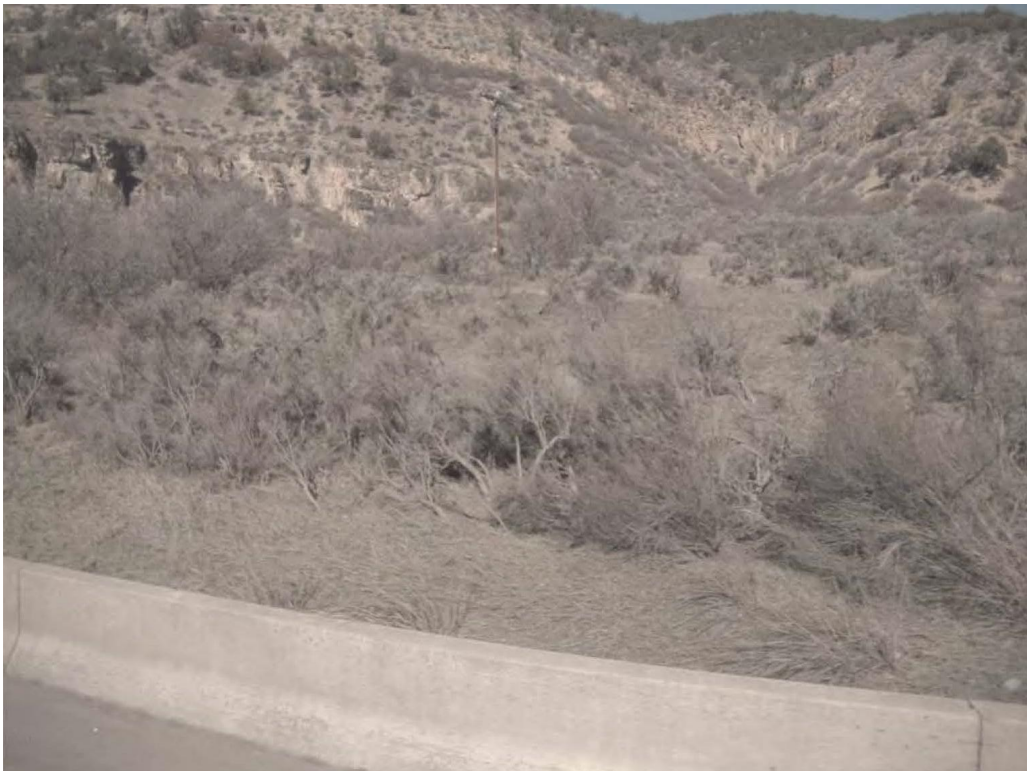
Site 14 - 127.56 EB

View toward the guardrail from a vantage point near Site 14. The trail is located below the guardrail. The railroad tracks located along the other side of the Colorado River are visible through the center of this image when no leaves are present.

Site 15 - 128.13 WB

View looking east at I-70 construction design elements on the left and the vegetated Glenwood Canyon corridor. An existing speed limit sign is visible on the right side of the road near the center of this image.

Site 15 - 128.13 WB



View of the approximate location where the VSL sign would be placed along the shoulder.

Site 16 - 128.13 EB

View looking east at I-70 design elements on the left and the vegetated Glenwood Canyon corridor.

Site 16 - 128.13 EB

View of the approximate location where the VSL sign would be placed along the guardrail. The trail is visible across the middle of this image.

Site 17 - 129.66 WB

View looking west at the visually dominant steep cliff walls of Glenwood Canyon.

Site 17 - 129.66 WB

View of the approximate location where the VSL sign would be placed along the shoulder below the cliffs.

Site 18 and 19 - 131.05 WB

View looking west at the broad, vegetated Colorado River valley and slopes located east of Glenwood Canyon. Two existing speed limit signs are visible in this location. Both signs would be replaced with VSL signs.

Site 18 and 19 - 131.05 WB

View of the approximate location where one of the VSL signs would be placed. The trail is visible across the middle of this image. A frontage road along I-70 is visible across the middle of this image and the image above. A Glenwood Canyon Trailhead with a parking lot and restroom is located approximately 0.4 miles further west. This trailhead provides a starting point or a turnaround point for some Glenwood Canyon trail users.

2.3 Regulatory Context: NEPA, Section 106 Findings and Requirements

As part of the Project development, impact review and avoidance processes under NEPA that occurred with FHWA, CDOT, USFS, and BLM; the Project Team was asked to further describe potential visual effects from the proposed signs. CDOT correspondence with the USFS and BLM began at the end of March 2016 and continued through October of 2016. Due to the increase in the number of signs and the large size of the new VSL signs, and the important visual and scenic quality of Glenwood Canyon, a more formal documentation of the visual impacts was warranted.

As part of the Section 106 process, CDOT consulted with the Colorado SHPO and the City of Glenwood Springs Historic Preservation Commission documented in correspondence dated April 13, 2016, June 8, 2016 and June 9, 2016. This correspondence occurred to address the consultation and associated requirements of Section 106. Steve Turner, the Colorado SHPO initially requested additional information in correspondence dated April 26, 2016, and then in a June 16, 2016 letter replied regarding the cumulative visual effect of the project.

In summary, the SHPO correspondence concludes that adding signs contributes to cumulative visual effects on the I-70 corridor (5GF.5099) and Glenwood Canyon Transportation Corridor (5GF.2752) that will diminish the aspects of integrity related to significance, including setting, feeling, and association with these resources and result in an adverse effect. Continued consultation with SHPO, inclusive of local government consultation, was requested generally, and especially if unidentified resources are discovered or if the project changes.

In 2017, with the culmination of identified visual impacts under NEPA, Section 106, and Section 4(f), the Project Team agreed to prepare the FHWA VIA Questionnaire and prepare this Abbreviated VIA to qualify and disclose impacts. This Abbreviated VIA includes the requested analysis of visual effects and proposed mitigation measures.

As part of the visual impact assessment methodology, the Project Team selected a specialized three dimensional (3d) modeling approach for key site locations that would allow Project Team members to visualize the anticipated signs from roadway, railroad, trail and river vantage points and optimize sign placement to reduce visual effects within defined traffic engineering design and location parameters.

3. FINDINGS

3.1 Establishment

Location and Extent of the Project Corridor

The east/west limits of the project corridor along I-70 can be roughly defined from about MP 116.89 to MP 131.05. These limits encompass all of the sign site locations. However, at each sign site location there are more specific 3d site limits (east/west, north/south and up/down). The site-specific limits are set by engineering standards and criteria, but allow for some siting flexibility. Sign visibility varies at each location and is related to numerous public vantage points and associated viewsheds.

Project Site and Viewsheds

The sign site location viewsheds are defined by the views drivers experience while traveling along the eastbound (EB) and westbound (WB) lanes and while they pass through and view Glenwood Canyon and roadway features from rest areas. They are also defined by vantage points and views travelers see while traveling through Glenwood Canyon and roadway features from moving passenger railroad cars, using the adjacent trail and rafting down the Colorado River.

Area of Visual Effect

The Project Area of Visual Effect (AVE) for each sign site includes the total area encompassing the set roadway, railroad, trail and river vantage points where the front, back or sides of the sign or sign mount could be seen if it were in placed in the general location where it is proposed. At some sign site locations, some of the views of the signs from these key vantage points are blocked or are limited. At other sign sites, views from all of these vantage points are available.

3.2 Inventory

Visual Resources

The visual resources within Glenwood Canyon are composed of multiple elements described throughout this document and are highlighted in the photo log presented in Figure 3. The primary visual elements are listed as follows:

Natural Environment
Water: Colorado River, Tributaries, Cascades and Waterfalls
Land Features: Cliffs, Peaks, Outcrops, Slopes, Boulders
Vegetation: Forests, Clusters of Trees, Shrubs, Groundcovers and Individual Trees

Built Environment

Road: Viaducts, Bridges, Tunnel Portals, Rest Areas and Unique Roadway Features
Railroad: Grade, Tracks, Train Cars, Tunnel Portals
Trail: Pathway, Information Signs, Trail Users
River: Rafts and Rafters
Other: Buildings, Power Transmission Lines and other Utilities and Facilities

Visual Character of the Project Corridor

The FHWA guidelines define project scale, form and materials and character with key questions as follows:

Project Scale: Is the project scale compatible or incompatible with the visual character of the natural, cultural and project environments? Will the project scale contrast or not contrast with these environments?

Project Form: Is the project form compatible or incompatible with the visual character of the natural, cultural and project environments? Will the project form contrast or not contrast with these environments?

Project Materials: Are the project materials compatible or incompatible with the visual character of the natural, cultural and project environments? Will the project materials contrast or not contrast with these environments?

Project Visual Character: In summary, will the project's visual character be compatible or incompatible with the visual character of the existing natural, cultural, and project environments? Will the project's visual character contrast or not contrast with these environments? Has the memorability or vividness of the landscape or project area been altered? How has it changed?

These questions were used to guide the analysis of the Project's visual compatibility with the existing visual character of the environment. Using these definitions, the existing visual character of the Project corridor can be summarized as follows:

- I-70 was designed to be compatible with the visual character of the existing natural, cultural, and project environments through an extensive planning, design and construction program implemented over many years.
- The visual character of I-70's features contrast with the natural, cultural and environmental resources in Glenwood Canyon, but this contrast has been minimized through the application of context sensitive design practices. The built environment of the highway repeats form, line, texture and colors from the natural environment to lower the contrast.
- I-70 provides access through the canyon creating memorable vantage points and allowing for vivid scenes for motorists while also altering views of natural features from the railroad, trail and river vantage points by creating a dominant visual presence in the canyon.

Viewing Experience

Road

Glenwood Canyon is considered one of the most scenic natural features on the U.S. Interstate Highway System. The viewing experience provided to motorists traveling in both directions and using the rest stops includes scenic vistas of cliff walls, mountains, the Colorado River and natural vegetation. In addition, the split level roadway and sequence of tunnels themselves provide rare visual and aesthetic attributes and unique individual vantage points. Elevated routes and emerging from tunnels offer viewer shifting vistas as they travel in both directions. Typical roadway design elements such as the roadway surface, guardrails, lane striping and signage are present as required by applicable standards.

The available views include foreground, middleground and background components and scenic elements that are unusually close as a motorist moves through the canyon. Large numbers of people use I-70 and benefit from the visual opportunities that are available. The typical duration of these views is approximately 15 minutes, but often includes stops that extend viewing times.

Railroad

The Union Pacific Railroad operates freight service through Glenwood Canyon. Amtrak provides passenger service.

The viewing experience for railroad passengers is similar to the viewing experience for motorists on I-70, but provides unique vantage points and views. The railroad viewing has a historical context. Details are in the Glenwood Railroad Museum Bulletin:

http://glenwoodrailroadmuseumbulletins.org/our-history/

In summary, the railroad viewing experience goes back to the days when train service began in the corridor. The Glenwood Springs Railroad station was built in 1904. Various passenger train services have used the corridor over time. The California Zephyr service started in 1949, was discontinued in 1970, was restarted in 1983, and continues to provide passenger service to this day. A monument to the dome car that passed through the canyon was originally installed in the canyon, but was relocated elsewhere in the 1990s.

Fewer people see Glenwood Canyon via trains that see it from the road. The typical duration of their views is approximately 25 minutes and is continuous with no stops.

Trail

The Glenwood Canyon Trail provides cyclists and pedestrians with another viewing experience with unique vantage points and viewsheds. The trail follows the road and river offering views of all of the natural resources plus unusual views of specialized highway engineering, including long and high retaining walls and the underside of bridges and roadway viaducts. Extensive efforts were made to retaining natural features, enhance roadway design aesthetics and create natural vegetated landscapes visible from trail vantage points.

The Glenwood Canyon Trail is popular with peak use occurring during the summer months. The typical duration of their views is extended relative to views from I-70 and the railroad, and typically involves timeframes ranging from one hour to all day with extended stops at individual vantage points.

River

The viewing experience from the Colorado River itself occurs from vantage points along the banks and from rafts that pass through Glenwood Canyon. River users pass through the Shoshone Rapids and have continuous views of the natural features of the canyon, the railroad, road and tunnel as they look up toward the canyon walls. Rafting is popular with peak use occurring during the summer months.

The typical duration of rafting views generally matches the speed of the river flow, but may include brief stops. Typically pass through timeframes involve a couple of hours or more depending on the duration of stops at individual vantage points.

Visual Quality

The visual qualities of Glenwood Canyon are exceptional and well known, and have generated special planning and engineering design efforts for decades. The 13-mile Interstate 70 Glenwood Canyon Project began its planning process in the 1970s. Construction occurred from 1981 to 1995.The design and construction project cost $550,000,000 and involved the following to address visual quality:

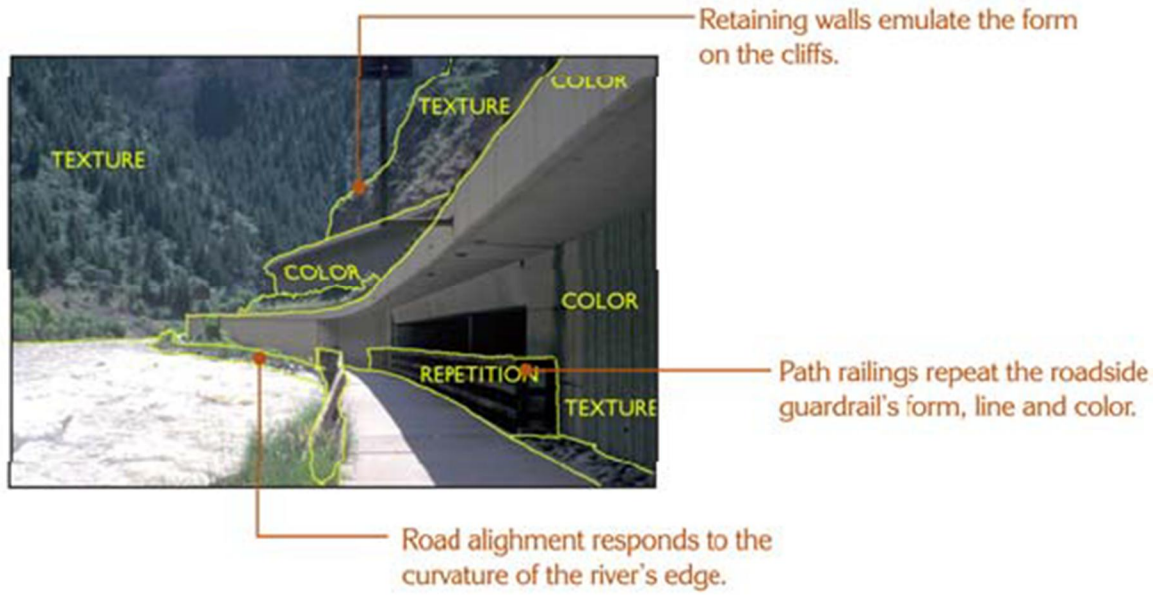
- Thematic highway architectural guidelines and directions incorporated into final design
- Limitations on disturbance and preservation of natural features
- Revegetation and surface textures to address grading and restoration
- Bedrock sculpting and staining to blend changes into remaining features
- Terraced walls, viaducts and tunnels to reduce impacts of the project features
- Specialized design and construction techniques to reduce construction impacts

The guiding principles involved commitments to prevent compromising the Canyon's scenic values, minimize disturbance, mitigate impacts, avoid filling the river and maintain recreation access.

Visualization tools were used to address architectural form, line, color, texture and scale as shown in Figure 4. The project won numerous awards including:

- Quadrennial, Presidential Award for Design Excellence
- Civil Engineering Outstanding Achievement

Figure 4 Interstate 70 Glenwood Canyon, Architectural Form, Line, Color, Texture and Scale



Source: Bureau of Land Management, 2008
https://www.ntc.blm.gov/krc/uploads/35/14.%20Examples%20Glenwood%20Canyon%208400-05.pdf

Viewer Preferences

In general, viewer preferences and their ability to accept visual and aesthetic designs of various types and changes in natural and built environments vary. The viewers of Glenwood Canyon from the road, railroad, trail and river cover a broad range of demographic characteristics so their preferences and reactions are not defined in specific terms. However, it is reasonable to assume that trail users and river rafters would be sensitive to and have strong preferences for protection of the natural resources they enjoy when they choose to follow the river through the canyon. This sensitivity and their preferences, and similar preferences for other travelers though the canyon, are supported by the public process and input received during the I-70 Glenwood Canyon road building projects. Viewer sensitivities and preferences in relation to minor roadway upgrades, including changes to standard features such as signage, are not clear or supported in specific terms. However, it is reasonable to assume most viewers expect careful review and adherence to past and present visual, aesthetic and engineering standards. Some viewers may be noticing an increase in visual intrusions in the corridor, including an increase in the number of signs along I-70.

3.3 Analysis

The following discussion addresses the methodology used to assess visual impacts and the visual effects of the Project, including changes to the visual character of the Glenwood Canyon Interstate Resource and the Glenwood Canyon Transportation Corridor and impacts on viewer experience. Under 36 CFR Part 800 Protection of Historic Properties, Subpart B The Section 106 Process, Section 800.5 Assessment of adverse effects, there can be an adverse effect when there is the introduction of visual elements that diminish the integrity of the property's significant historic features.

Methodology

The analysis of effects from each sign and the effort to optimize each sign site location relied on details provided in the Project's Concept of Operations Report, OTIS photo imagery for each sign site location, analysis of Google Earth aerial and Street View images, and/or a 3d model using Autodesk InfraWorks 360 software.

Details about this transportation planning and design software are available at the following link:

http://www.autodesk.com/products/infraworks-360/overview

The first step involved evaluation of each of the 19 VSL sign locations with an intent to screen each site for visual impact and the potential for sign siting optimization. The screening effort generally divided the sites into three priority categories in terms of their potential for site optimization with further analysis using 3d modeling:

1. Low
2. Moderate
3. High

Table 1 summarizes the sign site screening criteria.

Table 1 Sign Site Screening Analysis Process and Criteria

Screening Result Priority for 3d Analysis	Applicable Criteria
Low	1. Located outside of Glenwood Canyon 2. Limited impacts from the sign location due to poor visibility from non-road and/or reverse flow visibility
Moderate	1. A moderate level of visibility from non-road and/or reverse flow visibility 2. Limited potential to locate the sign in a specific place that would reduce or change visual impacts 3. The ability to use OTIS or Google Earth Street View to optimize the sign site location given site conditions
High Appropriate for use of 3d Modeling	1. Located within Glenwood Canyon with a high level of visual quality 2. Highly visible from road, rail, trail and/or river vantage points 3. Some or high potential to locate the sign in a specific place that would reduce or change visual impact 4. Inability to use OTIS images and/or Google Earth Street View to optimize the sign site location

The second step in the process was to create the 3d model for the selected sites to produced real-time animation for visual impact analysis. Model inputs included U.S. Geological Survey (USGS) digital terrain model data, Google Earth aerial images, Computer Aided Design (CAD) data for the existing roadway segments and bridges, and signage details provided in CAD as dwg/dxf file types. Image overlay techniques were used to complete the model. The modeled corridor covered approximately 0.5 miles wide (0.25 miles either side of centerline). The proposed signs were modeled in their proposed locations.

The third step was to meet with the Project Team in a workshop setting to select sites for each sign using available tools, including the 3d model. The 3d model allowed the team to move the signs and relevant vantage points in real time at the workshop. Participants reviewed each sign location and questioned the best location at or near the originally proposed site. As a result, some sign locations were modified. The results of these discussions for each sign are presented after the impact descriptions (See Table 2). Figure 6 (presented at the end of this report) provides photographs, 3d modeling images and captions to clarify the basis for the results.

This methodology allowed the team to quickly and efficiently evaluate adverse and beneficial effects from multiple vantage points as sign locations were evaluated during the workshop. The Workshop occurred on April 6, 2017 from 10:30 AM to 3:00 PM. The Agenda for the Workshop is presented in Appendix 3. The minutes from the Workshop are presented in Appendix 4.

Impacts on the Visual Character of the I-70 Interstate Resource

The visual character of I-70 and the features and attributes associated with its eligibility under Section 106 would not substantively change because the Project would not impact any roadway features. The new VSL signs would generally replace the existing static speed limit signs. Sign replacement and a net increase of 37 static signs (removal of 35 static signs and adding 72 statics signs) for the intended purpose would not add unexpected design elements. However, the VSL signs would be larger, more frequent, unusual because of their design and variability, and would generate light to display variable speed limits (See Figure 1). The VSL signs would be taller than the existing signs because they will display both motor vehicle and truck speed limits.

Truck speed limit signs are not currently provided in the canyon and truck speed limits are not presented on the existing speed limit signs. The need for separate truck and auto speed limits through Glenwood Canyon was identified by CDOT prior to initiation of the Project. Based on the crash history, there are a disproportionate number of collisions involving commercial vehicles in the Canyon. These have generally been attributed to roadway geometry (both horizontal and vertical), lack of adequate shoulders, and adverse weather conditions, among other factors.

In many instances, the backs of the signs would be visible. The back of the signs, and the backs of many signs in the corridor distract motorists and degrade existing views, especially when many differ methods are used to hold the sign in place and the materials used for this purpose are bright, reflective and/or use different colors.

The light from the signs will not be a significant factor for non-road or reverse flow viewers during the daytime, but at night from some of these vantage points the light from the sign will be different than under existing conditions and will be more noticeable than the occasional (discontinuous) reflection from headlights on the existing signs. This impact will be most pronounced when traffic volumes are low and the glow from the road is not dominated by vehicle headlights. During moderate and high traffic periods, the light from the signs will not be a dominant factor from most vantage points. Views of the signs at night from the trail, river and railroad will be limited due to low user levels after dark. High visibility during the day and at night is an engineering requirement, so physical changes to the sign that reduce visual effects are not considered feasible.

These differences in signage are not expected to change the visual character of the roadway. However, the changes would contribute to incremental and cumulative effects that would be added to the number, size, distribution, and design variation of other temporary and permanent signs in the corridor and other visual intrusions that have the potential to degrade visual quality along I-70 through Glenwood Canyon.

Impacts on the Visual Character of the Glenwood Canyon Transportation Corridor Resources

As described in Section 1.1, this resource encompasses I-70, includes other aspects of the canyon, and extends through both Garfield and Eagle Counties, well beyond the Project limits. Impacts from the signs on the corridor's visual resources will occur if visually significant natural, cultural or transportation resources are disturbed as part of sign installation or if views of these resources are blocked.

The Project will place the signs in the median and along the roadway within CDOT right of way. These locations will not disturb visual resources because the signs are not mounted on important landforms such as cliffs, outcrops, slopes or large boulders and do not require substantial earthwork or vegetation removal. No physical changes to character of the railroad, trail or river are expected from the Project.

Impacts on Viewer Experience

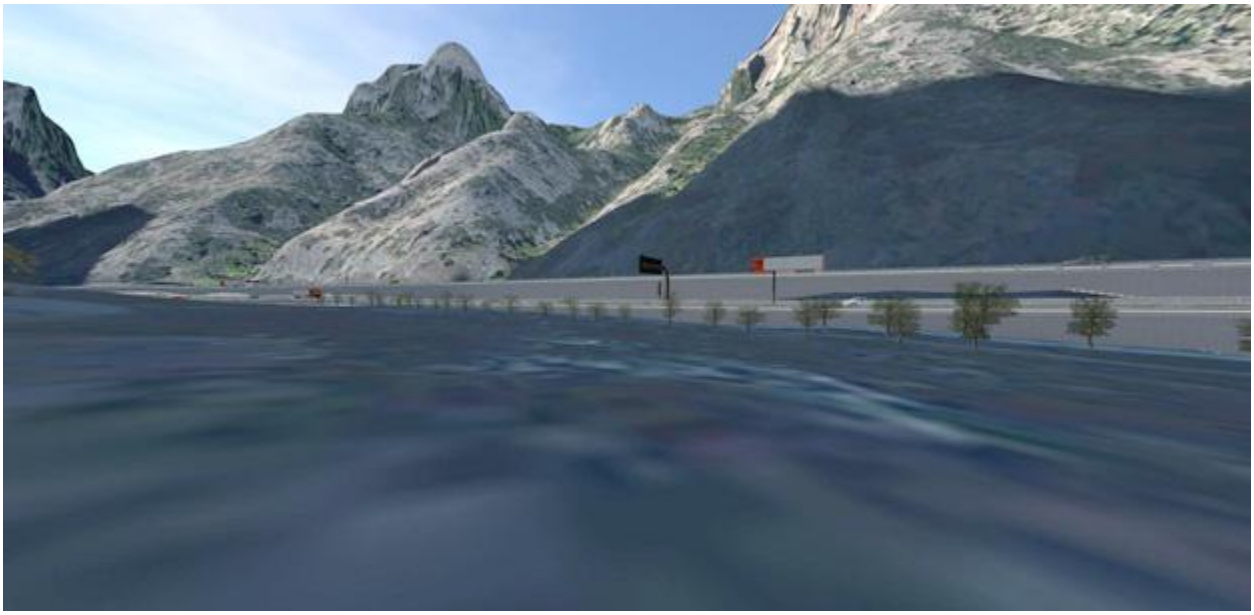
Scenic views from various vantage points will be obstructed as a viewer is traveling through the canyon on I-70 or on the trail. Scenic views from the railroad and river will not be obstructed. The duration of the visual obstruction increases as the traveling speed of the viewer decreases. At typical roadway speeds, the duration of impact is limited to a few seconds in most instances. The duration of obstruction for trail users is longer, but the predominant views are often away from the roadway where the signs are located. In both situations, the scale of the landscape elements is so large that the signs will not be dominant elements at any location when compared to features such as massive cliffs, broad canyons and valleys and the Colorado River corridor.

The installation of speed limit signs and other safety signs is expected. However VSL signs are uncommon along interstates, state highways and other roads in Colorado. More importantly, the VSL signs are designed to catch the attention of motorists, and for this reason they may detract from the motorists' viewer experience as they travel through Glenwood Canyon. For the same reason, the signs when visible from other vantage points will have similar incremental and cumulative adverse effects on the historic resources and scenic values present in the Glenwood Canyon and may limit beneficial viewer experiences from road and non-road vantage points.

Each sign has an incremental and cumulative impact of varying degrees. Impacts involving color, line, texture and form exist, but are fixed unlike other I-70 design elements such as retaining walls and tunnel portal facades that can be and were adjusted to match the visual character of the surrounding rock and vegetation.

Visual simulations using the 3d model characterize the visual effects of the VSL signs from roadway, trail, river and railroad vantage points. The visibility and visual impact of the signs from the river and railroad vantage points was limited due to distance and the screening effect of existing vegetation (See Figure 5).

Figure 5 3d Simulations of Views from River and Railroad Vantage Points



View from the river looking northwest (downstream) toward milepost 124.66 with vegetation screening. One of the signs is located in front of the truck on I-70 with the red cab. The other sign is located just behind the truck cab. The existing overhead gantry sign in this location is visible above the sign on the left. The signs look like vertical lines from this vantage point.

View from the railroad looking northeast (upstream) toward milepost 124.66 with vegetation screening at a distance of approximately 370 feet. This vantage point represents a railroad site that is one of the closest locations to I-70. Two white VSL sign fronts are visible near the existing overhead gantry sign adjacent to the truck on I-70 with the red cab.

3.4 Mitigation

The following discussion provides mitigation measures that would minimize potential effects of the Project. The effort to optimize sign locations was intended to reduce Project effects and did so to the maximum extent feasible given site circumstances and applicable engineering requirements. Table 2, presented after the mitigation discussion, summarizes the analysis and recommendations from the Project workshop. Figure 6, presented after Table 2, shows existing Google Earth Street View and corresponding captions to clarify existing site circumstances at the Pre-VIA locations and the rationale for the workshop findings. At some locations, 3d model images show sign locations from key vantage points for illustrative purposes. Table 2 cites the applicable images from Figure 6 for each sign site and clarifies the Pre-VIA and Post-VIA conditions. Measures that would avoid or offset the potential impacts are not proposed.

The following mitigation measures are recommended for Project effects and cumulative effects from signs in Glenwood Canyon:

Mitigation for Project Effects

The back side of the signs, sign posts, control cabinets, and other above ground items such as conduit associated with the VSL signs should be painted, stained or colored Federal Standard 595 Color FS 20059 (dark brown) as specified in the CDOT MOU with the USFW, Appendix A-3 Supplemental Visual and Scenic Resources, Guide for CDOT Maintenance and Operations:

General Requirements

3. *All signposts, hardware, and related appurtenances, including back of signs, will be either painted Federal Standard 595 Color FS 20059 or, if metal, stained dark brown.*

Specific Requirements

4. *ITS Equipment*

a. *Federal Standard 595 Color FS 20059 (dark brown) or Federal Standard 595 color 30227 (light brown) or as determined by size, scope and scale of the structure or installation being treated.*
b. *Color will be applied to all suitable components (tower and light pole, electrical cabinets, swing arm elbow, support towers, steel mounting post, etc.).*

Mitigation for Cumulative Effects

Similar to the Project signs, painting sign backs should be implemented in relation to all existing and future roadway signs in Glenwood Canyon to minimize incremental and cumulative visual effects over time. The application of this measure should be implemented as individual signs are maintained, replaced or added within Glenwood Canyon.

A visual impact analysis of cumulative effects from roadway signs and related visual intrusions along I-70 should be performed. The emphasis of this analysis should be focused on the refinement of sign guidelines, other recommendations to reduce visual impacts, and mitigating existing and anticipated long term visual effects.

Table 2 Summary of the Workshop Analysis and Findings: Recommendations for Sign Locations

SIGN NUMBER	SIGN PURPOSE MOTORISTS' TRAVEL DIRECTION	PRE-VIA SIGN: MILEPOST SIDE OF THE ROAD MOUNTING	POST-VIA SIGN: MILEPOST SIDE OF THE ROAD MOUNTING	ANALYSIS/RESULTS
1	EB	116.89 Right Standard ground mount	116.89 Right Standard ground mount	The visibility of this sign was analyzed GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign would not reduce visual impacts. See Figure 6 Images
2	WB	117.68 Right Standard ground mount	117.68 Right Standard ground mount	The visibility of this sign was analyzed GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign would not reduce visual impacts. See Figure 6 Images
3	WB	118.12 Left Standard ground mount	118.21 Left Standard ground mount	The visibility of this sign was analyzed GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of this sign to a location in front of the existing overhead gantry sign post in the median would reduce visual impacts. See Figure 6 Images
4	EB	118.19 Right Ground mount extending above elevated roadway	118.21 Left Standard ground mount	The visibility of this sign was analyzed GoogleEarth Pro's Street View tool. Relocation of this sign from the right side to the median and to a location in front of the existing overhead gantry sign post would reduce visual impacts. See Figure 6 Images

SIGN NUMBER	SIGN PURPOSE MOTORISTS' TRAVEL DIRECTION	PRE-VIA SIGN: MILEPOST SIDE OF THE ROAD MOUNTING	POST-VIA SIGN: MILEPOST SIDE OF THE ROAD MOUNTING	ANALYSIS/RESULTS
5	EB	118.98 Right Cantilever mount	118.98 Right Cantilever Mount	The visibility of this sign from the railroad, river, trail and road was analyzed using the 3d model and GoogleEarth Pro's Street View tool. Views of the sign from the trail, by motorists traveling westbound and views of the sign from the railroad and river can be minimized by placing this sign just west of a large tree. The tree will not impact the view of the sign by motorists traveling eastbound and will provide some screening from other vantage points. This change did not modify the original milepost. See Figure 6 Images
6	WB	120.68 Right Standard ground mount	120.62 Right Standard ground mount	The visibility of this sign was analyzed using GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign to a location near the existing retaining wall would reduce visual effects. This requires relocating a deer crossing sign that is located below the retaining wall. See Figure 6 Images
7	EB	121.73 Left Standard ground mount	121.73 Left Standard ground mount (Low)	The visibility of this sign from the railroad, river, trail and road was analyzed using the 3d model and GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign would not reduce visibility, but keeping the sign low to the ground with a low mount would help reduce visual effects. See Figure 6 Images
8	WB	122.45 Right Standard ground mount	122.45 Right Standard ground mount	The visibility of this sign was analyzed using GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign would not reduce visual impacts. See Figure 6 Images

SIGN NUMBER	SIGN PURPOSE MOTORISTS' TRAVEL DIRECTION	PRE-VIA SIGN: MILEPOST SIDE OF THE ROAD MOUNTING	POST-VIA SIGN: MILEPOST SIDE OF THE ROAD MOUNTING	ANALYSIS/RESULTS
9	EB	123.20 Left Standard ground mount	123.20 Left Standard ground mount (Low)	The visibility of this sign from the railroad, river, trail and road was analyzed using the 3d model and GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign would not reduce visibility, but keeping the sign low to the ground with a low mount would help address visual effects. See Figure 6 Images
10	WB	124.5 Right Standard ground mount	124.5 Right Standard ground mount	The visibility of this sign was analyzed using GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign would not reduce visual impacts. See Figure 6 Images
11,12	EB	124.64 Left Standard mount 124.64 Right Ground mount extending above elevated roadway	124.64 Left Standard mount 124.69 Right Ground mount extending above elevated roadway	The visibility of these signs from the railroad, river, trail and road was analyzed using the 3d model and GoogleEarth Pro's Street View tool. After analysis, the workshop participants discussed whether or not placement of these signs near other signs, including an existing overhead gantry sign, created cumulative effects that should be avoided or concentrated signage in a manner that reduces visual effects by keeping signs in fewer locations along the corridor. The workshop participants concluded that keeping the sign on the left in the vicinity of the other existing signs minimized visual effects, but decided to move the other sign east to where the trail intersects the cantilever portion of the bridge deck to minimize visual effects from the trail. See Figure 6 Images

SIGN NUMBER	SIGN PURPOSE MOTORISTS' TRAVEL DIRECTION	PRE-VIA SIGN: MILEPOST SIDE OF THE ROAD MOUNTING	POST-VIA SIGN: MILEPOST SIDE OF THE ROAD MOUNTING	ANALYSIS/RESULTS
13	EB	126.07 Right Ground mount extending above elevated roadway	126.07 (Left) Ground mount	The visibility of this sign was analyzed GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign to the median was preferable given the location of required fiber connections and would reduce visual effects. See Figure 6 Images
14	EB	127.56 Left Standard ground mount	127.56 Left Standard ground mount	The visibility of this sign was analyzed GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign would not reduce visual impacts. See Figure 6 Images
15	WB	128.13 Right Standard ground mount	128.13 Right Standard ground mount	The visibility of this sign was analyzed GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign would not reduce visual impacts. See Figure 6 Images
16	EB	128.83 Right Ground mount extending above elevated roadway	128.87 Right Ground mount extending above elevated roadway	The visibility of this sign from the railroad, river, trail and road was analyzed using the 3d model and GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that this sign could be moved further east where the trail alignment is located away from the roadway. This shift would reduce visual impacts from vantage points along the trail. See Figure 6 Images

SIGN NUMBER	SIGN PURPOSE MOTORISTS' TRAVEL DIRECTION	PRE-VIA SIGN: MILEPOST SIDE OF THE ROAD MOUNTING	POST-VIA SIGN: MILEPOST SIDE OF THE ROAD MOUNTING	ANALYSIS/RESULTS
17	WB	129.66 Right Standard ground mount	129.70 Right Standard ground mount	The visibility of this sign was analyzed GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of this sign to a location west of the bicycle tunnel would reduce visual effects to trail users. The participants selected a location just east of the point where the vegetated hillside transitions into cliff. This location would create the lowest level of visual effects. See Figure 6 Images
18, 19	WB	131.05 Left and Right Standard ground mount	131.05 Left and Right Standard ground mount	The visibility of this sign was analyzed GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign would not reduce visual impacts. See Figure 6 Images

Figure 6 Images of the 19 VSL Sign Site Locations with Captions Describing the Workshop Findings

Site 1 – 116.89 EB (Pre-VIA/Post VIA)

Relocation of this EB sign to be located on the right shoulder to the east or west along the guardrail would not modify visibility for motorists who need to see the sign or reduce visual impacts from the trail, river or railroad because of high exposure and a lack of vegetation in this corridor location. Relocation of the sign to the median is not possible due to a lack of median width and a lack of access to fiber in the median.

Site 2 – 117.68 WB (Pre-VIA/Post VIA)

Relocation of this WB sign on the right shoulder to the east or west would not modify visibility or visual impacts from any vantage point because of high exposure and a lack of vegetation. Relocation to the median increases visual impacts and is not possible due to a lack of median width and a lack of access to fiber in the median.

Site 3 – 118.12 WB (Pre-VIA) 118.21 (Post-VIA)

Relocation of this median sign to a location further east (in front of the existing overhead gantry sign post) from this vantage point was selected to reduce visual impacts for motorists viewing the sign from either side. Relocation of this sign to the right shoulder could reduce visual impacts from all vantage points, but would require introduction of guardrail and other visually intrusive elements due to the high exposure and a lack of safe places to move the sign in the vicinity of the pull-off area. A location closer to the tunnel does not provide sufficient distance between the sign and the tunnel portal.

Site 4 – 118.19 EB (Pre-VIA) 118.21 (Post-VIA)

Relocation of this sign from the right side to the median and to a location in front of the existing overhead gantry sign post would reduce visual impacts from all vantage points.

The two white signs in this image are temporary construction signs.

Site 5 – 118.98 EB (Pre-VIA/Post VIA)

Relocation of this EB sign on the right shoulder to a location near the tree on the right beyond the truck in this image can reduce visual impacts from the trail, by WB motorists (opposite) direction and from the railroad and river. The tree will not impact visibility of the sign by motorists traveling in this direction (EB).

This 3d model image was used to evaluate the sign location from multiple vantage points and shows the approximate location of the relocated sign.

Site 6 – 120.68 WB (Pre-VIA) 120.62 (Post-VIA)

Relocation of this WB sign on the right to a point further west where the vegetation along the road ends and the retaining wall begins would reduce visual impacts for WB motorists and would not increase visual impacts from other vantage points. The second yellow sign (deer crossing) would be relocated to make room for the relocate VSL sign.

Site 7 – 121.73 EB (Pre-VIA/Post VIA)

Relocation of this EB sign in the median would not reduce visual impacts from roadway, trail, river or rail vantage points, but keeping the sign low to the ground in the median with a low mount would help reduce visual effects, including views by WB motorists of the back of the sign.

Site 8 – 122.45 WB (Pre-VIA/Post VIA)

Relocation of this WB sign on the right shoulder cannot be minimized by moving the sign east or west due to the relatively uniform conditions on the right side of the road. Placing the sign anywhere in the median would be highly visible from all other vantage points.

Site 9 – 123.20 EB (Pre-VIA/Post VIA)

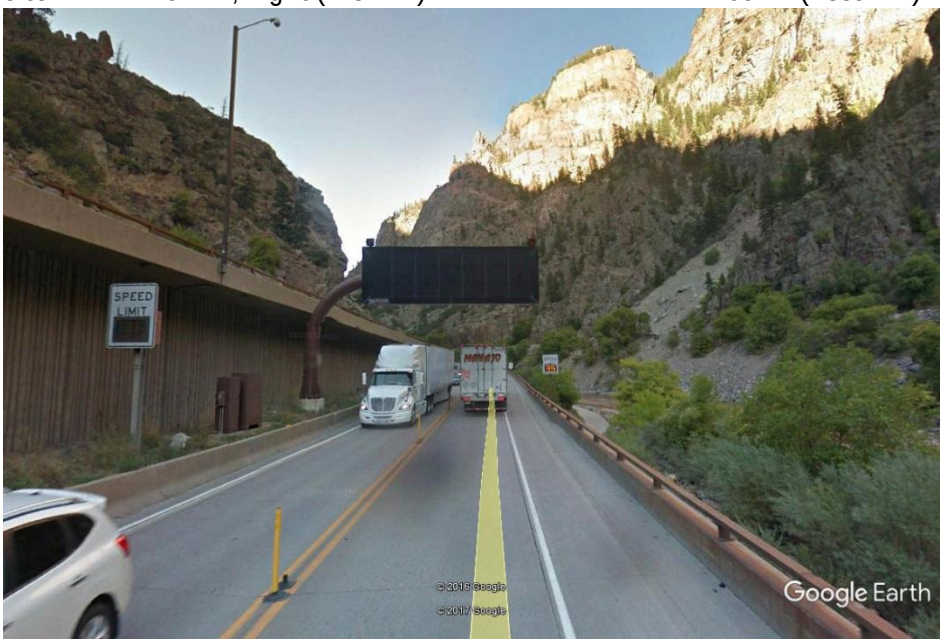
Relocation of this EB sign in the median would not reduce visual impacts, but keeping the sign low to the ground with a low mount would help address visual effects from all vantage points. The placement of the sign is shown in the 3d image.

Site 10 – 124.50 WB (Pre-VIA/Post VIA)

Relocation of this WB sign on the right shoulder cannot be minimized by moving the sign east or west due to the relatively uniform conditions on the right side of the road. Placing the sign anywhere in the median would be highly visible from all other vantage points.

This 3d image shows the approximately location of Site #10.

Site 11 – 124.64 EB, Left (Pre-VIA/Post-VIA)
Site 12 – 124.64 EB, Right (Pre-VIA) 124.69 EB (Post VIA)



Existing VSL signs and an existing overhead gantry sign are shown in this image. The nearby trail is visible on the right.

Relocation of the sign in the right shoulder was recommended to minimize the visual impacts to the trail where the trail is next to and slightly under the roadway deck. The new location, further to the east of the original site, is screened from view from the trail by existing vegetation and bridge deck.

Site 13 – 126.07 EB (Pre-VIA/Post-VIA)

Relocation of the sign in the right shoulder to the median was feasible here given the location of required fiber connections in the median. This placement would reduce visual effects from all vantage points.

Site 14 – 127.56 EB (Pre-VIA/Post-VIA)

Relocation of the sign on the left to the east or west would not reduce visual impacts. Relocation of the sign to the guardrail would increase visual impacts.

Site 15 – 128.13 WB (Pre-VIA/Post-VIA)

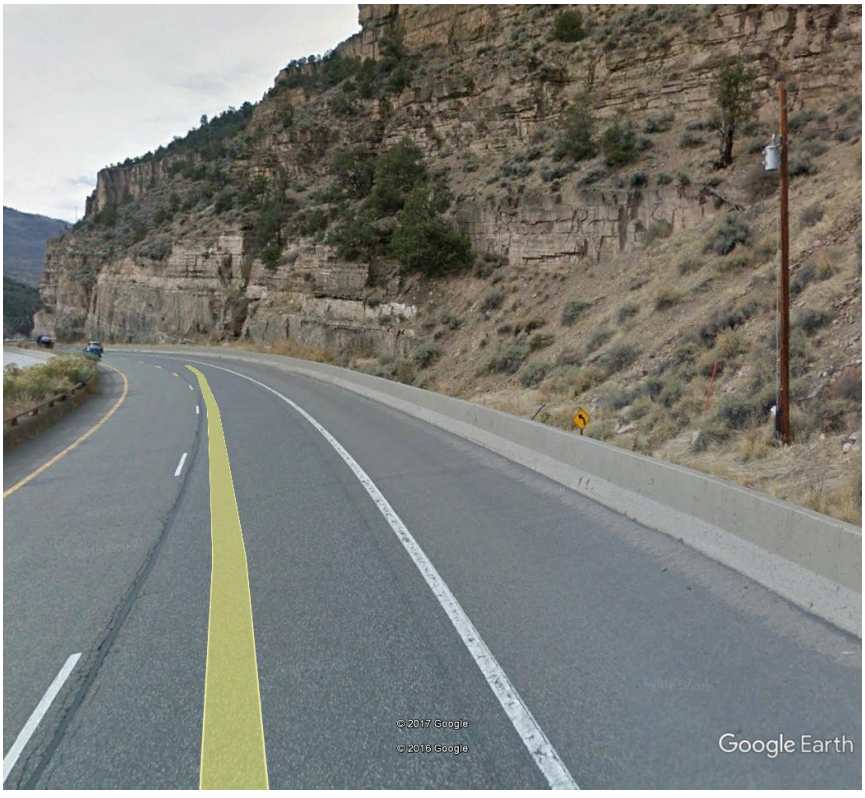
Relocation of this WB sign on the right shoulder cannot be minimized given site conditions to the east and west. No fiber is located within the median in this location. Relocation to the median would increase visual impacts.

Site 16 – 128.87 EB (Pre-VIA) 128.87 (Post-VIA)

Relocation of this EB sign on the right shoulder cannot be minimized given site conditions to the east and west. No fiber is located within the median in this location. The 3d image shows the sign on the shoulder. Existing trees would screen the back of this sign from vantage points located to the south.

Site 17 – 129.66 WB (Pre-VIA) 129.70 (Post-VIA)

Relocation of this sign on the right shoulder to a location west of the bicycle tunnel would reduce visual effects. The selected site is just east of the point where the vegetated hillside transitions into cliff. This location would create the lowest level of visual effects. The location of the bicycle tunnel is identified by the yellow left turn sign visible in the image below. The new sign location would be just beyond the yellow turn sign.



Sites 18 and 19 – 131.05 WB (Pre-VIA/Post-VIA)

Two WB signs (median and right shoulder) are visible in this image. These sites cannot be relocated to reduce visual impacts because both signs are needed to alert driver prior to their entry into Glenwood Canyon.

APPENDICES

Appendix 1: Historic Resources, Section 106 Correspondence

Appendix 2: FHWA VIA Scoping Questionnaire

Appendix 3: April 6, 2017 Workshop Agenda

Appendix 4: April 6, 2017 Workshop Minutes

APPENDIX 1: HISTORIC RESOURCES, SECTION 106 CORRESPONDENCE

APPENDIX 2: FHWA VIA SCOPING QUESTIONNAIRE

Project Name: Glenwood Canyon Variable Speed Limits | Site Visit Date: Not Applicable

Location: Glenwood Canyon, CO | Time: Not Applicable

Special Conditions/Notes: None | Conducted By: Brian Kennedy

Environmental Compatibility

1. *Will the project result in a noticeable change in the physical characteristics of the existing environment?*
(Consider all project components and construction impacts - both permanent and temporary, including landform changes, structures, noise barriers, vegetation removal, railing, signage, and contractor activities.)

☐ High level of permanent change (3) X Moderate level of permanent change (2)

☐ Low level of permanent or temporary change (1) ☐ No Noticeable Change (0)

The project will add new highway-related signage within the corridor in 19 locations.

2. *Will the project complement or contrast with the visual character desired by the community?*
(Evaluate the scale and extent of the project features compared to the surrounding scale of the community. Is the project likely to give an urban appearance to an existing rural or suburban community? Do you anticipate that the change will be viewed by the public as positive or negative? Research planning documents, or talk with local planners and community representatives to understand the type of visual environment local residents envision for their community.)

☐ Low Compatibility (3) X Moderate Compatibility (2)

☐ High compatibility (1)

The signs will conform to existing required standards. The desired visual character is to leave the canyon as natural as possible by minimizing visual intrusions in the landscape.

3. *What level of local concern is there for the types of project features (e.g., bridge structures, large excavations, sound barriers, or median planting removal) and construction impacts that are proposed?* (Certain project improvements can be of special interest to local citizens, causing a heightened level of public concern, and requiring a more focused visual analysis.)

☐ High concern (3) X Moderate concern (2)

☐ Low concern (1) ☐ Negligible Project Features (0)

The signs raise concerns in terms of optimizing their locations to avoid minimize effects while meeting applicable signage requirements.

4. *Is it anticipated that to mitigate visual impacts, it may be necessary to develop extensive or novel mitigation strategies to avoid, minimize, or compensate for adverse impacts or will using conventional mitigation strategies, such as landscape or architectural treatment adequately mitigate adverse visual impacts?*

☐ Extensive Non-Conventional Mitigation Likely (3) ☐ Some non-conventional Mitigation Likely (2)

X Only Conventional Mitigation Likely (1) ☐ No Mitigation Likely (0)

Avoidance strategies are the primary approach to addressing potential effects.

5. *Will this project, when seen collectively with other projects, result in an aggregate adverse change (cumulative impacts) in overall visual quality or character?*
(Identify any projects [both state and local] in the area that have been constructed in recent years and those currently planned for future construction. The window of time and the extent of area applicable to possible cumulative impacts should be based on a reasonable anticipation of the viewing public's perception.)

☐ Cumulative Impacts likely: 0-5 years (3) ☐ Cumulative Impacts likely: 6-10 years (2)

X Cumulative Impacts unlikely (1)

Accumulated impacts in the corridor are expected. No existing, ongoing or reasonably foreseeable projects with visual effects are anticipated.

Viewer Sensitivity

1. *What is the potential that the project proposal may be controversial within the community, or opposed by any organized group?*
(This can be researched initially by talking with the state DOT and local agency management and staff familiar with the affected community's sentiments as evidenced by past projects and/or current information.)

☐ High Potential (3) ☐ Moderate Potential (2)

X Low Potential (1) ☐ No Potential (0)

Local public controversy and opposition have not been identified to date. Motorists traveling through the corridor from other locations in Colorado and other states have not been contacted, but would not be expected to notice substantial changes from the new signs that would substantially degrade visual quality.

2. *How sensitive are potential viewer-groups likely to be regarding visible changes proposed by the project?*
(Consider among other factors the number of viewers within the group, probable viewer expectations, activities, viewing duration, and orientation. The expected viewer sensitivity level may be scoped by applying professional judgment, and by soliciting information from other DOT staff, local agencies and community representatives familiar with the affected community's sentiments and demonstrated concerns.)

☐ High Sensitivity (3) ☐ X Moderate Sensitivity (2)

☐ Low Sensitivity (1)

Motorists familiar with the corridor and past efforts to protect visual quality as part of transportation facility design will be sensitive to changes. Motorists unfamiliar with past efforts would be expected to be less sensitive.

3. *To what degree does the project's aesthetic approach appear to be consistent with applicable laws, ordinances, regulations, policies or standards?*

☐ Low Compatibility (3) ☐ Moderate Compatibility (2)

X High compatibility (1)

The signs are required to meet formal engineering standards and comply with guidance associate with visual quality. There are some inherent visibility conflicts in addressing both.

4. *Are permits going to be required by outside regulatory agencies (i.e., Federal, State, or local)?*
(Permit requirements can have an unintended consequence on the visual environment. Anticipated permits, as well as specific permit requirements - which are defined by the permitter, may be determined by talking with the project environmental planner and project engineer. Note: coordinate with the state DOT representative responsible for obtaining the permit prior to communicating directly with any permitting agency. Permits that may benefit from additional analysis include permits that may result in visible built features, such as infiltration basins or devices under a storm water permit or a retaining wall for wetland avoidance or permits for work in sensitive areas such as coastal development permits or on Federal lands, such as impacts to Wild and Scenic Rivers.)

X Yes (3) ☐ Maybe (2)

☐ No (1)

The project must address Section 4(f) and Section 106 compliance requirements. USFS requirements have also been raised.

5. *Will the project sponsor or public benefit from a more detailed visual analysis in order to help reach consensus on a course of action to address potential visual impacts?*
(Consider the proposed project features, possible visual impacts, and probable mitigation recommendations.)

☐ Yes (3) X Maybe (2)

☐ No (1)

A visual impact assessment will clarify what visual changes can be expected and may result in micro-siting details that allow the designers to optimize individual conditions at each sign location.

Level of Visual Impact Assessment: Tentative Score

The total score for the project is 12.

Section/Question	Score
Environmental Compatibility	
1)	2
2)	2
3)	2
4)	1
5)	1
Viewer Sensitivity	
1)	1
2)	2
3)	1
4)	3
5)	2
Total	17

Score Implications: Scope of Work

A score of 17 (15-19) initially indicates:

> An *Abbreviated VIA* that briefly "describes project features, impacts and mitigation requirements" would be appropriate. "Visual simulations would be optional. An Abbreviated VIA would receive little direct public interest beyond a summary of its findings in the project's environmental documents. Visual preferences would be based on observation and review of planning and policy documents by local jurisdictions."

If the score were increased based on additional information or other interpretations, the FHWA VIA Guidance states the following:

> Score 20-24
>
> A *Standard VIA* is recommended. This technical study will likely receive extensive local, perhaps state-wide, public review. It would typically include several visual simulations. It would also include a thorough examination of public planning and policy documents supplemented with a direct public engagement processes to determine visual preferences.
>
> Score 25-30
>
> An Expanded VIA is probably necessary. It is recommended that it should be proceeded by a formal visual scoping study prior to beginning the VIA to alert the project team to potential highly adverse impacts and to develop new project alternatives to avoid those impacts. These technical studies will likely receive state-wide, even national, public review. Extensive use of visual simulations and a comprehensive public involvement program would be typical.

The following addresses the key components of these more extensive approaches and their relevance to the Variable Speed Limits Project.

> Visual Scoping Study with Statewide/National Public Review: A visual scoping study is not needed to identify highly adverse impacts or to develop new project alternatives.
>
> Extensive Use of Simulations: The project requires visual simulations to fully characterize the anticipated visual character of the signs in the landscape. Simulations should not be optional and should be used to minimize effects through site selection optimization.
>
> Thorough Examination of Public Planning and Policy Documents: There is no need to further analyze safety conditions and related needs that have resulted in a plan for variable speeds in the corridor, or examine public policy with respect to visual quality with the purpose of refining goals and objectives. The need for the project is clear and supported and the public policy for visual quality is well developed. The goal should be to avoid and minimize impacts from signs necessary to meet safety needs and signage standards.
>
> Direct Public Engagement Processes to Determine Visual Preferences: This approach is ideal for situations where public controversy and differences of opinion may play a role. In this situation, where siting to avoid and minimize effects is objective (not highly subjective), a panel of team members serving as reviewers is a better approach.

The proposed scope of work "Abbreviated VIA with Simulations and Panel Review" addresses these preliminary findings and considerations. The FHWA Guidance says the following about an Abbreviated VIA:

> "An Abbreviated VIA is a document that succinctly reports the findings of a VIA. It includes a brief project description and a report of the findings of the VIA's establishment, inventory, analysis, and mitigation phases. Maps, aerial photography and photographs are used sparingly and only when such illustrations reduce the need for text. An Abbreviated VIA is typically used for an EA or EIS-level project when it has been identified during scoping that there are minimal visual concerns. It may also be used for CEs, if a VIA Memorandum will not suffice and a slightly more detailed analysis is needed to address visual impacts.
>
> To report the *establishment phase*, identify the location and extent of the project corridor on a map, along with the area of visual effect. Provide a brief project description. Typically, for an Abbreviated VIA, it is not necessary to delineate viewsheds or landscape units.
>
> To report the *inventory phase*, briefly identify visual resources of the natural, cultural, and project environments as a description of the visual character of the project corridor; briefly identify the viewing experience of neighbors and travelers; and finally, identify existing visual quality as what viewers like and dislike about the existing environment.
>
> To report the *analysis phase*, define how the visual character of the corridor will change as a result of the project. Describe impacts to visual resources and the experience of viewers. Define the degree of impacts as being beneficial, adverse, or neutral.
>
> To report the *mitigation phase*, describe how mitigation strategies avoid, minimize, or compensate for adverse visual impacts and how beneficial visual impacts will be incorporated in the project.

APPENDIX 3: APRIL 6, 2017 WORKSHOP AGENDA

I-70 GLENWOOD CANYON VARIABLE SPEED LIMITS
VISUAL IMPACT ASSESSMENT WORKSHOP

AGENDA

APRIL 6, 2017
10:30 AM to 3:00 PM

WELCOME AND PARTICIPANT INTRODUCTIONS	10:30 to 10:35
PURPOSE OF THE WORKSHOP	10:35 to 10:40
AGENDA REVIEW	10:40 to 10:45
PROJECT DESCRIPTION	10:45 to 11:15

Project Setting and Background
Project Description
Past Planning Efforts and Previous Visual Analyses
Regulatory Context: Section 106 Findings and Requirements

METHODOLOGY REVIEW	11:15 to Noon

CDOT Visual Impact Assessment Questionnaire and Results
Site Screening
Visualization Tools and Workshop Analysis Approach
- InfraWorks 3d Model
- OTIS Video
- GoogleEarth Pro Street View

Abbreviated Visual Impact Assessment Deliverable

LUNCH (Break)	Noon to 1:00
SITE SCREENING	1:00 to 1:15

Low Priority Sites (Sites where workshop analysis is not needed)
High Priority Sites (Sites subject to analysis during the workshop)

HIGH PRIORITY SITE ANALYSIS	1:15 to 2:45

Site 1
Site 2
Site 3
Site 4
Site 5
Other Sites

REVIEW OF WORKSHOP RESULTS AND NEXT STEPS	2:45 to 3:00

I-70 Glenwood Canyon Variable Speed Limits

VISUAL IMPACT ASSESSMENT WORKSHOP

MINUTES

THURSDAY, APRIL 6, 2017
10:30 A.M. TO 3:00 P.M.

ATTENDEES

Mike Curtis, CDOT, R3 Traffic
Lisa Schoch, CDOT, Headquarters
Catherine Ventling, CDOT R3
Jen Klaetsch, CDOT R3 Environmental
Stephanie Gibson, FHWA
Joel Barnett, FHWA
Matt Klein, USFS
Matt Brown, Project Manager, Stolfus
Brian Kennedy, VIA Task Leader, AECOM
John Qoyawayma, VIA Modeling Lead

PURPOSE OF THE WORKSHOP

The purpose of the workshop was summarized as follows:

> *To look closely at the proposed variable speed limit (VSL) sign locations to minimize their visibility from passenger trains, river users, trail users and motorists traveling along I-70 while respecting the required engineering sign siting criteria and document the workshop participant's findings.*

The documentation will be in the form of a Visual Impact Assessment (VIA) prepared using FHWA's guidance where the impacts and mitigation measures being clarified by the workshop participants. The VIA will be attached to a CDOT National Environmental Policy Act (NEPA) Categorical Exclusion (CatEx) and will be referenced in the project's analysis of cultural resources under Section 106 of the National Historic Preservation Act and in the project's approach to Section 4(f) of the Department of Transportation Act.

The goal of the workshop was not to change the "adverse effect" finding under Section 106 of the National Historic Preservation Act, but rather to reduce incremental and cumulative visual impacts from the signs.

PROJECT DESCRIPTION

The VSL project setting, background and description were summarized, including past planning, engineering and visual impact analysis efforts. The Concept of Operations report was cited as the primary reference for the project description and past efforts.

METHODOLOGY REVIEW

The VIA methodology was summarized. This included an overview of the FHWA VIA guidance and the results of the CDOT Visual Impact Assessment Questionnaire. The Questionnaire calls for an "Abbreviated VIA." The key methods included analysis of visual conditions using CDOT's Online Transportation Information System (OTIS) tool, GoogleEarth Pro's Street View tool and three dimensional (3d) modeling using InfraWorks.

The process of screening sites for 3d modeling was also summarized. The initial site screening summary matrix was copied and circulated. This matrix identified the best sign locations for 3d modeling and helped set the site review sequence during the workshop. InfraWorks was described along with its strengths and weakness.

SITE ANALYSIS

All 19 sites were analyzed by the Workshop participants using some combination of OTIS images, GoogleEarth Pro's Street View tool and the InfraWorks 3d Model. Sign siting flexibility was summarized as follows:

- Engineering and safety requirements were previously considered to generally select where the signs must be located. This included choosing a specific milestone point with the understanding that there is some flexibility regarding the final location of the sign.
- East/west flexibility was based on the proximity of tunnel portals, on and off ramps and other engineering and safety factors.
- North/south flexibility was more limited and was based on the general convention to put speed limit signs on the right hand side of the road and to put the signs where existing and required telecommunication connections already exists. Proximity to telecommunication conduit is critical for sign operation. Extension of this conduit from one side of the road to the other is costly and can interrupt traffic operations during the installation process as a means of addressing worker and traveler safety risks.
- The resulting limits were characterized as long narrow polygons of flexibility where the workshop participants could look for sign locations that would minimize visual effects.

REVIEW OF WORKSHOP RESULTS AND NEXT STEPS

Impacts

The number, size, distribution, and design variation of temporary and permanent signs in the corridor are creating an incremental and cumulative effect on the visual quality of I-70 through Glenwood Canyon. While these signs and other features associated with the road reflect careful attention to applicable design standards, there are still impacts. The VSL Project's impacts add to the cumulative effect of signs and other roadway features in the corridor.

General Mitigation Measures

Measures to reduce impacts from all signs in the corridor and the proposed VSL signs were similar. In summary, these measures focused on the visual characteristics of the back side of each sign. The use of customize colors to match individual sign site settings was recommended along with painting all aspects of the back of a sign the same color.

Site Specific Mitigation Measures

Site specific mitigation measures involved recommendations for moving some of the signs and in some instances clarifying the characteristics of the sign mount. The results of the sign location analysis are summarized in Table 1.

Table 1 Summary of the Workshop Analysis and Findings: Recommendations for Sign Locations

SIGN NUMBER	SIGN PURPOSE MOTORISTS' TRAVEL DIRECTION	PRE-VIA SIGN: MILEPOST SIDE OF THE ROAD MOUNTING	POST-VIA SIGN: MILEPOST SIDE OF THE ROAD MOUNTING	ANALYSIS/RESULTS
1	EB	116.89 Right Standard ground mount	116.89 Right Standard ground mount	The visibility of this sign was analyzed GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign would not reduce visual impacts. See Figure 6 Images
2	WB	117.68 Right Standard ground mount	117.68 Right Standard ground mount	The visibility of this sign was analyzed GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign would not reduce visual impacts. See Figure 6 Images
3	WB	118.12 Left Standard ground mount	118.21 Left Standard ground mount	The visibility of this sign was analyzed GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of this sign to a location in front of the existing overhead gantry sign post in the median would reduce visual impacts. See Figure 6 Images
4	EB	118.19 Right Ground mount extending above elevated roadway	118.21 Left Standard ground mount	The visibility of this sign was analyzed GoogleEarth Pro's Street View tool. Relocation of this sign from the right side to the median and to a location in front of the existing overhead gantry sign post would reduce visual impacts. See Figure 6 Images
5	EB	118.98 Right Cantilever mount	118.98 Right Cantilever Mount	The visibility of this sign from the railroad, river, trail and road was analyzed using the 3d model and GoogleEarth Pro's Street View tool. Views of the sign from the trail, by motorists traveling westbound and views of the sign from the railroad and river can be minimized by placing this sign just west of a large tree. The tree will not impact the view of the sign by motorists traveling eastbound and will provide some screening from other vantage points. This change did not modify the original milepost. See Figure 6 Images

SIGN NUMBER	SIGN PURPOSE MOTORISTS' TRAVEL DIRECTION	PRE-VIA SIGN: MILEPOST SIDE OF THE ROAD MOUNTING	POST-VIA SIGN: MILEPOST SIDE OF THE ROAD MOUNTING	ANALYSIS/RESULTS
6	WB	120.68 Right Standard ground mount	120.62 Right Standard ground mount	The visibility of this sign was analyzed using GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign to a location near the existing retaining wall would reduce visual effects. This requires relocating a deer crossing sign that is located below the retaining wall. See Figure 6 Images
7	EB	121.73 Left Standard ground mount	121.73 Left Standard ground mount (Low)	The visibility of this sign from the railroad, river, trail and road was analyzed using the 3d model and GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign would not reduce visibility, but keeping the sign low to the ground with a low mount would help reduce visual effects. See Figure 6 Images
8	WB	122.45 Right Standard ground mount	122.45 Right Standard ground mount	The visibility of this sign was analyzed using GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign would not reduce visual impacts. See Figure 6 Images
9	EB	123.20 Left Standard ground mount	123.20 Left Standard ground mount (Low)	The visibility of this sign from the railroad, river, trail and road was analyzed using the 3d model and GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign would not reduce visibility, but keeping the sign low to the ground with a low mount would help address visual effects. See Figure 6 Images
10	WB	124.5 Right Standard ground mount	124.5 Right Standard ground mount	The visibility of this sign was analyzed using GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign would not reduce visual impacts. See Figure 6 Images

SIGN NUMBER	SIGN PURPOSE MOTORISTS' TRAVEL DIRECTION	PRE-VIA SIGN: MILEPOST SIDE OF THE ROAD MOUNTING	POST-VIA SIGN: MILEPOST SIDE OF THE ROAD MOUNTING	ANALYSIS/RESULTS
11,12	EB	124.64 Left Standard mount 124.64 Right Ground mount extending above elevated roadway	124.64 Left Standard mount 124.69 Right Ground mount extending above elevated roadway	The visibility of these signs from the railroad, river, trail and road was analyzed using the 3d model and GoogleEarth Pro's Street View tool. After analysis, the workshop participants discussed whether or not placement of these signs near other signs, including an existing overhead gantry sign, created cumulative effects that should be avoided or concentrated signage in a manner that reduces visual effects by keeping signs in fewer locations along the corridor. The workshop participants concluded that keeping the sign on the left in the vicinity of the other existing signs minimized visual effects, but decided to move the other sign east to where the trail intersects the cantilever portion of the bridge deck to minimize visual effects from the trail. See Figure 6 Images
13	EB	126.07 Right Ground mount extending above elevated roadway	126.07 (Left) Ground mount	The visibility of this sign was analyzed GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign to the median was preferable given the location of required fiber connections and would reduce visual effects. See Figure 6 Images
14	EB	127.56 Left Standard ground mount	127.56 Left Standard ground mount	The visibility of this sign was analyzed GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign would not reduce visual impacts. See Figure 6 Images
15	WB	128.13 Right Standard ground mount	128.13 Right Standard ground mount	The visibility of this sign was analyzed GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign would not reduce visual impacts. See Figure 6 Images
16	EB	128.83 Right Ground mount extending above elevated roadway	128.87 Right Ground mount extending above elevated roadway	The visibility of this sign from the railroad, river, trail and road was analyzed using the 3d model and GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that this sign could be moved further east where the trail alignment is located away from the roadway. This shift would reduce visual impacts from vantage points along the trail. See Figure 6 Images

SIGN NUMBER	SIGN PURPOSE MOTORISTS' TRAVEL DIRECTION	PRE-VIA SIGN: MILEPOST SIDE OF THE ROAD MOUNTING	POST-VIA SIGN: MILEPOST SIDE OF THE ROAD MOUNTING	ANALYSIS/RESULTS
17	WB	129.66 Right Standard ground mount	129.70 Right Standard ground mount	The visibility of this sign was analyzed GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of this sign to a location west of the bicycle tunnel would reduce visual effects to trail users. The participants selected a location just east of the point where the vegetated hillside transitions into cliff. This location would create the lowest level of visual effects. See Figure 6 Images
18, 19	WB	131.05 Left and Right Standard ground mount	131.05 Left and Right Standard ground mount	The visibility of this sign was analyzed GoogleEarth Pro's Street View tool. After analysis, the workshop participants concluded that relocation of the sign would not reduce visual impacts. See Figure 6 Images