



# **I-70 FRONTAGE ROAD IMPROVEMENTS**

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## **CATEGORICAL EXCLUSION**

**MARCH 2012**



**FINAL**  
**Categorical Exclusion**  
**for the**  
**I-70 Frontage Road Improvements**  
**Idaho Springs, Colorado**

Prepared for:



CDOT Region 1

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## 1.0 Introduction

The Colorado Department of Transportation (CDOT) has initiated the I-70 Frontage Road Improvements Project as part of the commitments from the *I-70 Mountain Corridor Programmatic Environmental Impact Statement (PEIS) Record of Decision (ROD)*, (FHWA, June 2011). The purpose of this project is to improve safety and mobility for vehicles, pedestrians, and bicyclists between eastern Idaho Springs (I-70 Exit 241) and the Hidden Valley/Central City Interchange (I-70 Exit 243). This project is entirely state funded, with no federal transportation funding. Project concepts will be developed and studied in coordination with the Project Leadership Team (PLT). This document includes project concepts that have been evaluated for environmental impacts in a state process similar to a Categorical Exclusion (Cat Ex).

The frontage road (CR 314) between Idaho Springs and the Hidden Valley /Central City Interchange is approximately two miles and serves both local and through traffic. Current traffic volumes range from 100 to 1,300 average daily traffic (ADT), with higher volumes reflecting seasonal and weekend traffic corresponding with peak travel on I-70. The local connectivity provides access to residents, businesses, recreational opportunities and emergency response. CR 314 also serves as an alternative to travel on I-70, especially during accidents, peak travel times, severe weather, construction or maintenance on I-70.

CR 314 between Idaho Springs and the Hidden Valley /Central City Interchange lacks consistent lane and shoulder widths. The width of the existing paved roadway ranges from 22 – 30 feet. Additionally, it has a narrow gravel section with a steep drop on the north side into Clear Creek and a steep uphill slope on the south side. The Scott Lancaster Memorial Trail parallels CR 314 in the project area. A portion of the trail is located on the CR 314 shoulders and in two sections it is a separate off-road trail. Clear Creek is north of existing CR 314 and is heavily used by anglers and rafters. **Figure 1** shows the extent of the Frontage Road Improvements Project.

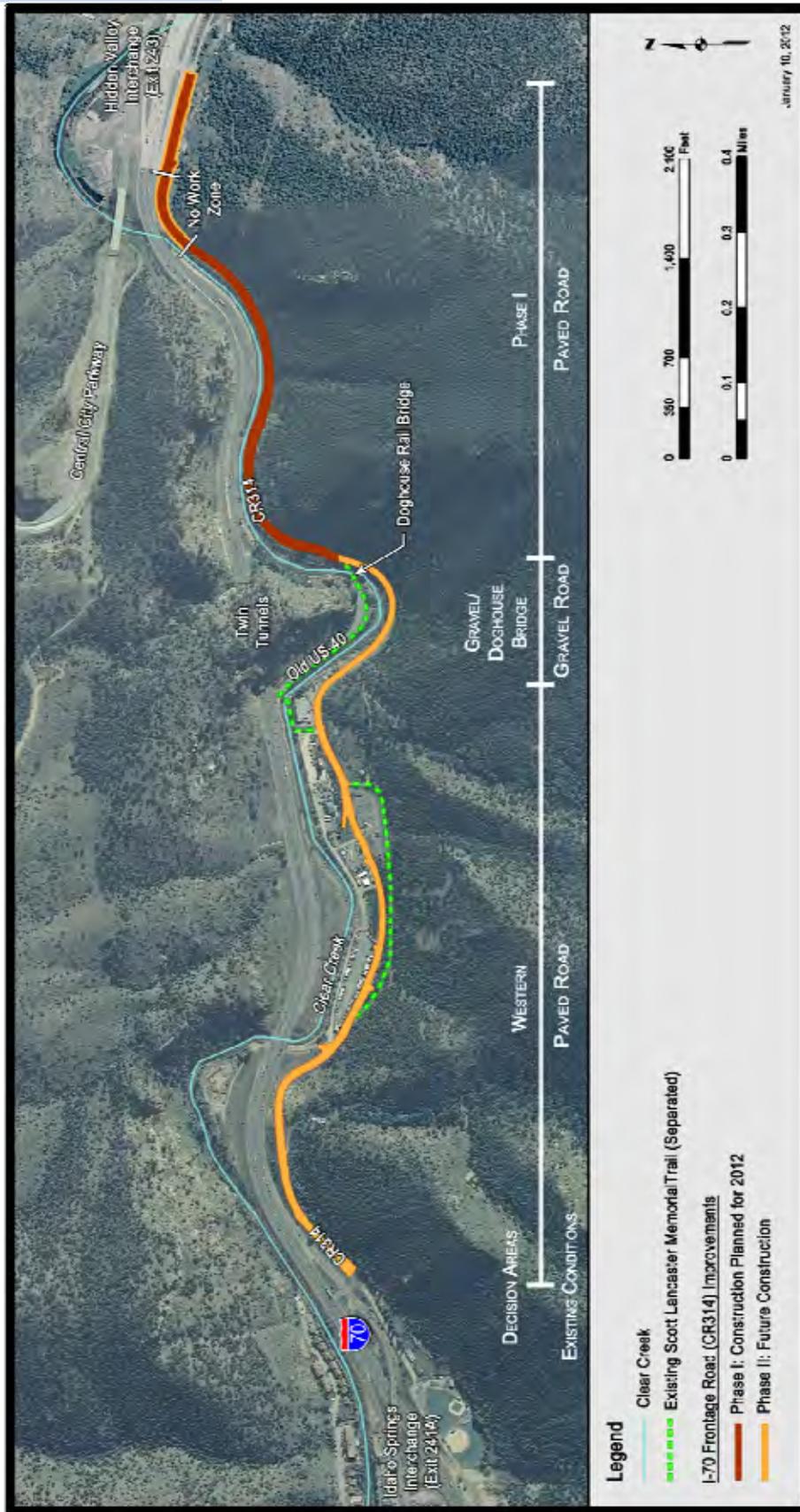
### 1.1 Project Purpose and Need

Consistent with the recommendations from the *I-70 PEIS ROD*, the purpose of this project is to provide enhanced safety and mobility for vehicles, pedestrians, and bicyclists between eastern Idaho Springs (I-70 Exit 241) and the Hidden Valley/Central City Interchange (I-70 Exit 243).

Project needs include the following:

- Improve roadway pavement and widths to provide consistent user expectations, increase connectivity, and enhance safety.
- Provide a roadway that can serve as a safe alternative to travel on I-70 for local traffic and emergency response, especially during accidents, construction, or maintenance on I-70.
- Improve consistency with the facilities proposed in the Clear Creek Greenway Plan, including bicycle, pedestrian, and recreational access.

Figure 1: Project Location Map



## 1.2 Project Improvements

The proposed project will upgrade existing CR 314 to meet Clear Creek County Local Access standards. The proposed road section generally will include two 11-foot travel lanes, two 2-foot shoulders, a 10-foot separated shared use path, and a minimum 5-foot buffer area between the shoulder and the shared use path. In two tightly constrained locations, a new separated trail will not be provided, and bicycles and pedestrians will continue to travel on the existing separated Scott Lancaster Memorial Trail.

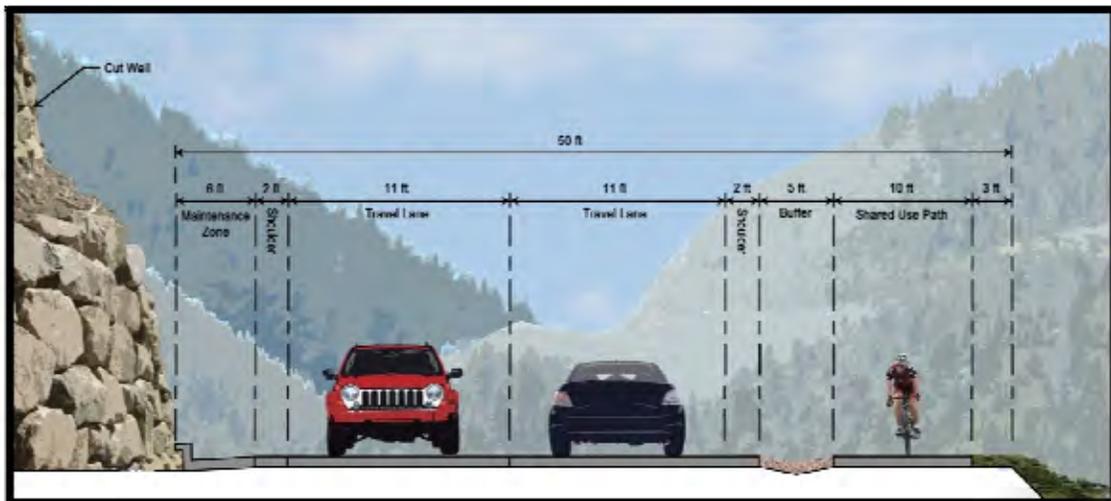
The vertical and horizontal alignment of the existing roadway will not be altered and the speed limits within the project area will remain the same. Cut walls will need to be placed where rock cuts occur and fill walls will be necessary in some areas in order to widen for the proposed cross section. The project area includes the area within 100 feet of either side of the centerline of the existing CR 314 roadway between the project limits. This project includes two phases which are discussed in the following sections. The project description is based on the *Field Inspection Review (FIR) Plan Set* dated January 13, 2012.

### 1.2.1 Phase I

No federal funds will be used on Phase I. State funds are immediately available to provide improvements to this portion of the frontage road. CDOT coordinated with the I-70 Frontage Road Project Leadership and Technical Teams to identify the locations of the immediate improvements. The Phase I immediate improvements are anticipated for CR 314 adjacent to Clear Creek, beginning just west of old US 40 near the Doghouse Rail Bridge (transition from the gravel section of CR 314) and extending for 0.7 miles to the intersection of CR 314 with the Hidden Valley/Central City Interchange (I-70 Exit 243).

Proposed improvements to CR 314 in Phase I are anticipated in the same location as the existing roadway. Changes to posted speeds and vertical or horizontal alignment are not planned. Phase I will include roadway widening to provide consistent 2-foot shoulders with two 11-foot lanes. The western portion of Phase I will include a minimum of 5-foot separation between the roadway shoulder and the 10-foot shared use path adjacent to Clear Creek. **Figure 2** illustrates the typical roadway section with shared use path.

Figure 2: Typical Section with Shared Use Path



Phase I will also include improved river access by constructing a gravel parking pull-out at the location of the existing informal river access. The pull-out is approximately 120-feet long and can accommodate up to 6 vehicles. Three cut walls are planned for the south side of CR 314 and three cantilever walls on the north side. Maximum heights of these walls (Walls 6, 7, 8, 9, 10 and 11) range from approximately 5-feet to 30-feet of exposed wall height.

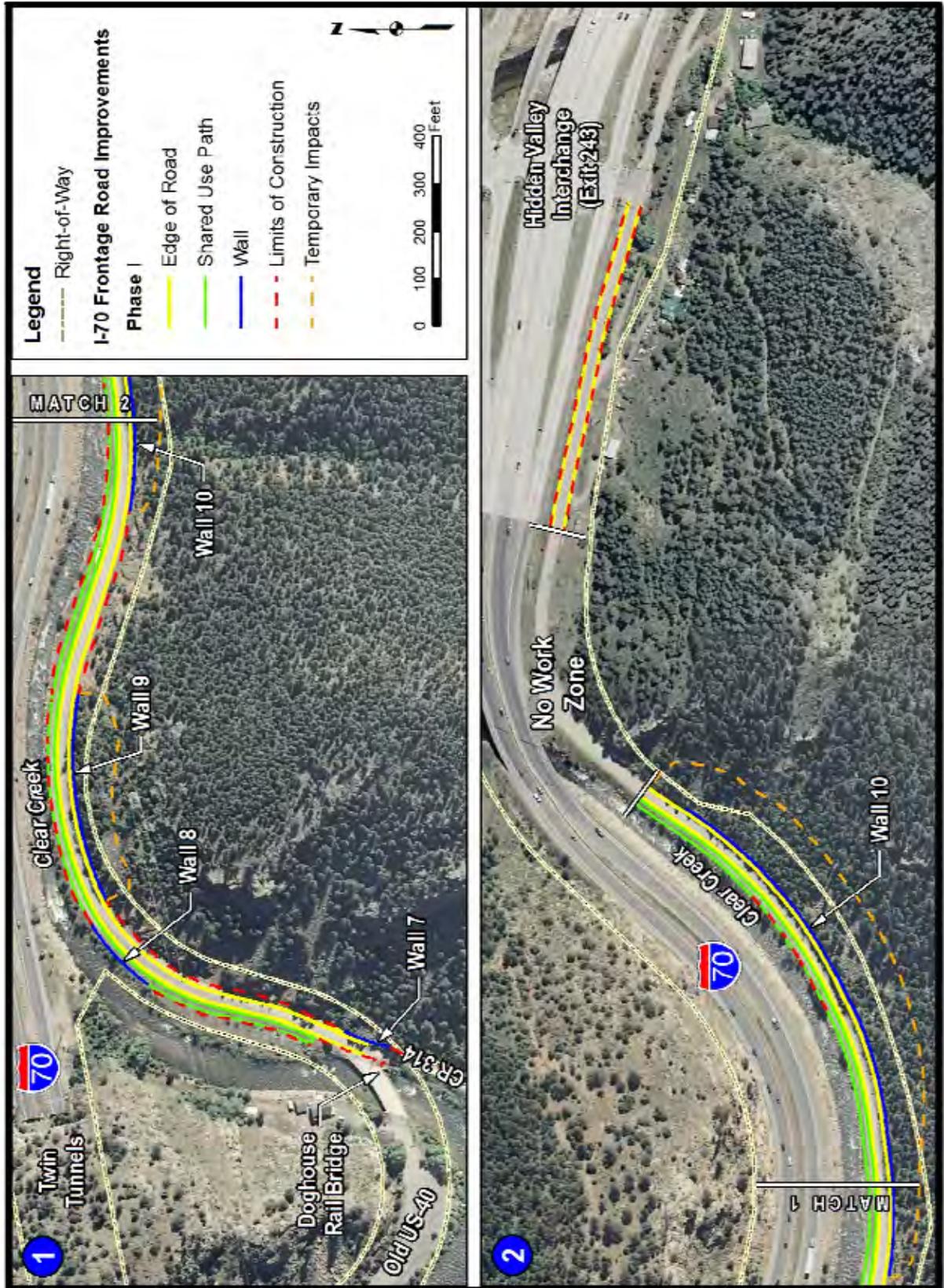
Phase I includes a No Work Zone where roadway widening and shared use path improvements will not be completed at this time. It is anticipated that the I-70 Twin Tunnels Project will require realignment and steep rock cuts along a 500-foot section of the frontage road to flatten the tight east bound I-70 curve. Timing of the Twin Tunnels Project construction in the No Work Zone has not been determined, but it will occur no earlier than December 2012 and no later than October 2013. Since the Twin Tunnels improvements are anticipated in the immediate future, it would be a waste of tax payer funds for the Frontage Road Improvements Project to provide improvements that would need to be completely reconstructed. The Twin Tunnels Project will reconstruct the affected portion of CR 314 to the Phase I configuration and install a cut wall that will accommodate the ultimate Phase II configuration.

East of the No Work Zone to Hidden Valley, Phase I will include a mill and overlay, widening, and restriping to accommodate bicycle and pedestrian traffic on widened and consistent shoulders. In Phase I, a pedestrian crossing will be added just west of the No Work Zone to transition non-motorized users from the shared use path to the improved shoulders.

Construction on Phase I is anticipated to be complete by fall of 2012 providing immediate benefits to vehicle, bicycle, and pedestrian traffic and Clear Creek recreational users. The project will be open to traffic and used as a frontage road/shared use path at that time.

Construction methods are still being determined. Heavy machinery and materials typical of road and wall construction will be used. Construction will include blasting of rock outcrops and construction of cut and fill walls. This assessment assumes that vehicle traffic will be temporarily closed for the duration of Phase I construction (5-6 months), however local access to the Bell property will be accommodated from the Hidden Valley Interchange. The alternative route during this period will be I-70. Recreational access along CR 314 for bicyclists, pedestrians, fishermen, and other users will be accommodated when it is safe to do so. Use of Clear Creek will be temporarily restricted during blasting of rock outcrops and construction activities to maintain safety. **Figure 3** illustrates the Phase I improvement area.

Figure 3: Phase I Improvements



## 1.2.2 Phase II

CDOT is committed to providing the roadway and shared use path improvements for Phase II as soon as funding becomes available. These Phase II improvements have been evaluated in this Categorical Exclusion. Conceptual design, cost estimates, and right-of-way plans have been developed so that CDOT can pursue funding to honor this commitment.

Phase II includes roadway and shoulder widening and path connections on CR 314 between eastern Idaho Springs (I-70 Exit 241) and the old US 40 connection at the Doghouse Rail Bridge (western termini of Phase I) and the full build out of the shared use path from the eastern end of Phase I to the Hidden Valley /Central City Interchange (I-70 Exit 243). **Figure 4** illustrates the improvements and extent of Phase II. These improvements are summarized below.

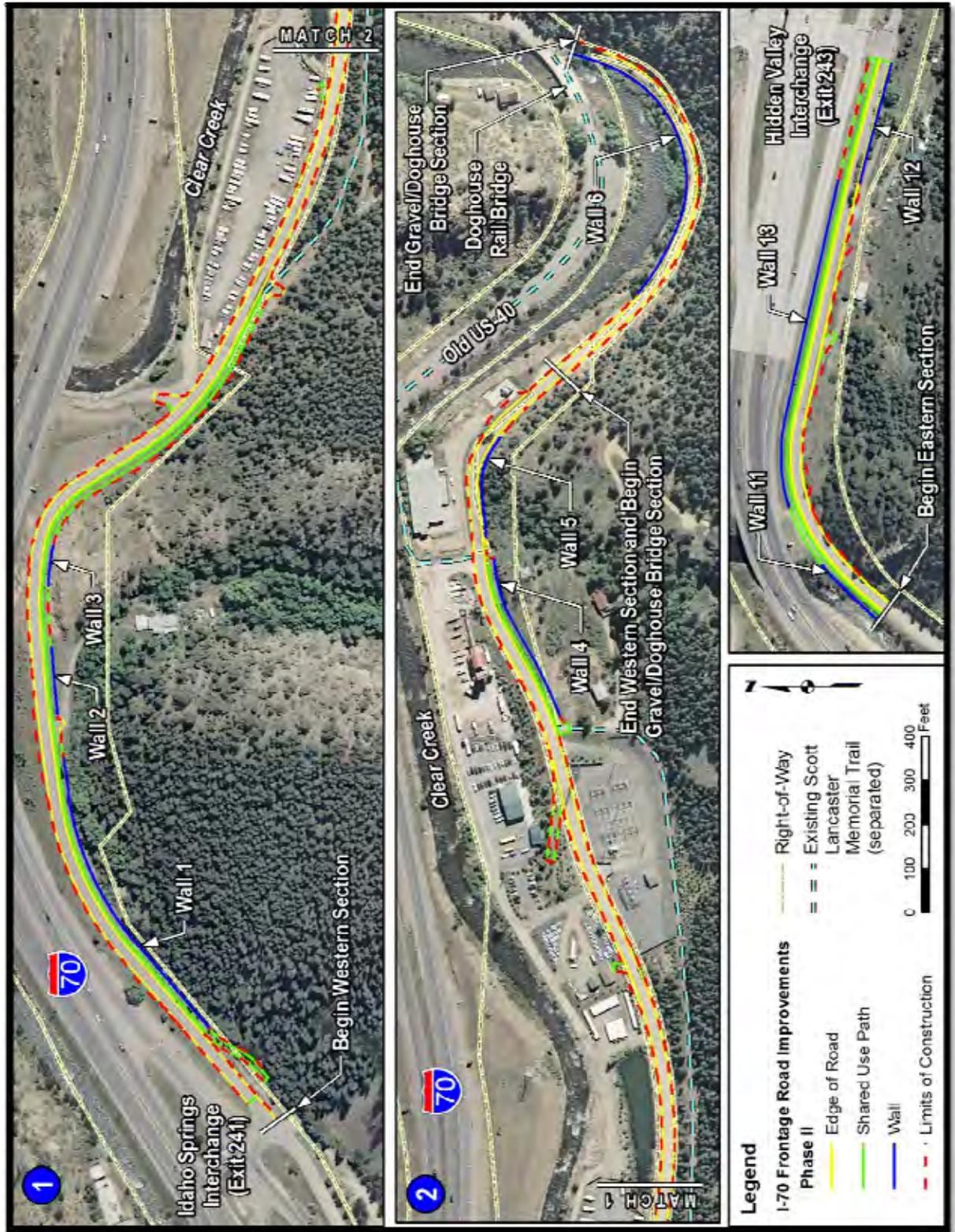
- **Western Area** – Generally, improvements in this area will include two 11-foot lanes and provide consistent 2-foot shoulders with a shared use path separated by a buffer area. This roadway and shared use path cross section will connect the existing trail on the south side of CR 314 near the Idaho Springs Ball Field with the existing Scott Lancaster Memorial Trail south of the Public Service/Xcel substation.

Where the existing trail is separate from CR 314, improvements will include two 11-foot lanes and two 2-foot shoulders with no new separated shared use path. This roadway cross section is provided between Mountain Mini Storage and Clear Creek Rafting to minimize right of way impacts to existing businesses. In this location, it is assumed that non-motorized users will continue to utilize the existing Scott Lancaster Memorial Trail south of CR 314 and the substation. The cross section with a separated trail and a striped cross walk will be used for approximately 400 feet to connect the existing Scott Lancaster Memorial Trail from behind the substation to the trail between Aggregate Industries and Idaho Springs Public Works. The western section includes short (15-ft or less exposed height) walls on both sides of the road to reduce right of way impacts.

- **Gravel/Doghouse Rail Bridge Area** – Due to the narrow bench and steep slopes, two 11-foot lanes and two 2-foot shoulders are proposed in this decision area. Non-motorized users can continue to use the existing Scott Lancaster Memorial Trail and bridge behind Idaho Springs Public Works and along old US 40. This section includes a cantilever and fill wall down slope to widen the very narrow bench.
- **Eastern Area** - Planned improvements within and to the east of the Phase I No Work Zone include a 10-foot shared use path north of the Phase I roadway and shoulder improvements. Reconstruction of the existing retaining wall along the I-70 ramps and other walls will be required.

Construction methods are still being determined. Heavy machinery and materials typical of road and wall construction will be used. Construction will include construction of cut and fill walls. Recreational access for bicyclists and pedestrians along CR 314 will be accommodated when it is safe to do so. Local access for businesses and residents will be accommodated. Use of Clear Creek will be temporarily restricted during some construction activities to maintain safety.

Figure 4: Phase II Improvements



### 1.3 CSS Process

CDOT has committed to using Context Sensitive Solutions (CSS) on the Interstate 70 (I-70) Mountain Corridor. As part of this commitment, CDOT integrates a six-step process in all I-70 Mountain Corridor projects to ensure collaboration. CDOT’s CSS framework is described in detail on CDOT’s CSS website ([i70mtncorridorcss.com](http://i70mtncorridorcss.com)).

**Step 1** of the CSS process calls for defining desired outcomes and actions for the project. This effort was undertaken during a scoping meeting on September 7, 2011. Desired outcomes and actions for the project include:

- Improving emergency access
- Enhancing alternatives for bicyclists, pedestrians, and non-motorized transportation users
- Providing interconnectivity with Idaho Springs
- Improving safety for all users
- Providing detours for I-70 closures resulting from inclement weather, traffic accidents, accidents, and construction

This project will be considered successful if the project team develops a widely accepted solution that serves as an effective detour, preserves rafting and fishing access, enhances wetlands and improves rafting/commercial infrastructure. This project must tie into the existing frontage road and must produce little to no impact on adjacent businesses.

**Step 2** of the CSS process calls for endorsing the process. Federal Highway Administration (FHWA), CDOT, and the project team have committed to collaboration with potentially affected individuals, entities, and other interested parties. Stakeholders for this project include Clear Creek County, Idaho Springs, rafting businesses, other businesses, residents, and the I-70 Mountain Corridor Project Leadership and Technical Teams (PLT/TT). CDOT has initiated coordination with stakeholders and will continue that commitment throughout the project.

The I-70 Frontage Road Improvements project integrated the I-70 Mountain Corridor context statement and core values into its project specific context statement. These attributes were developed and endorsed by the PLT/TT and are summarized in the call-out box at right. The term “natural crossing” is used in the project specific context statement to stress that the PLT/TT values that CR 314 is currently a barrier-free and low-traffic volume roadway that is also used as a wildlife crossing.

#### Context statement:

I-70 is Colorado’s only east-west Interstate. The adjacent frontage road (CR 314) provides access to local businesses, recreation, and residences and an alternate east west connection for vehicles, bikes, and pedestrians.

Between Idaho Springs and Hidden Valley, the frontage road is parallel to I-70 and Clear Creek. It provides a natural crossing for wildlife and connects local communities to regional services, recreation, and I-70.

#### Core values:

sustainability | collaborative decision making | safety | healthy environment | historic context | community respect | mobility/accessibility | aesthetics

**Step 3** of the CSS process includes coordinating with the PLT/TT to establish criteria consistent with the project specific context statement, core values, and the *Idaho Springs Area of Special Interest Report*.

**Step 4** of the CSS process includes developing alternatives and options as summarized in the *I-70 Frontage Road Improvements Concept and Development Screening Report*.

**Step 5** of the CSS process continues the evaluation, selection, and refinement of the recommended option in the *I-70 Frontage Road Improvements Concept and Development Screening Report*. CDOT will continue to refine the recommended option through the PLT/TT and final design process.

**Step 6** of the CSS process finalizes the documentation and evaluates the process as part of this Cat Ex.

## 1.4 Summary

**Table 1** lists each of the resources and potential impacts during Phase I and Phase II, as well as any mitigation or commitments. Table 1 also includes the specific CDOT specialist's review and clearance date for each resource section.

**Table 1: Summary of Impacts and Mitigation**

Resource	Impacts		Mitigation
	Phase I	Phase II	
Air Quality (Schlaefer, December 21, 2011)	No impacts are expected.	No Impacts are expected.	None
Noise (Schlaefer, December 21, 2011)	Not Applicable	Not Applicable	Not Applicable
Hazardous Materials (Morton, February 16, 2012)	No direct impacts are expected. During construction there is a potential to impact old mining wastes that were utilized as roadway embankment beneath CR 314.	No direct impacts are expected. During construction there is a potential to impact old mining wastes that were utilized as roadway embankment beneath CR 314.	Develop a project-specific standard operating procedures regarding identification. Contaminated materials management and disposal, which will be incorporated in a Materials Management Plan to be used during construction.
Farmland Protection	Not Applicable	Not Applicable	Not Applicable
Threatened and Endangered Species (Eussen, February 9, 2012)	Water use required for some construction activities during Phase I would affect federally listed species that are potentially impacted by depletions to the Platte River System. These species include the least tern, piping plover, western prairie fringed orchid, whooping crane, and pallid sturgeon.	Water use required for some construction activities during Phase II would affect federally listed species that are potentially impacted by depletions to the Platte River System. These species include the least tern, piping plover, western prairie fringed orchid, whooping crane, and pallid sturgeon.	Measures outlined in the USFWS <i>Final Programmatic Biological Opinion</i> will be followed to minimize impacts. CDOT is participating in the South Platte Water Related Activities Program (SPWRAP) and the water used for this project. CDOT will report to the USFWS at the year's end after the completion of the project.

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Resource	Impacts		Mitigation
	Phase I	Phase II	
Migratory Birds (Eussen, February 9, 2012)	No impacts are expected.	No impacts are expected.	A nest survey will be completed by a CDOT Biologist prior to beginning construction to verify the absence of nesting birds.
Terrestrial and Aquatic Wildlife (Eussen, February 9, 2012)	No permanent impacts are expected. Wall cost will have a temporary impact on forage and travel patterns for wildlife in the area. Construction impacts resulting from the proposed project may increase sediment which may have an impact on aquatic species.	No permanent impacts are expected. Walls will be constructed using heavy machinery, but no blasting is expected. Wildlife may temporarily avoid the area during construction. Construction impacts resulting from the proposed project may increase sediment which may have an impact on aquatic species.	Walls have been designed to minimize impacts to wildlife crossings. BMPs and a SWMP will be put into place prior to construction to minimize impacts.
Wetlands and Other Waters of the U.S. (Pierce, February 10, 2012)	There are no impacts to wetlands during Phase I. There are no impacts beyond the OHWM for Clear Creek in Phase I.	There are a total of 0.01 acres (438 SF) of wetlands impacted by Phase II. There are no impacts beyond the OHWM for Clear Creek in Phase II.	Impacts to wetlands and other Waters of the U.S. will be minimized by "top down construction" from CR 314.
Riparian Areas (Pierce, February 10, 2012)	There are no impacts to riparian areas in Phase I.	There are a total of 0.061 acres (2,667 SF) of impacts to riparian areas in Phase II.	Impacts to streams and riparian areas were minimized by "top down construction" from CR 314. Phase II meets the application criteria and will require application for SB40 Wildlife Certification from CPW 60 days prior to planned construction.
Water Quality (Huyck, March 22, 2012)	Phase I will result in a 0.87 acre increase of impervious surface area. Construction impacts resulting from the proposed project may increase sediment.	Phase II will result in a 1.63 acre increase in impervious surface area by paving a gravel section of CR 314.. Construction impacts resulting from the proposed project may increase sediment.	Phase I: Permanent water quality features include curb and gutter, <b>inlet protection of culverts</b> along CR 314, and a buffer area between the shared use path and the roadway. Phase II: Paving the 1,000 ft. section of gravel roadway will remove a continuous source of sediment. These features will maintain or improve water quality. Temporary sediment impacts will be reduced by BMPs and implementing a SWMP for each Phase of construction.

Resource	Impacts		Mitigation
	Phase I	Phase II	
Floodplains <i>(Gross, February 13, 2012)</i>	The proposed improvements from Phase I do not encroach into the Clear Creek calculated floodplain.	The proposed improvements from Phase II do not encroach into the Clear Creek calculated floodplain.	None
Historic Properties <i>(Schoch, February 15, 2012)</i> <i>(Jepson, March 9, 2012)</i>	The proposed improvements to CR 314 result in a finding of no adverse effect to the overall highway resource (5CC2002).	The proposed improvements to CR 314 result in a finding of no adverse effect to the overall highway resource (5CC2002).	None
Paleontology <i>(Wallace, December 18, 2012)</i>	No impacts to paleontology are expected to occur during Phase I.	No impacts to paleontology are expected to occur during Phase II.	If any subsurface bones or other potential fossils are found during construction, the CDOT Staff Paleontologist will assess their significance and make further recommendations.
Section 4(f) and Section 6(f) Properties	Not Applicable	Not Applicable	If federal funds are obtained a Section 4(f) evaluation will be completed.
Geologic Resources <i>(Huyck, March 22, 2012)</i>	During Phase I, Walls 9 and 10 will require blasting to remove rock material. With blasting there is a potential for rock fall to occur during construction.	During Phase II, no impacts to geologic resources are expected to occur.	Prior to blasting, material strength and the character and geometric relations of discontinuities in the rock mass will be evaluated to determine the likelihood of rock fall occurring. Wire mesh will be added as directed by engineer.
Noxious Weeds <i>(Roeder, March 6, 2012)</i>	Construction activities may cause noxious weeds to spread into disturbed areas.	Construction activities may cause noxious weeds to spread into disturbed areas.	In compliance with the Colorado Noxious Weed Act and local guidance, BMPs and CDOT approved preventive measures will be used to prevent the spread of noxious weeds and minimize the potential effects from control treatments during construction of the project.
Land Use <i>(Gerak, February 1, 2012)</i>	The improvements to CR 314 proposed by this project are consistent with the comprehensive development plans of Idaho Springs and Clear Creek County.	The improvements to CR 314 proposed by this project are consistent with the comprehensive development plans of Idaho Springs and Clear Creek County.	None

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Resource	Impacts		Mitigation
	Phase I	Phase II	
Social and Economic <i>(Kord, March 22, 2012)</i>	<p>Minor ROW impacts with no permanent negative effect on social and economic resources.</p> <p>Temporary impacts during construction include closing the roadway to vehicles for the duration of the construction (5-6 months). Recreational access for bicyclists and pedestrians along CR 314 will be accommodated when it is safe to do so. Temporary river closure for specific construction activities may occur during any phase of construction to ensure safety.</p> <p>Minor impacts to locally important community resources (Bell Family Residence access modification).</p>	<p>Minor ROW impacts with no permanent negative effect on social and economic resources.</p> <p>Local access for businesses and residents will be accommodated during construction. Recreational access for bicyclists and pedestrians along CR 314 will be accommodated when it is safe to do so. Temporary river closure for specific construction activities may occur during any phase of construction to ensure safety.</p> <p>Minor impacts to locally important community resources (Bell Family Residence)</p>	<p>Contractor will complete blasting prior to 8:00am, as feasible. Contractor will include coordination with rafting companies and EMS providers as part of their Public Information Plan.</p>
Environmental Justice <i>(Kord, March 22, 2012)</i>	<p>Phase I will not have disproportionately high and adverse human health and environmental effects on minority populations and low-income populations.</p>	<p>Phase II will not have disproportionately high and adverse human health and environmental effects on minority populations and low-income populations.</p>	<p>None</p>
Recreation <i>(Gerak, February 1, 2012)</i>	<p>Recreation resources will be improved within the project area. A formalized boat access and parking area will be constructed and 0.37 miles of new separated shared use path will be constructed along the roadway. Temporary construction impacts will include restricting use and access to Clear Creek during blasting of rock outcrops.</p>	<p>Recreation resources will be improved within the project area. 0.69 miles of new separated shared us path will be constructed along the roadway.</p>	<p>A rafting company survey will be completed. Contractor will develop a traffic control plan, which includes accommodating bicyclists and pedestrians, during construction. Contractor will coordinate with the Emergency Response authorities for Clear Creek County.</p>

Resource	Impacts		Mitigation
	Phase I	Phase II	
Visual <i>(Arbogast, March 23, 2012)</i>	In Phase I, walls 6 and 11 will result in moderate visual impacts and walls 9 and 10 in moderate to strong visual impacts.  Cut walls will be tiered when the total height exceeds 12 to 15 feet (potentially walls 9 and 10). Cut walls in Phase I will remain exposed with a temporary screed finish until the Twin Tunnels or Phase II walls are constructed to provide maximum consistency and continuity.	In Phase II, walls 4 and 5 will result in moderate visual impacts.	Project elements have been developed to reflect the guidelines outlined in the Aesthetic Guidance Index of the Mountain Mineral Belt Design Segment and the I-70 Mountain Corridor Design Criteria. The PLT/TT will be coordinated with when finalizing the aesthetic treatments for the walls.

Note: CDOT environmental specialist clearance is noted under Resource as *(Name, Date)*

## 2.0 Resources

### 2.1 Air Quality

Air quality is regulated under the 1970 Clean Air Act (Clean Air Act, 42 United States Code (USC) 85), as amended in 1977 and 1990. The purpose of the Clean Air Act is to protect and enhance air quality to promote public health, welfare, and the productive capacity of the nation.

A review was performed for CDOT to identify potential negative impacts to air quality and to determine the appropriate level of analysis (Wilson, December 7, 2011). Clear Creek County is considered to be in attainment for National Ambient Air Quality Standards, and not subject to conformity requirements that are applicable to transportation projects in nonattainment areas. No air quality emissions or dispersion analyses are required for this project. In addition, the review determines that the air quality impacts of this proposed improvement will be negligible. Therefore, there are no impacts to air quality with Phase I or Phase II (Schlaefler, December 21, 2011).

This project has been determined to generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special mobile source air toxic compound (MSAT) concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the project from that of the no-build alternative.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's Mobile 6.2 model forecasts a combined reduction of 72 percent in the total annual emission rate for the priority MSAT from 1999 to 2050 while vehicle-miles of travel are projected to

increase by 145 percent. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project.

## 2.2 Noise

This project meets the criteria for a Type III project established in 23CFR772. Therefore, the project requires no analysis for highway traffic noise impacts. Type III projects do not involve added capacity, construction of new through lanes or auxiliary lanes (other than turn lanes), changes in the horizontal or vertical alignment of the roadway, exposure of noise sensitive land uses to a new or existing highway noise source, or any other activity classified as a Type I or Type II project. CDOT acknowledges that a noise analysis is required if changes to the proposed project result in reclassification to a Type I project (Schlaefer, December 21, 2011).

## 2.3 Hazardous Materials

A Phase I Environmental Site Assessment (Phase I ESA) has been prepared to evaluate the potential for encountering Recognized Environmental Conditions (RECs), soil and/or ground-water contamination, and other solid and hazardous waste concerns within the project area (Pinyon, February 16, 2012). The Phase I ESA was conducted to meet the guidelines of the ASTM "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process E 1527-05." The Site Assessment was conducted to include the area within 50 feet of the existing CR 314 roadway along Phase I and Phase II. The information presented in the Phase I ESA supplements previously collected information concerning hazardous materials as presented in the *I-70 Mountain Corridor PEIS Regulated Materials and Historic Mining Technical Report* (CDOT, March 2011). Hazardous materials concerns are also among the issues discussed in Stream and Wetland Ecological Enhancement Program (SWEEP) committee meetings for concern both the Frontage Road and I-70 Twin Tunnels Projects.

The Phase I ESA survey area includes various operations including, but not limited to an electrical substation, a concrete batch plant (with above ground storage tanks), a water treatment plant, a former hydroelectric plant, and a former gasoline station. The Phase I level screening did not reveal evidence of the release or suspected release of hazardous substances from these facilities that has the potential to impact the project. In addition, no other former or currently operating site was identified in the Phase I ESA as having the potential to impact the project area with hazardous materials.

The Phase I ESA did identify the potential for encountering mining waste within the project limits as a REC associated with the project. The project area falls within the boundaries of the Central City/Clear Creek Superfund Site, Operable Unit 3. Mining (primarily gold, silver, and copper) was a leading industry in the region from 1859 until the 1950s. Both hard rock and placer mining occurred throughout Clear Creek County. Specific mining activities that occurred in or near the project area included: dredging of the alluvium material within the Clear Creek floodplain, a strip mine located in the commercial area south of Clear Creek and west of the Twin Tunnels, a placer mine located near the current Hidden Valley Interchange, and multiple mine shafts. Also, two potential former mill sites have been identified in the vicinity of the project area. There is also the possibility that mine wastes were utilized as roadway embankment or fill material beneath CR 314, old US 40 and I-70. Soil mapping information from the USDA indicates that at least two areas beneath the project area may include mine wastes or fill containing mine wastes. Subsurface investigations (environmental sampling of soils, rock,

and water) have been implemented in conjunction with the I-70 Twin Tunnels project, and results will be evaluated and presented separately, but are considered generally applicable to and indicative of conditions associated with the Frontage Road Project.

The most recent Five-Year Review Report for this Central City/Clear Creek Superfund site was reviewed (CDPHE, September 29, 2009). This report describes several specific sites selected for remedial activities. There are no current or proposed remediation projects in the immediate vicinity of the project, although one planned project was identified approximately one mile upstream (west) that may potentially affect water quality in Clear Creek upstream of the project, and which will be monitored.

No direct impacts from hazardous materials are expected in Phase I and Phase II. To address potential construction impacts it is recommended that data from recently implemented subsurface investigations specific to the I-70 Twin Tunnels project be evaluated for potential environmental impacts that may exist in the vicinity of the project resulting from historical mining activities. Data generated will be utilized to develop project-specific standard operating procedures regarding contaminated materials identification, management and disposal, which will be presented in a Materials Management Plan to be utilized during construction. As there is a limited potential to impact old mining waste that was utilized as roadway embankment or fill material beneath CR 314 during construction for Phase I or Phase II, procedures within the Materials Management Plan will be followed to address mine waste that is suspected or encountered during construction.

## 2.4 Farmland Protection

The United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS) oversees the Farmland Protection Policy Act (FPPA). For the purposes of implementing the FPPA, farmland is defined as prime or unique farmlands or farmland that is determined by the state or unit of local government agency to be farmland of statewide or local importance. However, it does not include farmland already in or committed to urban development or water storage (7 CFR 658.2). Since the land use impacts occur on land already in or committed to urban development, the requirements of the FPPA do not apply.

## 2.5 Threatened or Endangered Species

The Endangered Species Act (ESA) of 1973 (as amended 16 USC 1531-1543) declares the intention of Congress to protect federally-listed threatened and endangered species and designated critical habitat of such species. The ESA defines an endangered species as a species that is in danger of becoming extinct throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered in the foreseeable future. Species listed as candidate species are currently being reviewed to determine if they should also be protected under the ESA. US Fish and Wildlife Service (USFWS) is the primary regulatory agency responsible for ESA compliance.

**Table 2** lists the federally listed species potentially found in Clear Creek County within the I-70 Mountain Corridor. This list was derived by performing field surveys, reviewing protected species lists, obtaining input from federal and state agencies, and reviewing existing data from readily available sources. Sources included the *I-70 Mountain Corridor PEIS – Biological Resources Technical Report*

(2010), the *I-70 Mountain Corridor Final Programmatic Environmental Impact Statement* (2011), and the USFWS (2011) *Final Programmatic Biological Opinion*.

The *I-70 Mountain Corridor PEIS Programmatic Biological Assessment* has been approved by the USFWS and in March 2011 they issued the findings of the *Final Programmatic Biological Opinion*. These findings and scoping comments received by the USFWS were incorporated into this analysis. The I-70 Frontage Road project team has been involved with the interagency Stream and Wetland Ecological Enhancement Program (SWEEP) and A Landscape Level Inventory of Valued Ecosystem Components (ALIVE) committees which were formed to identify and address environmental issues in the I-70 Mountain Corridor.

Communication with the USFWS and analysis of habitat requirements of the listed species indicates that suitable habitat does not exist for the six federally-listed species potentially found in Clear Creek County within the I-70 Mountain Corridor (excluding species potentially impacted by Platte River System water depletions). Water depletions in tributaries such as Clear Creek could potentially affect federally-listed species that inhabit the South Platte River. Water depletions can occur during certain construction activities that require water use, including compaction, cement mixing, detention ponds, dust control, and dewatering for access and construction in wetlands and riparian areas.

**Table 2: Federally Listed Species Potentially Found in Clear Creek County Within the I-70 Mountain Corridor**

Common Name	Scientific Name	Federal Status	Suitable Habitat
Canada lynx	<i>Lynx canadensis</i>	Threatened	No
North American wolverine	<i>Gulo gulo luscus</i>	Candidate	No
Mexican spotted owl	<i>Strix occidentalis lucida</i>	Threatened	No
Preble's meadow jumping mouse	<i>Zapus hudsonius preblei</i>	Threatened	No
Greenback cutthroat trout	<i>Oncorhynchus clarki stomias</i>	Threatened	No
Ute ladies' tresses orchid	<i>Spiranthes diluvialis</i>	Threatened	No
Least tern	<i>Sternula antillarum</i>	Threatened	Yes*
Piping plover	<i>Charadrius melodus</i>	Threatened	Yes*
Western prairie fringed orchid	<i>Platanthera praeclara</i>	Threatened	Yes*
Whooping crane	<i>Grus Americana</i>	Endangered	Yes*
Pallid sturgeon	<i>Scaphirhynchus melodus</i>	Endangered	Yes*

\* Species potentially impacted by Platte River System water depletions.

Water use required for some construction activities during Phase I and Phase II would affect federally listed species that are potentially impacted by depletions to the Platte River System. These species include the least tern, piping plover, western prairie fringed orchid, whooping crane, and pallid sturgeon. Measures outlined in the USFWS *Final Programmatic Biological Opinion* will be followed to minimize impacts. CDOT is participating in the South Platte Water Related Activities Program (SPWRAP) and the water used for this project will be reported to the USFWS at the year's end after the completion of the

project. In addition, species potentially impacted by depletions to the Platte River System are being addressed by CDOT through participation in the Platte River Recovery Implementation Program (PRRIP).

The American peregrine falcon (*Falco peregrines anatum*) is the only State listed species of concern that has the potential to occur in the project area. Peregrine falcons breed on cliffs and rock outcrops from 4,500 to 10,000 feet in elevation. There is suitable nesting habitat in the project vicinity for the American peregrine falcon, however no known nests have been identified. No impacts are expected to occur to the American peregrine falcon during Phase I or Phase II.

## 2.6 Migratory Birds

The Migratory Bird Treaty Act (MBTA) of 1918 provides for the protection of birds classified as migratory birds by the USFWS. In Colorado, most birds, except for the European Starling (*Sturnus vulgaris*), House Sparrow (*Passer domesticus*), Rock Dove (*Columbia livia*) (Pigeon), and common grouse/pheasant species (Order *Galliformes*), are protected under the MBTA. The Migratory Bird Permit memorandum issued in April 2003 stipulates that there is no prohibition against destruction of inactive nests. Additionally, any disturbance to these nesting areas must follow the stipulations outlined in the MBTA. Specific protection for Bald and Golden Eagles is authorized under the Eagle Protection Act (16 USC 668) which provides additional protection to these species from intentional or unintentional harmful conduct. The project area contains suitable habitat that may provide opportunities for forage, roosts, and nesting to migrating birds, such as raptors and passerines.

In the fall of 2011, an on-site nest survey was completed, however no nests were identified at that time. An additional nest survey will be conducted during the breeding season, between approximately late March through the end of August, for an accurate determination of nesting avian presence. Habitat adjacent to Clear Creek within the project area is winter range and winter forage for Bald Eagles; however the lack of contiguous riparian habitat or large cottonwood woodlands limits the suitability of habitat within the project area. Currently no impacts are expected to occur to migratory birds during Phase I or Phase II. A nest survey will be completed prior to beginning construction to verify the absence of nesting birds. If an active nest containing eggs or young birds is found, all work that could result in abandonment or destruction of the nest will be avoided until the young have fledged or the nest is unoccupied as determined by the CDOT Biologist.

## 2.7 Terrestrial and Aquatic Wildlife

The project area consists of both Foothills and Montane Zone vegetation complexes of ponderosa pine (*Pinus ponderosa*) woodlands, deciduous scrublands including mountain mahogany (*Cercocarpus montanus*) and Douglas-fir (*Pseudotsuga menziesii*) forests. Habitat adjacent to Clear Creek within the project area is characterized by steep, riprap banks that generally lack contiguous riparian habitat or larger cottonwood woodlands. Terrestrial wildlife within the project area consists of big game, predators and other mammals, and birds. Mule deer and elk utilize suitable habitat within the project area throughout the year. One seasonal range (winter) for elk, as designated by Colorado Parks and Wildlife (CPW), occurs within the project area. Bighorn sheep are frequently observed on the north side of I-70 from Idaho Springs (milepost 240) to near Floyd Hill (milepost 245). They have been observed crossing I-70 via the Twin Tunnels land bridge to access the rocky/open south facing slopes, however sheep generally do not

cross Clear Creek to access habitat on the other side. In general, habitat south of Clear Creek in the vicinity of the project area is densely forested and considered unsuitable for sheep.

There is suitable forage habitat within the project area for several common predators including coyote (*Canis latrans*), red fox (*Vulpes vulpes*), bobcat (*Lynx rufus*) raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*). The project area is also within the overall range of the black bear (*Ursus americanus*). In addition, mountain lions (*Felis concolor*) are found throughout the region in areas that support populations of deer, bighorn sheep, and elk. Common small mammal species include ground squirrels, mice, chipmunks, and rabbits. A variety of beaver (*Castor canadensis*) activity has been observed adjacent to Clear Creek and several bank dens are located within the project area.

Representatives from CDOT and the I-70 Frontage Road project team have coordinated with the USFWS, USFS, and CPW as part of the ALIVE committee (A Landscape Level Inventory of Valued Ecosystems.) Issues that were addressed by the ALIVE committee include habitat connectivity for species of importance; specific wildlife concerns; and potential avoidance, minimization, and mitigation measures related to wildlife potentially impacted by construction and operation of the project.

CPW considers the entire Clear Creek sub-basin as a “high value” fishery that provides high quantity/quality of fish population and recreational value. Clear Creek supports a naturally reproducing brown trout (*Salmo trutta*) population and rainbow trout (*Oncorhynchus mykiss*) are stocked by CPW into Clear Creek. Other species include the occasional brook trout (*Salvelinus fontinalis*), Snake River cutthroat trout (*Oncorhynchus clarki bouvieri*), fathead minnows (*Pimephales promelas*), common carp (*Cyprinus carpio*), , and various species of sucker (*Catostomus* spp.).

Benthic invertebrate communities known to inhabit or potentially inhabit Clear Creek are composed primarily of mayflies (Ephemeroptera), stoneflies (Plecoptera), caddisflies (Tricoptera), and midges. Based on recent surveys conducted by CPW the aquatic macroinvertebrate community of Clear Creek from just downstream of Idaho Springs typically have the lowest diversity and abundance compared to other portions of the stream. However, the Stream and Wetland Ecological Enhancement Program (SWEET) working group indicated that since the brown trout population in Clear Creek is healthy and self-sustaining there was not a need to conduct additional benthic invertebrate surveys in association with this project.

Deer in this area occasionally follow Clear Creek and cross under the I-70 bridges near the Hidden Valley Interchange and continue across CR 314 to gain access to the habitat on the south side. Several walls will be constructed during Phase I and Phase II of the project (see **Table 9** in **Section 2.15**). Walls in this area, particularly Walls 11 and 13, will be built with a space in between them to allow wildlife to continue to cross at this location. Walls have been designed to minimize impacts to wildlife crossing.

No permanent impacts are expected to wildlife during Phase I. During Phase I, construction of the walls will include the use of heavy machinery and blasting of rock outcrops. This will have a temporary impact on forage and travel patterns for wildlife in the area. Construction impacts resulting from the proposed project may increase sediment, which may have an impact on aquatic species, but these impacts will be temporary. Best Management Practices (BMPs) and a Stormwater Management Plan (SWMP) will be put into place prior to construction to minimize impacts.

No permanent impacts are expected to wildlife during Phase II. During Phase II construction, walls will be constructed using heavy machinery, but limited blasting is expected. Wildlife may avoid the area during construction, but this will be temporary and wildlife can return to the area once construction is complete. There may be a temporary increase in sediment during construction, however BMPs and a SWMP will be put into place prior to construction to minimize any sediment entering wetlands or waterways.

## 2.8 Wetlands and other Waters of the U.S.

The US Army Corps of Engineers (USACE) has primary responsibility for regulation of wetlands and jurisdictional waters under Section 404 of the Clean Water Act. This Act defines jurisdictional waters of the U.S. to include all surface waters such as navigable waters and their tributaries, interstate waters and their tributaries, wetlands adjacent to these waters, and all impoundments of these waters. Wetlands are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. All of the study area wetlands were delineated in accordance with the 1987 USACE *Wetland Delineation Manual* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Regions* (Version 2.0).

A total of 8 wetland areas totaling approximately 0.69 acres were delineated in the study area. **Table 3** summarizes the study area wetlands and **Figure 5** and **Figure 6** shows the locations of the wetlands in the study area.

**Table 3: Study Area Wetlands**

Wetland Area	Wetland Type	Total Acres
1a	PEM/PSS	0.01
1b	PEM/PSS	0.12
2	PEM/PSS	0.02
3	PEM/PSS	0.02
4	PEM/PSS	0.04
5a	PEM/PSS	0.002
5b	PEM/PSS	0.006
6	PEM	0.47
<b>Total</b>		<b>0.69</b>

Figure 5: Phase I Wetland Areas

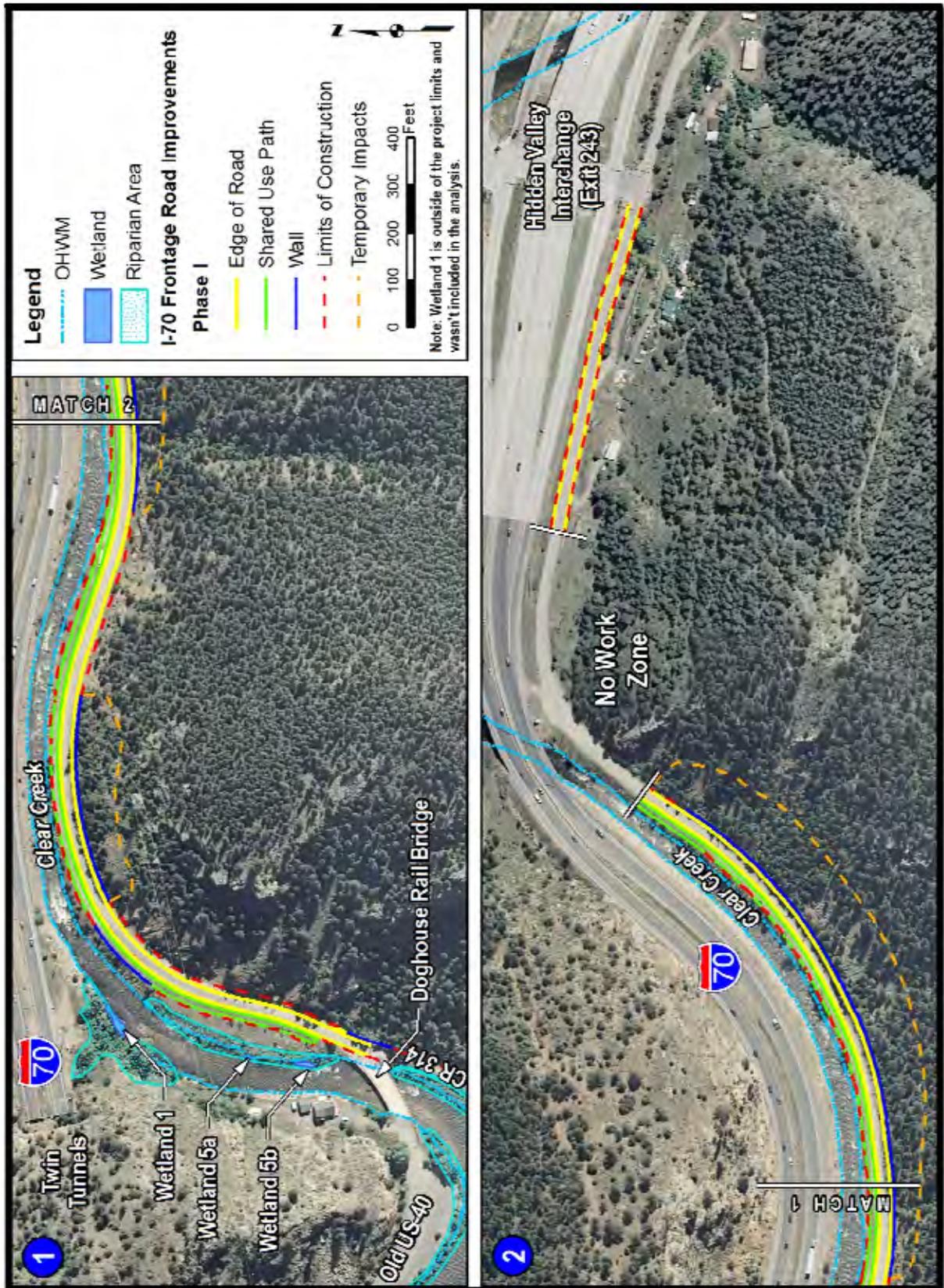
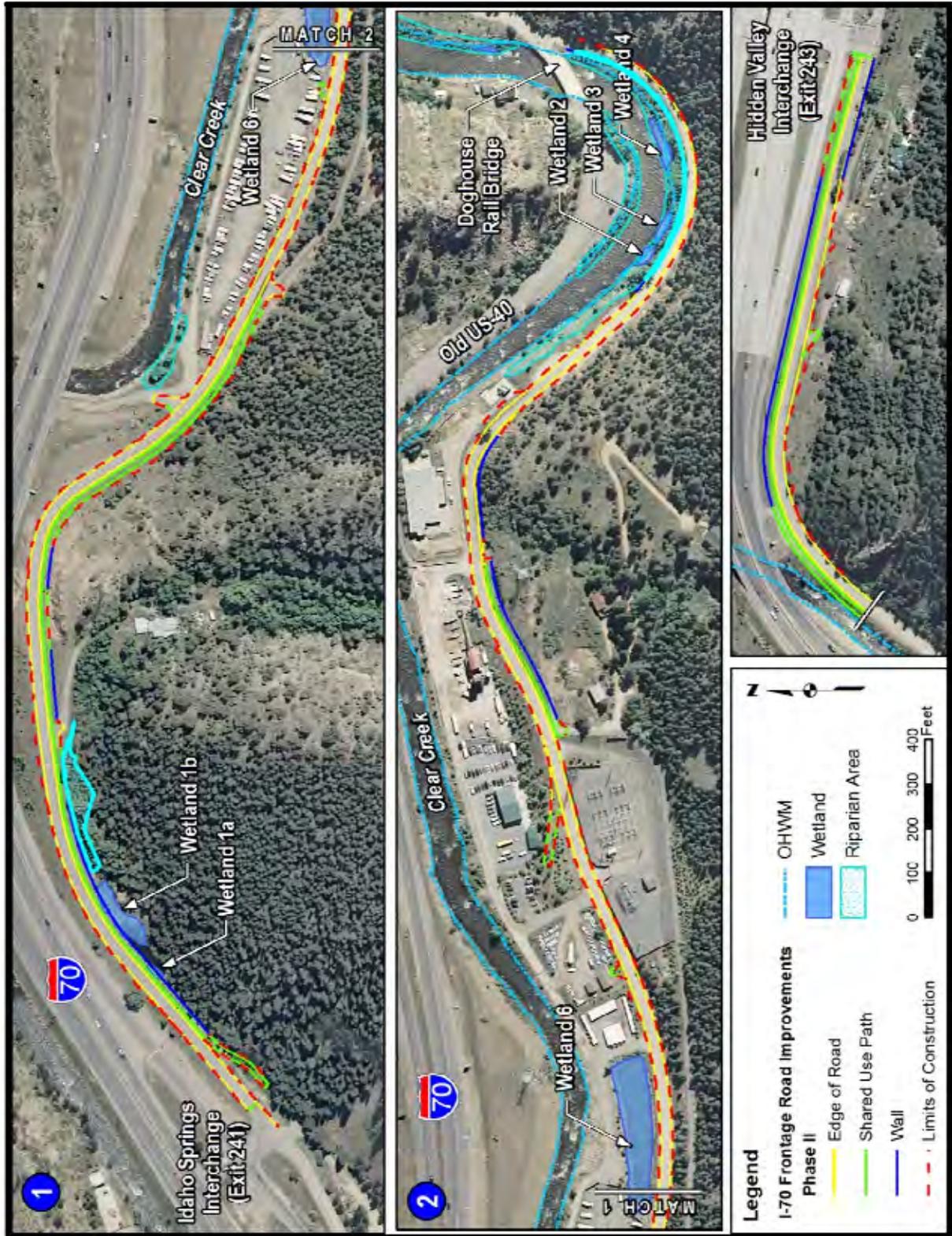


Figure 6: Phase II Wetland and Riparian Areas



Wetland vegetation found in wetlands 2, 3, 4, 5a, and 5b includes sedges (*Carex* spp.), rushes (*Juncus* spp.), sandbar willow (*Salix exigua*), thin-leaf alder (*Alnus incana*), red-osier dogwood (*Cornus stolonifera*), and other willow species (*Salix* spp.). The wetland vegetation within wetlands 1a and 1b is dominated by sedges, bluejoint reed grass (*Calamagrostis canadensis*), tall manna grass (*Glyceria elata*), sandbar willow, other willow species, and thin-leaf alder. A diverted unnamed stream provides hydrology for these wetlands. Wetland 6 primary wetland vegetation is cattail (*Typha* spp.) and sandbar willow. The wetland delineation was not completed for this site as it was located on private property and permission to enter was not approved. Based on communication with the USACE, they have always considered this wetland jurisdictional and believe it has a historical connection to Clear Creek. Wetlands 1a, 1b, 2, 3, 4, 5a, 5b, and 6 have been reviewed by the USACE and they have given a preliminary jurisdictional determination.

FACWet is a rapid assessment methodology that rates wetland conditions through evaluation of ecological stressors that drive wetland functions. Each stated variable is rated on a scale of 0.0 to 1.0 (non-functioning to reference standard or essentially pristine, respectively). The FACWet method was utilized to evaluate the general condition of the delineated wetlands that occur in the study area. Two functional assessments were completed for the study area, one for wetlands 2, 3, 4, 5a, and 5b and the other for wetlands 1a and 1b. Wetland 6 was not included in this assessment because a site review and wetland delineation was not completed at the site. **Table 4** and **Table 5** shows the study area wetlands scoring for the seven FACWet criteria.

**Table 4: FACWet Score Card for Wetlands 2, 3, 4, 5a, and 5b**

Functional Capacity Indices (FCI)	Wetland Variable Score
Support of Characteristic Wildlife Habitat	.75
Support of Characteristic Fish/Aquatic Habitat	.81
Flood Attenuation	.80
Short-and Long-term Water Storage	.79
Nutrient/Toxicant Removal	.70
Sediment Retention/Shoreline Stabilization	.75
Production Export/Food Chain Support	.80
<b>Composite FCI Score (out of 100)</b>	<b>77</b>

Wetlands 2, 3, 4, 5a, and 5b along Clear Creek are supported by a reliable hydrology source and a diverse mix of both emergent wetland plant species with a shrub component that result in functional wetlands. These wetlands are rated as functioning, but are fragmented because of historic wetland loss along the Clear Creek corridor and lack of habitat connectivity.

Table 5: FACWet Score Card for Wetlands 1a and 1b

Functional Capacity Indices (FCI)	Wetland Variable Score
Support of Characteristic Wildlife Habitat	.79
Support of Characteristic Fish/Aquatic Habitat	.80
Flood Attenuation	.80
Short-and Long-term Water Storage	.77
Nutrient/Toxicant Removal	.81
Sediment Retention/Shoreline Stabilization	.84
Production Export/Food Chain Support	.78
<b>Composite FCI Score (out of 100)</b>	<b>80</b>

Wetlands 1a and 1b have a unique hydrology source, a diverted stream, and the plant community is composed of emergent wetland plants and has a shrub component. The wetland is rated on the high end of functioning.

Clear Creek is the only significant water of the U.S. present within the study area. The stream parallels I-70 and represents an important tributary of the South Platte River. The Clear Creek ordinary high water mark (OHWM) was mapped using the current edge-of-water survey and adding the 2-year flood event (see **Figure 5** and **Figure 6**). This methodology was approved by the USACE for analyzing impacts to Clear Creek. The Clear Creek edge-of-water survey was completed in October and November 2011. One other unnamed stream occurs on the south side of the Frontage Road. This stream appears to be a diverted spring or small drainage that was created to provide hydrology for wetland 1a and 1b. The USACE has also given a preliminary jurisdictional determination for this small stream.

There are no impacts to wetlands in Phase I and there are a total of 0.01 acres (438 SF) of wetlands impacted by Phase II. **Table 6** shows the impacts to each wetland area impacted by Phase II. There are no impacts beyond the ordinary high water mark (OHWM) for Clear Creek in Phase I or Phase II.

Table 6: Phase II Wetlands Impacts

Wetland Area	Impacts	
	Acres	Square Feet
1a	0.005	234
1b	0.005	204
<b>Total</b>	<b>0.01</b>	<b>438</b>

Impacts to wetlands and other waters of the U.S. were avoided and/or minimized by proposing to use a “top down construction” from CR 314 for the fill walls. The roadway design in Phase II near Wetland 1a

and Wetland 1b was also shifted to the north to minimize the impacts to Wetlands 1a and 1b. According to CDOT's *Wetland Finding Format*, all CDOT projects impacting wetlands, whether federally or state funded, require the preparation of a Wetland Finding. However, the requirement for a Wetland Finding is waived if the project has permanent wetland impacts of less than 500 square feet, and the project's combined permanent and temporary impacts are less than 1,000 square feet. Since Phase I will not impact any wetlands, and Phase II impacts only 438 square feet, a Wetland Finding is not required for either Phase of this project.

## 2.9 Riparian Areas

Existing riparian habitat occurs along Clear Creek and in drainage areas which enter Clear Creek as illustrated in **Figure 5** and **Figure 6**. Narrowleaf cottonwood (*Populus angustifolia*), is the most dominant tree species with thinleaf alder, river birch (*Betula fontinalis*), willow (*Salix sp*), snowberry, and red twig dog wood (*Cornus stolonifera*) also occurring in areas where suitable hydrology exists. Due to the steep incised banks of Clear Creek, riparian habitat is not contiguous within the project area, and is only found where fluvial processes (e.g, flooding and sediment deposition) still persist along the creek corridor.

SB40 (33-5-101-107, C.R.S. 1973 as amended) is a formal agreement between Colorado Parks and Wildlife (CPW) and CDOT designed to protect and preserve all fish and wildlife resources associated with streams in Colorado. A SB40 Certification is obtained from CPW when construction occurs in any stream, its banks, or tributaries that meet SB 40 Certification application criteria and the impacts occur within a state or federal right-of-way. A stream or drainage must meet both the application criteria and qualify for SB 40 jurisdiction to require a SB40 certification and certification application.

There are no impacts to riparian areas in Phase I. **Table 7** shows the area of impacts to riparian resources in Phase II. Impacts to riparian resources were minimized by “top down construction” from CR 314 and shifting the alignment to the north.

**Table 7: Phase II Riparian Impacts**

Riparian Area	Impacts	
	Acres	Square Feet
Near Wetland 1b	0.001	42
Near Wetlands 2, 3, and 4	0.06	2,625
<b>Total</b>	<b>0.061</b>	<b>2,667</b>

Phase II of this project meets the application criteria and will require application for SB40 Wildlife Certification from CPW. The application for SB40 Wildlife Certification will be made by the CDOT Environmental Project Manager. The application must be made at least 60 days prior to any planned construction and CPW will complete its review within 30 days and issue a SB40 Certification or request additional information or mitigation commitments.

## 2.10 Water Quality

Water Quality is protected under multiple Federal Acts, Federal Executive Orders, and State Laws; including the Clean Water Act, the Safe Drinking Water Act, and the Colorado Water Quality Control Act. The project is located outside of CDOT's Municipal Separate Storm Sewer System Urbanized Area (MS4-UA), however it is adjacent to Clear Creek which is listed as impaired for cadmium. Clear Creek (upstream of Golden) is also subject to phosphorous limitations, to maintain the trophic status of Standley Lake. Since there is a strong, positive correlation between sediment and phosphorous (see the *PEIS*), control of erosion and sedimentation is critical. In addition, draft nutrient standards for all Colorado streams and lakes may trigger stricter sediment limits along the project area.

CDOT staff inspected the project area to evaluate existing conditions relating to water quality. The project area is characterized by a steep canyon environment with hill slopes at the angle of repose and near vertical rock outcrops in several areas. It was constructed on the south side of Clear Creek by cut and fill methods with fill material placed on the south bank of Clear Creek. The cut and fill slopes have stabilized over the past 50 years. Annual application of traction sand and deicer salts is very low. The 1,000-ft. unpaved section of the Frontage Road is a continuous source of sediment to Clear Creek as it erodes into the Creek. The paved section of the Frontage Road is not a significant source of sediment.

Phase I will increase the impervious surface area by 156 percent or by approximately 0.87 acres over existing conditions. Phase I permanent water quality features include a curb and gutter and inlet protection on the cut slope side, particularly to capture runoff and sediment coming off the ends of the walls. Armored rundowns from culvert outlets will be included on the fill slopes, since the slopes will be destabilized by construction. A pervious buffer area between the shared use path and the roadway will be utilized where feasible. Drainage within this buffer will be captured in pipes to convey any concentrated flows. The material selection for the pervious buffer is currently being evaluated for construction and maintenance.

Phase II will increase the impervious surface area by 143 percent or by approximately 1.63 acres over existing conditions. Paving the 1,000-ft. unpaved/gravel section will remove a continuous source of sediment. Phase II permanent water quality features include paving the unpaved section, curb and gutter on the cut slope (as described above), and existing and proposed culvert inlet protection and rundown armoring. A pervious buffer area between the shared use path and the roadway will be utilized where feasible. The material selection for the pervious buffer is currently being evaluated for construction and maintenance.

The proposed permanent water quality features will maintain or (more likely) improve water quality. These features will be refined during the design process. An example includes slope armoring placed in locations of concentrated flows. Construction impacts resulting from both Phases of the proposed project may include an increase in sediment, which will be both short-term and manageable by using best management practices (BMPs) and implementing a SWMP for each Phase of construction. BMPs utilized during construction will include inlet protection and slope armoring.

## 2.11 Floodplains

Floodplains are regulated under Executive Order 11988 with the goal of avoiding incompatible floodplain development, minimizing adverse impacts on the base floodplain, restoring and preserving the natural and beneficial floodplain services, and maintaining consistency with the National Flood Insurance Program. Existing floodplain data was reviewed in relation to the proposed project. Clear Creek is a perennial stream that flows parallel to CR 314 through the project area. Portions of Clear Creek were channelized with the construction of nearby I-70 in the 1950's. Clear Creek is a typical mountain stream with large cobbles and boulders and steep channel banks. It has a low stream sinuosity (ratio of the stream length to the valley length), slight meandering and limited riparian (streamside) vegetation.

This reach of Clear Creek is shown on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) Panels 0226D and 0227D for Clear Creek County. The 100-year flood zone is shown as Zone A and calculated base flood elevations have not been determined. The delineated floodplain is relatively uniform width and generally follows the alignment of the channel. The effective FEMA floodplain delineations are based on mapping efforts conducted during the 1970's and do not follow more accurate topography for this reach of Clear Creek. FEMA prepared a detailed hydraulic study of Clear Creek upstream of this project area with a calculated 100-year peak discharge for Clear Creek of 3,670 cfs. The downstream limit of the detailed study ends approximately 1,500 feet upstream of the western limit of this project area.

Additional hydraulic analysis was prepared to more accurately delineate the 100-year floodplain for Clear Creek. The FEMA 100-yr discharge from the upstream reach of Clear Creek detailed study was applied to the reach of Clear Creek through the project area. A HEC-RAS hydraulic model was developed with cross sections spaced approximately every 500 feet. The preliminary hydraulic analysis calculated the 100-year water surface elevations and those calculated elevations were delineated to map the existing 100-year floodplain. The preliminary hydraulic analysis and floodplain delineation created a significantly narrower floodplain than the FEMA Zone A delineation. **Figures 7 and 8** show the calculated 100-year floodplain. The proposed improvements from Phase I and Phase II do not encroach into the Clear Creek calculated floodplain. No floodplain impacts are anticipated and the proposed improvements from Phase I and Phase II will not require a Letter of Map Revision (LOMR). A pre and post project statement will be included in the final design and a HEC-RAS model will be run for each phase to show that there will be a negligible impact.

Figure 7: Existing (Calculated) Floodplain in Phase I

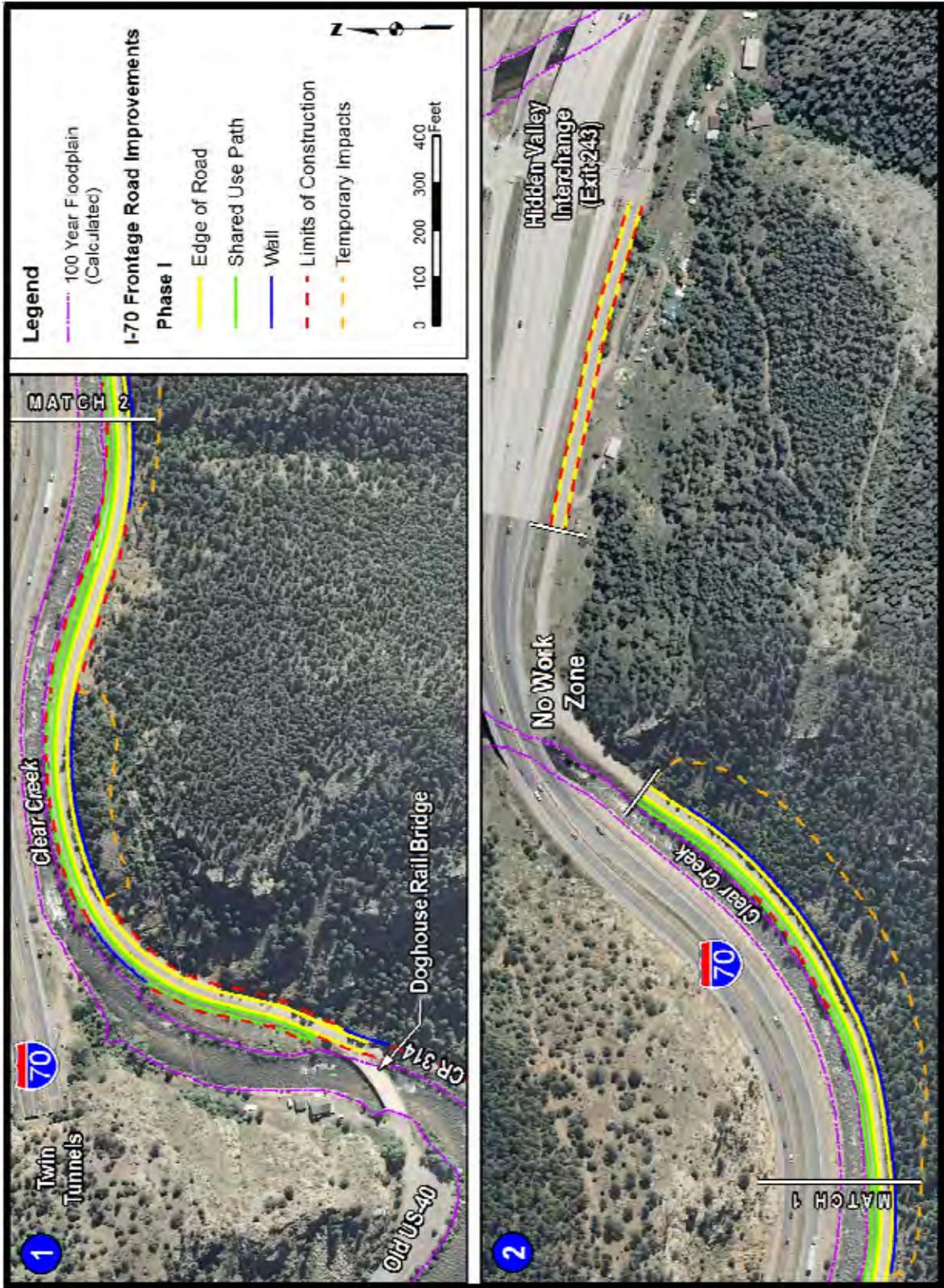
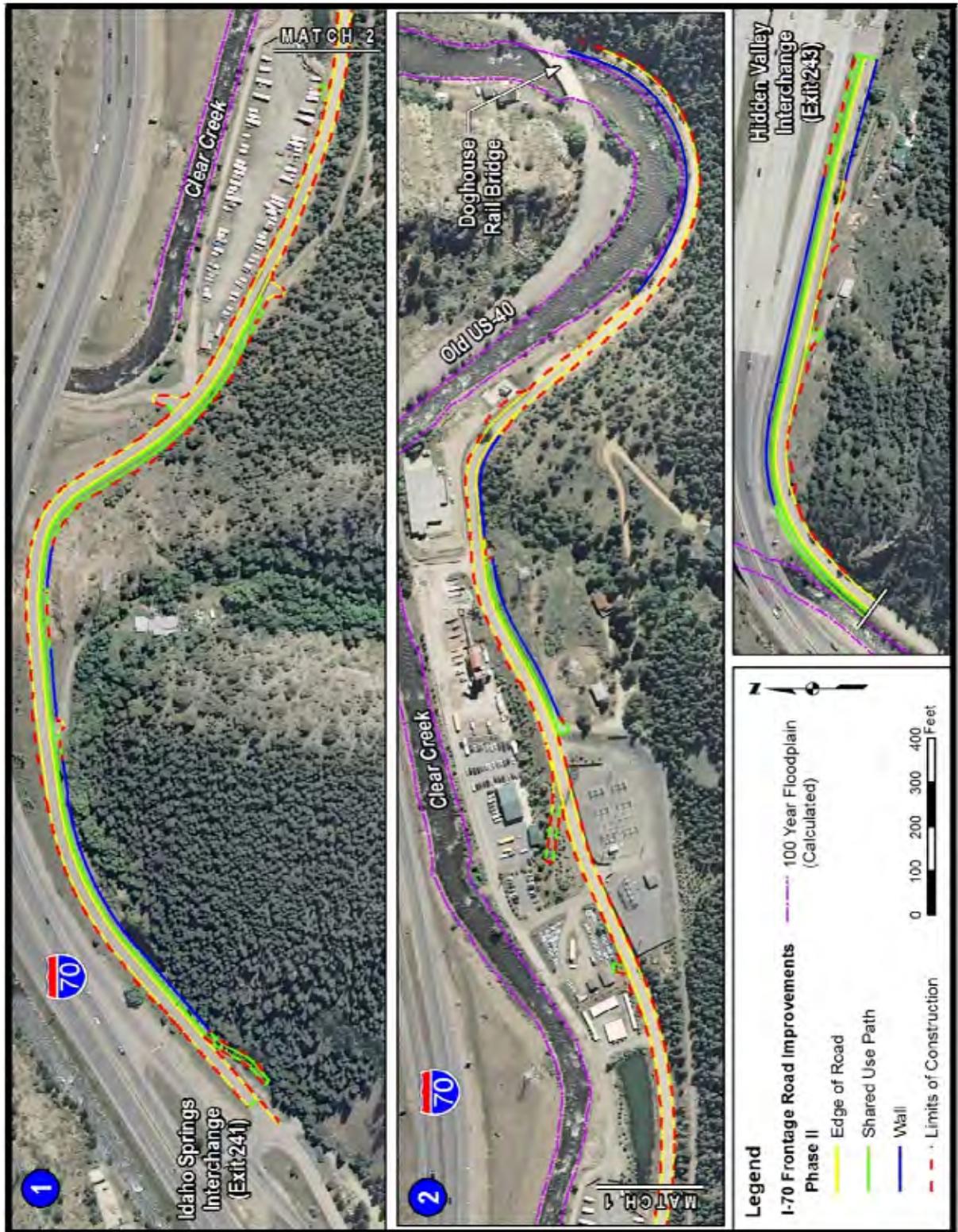


Figure 8: Existing (Calculated) Floodplain in Phase II



## 2.12 Historic Properties

CDOT is required by Section 106 of the National Historic Preservation Act to identify and evaluate the significance of historic properties prior to commencing work related to transportation construction and maintenance activities that could potentially impact historic and/or archaeological resources.

The project's Area of Potential Effects (APE) was determined and a field survey of the APE was conducted in accordance with the Secretary of Interior's *Standards for Archaeology and Historic Preservation*, and the *Colorado Cultural Resource Survey Manual*. Seven resources were identified (see **Table 8** and **Figure 9**) for further analysis. These resources were: Idaho Springs Work Center (5CC698), Clear Creek Bridge (5CC1081), Seaton Mountain Electric Company Power Plant and Flume (5CC1996), Terraces (5CC1999), Bell Family Residence (5CC2000), Silver Spruce Mill (5CC2001), and US Highway 6/40 (5CC2002.1).

**Table 8: Historic Resources**

Resource Name	Site Number	Eligibility Determination*
Idaho Springs Work Center	5CC698	Not Eligible
Clear Creek Bridge	5CC1081	Not Eligible
Seaton Mountain Electric Company Power Plant and Flume	5CC1996	Not Eligible
Terraces	5CC1999	Not Eligible
Bell Family Residence	5CC2000	Not Eligible
Silver Spruce Mill	5CC2001	Not Eligible
US Highways 6 and 40	5CC2002 (segment 5CC2002.1)	Entire Resource Eligible; Non-Supporting Segment

\* SHPO Concurrence January 13, 2012

US Highways 6 and 40 is eligible for the National Register of Historic Places, however the portion of US Highway 6/40 that will be modified by the project, does not support the overall historic significance of the resource. Subsequently, the proposed improvements to CR 314 result in a finding of no adverse effect to the overall highway resource (5CC2002).

None of the six other identified properties meet National Register eligibility criteria. Under Section 106, therefore, the project results in No Historic Properties Affected for 5CC698, 5CC1081, 5CC1996, 5CC1999, 5CC2000, and 5CC2001. On December 20, 2011 CDOT submitted eligibility and effect determinations to the Colorado State Historic Preservation Officer (SHPO), the US Forest Service, Clear Creek County, the Historical Society of Idaho Springs, the Idaho Springs Historic Preservation Incorporated, the Arapaho and Roosevelt National Forest, and the Cheyenne and Arapaho Tribes of Oklahoma. SHPO and Clear Creek County responded and concurred with CDOT's determinations in correspondence dated January 13, 2012 and January 17, 2012 respectively. The other parties did not formally comment within the 30-day review period.

During the PLT/TT and Section 106 processes, it was indicated that the Seaton Mountain Electric Company Power Plant and Flume (5CC1996) and the Bell Family Residence (5CC2000) are considered

important to the local community. There are no direct impacts to the Seaton Power Plant during Phase I or Phase II. During Phase I, the Bell Family Residence property may be impacted with roadway shoulder construction. During Phase II impacts to the Bell Family Residence area will be limited to changing the grade of the driveway access and the addition of a retaining wall (Wall 12) along CR 314.

Although these resources do not meet the National Register eligibility criteria, CDOT will avoid or minimize impacts to these resources. Temporary protective fencing will be used to prevent disturbance to these areas during construction. Contract specifications will require a walkthrough by the CDOT Environmental Manager or other designee prior to disturbance of community resources.

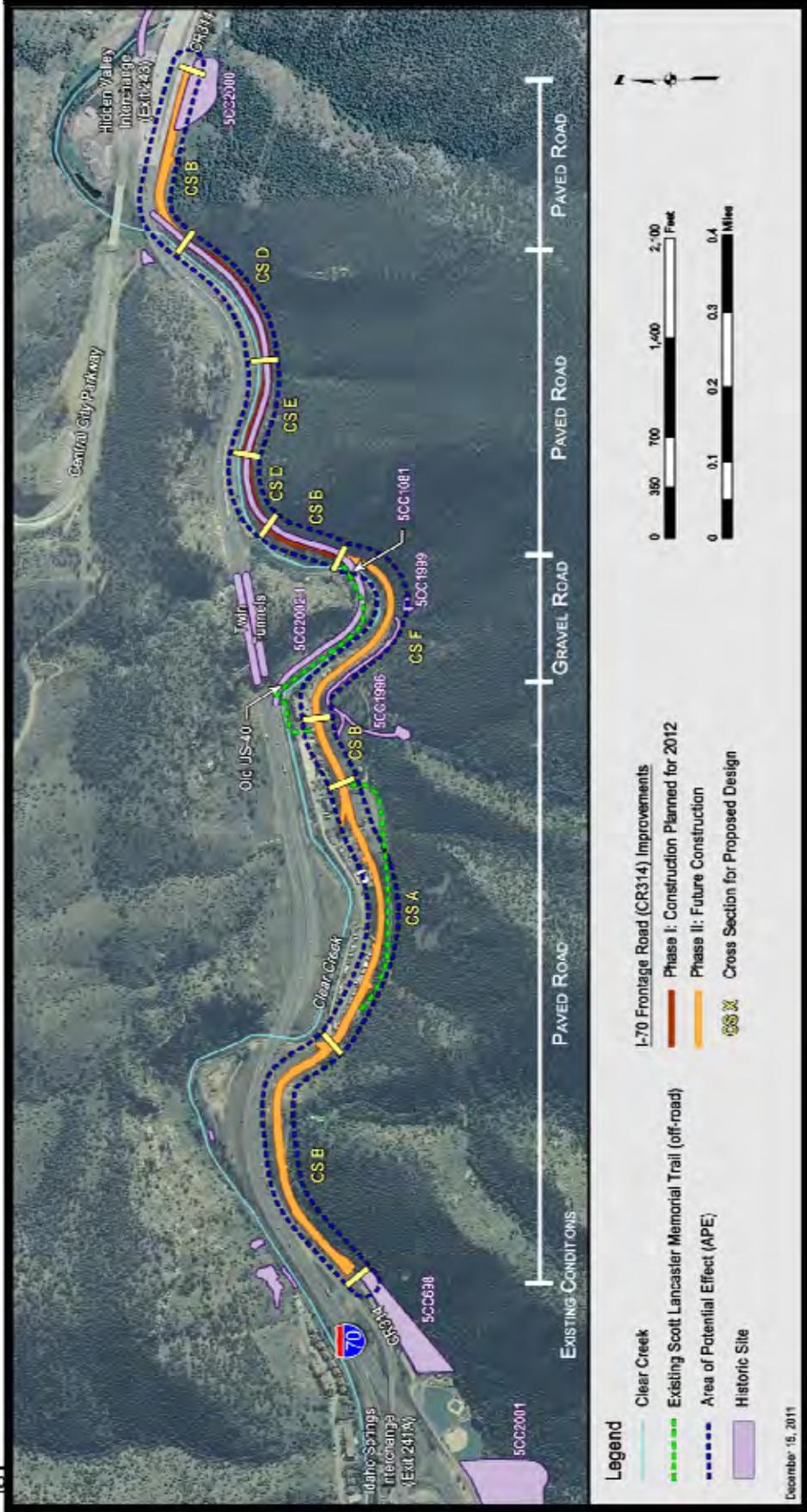
### 2.13 Paleontology

To assess the paleontological sensitivity of the area, literature and museum records were reviewed. No records of fossils were revealed in the project area, and there is a low potential for fossils to occur around Clear Creek.

No impacts to paleontology are expected to occur during Phase I or Phase II.

If any subsurface bones or other potential fossils are discovered within the project area during construction, the CDOT Staff Paleontologist will be notified to assess their significance and make further recommendations.

Figure 9: Historic Resources



## 2.14 Section 4(f) / Section 6(f)

Section 4(f) of the U.S. Department of Transportation Act of 1966 was enacted as a way to protect publicly-owned public parks, recreation areas, and wildlife/waterfowl refuges, as well as historic sites of local, state or national significance, from being converted to a transportation use. Section 6(f) of the Land and Water Conservation Fund Act applies to properties purchased with these funds. There are no known Section 6(f) resources in the project area.

Phase I will be completed using exclusively local and state funding, however Phase II may include federal funds. If federal funds are used for Phase II, an evaluation of Section 4(f) impacts to public parks and recreation lands will be completed. No Section 6(f) funds have been used for recreational resources for either Phase of this project within the study area.

## 2.15 Geologic Resources

The project area is characterized by moderately rugged topographic relief. The mountains to the south and north are deeply incised by Clear Creek and its tributaries. Slopes are typically steep and the bedrock is generally well exposed. Bedrock in the project area consists primarily of strongly foliated and metamorphosed Precambrian-age quartz-feldspar gneiss, biotite gneiss, amphibolite and migmatite. The metamorphic rocks are locally cut by pink granite and pegmatite that are associated with mineralization. The highly fractured metamorphic and igneous rocks along the frontage road are vulnerable to rock fall along many of the existing cut slopes and natural slopes. There is a potential for rock fall to occur during construction when new cut slopes expose boundaries between rock types or break along foliation planes; or where existing cut slopes are subject to adjacent construction activities such as blasting. The vulnerability of the rock slopes and the potential for rock fall depends on the material strength and the character and geometric relations of discontinuities in the rock mass.

The proposed project is located along the eastern fringe of historic metal mining activity known as the Idaho Spring Mining District. The principal vein minerals are pyrite, sphalerite, galena, chalcopyrite, arsenopyrite, tennantite, quartz and local carbonate minerals. Although these veins are rare in the project area, they pose an increased risk of geotechnical instability and rock fall. The Cold Bar Placer mine was an underground gold placer mine located within the Hidden Valley area. Extensive workings are indicated on the 1884 mining claim map, but likely represent only a portion of what was actually mined in the area. Mining-related subsidence occurs when a void collapses and causes settlement to reach the surface. The Colorado Department of Highways/CDOT conducted a series of subsurface investigations between 1981 and 1996 to evaluate the potential for roadway collapse. Over this time, several openings had propagated to the surface and in the mid 1990s a grouting program was implemented to fill some of the voids. The grouting program was conducted along I-70 only and did not include CR 314. Based on the historic mapping, it is likely that voids persist under the County's road in the vicinity of Hidden Valley. The risk of mine subsidence does not change with the construction of roadway improvements.

Phase I and Phase II will consist of both cut and fill walls. **Table 9** lists the walls, which phase of the project they will be built, and the anticipated type, length, and maximum exposed height. **Figure 10** shows the location of each of the walls.

Table 9: Phase I and Phase II Wall Characteristics

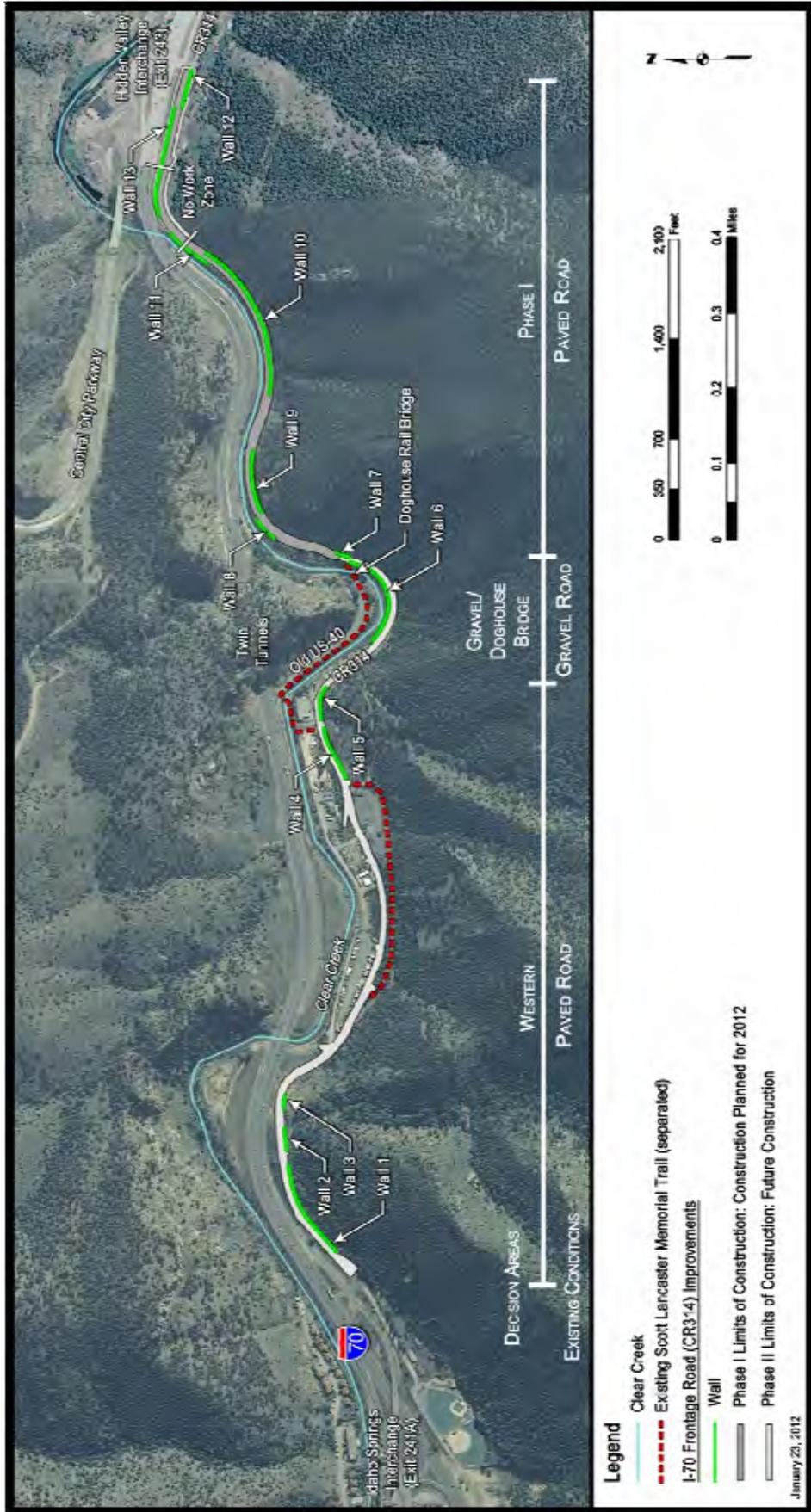
Phase	Wall Number	Type	Approximate Length*	Approximate Maximum Exposed Wall Height*
Phase II	1	Fill	715 ft	< 10 ft
Phase II	2	Cut	160 ft	< 5 ft
Phase II	3	Cut	95 ft	< 5 ft
Phase II	4	Cut	395 ft	12 ft
Phase II	5	Cut	245 ft	15 ft
Phase I and II	6	Fill	720 ft	10 ft
Phase I	7	Cut	100 ft	< 10 ft
Phase I	8	Fill	175 ft	<5 ft
Phase I	9	Cut	450 ft	30 ft
Phase I	10	Cut	1,140 ft	30 ft
Phase I	11	Fill	455 ft	15 ft
Phase II	12	Cut	285 ft	5 ft
Phase II	13	Fill	560 ft Existing 240 ft New	tbd

\* Based on 1/13/2012 revised FIR plans. Actual wall heights, lengths, and locations may vary based on final design.

During Phase I, impacts to geological resources are possible. Walls 9 and 10 may require blasting to remove rock material. With blasting there is a potential for rock fall to occur during construction. Prior to blasting, material strength and the character and geometric relations of discontinuities in the rock mass will be evaluated to determine the likelihood of rock fall occurring.

During Phase II, no impacts to geologic resources are expected to occur.

Figure 10: Wall Locations



## 2.16 Noxious Weeds

The US Department of Agriculture (USDA) and the Colorado Department of Agriculture are responsible for officially designating noxious weeds. Noxious weeds are invasive species that by federal and state law must be controlled. Noxious weeds can produce significant changes to vegetation, composition, structure, or ecosystem function. The Colorado Noxious Weed Act §§ 35-5.5-101 through 119, C.R.S. (2003) as amended, states that an organized and coordinated effort must be made to stop the spread of noxious weeds.

To help combat noxious weeds, the State of Colorado developed a noxious weed list that designates and classifies noxious weeds into categories for immediate eradication, containment, and suppression; List A, List B, and List C species. List A species were designated by the Commissioner for eradication. List B species are species the Commissioner, in consultation with the state noxious weed advisory committee, local governments, and other interested parties, developed and implemented state noxious weed management plans designed to stop the continued spread of these species. List C species are species for which the Commissioner, in consultation with the state noxious weed advisory committee, local governments, and other interested parties, will develop and implement state noxious weed management plans designed to support the efforts of local governing bodies to facilitate more effective integrated weed management on private and public lands.

Vegetation surveys were performed in October and November of 2011. No List A species were observed. Four List B species were observed in the general area, however only two species - Chinese clematis and Diffuse knapweed - were found in the vicinity of CR 314. **Table 10** lists the noxious weeds observed. The vegetation survey mapping is provided in **Appendix A**. Chinese clematis was observed in isolated pockets along the length of the project. The density of these pockets ranged from 5 to 10 percent. Diffuse knapweed was observed in two locations at the eastern end of the CR 314 project. The density of these pockets was 5 percent. Construction activities in Phases I and II may cause noxious weeds to spread into disturbed areas.

**Table 10: Noxious Weeds in the General Area**

Common Name	Scientific Name	State of Colorado Noxious Weed List	Clear Creek County List
Canada thistle	<i>Cirsium arvense</i>	List B	Yes
Chinese clematis	<i>Clematis orientalis</i>	List B	No
Diffuse knapweed	<i>Centaurea diffusa</i>	List B	Yes
Russian olive	<i>Elaeagnus angustifolia</i>	List B	Yes

In compliance with the Colorado Noxious Weed Act and local guidance, Best Management Practices and CDOT approved preventive measures will be used to prevent the spread of noxious weeds and minimize the potential effects from control treatments during construction of the project. These measures and practices include, but are not limited to, minimizing soil disturbance to the maximum extent possible,

cleaning of construction equipment, and re-seeding of all disturbed soil with a certified weed-free seed mix.

## 2.17 Land Use

CDOT has reviewed the adopted land use plans from Idaho Springs and Clear Creek County to evaluate consistency with future proposed land uses and growth management policies. A majority of the project area is located within the limits of Idaho Springs. Current land uses and future development are regulated by the *City of Idaho Springs, Colorado Comprehensive Plan*, zoning, subdivision regulations, a permit system, and a fee and property tax system.

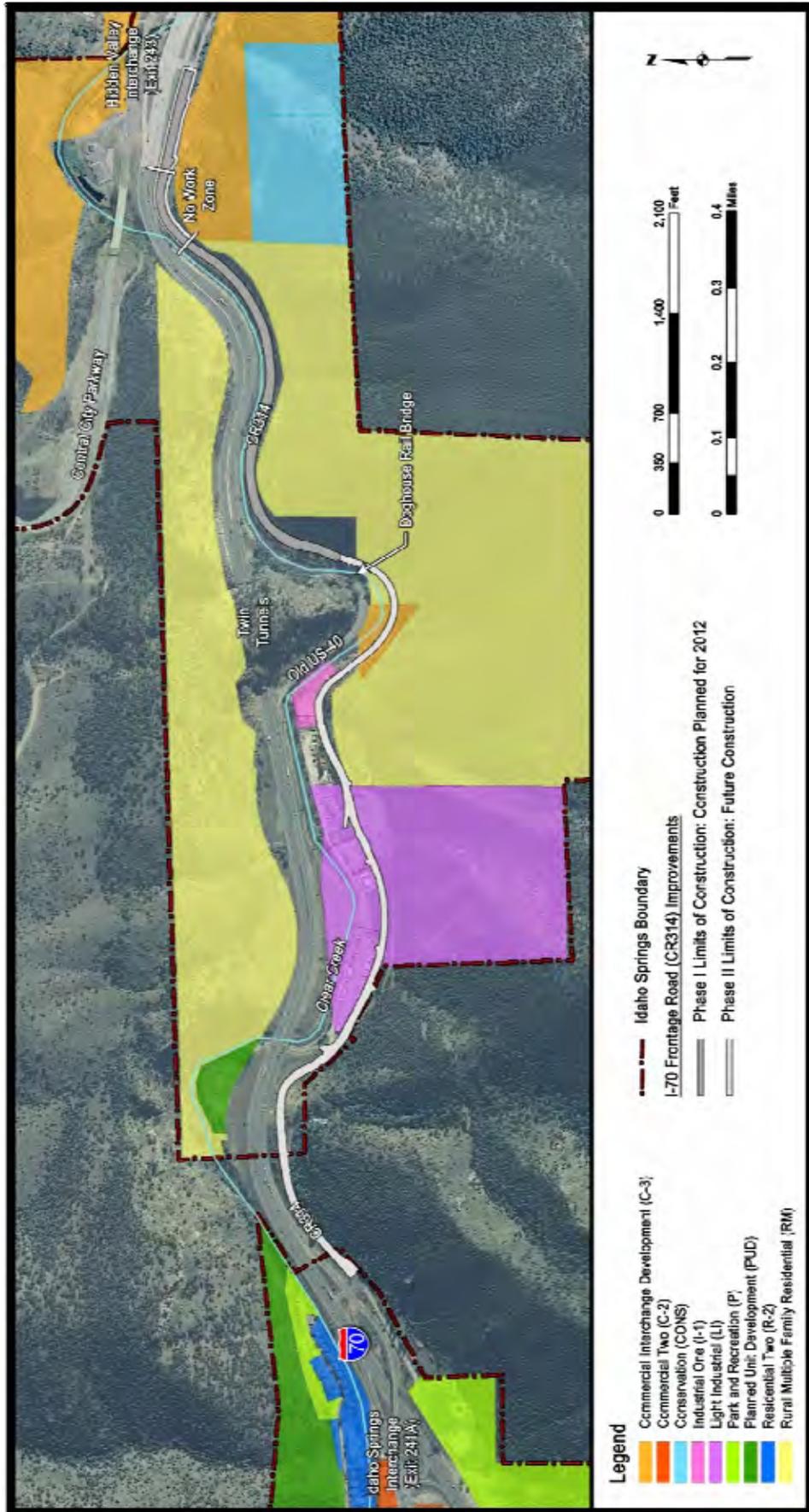
The study area was annexed to Idaho Springs in September 2004. Land use plans anticipate that highway related activities will occur near the Hidden Valley Interchange and rural multiple family residential development will occur south of CR 314. It is anticipated that the existing commercial and industrial areas near Idaho Springs will maintain their existing uses. The valley is narrow and development will be constrained by Clear Creek, steep slopes, and will be focused near the interchanges. **Section 2.18** summarizes existing commercial and residential development. **Figure 11** shows the zoning in the vicinity of the project area.

The *Clear Creek County Master Plan 2030* recommends improvements to CR 314 in the Twin Tunnels area. The *Clear Creek Greenway Plan* and *Clear Creek County Open Space Master Plan* call for the construction of a continuous east-west countywide trail system.

The *Idaho Springs Comprehensive Plan* advocates developing a long term solution for I-70 and CR 314, creating a system of trails, and supporting the environmental quality in Idaho Springs. The plan envisions CR 314 becoming a two-lane collector with unlimited access to adjacent land parcels.

The improvements to CR 314 proposed by this project are consistent with the comprehensive development plans of Idaho Springs and Clear Creek County by providing a consistent improved roadway and shared use path. Walls will limit access in some locations, but access is already limited by the steep slopes. Phase I or Phase II will not preclude any future development (see **Section 2.18.2**) and are consistent with the planned land uses. There will be no changes to land use resulting from the implementation of Phase I or Phase II of the project.

Figure 11: Idaho Springs Zoning



## 2.18 Social and Economic

Social and economic resources reflect the social setting relating to housing, income, employment, commuting, and the economic setting of the communities in the study area. CDOT evaluates these values to determine the effects of a transportation action on a community and its quality of life. Specific areas of concern in this analysis are: effects on emergency services; effects on neighborhoods, community facilities, and community cohesion; changes to mobility, access, and safety; potential for changes in economic activity; and economic impacts of temporary construction activities, including detours and maintaining access to business.

### 2.18.1 Businesses and Residents

The population in the immediate vicinity of the proposed project is very low. In the two mile long study area, eight residences have been identified on the south side of CR 314 and one residence on the north side across the Doghouse Rail Bridge. The residence on the north side of the Doghouse Rail Bridge has been purchased by Clear Creek County. Future use of this property has not been determined.

The study area falls within the Idaho Springs neighborhood of Hidden Valley and Twin Tunnels. This is identified as a conceptual neighborhood in the Idaho Springs Comprehensive Plan. Conceptual neighborhoods are those neighborhoods that are considered common knowledge, as no formal “neighborhood” organizations are currently found in Idaho Springs. In the future, it is hoped these conceptual neighborhoods will be formalized by the residents.

There are four businesses and several public utility and public works facilities in the area between CR 314 and Clear Creek just west of the Twin Tunnels. **Figure 12** and **Figure 13** show residences and businesses within the study area. The proposed project improves an existing two lane roadway in its current location. No additional lanes will be added. Subsequently, right-of-way acquisition will be minimal. Potential right-of-way impacts are summarized in **Table 11**. Total ROW impacts for both phases are 1.91 acres of temporary construction easements and 0.45 acres of permanent acquisition.

**Table 11: Right-of-Way Impacts**

Parcel Number	Owner	Phase I Temporary Construction Easement (acres*)	Phase I Permanent Acquisition (acres*)	Phase II Temporary Construction Easement (acres*)	Phase II Permanent Acquisition (acres*)
183332300012	Pervaiz Kaiser** (Wall 7)	0.01	0.01	-	
183332300008	Pervaiz Kaiser** (Wall 9)	0.45	-	-	-
183332300008	Pervaiz Kaiser** (Wall 10)	1.21	0.04	-	-
183332400005	Marjorie & Bruce	-	-	-	-

Parcel Number	Owner	Phase I Temporary Construction Easement (acres*)	Phase I Permanent Acquisition (acres*)	Phase II Temporary Construction Easement (acres*)	Phase II Permanent Acquisition (acres*)
	Bell (Wall 10)				
183331300902	US Forest Service	-	-	0.04	-
183331400003	Sterling Trust Company Custodian	-	-	0.04	0.02
183331400216	Sanford & Luella Olnhausen	-	-	0.01	0.02
183331400202	Ferrell LP	-	-	0.01	-
183331400800	Public Service	-	-	0.01	-
183332301003	Village at the Creek LLC	-	-	0.02	0.02
183332300902	City of Idaho Springs	-	-	0.03	0.03
183332300903	Board of County Commissioners	-	-	0.01	0.03
183332301002	Twin Tunnels Development LLC	-	-	0.01	0.15
183332300008	Pervaiz Kaiser**	-	-	-	0.13
<b>Total</b>		<b>1.73</b>	<b>0.05</b>	<b>0.18</b>	<b>0.40</b>

\* Estimate based on GIS Parcel data and *Field Inspection Review (FIR) Plan Set*, January 13, 2012

\*\*Pervaiz Kaiser property was purchased by Clear Creek County February 2012

Due to the low population, and the low level of impacts, Phase I and Phase II of this project will not have a permanent negative effect on social and economic resources for existing residents and businesses. After completion, many elements of social and economic resources will be improved; including mobility, emergency services, and recreational opportunities. Measures to maintain access for emergency services during construction will be implemented during both Phase I and Phase II.

Phase I will temporarily restrict vehicle thru traffic on CR 314 during construction (5 to 6 months). The alternative route during this period will be I-70 between Exits 241 and 243. No residents or businesses require through travel on CR 314 during Phase I. Residents and businesses near the western end of the project area access will not be affected by Phase I construction. Residents on the eastern end will continue to have access from I-70. East end residents may have to utilize temporary construction access into their property and may experience temporary construction impacts. Recreational users (river users,

bicyclists and pedestrians) will be provided access when they can be safely accommodated through the construction zone in Phase I.

Phase II construction duration and methods are still being determined. Local access for businesses and residents will be accommodated during construction. Recreational access for bicyclists and pedestrians along CR 314 will be accommodated when it is safe to do so.

Figure 12: Phase I Residences and Businesses

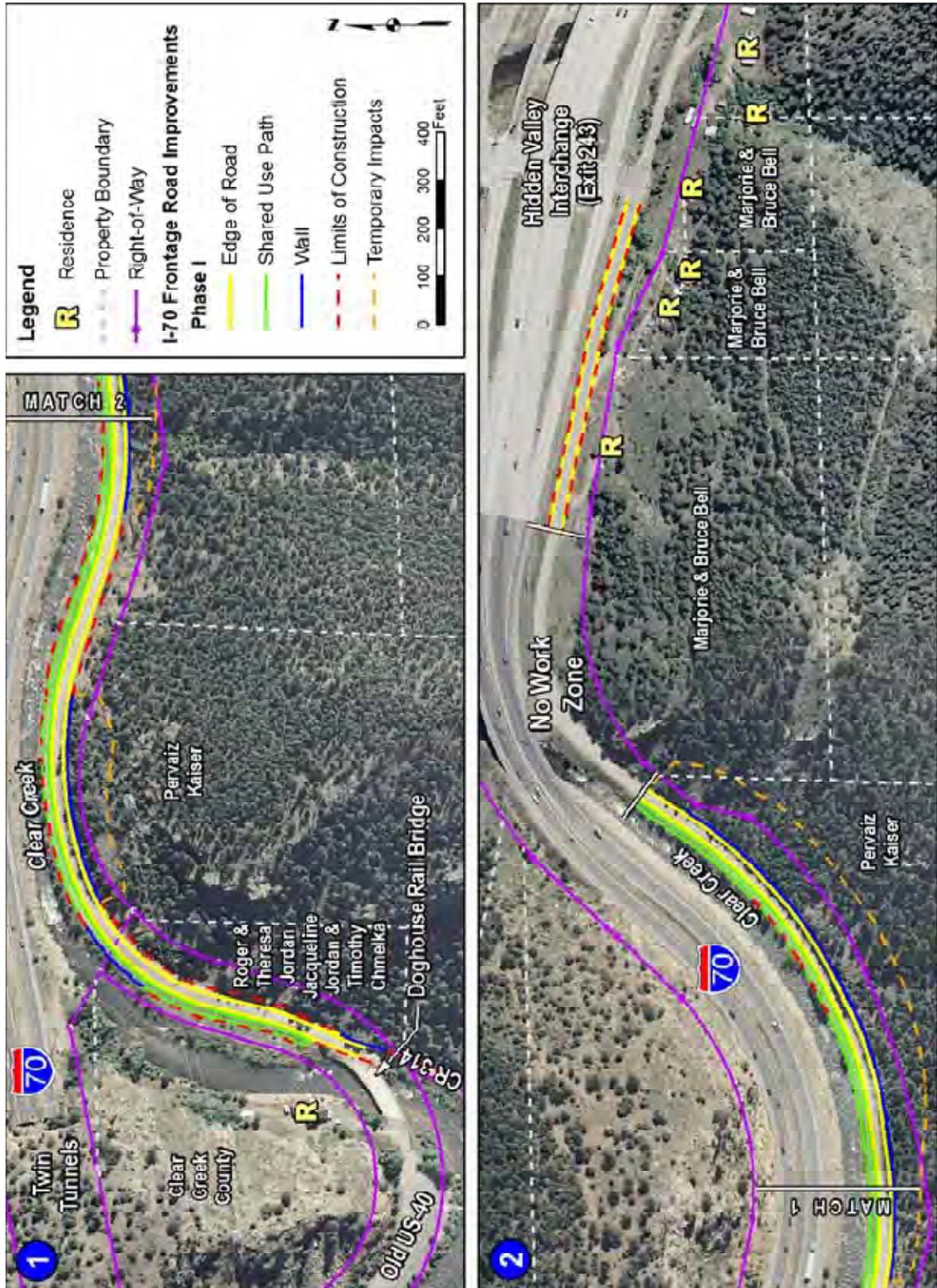
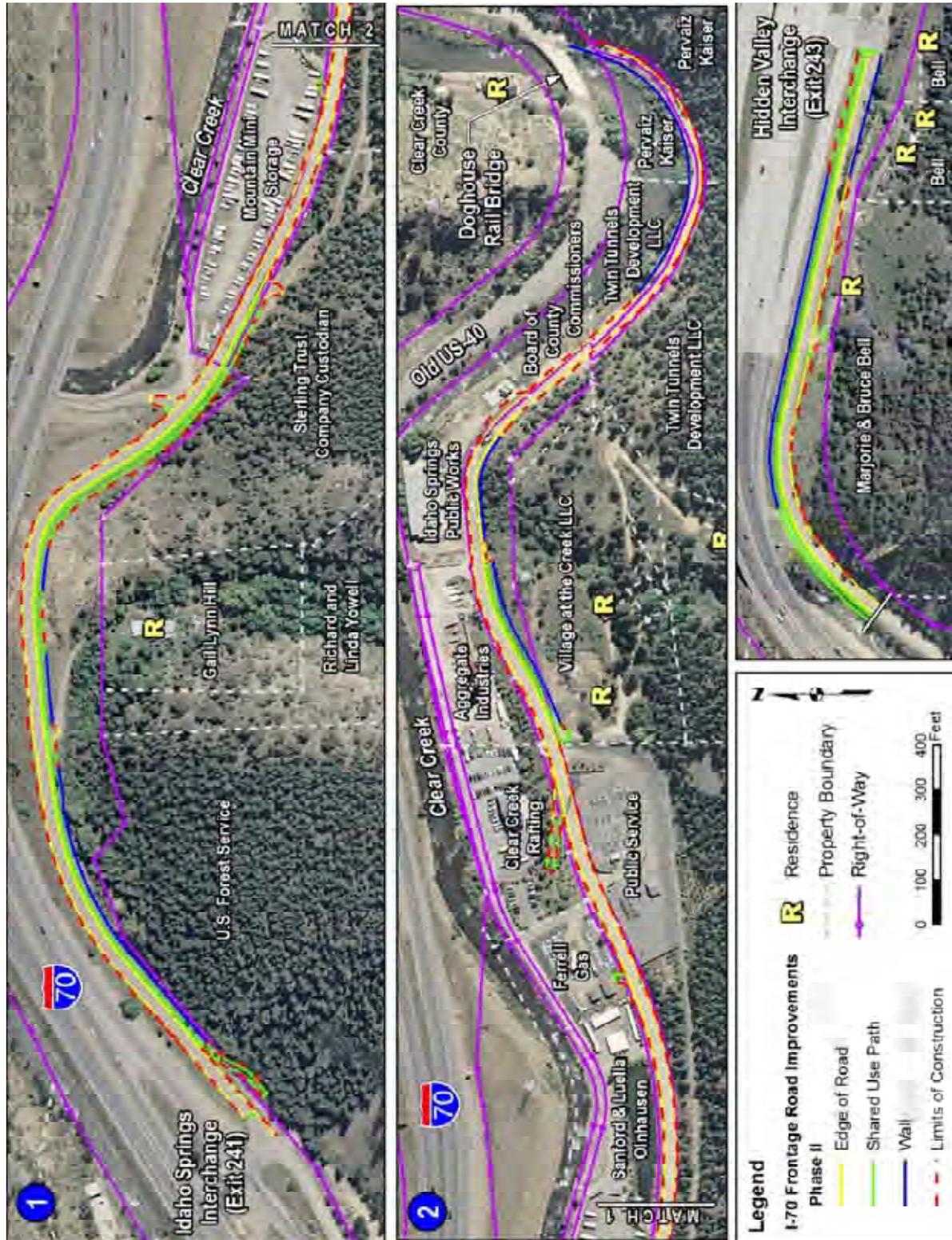


Figure 13: Phase II Residences and Businesses



### 2.18.2 Economic Activity

As part of the PLT/TT process, property owners and businesses in the project area have had the opportunity to identify social and economic concerns. One property owner near the gravel road/Doghouse Rail Bridge area expressed concerns that the project will limit future commercial development opportunities, including a proposed “Renewable Energy Theme Park”. Phase I is not adjacent to this future development. Phase II will not alter access to these parcels and will not preclude future development.

Rafting and fishing in Clear Creek is a major economic generator for the area. In 2011, 15 rafting companies were permitted by the Clear Creek Land Use Division to operate in Clear Creek near the project area. A majority of these companies used this section of Clear Creek for multiple rafting trips. CDOT surveyed these companies to understand potential impacts and identify mitigation measures.

Figure 14: Commercial Rafting on Clear Creek *(courtesy of Clear Creek Rafting Company)*



Rafting companies currently use CR 314 to access put in and take out locations and provide van support for emergency rescue and photographs. A majority of the potential impacts to commercial rafting operations will occur during the construction of Phase I related to the closure of CR 314 to through traffic and temporary closure of Clear Creek during rock blasting or other construction activities. While the limitation on through traffic on CR 314 will be an inconvenience, rafting companies acknowledged that temporary adjustments could be made for access and van support and that their business will not be adversely affected. Rafting companies were very concerned with the potential closure of Clear Creek for blasting or other construction. Closures of Clear Creek will limit the number of trips that could be run on

the river in a day. If blasting operations can be completed prior to the first run of the river, generally 8am, then the adverse impact to rafting and other recreational river uses would be minimized.

In Phase I blasting is anticipated. CDOT will require the contractor to complete blasting prior to 8:00 AM as feasible. In addition, the contractor will include coordination with rafting companies and local emergency service departments as part of their Public Information Plan.

In Phase II blasting is not anticipated. Wall 6 is the only wall that is adjacent to Clear Creek. Construction for this wall isn't expected to cause a need for any restrictions on rafting in this area. This wall is a fill wall and it is proposed to use "top down construction" from CR 314 which will minimize impacts to the river. However, temporary river closure for specific construction activities may occur during any phase of construction to ensure safety. River closures in Phase II will require coordination with rafting companies and local emergency service departments as part of the Public Information Plan.

## 2.19 Environmental Justice

CDOT has analyzed census data in the study area to assure that the project does not have disproportionately high negative impacts on minority and/or low income populations. The threshold used to identify minority populations in the study area is the percentage of the minority population within all of Clear Creek County (8 percent). Individual census blocks where the minority population exceeds 8 percent were identified for further analysis.

The threshold used to identify low-income populations in the study area is \$20,000 per year. The percentage of low-income households within all of Clear Creek County is 13 percent. If the percentage of households earning less than \$20,000 per year in an individual census block exceeds 13 percent, the census block is identified as having a concentration of low-income households. These individual census blocks were identified for further analysis.

In the immediate study area, the overall population is very low. No census blocks adjacent to the project limits were identified as low income. Only one census block adjacent to the project limits was identified as exceeding the minority threshold of 8 percent. This block borders the south side of CR 314 in the center of the project area. In this block the total population is 8, and the minority population is 3 (38 percent).

The proposed project will have low impacts on adjacent populations. There will be no existing accesses closed, no relocations, and minimal right-of-way acquisition. There will be the potential of inconvenience during construction. Phase I will temporarily restrict vehicle thru traffic during construction. Residents, including minority residents, near the western end of the project area will continue to have direct access from I-70 Exit 241. Residents near the eastern end will continue to have direct access from I-70 Exit 243.

For Phase II, construction duration and methods are still being determined, but local access for residents, including minority residents, will be accommodated during construction.

Due to the low population, and the low level of impacts, both Phase I and Phase II of this project will not have disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.

## 2.20 Recreation

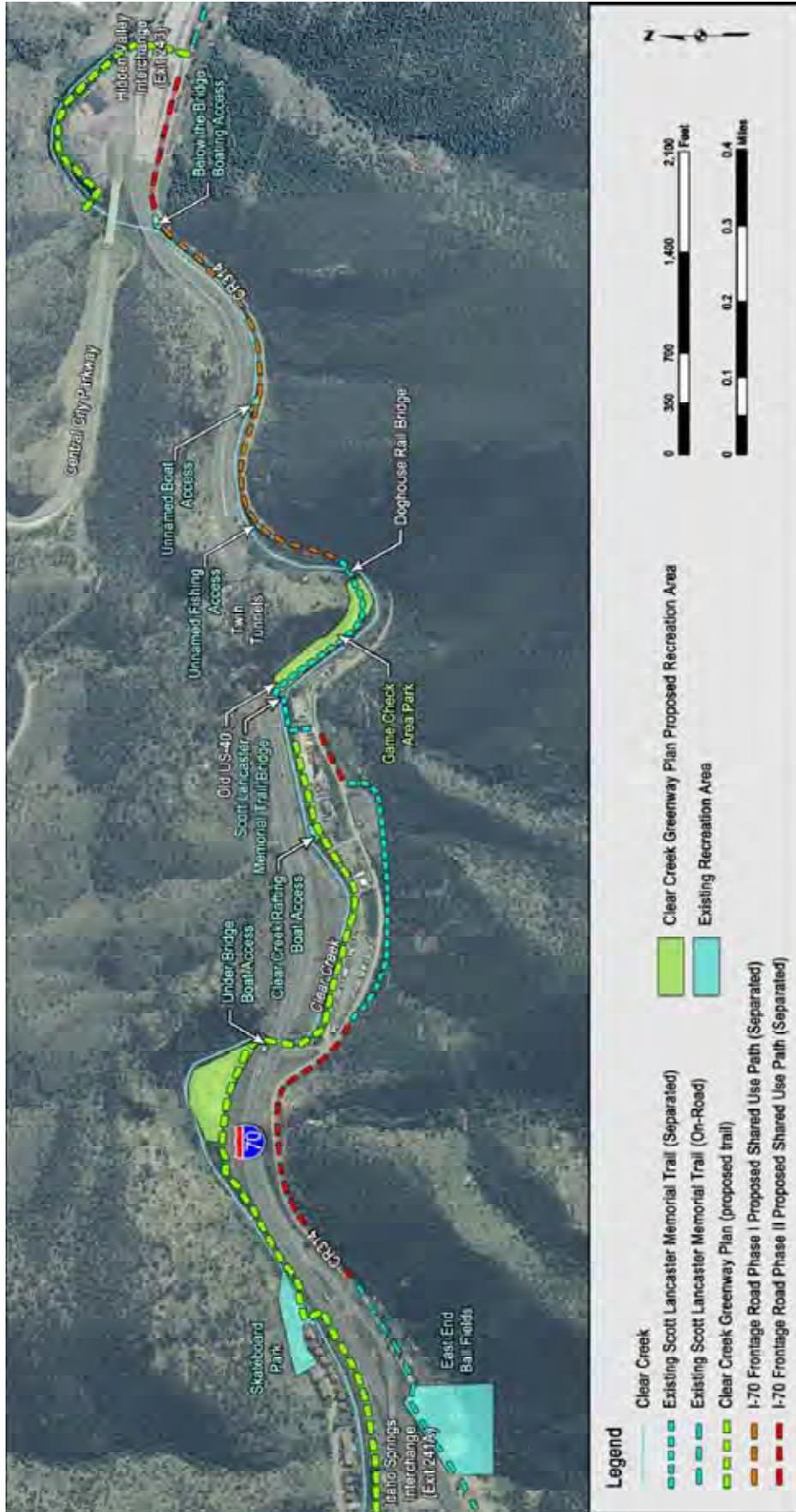
In the *I-70 Mountain Corridor Final PEIS* CDOT committed to coordinating with local jurisdictions regarding direct and indirect impacts to recreation resources. This includes the *Clear Creek Greenway Plan (2005)* which has elements in the proposed project area.

Four existing recreational elements that could potentially be affected by the proposed project have been identified (see **Figure 15**). They are:

- The Scott Lancaster Memorial Trail is located throughout the project. Currently, 3,400 feet of the Trail is on a separate path and the remainder is located on the shared shoulder of CR 314.

- An unnamed fishing access on CR 314 is located approximately 400 feet east of the Doghouse Rail Bridge. This access currently provides parking for one to two vehicles on an unimproved surface. Informal paths lead from this parking area to Clear Creek.
- An unnamed boat access on CR 314 is located approximately 1,400 feet east of the Doghouse Rail Bridge. This access currently provides parking for several vehicles on an unimproved surface. Informal paths lead from this access to Clear Creek.
- The "Below the Bridge Boating Access" is located on CR 314 at the point where Clear Creek crosses under I-70 just west of I-70 Exit 243. This access currently provides parking for several vehicles on an unimproved surface. Informal paths lead from this access to Clear Creek.

Figure 15: Recreation Resources



**Table 12** summarizes impacts to recreation resources resulting from Phase I and Phase II. In general, the project provides recreational enhancements to the Scott Lancaster Memorial Trail and Clear Creek access. In all locations where the Trail is currently on CR 314, it will be improved to a 10’ shared use path in Phase I and Phase II (**Figure 15**).

In addition to the trail location identified on the *Clear Creek Greenway Plan*, representatives from Clear Creek County identified a desire for a future connection of the Greenway to connect from CR 314 near the “Below the Bridge Boating Access” under the I-70 bridges. This vision for an alternate future Greenway connection was identified during the PLT process. Neither Phase I nor Phase II will preclude this future Greenway connection; however, the existing I-70 bridges (east and west bound) do not currently provide adequate clearance to accommodate an extension of the Greenway in this location.

After completion of Phase I, river access at the unnamed fishing access will remain accessible for pedestrians at each edge of Wall 8. Parking at this location will no longer be accommodated due to the shared use path. However, additional parking will be available at the unnamed boat access. This access will be enhanced as part of Phase I. A pull-out approximately 120-foot long will be constructed at this location. This pull-out will become a formalized boat access with parking area for 6 vehicles (**Figure 16**). The "Below the Bridge Boating Access" is in the No Work Zone, but informal parking and access will be limited by the construction of a portion of Wall 11. After construction of Wall 11 is complete in Phase II, parking at this location will no longer be provided. Pedestrian access Clear Creek at this location will be along informal trails at the eastern end of Wall 11.

In Phase I and Phase II, bicycles and pedestrians will be accommodated during construction along CR 314 when safe to do so. The contractor will use construction fencing to delineate path for pedestrians and bicyclists during construction.

During the blasting of rock outcrops in Phase I, use and access of Clear Creek will be restricted. Use and access may also be restricted due to other construction such as fill wall construction that may cause safety concerns during Phase I and Phase II (see **Section 2.18**). As noted in **Section 2.18**, coordination with the rafting companies will be required to accommodate both the project and recreational users safely. The contractor will also coordinate with the emergency response providers for Clear Creek County.

**Table 12: Summary of Recreation Impacts**

Recreation Resource	Phase I	Phase II
Scott Lancaster Memorial Trail	Improved with 10’ shared use path for an additional 0.50 miles	Improved with 10’ shared use path for an additional 0.74 miles
Unnamed Fishing Access	Wall 8 removes informal parking. River access at both ends of wall.	No impact
Unnamed Boat Access	Improved and formalized pull-out, gravel surface approximately 120-foot long (6 cars).	No impact.
Below the Bridge Boating Access	Wall 11 removes informal parking. Continued river access at both ends of Wall 11.	Wall 11 extended to the east. Continued river access at the eastern end of the wall.

Recreation Resource	Phase I	Phase II
Bicycle and pedestrian use during construction	Bicycles and pedestrians will be accommodated during construction along CR 314 when safe to do so. Contractor will use construction fencing to delineate path for pedestrians and bicyclists during construction.	Bicycles and pedestrians will be accommodated during construction along CR 314 when safe to do so. Contractor will use construction fencing to delineate path for pedestrians and bicyclists during construction.
Clear Creek rafting and fishing use during construction	Temporary construction impacts will include restricting use and access to Clear Creek during blasting of rock outcrops and other construction activities.	Temporary construction impacts will include restricting use and access to Clear Creek during fill wall construction and other construction activities.

Figure 16: Phase I Parking at Unnamed Boat Access



## 2.21 Visual

The regional landscape includes historic towns such as Idaho Springs as well as many scenic views, lush forests, rocky hillsides, and waterways. However, the mountainous terrain breaks up any continuous or extended views in the Frontage Road project area. Elevation of CR 314 in the project area ranges from 7,330 ft to 7,575 ft. The Frontage Road project setting is characterized by rugged terrain, V-shaped valleys, and historically mined lands. Surrounding hillsides include a variable density montane zone with rock and eroded slopes. South and west facing slopes include open montane scrub with intermittent barren slopes and north and east facing slopes are dominated by dense lodgepole pine. The area is substantially natural in character except for the transportation infrastructure throughout the project area and the

businesses located in the western section of Phase II (see **Figure 13**). The project is not within the viewshed of residential or downtown areas.

### 2.21.1 Existing Visual Character

Landscape character is the portion of the regional landscape with a distinct and recognizable pattern, commonly known among local users. The Frontage Road project is located in the Clear Creek Landscape Unit and contains two areas of special attention (ASA) that were identified by stakeholders during the PEIS Aesthetic Working Group Process as having multiples or unique issues. These two stretches along the I-70 Mountain Corridor are described in the *Idaho Springs – Area of Special Attention Report* (CDOT, May 2010) and the *Twin Tunnels – Area of Special Attention Report* (CDOT, March 2011). The Idaho Springs ASA includes issues such as close proximity to Clear Creek, narrow canyon, mine waste, and potential I-70 improvements.

The Twin Tunnels ASA includes issues such as traffic congestion, proximity to Clear Creek, and wildlife movement. The portals of the Twin Tunnels are distinctive visual features that serve as the gateway to Idaho Springs and the Mountain Mineral Belt for westbound motorists on I-70. The Mountain Mineral Belt stretches from the La Plata Mountains in southwestern Colorado to the Front Range and is an area known for gold, silver, lead, zinc, and molybdenum ore. The *Mountain Mineral Belt Design Segment* (Aesthetic Guidance Index) of the I-70 Mountain Corridor PEIS (FHWA, Sept 2010) is located between the Eisenhower Tunnels and Floyd Hill. The Twin Tunnels are located between Idaho Springs and Floyd Hill, the design and location of the Twin Tunnels create a major “pinch point” for travelers. Motorists generally reduce their speeds in this area because of limited shoulder space and the dark and imposing façade of the tunnels. The Twin Tunnels are close to Clear Creek, serve as a landmark to those entering and leaving Idaho Springs, and are the first tunnels that westbound I-70 motorists from the Front Range travel through.

Dominant elements within the landscape unit include Clear Creek, CR 314, and I-70. Clear Creek is characterized by steep, riprap banks that generally lack contiguous riparian habitat within the project area. CR 314 (the frontage road), I-70, and Clear Creek lie in a narrow valley floor. I-70 is just north of the creek and CR 314 is located on the southern side of the creek. Exposed rock wall cuts on the northern side of I-70 and southern side of CR 314 form an enclosed landscape. The scenic attractiveness of the project area, as defined in the I-70 Mountain Corridor PEIS, is categorized as Class B, which indicates that the lands have some distinctive features but are overall typical of the landscape. The landscape can absorb low to moderate levels of change assuming the changes respect the existing character of the landscape in the basic elements of form, line, color, and texture. **Figure 17** illustrates a typical view along Phase I of the project area.

Figure 17: Typical View looking east along CR 314



There are multiple viewers, activities, and view responses to the proposed project within this narrow valley. Viewer response includes two aspects: 1) viewer sensitivity (concern for visual quality and change) and 2) viewer exposure (e.g. the number of views, duration of view, speed at which the viewer moves through the landscape). A typical motorist will pass through this project area in a time ranging from 2 to 6 minutes. A bicyclist would take approximately 12 minutes and a pedestrian over 40 minutes. Typical viewers and exposures including the following:

- **Motorists from I-70:** Motorists on I-70 can view the Frontage Road to the south. The highway users' view of this two mile project area is limited in duration based on posted travel speeds of 40 to 50 miles per hour and obscured in some locations by grade, vegetation, commercial/industrial development, and the twin tunnels. Although there are thousands of commuters, tourists, and recreational uses of the interstate, there is moderate concern about the effect of the project on their view due to their lower viewer exposure.
- **Motorists from CR 314:** Posted speeds along CR 314 range from 25 to 40 mph. Motorists will have the maximum exposure to any visual changes in the project area; due to the duration and proximity to the visual changes. However the horizontal and vertical variations along CR 314 limit continuous or extended views. This road is used primarily for local and recreational access and there is a strong concern for the effect of the project on their view as highway users.
- **Recreational users (bike and pedestrian) from Scott Lancaster Memorial Trail:** The Scott Lancaster Memorial Trail is located on/adjacent to CR 314 within the project area. Recreational viewers will experience similar visual character and quality as motorists from CR 314, but for a longer duration depending on mode (biking, running, or walking). Other sensitive views include recreation sites along the trail (e.g. the unnamed fishing access, unnamed boat access, and the below the bridge boating access)(see **Figure 15**). Rafters and fisherman use these recreation sites to gain access to Clear Creek.

- **Recreational users (rafting and fishing) from Clear Creek:** Generally, the steep rip rap slopes or vegetation limit views of these transportation facilities from Clear Creek users. User views from Clear Creek also include some commercial development and bridge structures (Doghouse Rail Bridge and I-70 bridges east of Hidden Valley).

### 2.21.2 Visual Resource Changes

The degree of visual impact can be determined by assessing the visual resource change due to the proposed project elements and predicting viewer response to that change. Local community members may be particularly sensitive to the proposed changes in visual resources. Public use areas require special consideration. This project utilized early planning to integrate the consideration of design, engineering, and aesthetics. As part of the CSS process, CDOT collaborated with stakeholders to develop design and aesthetic guidelines to minimize visual resource impacts associated with the proposed project. When applicable, the proposed project incorporated the guidelines outlined in the Aesthetic Guidance Index of the *Mountain Mineral Belt Design Segment* (MMBDS) to minimize adverse visual impacts. **Table 13** summarizes consistency and/or variance of prominent visual elements with the Aesthetic Guidance Index. The proposed project includes widening and adding a shared use path along the existing CR 314. The most dominant visual element of the proposed project includes walls below CR 314 (fill walls) and walls above CR 314 (cut walls). Please refer to **Table 9** for the general description of Phase I and Phase II wall characteristics and **Figure 10** for the Locations of proposed walls.

**Table 13: Consistency/Variance of Prominent Visual Project Elements with the *Mountain Mineral Belt Design Segment—Aesthetic Guidance Index***

Section of Aesthetic Guidance Index	Phase I Elements	Phase II Elements	Consistency/Variance
Section 01 Transportation and land relationships	<ul style="list-style-type: none"> <li>• The roadway respects the sinuosity of the valley floor and natural hydrology and satisfies safety and engineering concerns</li> </ul>	<ul style="list-style-type: none"> <li>• Same as Phase I</li> </ul>	<ul style="list-style-type: none"> <li>• Consistent</li> </ul>
Section 02 Transportation facilities alignment	<ul style="list-style-type: none"> <li>• Median and lane separations not applicable</li> </ul>	<ul style="list-style-type: none"> <li>• Same as Phase I</li> </ul>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
Section 03 Structures that support transportation facilities	<p><i>Fill wall</i></p> <ul style="list-style-type: none"> <li>• Retaining wall supporting roadway or shared use path</li> <li>• Max. height 15 feet</li> <li>• Treatment – simple vertical textures, cap, and Federal Standard 595B, Color 30372</li> </ul>	<p><i>Fill wall</i></p> <ul style="list-style-type: none"> <li>• Retaining wall supporting roadway or shared use path</li> <li>• Max. height 10 feet</li> <li>• Treatment – simple vertical textures, cap, and Federal Standard 595B, Color 30372</li> </ul>	<ul style="list-style-type: none"> <li>• Overall project consistent as part of the larger context of the facilities.</li> <li>• Fill wall consistent with façade treatment.</li> <li>• Fill wall has limited use compared to cut walls and a variance is required to maintain access between CR 314 and Clear Creek.</li> </ul>

Section of Aesthetic Guidance Index	Phase I Elements	Phase II Elements	Consistency/Variance
Section 04 Interchanges	<ul style="list-style-type: none"> <li>Not applicable</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable</li> </ul>
Section 05 Guardrails, barriers, and edge delineation	<p><i>Pedestrian railing on fill wall</i></p> <ul style="list-style-type: none"> <li>42" for fall protection</li> <li>Federal Standard 595B, Color 20059</li> <li>Horizontal rails</li> </ul>	<ul style="list-style-type: none"> <li>Same as Phase I</li> </ul>	<ul style="list-style-type: none"> <li>Not directly addressed in MMBDS, but color consistent</li> </ul>
Section 06 Color selection and consistency	<ul style="list-style-type: none"> <li>Selected color palette will be applied to structures and metal features.</li> </ul>	<ul style="list-style-type: none"> <li>Same as Phase I</li> </ul>	<ul style="list-style-type: none"> <li>Consistent</li> </ul>
Section 07 Earthwork, embankment, and restoration of existing disturbance	<p><i>Cut Walls</i></p> <ul style="list-style-type: none"> <li>Retaining wall south of CR 314</li> <li>Max. height 30 feet</li> <li>Treatment – temporary sceed finish with natural rock facade</li> </ul>	<p><i>Cut Walls</i></p> <ul style="list-style-type: none"> <li>Retaining wall south of CR 314</li> <li>Max. height 15 feet</li> <li>Treatment – natural rock facade</li> </ul>	<p><i>Variations:</i></p> <ul style="list-style-type: none"> <li>Walls greater than 12" should be below roadway</li> <li>Unstable slopes above road require retaining wall system</li> </ul> <p>The cut walls of Phase I will be consistent with the cut walls of Phase II or the Twin Tunnels project walls</p>
Section 08 Hydraulic Features	<ul style="list-style-type: none"> <li>No impact to Clear Creek</li> <li>Coordination and Integration of BMPs from SWEEP and SCAP</li> </ul>	<ul style="list-style-type: none"> <li>Same as Phase I</li> </ul>	<ul style="list-style-type: none"> <li>Consistent</li> </ul>
Section 09 Landscape planting, revegetation, and topsoil management	<ul style="list-style-type: none"> <li>Limited disturbance to topsoil and existing vegetation</li> <li>Native and drought tolerant wildflower and grass seed mix for revegetation</li> <li>Brush layer cuttings at outfalls of pipes and base of fill walls</li> </ul>	<ul style="list-style-type: none"> <li>Same as Phase I</li> </ul>	<ul style="list-style-type: none"> <li>Consistent</li> </ul>
Section 10 Wildlife corridors and crossings	<ul style="list-style-type: none"> <li>Coordinated wildlife movement patterns with wall locations and roadway design</li> </ul>	<ul style="list-style-type: none"> <li>Same as Phase I</li> </ul>	<ul style="list-style-type: none"> <li>Consistent</li> </ul>
Section 11 Community interface	<ul style="list-style-type: none"> <li>Design incorporates pedestrian and multi-modal connections.</li> </ul>	<ul style="list-style-type: none"> <li>Same as Phase I</li> </ul>	<ul style="list-style-type: none"> <li>Consistent</li> </ul>
Section 12 Sound attenuation	<ul style="list-style-type: none"> <li>Not applicable</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable</li> </ul>

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Section of Aesthetic Guidance Index	Phase I Elements	Phase II Elements	Consistency/Variance
Section 13 Recreational and cultural resource areas	<ul style="list-style-type: none"> <li>Development of shared use path for recreation uses</li> <li>CDOT will develop an interpretative plan to highlight cultural points of interest</li> </ul>	<ul style="list-style-type: none"> <li>Same as Phase I</li> </ul>	<ul style="list-style-type: none"> <li>Consistent</li> </ul>
Section 14 Road services and adjunct facilities	<ul style="list-style-type: none"> <li>Not applicable</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable</li> </ul>
Section 15 Advanced Guideway System (AGS)	<ul style="list-style-type: none"> <li>Does not preclude the development of AGS</li> </ul>	<ul style="list-style-type: none"> <li>Same as Phase I</li> </ul>	<ul style="list-style-type: none"> <li>Consistent</li> </ul>
Section 16 Transportation lighting and illumination	<ul style="list-style-type: none"> <li>No corridor lighting included in design</li> </ul>	<ul style="list-style-type: none"> <li>Same as Phase I</li> </ul>	<ul style="list-style-type: none"> <li>Consistent</li> </ul>
Section 17 Signage	<ul style="list-style-type: none"> <li>Signage meets CDOT and MUTCD standards</li> </ul>	<ul style="list-style-type: none"> <li>Same as Phase I</li> </ul>	<ul style="list-style-type: none"> <li>Consistent</li> </ul>
Section 18 Utilities in the corridor	<ul style="list-style-type: none"> <li>Utility coordination included the relocation of electric, fiber and cable lines underground.</li> </ul>	<ul style="list-style-type: none"> <li>TBD</li> </ul>	<ul style="list-style-type: none"> <li>Consistent</li> </ul>
Section 19 Construction materials management	<ul style="list-style-type: none"> <li>Construction impacts minimized with traffic control plan; public information plan; and staging and protection of resources as noted in plans and specifications.</li> </ul>	<ul style="list-style-type: none"> <li>Same as Phase I</li> </ul>	<ul style="list-style-type: none"> <li>Consistent processes to minimize impacts</li> </ul>

Phases I and II will include a total of 13 walls ranging from approximately 3 to 30 feet of exposed height and from 240 to 1,140 feet in length. The fill walls and fill wall treatment proposed for Phase I and II are consistent with the MMBDS, which will reduce the potential for adverse visual impacts. The cut walls and cut wall treatment are not recommended as part of the MMBDS, but were developed as part of the CSS process to continue to provide direct access from CR 314 to the recreational uses along Clear Creek. Generally, cut walls will be tiered when the total wall height exceeds 12 to 15 feet. The façade treatment of the cut walls was determined during a series of PLT/TT meetings. The ultimate treatment includes a façade of stacked natural rock with color and size variations to match the current rock formations. However, due to constructability, consistency, and cost concerns, it was determined that the cut walls in Phase I will remain exposed with a temporary screed finish until the Twin Tunnels or Phase II walls were constructed. This will allow for maximum consistency and continuity in the treatment of the cut walls, reducing the potential for adverse visual impact.

Wall height and length are key factors in the determination potential for visual impacts. Other factors evaluated include the level of visual contrast of the wall and exposure/visibility. For this analysis, it is assumed that wall dimensions have the potential to result in the following potential impacts:

Height:

- Low: <10 feet
- Moderate: 10-25 feet
- Moderate to Strong: 25-40 feet
- Strong: > 40 feet

Length:

- Low: <200 feet
- Moderate: 200-500 feet
- Moderate to Strong: 500-1,000 feet
- Strong: >1,000 feet

### 2.21.3 Key View Analysis of Fill Walls and Railings

It is not feasible to analyze all views in which the proposed project could be seen. Key views were selected that most closely display the visual effects of the project and with the potential for greatest visual contrast. Architectural treatments and landscape are proposed as mitigation and depicted in the photo simulations. The fill walls in Phase I (6, 8, and 11) range in height from less than 5 feet to approximately 15 feet and Phase II walls (1, 6, and 13) are all 10 feet or less (see **Figure 10**). Cut walls were designed instead of fill walls in some areas due to the need to accommodate river access from CR 314. This is a variance from the *Mountain Mineral Belt Design Segment*, but an extensive fill wall system will reduce creek access. The PLT endorsed this design decision in order to retain river access, which is important to the local community. **Table 14** lists the individual fill walls and viewer response (detection) from motorists on I-70 and CR 314 and from recreational users on the Scott Lancaster Memorial Trail and along Clear Creek. Due to the length, height, limited visibility of the fill walls and consistency with the MMBDS a low to moderate visual impact is anticipated in Phase I and II.

Key View #1 is located just east of the Twin Tunnels portal. **Figure 18** is a photo simulation of fill walls and railings that will be visible to motorists on I-70 and recreational users in Clear Creek. This view provides a southeastern orientation of CR 314 as viewed from eastbound I-70. The walls would change the visual character along the existing transportation system but are not out of place and are anticipated to result in a low to moderate visual quality impact. The fill walls located in Phase I (walls 8, 11, and part of 6) and Phase II (walls 1, 13, and rest of 6) will consist of a formliner with simple vertical textures and cap to provide shadows. The color will be Federal Standard 595B, Color 30372. The railing is Federal Standard 595B, Color 20059.

Figure 18: Simulated and Existing Key View #1 (Wall 8 Facing Southeast on I-70)



Table 14: Viewer Response (Detection) to Fill Walls and Railing

Phase	Wall	Length*	Height*	View	Anticipated Visual Impact
Phase II	1	715 ft	<10 ft	Wall will be under the south side of CR 314 and will not be visible to any viewers. Motorists on CR 314 and recreational trail users will have views of the pedestrian railing. The facility will not be visible at all to motorists on I-70 or users along Clear Creek.	Low
Phase I and Phase II	6	720 ft	10 ft	Wall can be viewed by recreational users along Clear Creek and on the Scott Lancaster Memorial Trail located on Old US 40. A pedestrian railing is not planned for the top of this wall and will not be visible to motorists on I-70 or CR 314.	Moderate
Phase I	8	175 ft	< 5 ft	Wall and pedestrian railing can be viewed from recreational users along Clear Creek and briefly by motorists traveling east on I-70. Motorists on CR 314 and users of the Trail will view the pedestrian railing only.	Low
Phase I	11	455	15 ft	Walls and railing can be viewed by recreationalists along Clear Creek and briefly by motorists along I-70 traveling east. Motorists on CR 314 and users of the Trail will view the pedestrian railing only.	Moderate
Phase II	13	240 ft (extension)	tbd	This is the replacement and extension of an existing wall. Replaced wall may be viewed briefly by motorists along I-70 traveling east and this wall is similar in scale to the existing wall at the Hidden Valley Interchange. Motorists on CR 314 and users of the Trail will view the pedestrian railing only.	Low

\* Approximate maximum exposed wall height. Based on 1/13/2012 revised FIR plans. Actual wall heights, lengths, and locations may vary based on final design.

#### 2.21.4 Key View Analysis of Cut Walls

The cut walls located in Phase I (walls 7, 9, and 10) and Phase II (walls 2, 3, 4, 5, and 12) will be a soil nail wall with a stacked natural rock façade. Due to constructability, consistency, and cost concerns, the PLT/TT determined that the cut walls in Phase I would remain exposed with a temporary screed finish until the Twin Tunnels or Phase II walls were constructed. This will allow for maximum consistency and continuity in the treatment of the cut walls along the entire corridor, reducing the potential for adverse visual impact.

The tallest of the cut walls are in Phase I, specifically Wall 9 (30 ft.) and Wall 10 (30 ft.). The mountain peaks behind Walls 9 and 10 rise over 2,000 feet above CR 314. Subsequently, on the macro level these walls will not dominate the viewshed. However, views of the walls from CR 314, the Scott Lancaster

Memorial Trail, and other recreation sites along the trail will be noticeable. **Table 15** lists the individual cut walls and viewer response (detection). Due to the length, height, limited visibility of the fill walls and consistency with the MMBDS a low to moderate/strong visual impact is anticipated in Phase I and a low to moderate visual impact is anticipated in Phase II. The highest and longest walls have the greatest potential to change the visual quality of the area along the existing transportation system. Walls 9 and 10 would have a moderate to strong visual contrast. Mitigation consistent with the MMBDS and sensitivity to the PLT/TT design guidance would help reduce the impact and is discussed in the following section.

**Table 15: Viewer Response (Detection) to Cut Walls**

Phase	Wall	Length*	Height*	View	Anticipated Visual Impact
Phase II	2	160 ft	< 5 ft	Can be viewed by motorists on CR 314 and minimally viewed by motorists on I-70 due to the location and short wall heights. Also, can be seen by recreational users on the Scott Lancaster Memorial Trail. Not visible from Clear Creek.	Low
Phase II	3	95 ft	< 5 ft	Can be viewed by motorists on CR 314 and minimally viewed by motorists on I-70 due to the location and short wall heights. Also, can be seen by recreational users on the Scott Lancaster Memorial Trail. Not visible from Clear Creek.	Low
Phase II	4	395 ft	12 ft	Can be viewed by motorists on CR 314 and minimally viewed by motorists on I-70 due to the distance. Also, can be seen by recreational users on the Scott Lancaster Memorial Trail. Not visible from Clear Creek.	Moderate
Phase II	5	245 ft	15 ft	Can be viewed by motorists on CR 314 and minimally viewed by motorists on I-70 due to the distance. Also, can be seen by recreational users on the Scott Lancaster Memorial Trail. Not visible from Clear Creek.	Moderate
Phase I	7	100 ft	< 10 ft	Can be viewed by motorists on CR 314 and by recreational users on the Scott Lancaster Memorial Trail. Not visible from I-70 or Clear Creek.	Low
Phase I	9	450 ft	30 ft	Can be viewed by motorists on CR 314 and I-70 and by recreational users on the Scott Lancaster Memorial Trail. Also will be visible from some locations along Clear Creek. May include a second wall tier.	Moderate to Strong

Phase I	10	1,140 ft	30 ft	Can be viewed by motorists on CR 314 and I-70 and by recreational users on the Scott Lancaster Memorial Trail. Also will be visible from some locations along Clear Creek. May include a second wall tier.	Moderate to Strong
Phase II	12	285 ft	5 ft	Can be viewed by motorists on CR 314 and recreational users on the Scott Lancaster Memorial Trail. Not visible from I-70 or Clear Creek.	Low

\* Approximate maximum exposed wall height. Based on 1/13/2012 revised FIR plans. Actual wall heights, lengths, and locations may vary based on final design.

Key View #2 is located east of the Twin Tunnels portal (**Figure 19**), as viewed by eastbound motorists on CR 314 and trail users. It is representative of cut walls that will also be visible to motorists on I-70. The walls would change the visual character along the existing transportation system but are not out of place. Due to the steep banks along Clear Creek, recreational river users will generally not be able to view the cut walls in Phase I or II.

Figure 19: Simulated and Existing Key View #2 (Wall 9 Facing East on CR 314)



Key View #3 is located west of the I-70 bridges (**Figure 20**), as viewed by westbound motorists on CR 314 and trail users. It is representative of cut walls that will also be visible to motorists on I-70. Due to the steep banks along Clear Creek and vegetation, recreational river users will generally not be able to view the cut walls in Phase I or II.

Figure 20: Simulated and Existing Key View #3 (Wall 10 Facing West on CR 314)



### 2.21.5 Summary of Visual Impacts and Mitigation

The proposed project was developed based on guidance provided in the MMBDS and PLT/TT input. One of the main goals of the MMBDS is to reduce environmental impacts and specifically visual impacts. Therefore, the design team was able to avoid visual impacts or incorporate mitigation feature early in the design process. Examples of context sensitive design elements that reduce the potential for visual impacts (i.e. consistent with the MMBDS) are summarized in **Table 13** and include following the natural sinuosity of the existing facility; color selection; revegetation; and provision of recreational resources (shared use path). The MMBDS was developed specifically with improvements to the interstate facility and AGS, so some of the aesthetic guidance does not directly apply to CR 314 or may vary based on the site specific conditions.

Proposed wall length, height, and placement (above or below the road) are the main elements of the proposed design that vary from the guidance provided in the MMBDS. Additionally, wall length and height are the main elements of the proposed project that may alter the existing visual setting. The highest and longest walls have the greatest potential to change the visual quality. Along this two-mile transportation corridor, approximately 2,300 feet (22 percent) of fill walls will be added below CR 314 and 2,800 feet (27 percent) of cut walls will be added above CR 314. However, as the narrow and curvilinear valley limit continuous or extended views, generally a portion of a wall or walls is within the viewer's extent. Viewer response (detection) was evaluated for motorists from I-70, motorists from CR 314, recreational users along the Scott Lancaster Memorial Trail, and recreational users along Clear Creek.

The visual contrast levels associated with the number and height of retaining walls have a potential to dominate the setting in Phase I and Phase II. The higher walls will result in decreased visual quality of expected views. In Phase I, walls 6 and 11 will result in moderate visual impacts and walls 9 and 10 in moderate to strong visual impacts. In Phase II, walls 4 and 5 will result in moderate visual impacts.

It is possible to reduce the impact to visual resources by adherence to the MMBDS and careful selection of aesthetic design and treatment with agency, community, and stakeholder involvement. An example of minimization measures includes the coordinated construction of the Phase I cut wall facades with Twin Tunnels and/or Phase II construction. Representatives of the PLT will be involved in the validation of the details of the façade treatment. This deferred construction will allow for maximum consistency in the treatment of the cut walls, reducing the potential for adverse visual impact.

## 3.0 Cumulative

Under the National Environmental Policy Act, a cumulative impact is the impact on the environment that results from the combination of incremental impacts of the action and other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal), entity, or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions that take place over a period of time (40 CFR 1508.7). There may be different levels of cumulative impacts on different environmental resources.

Methods that helped determine this project’s contribution to cumulative impacts, if any, for each resource included determining the overall health of the resource within the resource’s respective cumulative study area and determine if any other actions would affect the overall health and viability of the resource; reviewing the impacts of the proposed project for each resource area; compiling a list of past, present, and reasonably foreseeable projects and relevant actions that would contribute to cumulative impacts; defining the study area for the cumulative impacts for each resource area; identifying the resource areas where this project and other projects could, together, cause a cumulative impact; determining whether this project’s impacts for each resource area are measurable enough to consider in the cumulative impacts analysis; and identifying reasonable, feasible options for avoiding or mitigating the project’s contribution to significant cumulative impacts.

**Table 16** lists reasonably foreseeable future actions and **Table 17** lists reasonably foreseeable future transportation projects evaluated for potential cumulative impacts with the I-70 Frontage Road Project. These tables include projects identified in municipal capital improvement programs and other long-range plans or are in the permitting/entitlement process. In general, the projects with potential for cumulative impacts are Clear Creek county-wide plans or planned and approved actions located near Clear Creek between the City of Idaho Springs and Floyd Hill.

**Table 16: Reasonably Foreseeable Future Actions**

Project	Description	Status	Source
<b>Water Quality</b>			
Managing Stormwater to Protect Water Resources Report	Plan to introduce, educate, and provide general guidance for implementing green stormwater management practices at the watershed, community, and individual lot level.	Ongoing	(CCC, 2009)
Clear Creek Sediment Control Action Plan	Plan with actions to address roadway maintenance and natural erosion.	To be implemented in conjunction with transportation projects along Clear Creek	(CDOT, 2011a)
Clear Creek Aquatic Habitat Improvements	Modifications of stream channel to enhance habitat.	Concurrent with Twin Tunnels EA	(CDOT, 2011b)
<b>Other Resource Plans</b>			
Community Wildfire Protection Plan	Plan delineating Wildland-Urban Interface communities and neighborhoods within the county, and prioritizing mitigation actions to reduce threats from wildfire.	Ongoing	(CCCOEM, 2008)
Noxious Weed Management Plan	Comprehensive management plan for the control of noxious weeds within Clear Creek County	Ongoing	(CCC, 2007)
Cultural Resources Management Plan	Comprehensive management plan for cultural resources in Clear Creek County	Ongoing	(CCCBOCC, 2010)

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Project	Description	Status	Source
Affordable Housing Study	Strategy to address employee housing needs and enable the county's economy to grow.	Ongoing	(CCC, 2003)
<b>Development Projects</b>			
<b>USFS Actions</b>			
Clear Creek Ranger District Developed Sites Reforestation	Plant tree seedlings and saplings in developed recreation sites.	Funded. In Progress.	(USFS, 2011)
<b>Master Plans</b>			
Idaho Springs <i>Comprehensive Plan</i> (2008)	Plan identifying goals and policies for land use, transportation, housing, economic growth, environmental and historic resources, and recreation in Idaho Springs.	Ongoing	(Idaho Springs, 2008a)
Idaho Springs <i>3 Mile Area Plan</i> (2008)	Plan providing direction on land use and infrastructure needs within 3 miles of city boundary. Expresses need for balance between developed and recreational/open space land uses to: broaden the range of housing types; annex buildable land to accommodate preferred land uses; be easily served by utilities; strengthen the economy; and promote infill and common community interest.	Ongoing	(Idaho Springs, 2008b)
Clear Creek County <i>Master Plan 2030</i> (2004)	Plan identifying goals and policies for land use, transportation, housing, economic growth, environmental resources, and recreation in Idaho Springs.	Ongoing	(CCC, 2004)
Clear Creek County <i>Open Space Plan</i> (2005)	Plan for open space preservation and trail development.	Ongoing	(CCC, 2005a)
Clear Creek <i>Greenway Plan</i> (2005)	Plan for recreation resources and trail network along Clear Creek.	Ongoing	(CCC, 2005b)
Clear Creek County <i>Floyd Hill Gateway Development Master Plan</i> (2009)	Plan for transit and development in the Floyd Hill area of Clear Creek County.	Ongoing	(CCC, 2009b)
Clear Creek County <i>Non-Motorized Routes Master Plan</i> (1990)	Plan for use of existing unimproved facilities for non-motorized corridor purposes.	Ongoing	(CCC, 1990)

**Table 17: Reasonably Foreseeable Future Transportation Projects**

Project	General Description	Limits	Responsible Agency	Status
Twin Tunnels	Safety improvements – widen eastbound tunnel bore, add lane on eastbound I-70.	I-70 MP 241 to I-70 at Floyd Hill	CDOT Region 1	EA in progress
SH 119, US 6, US 40	Blackhawk to US 40 – safety improvements (curve straightening, lighting, improve shoulders, minor widening)	SH 119 MP 0.0 – MP 5.3, US 6 to Blackhawk and US 6, I-70 to Golden	CDOT Region 1	Various stages of planning and design
I-70 - Wildlife Mitigation at Floyd Hill	Install signs and other mitigation measures to prevent animal vehicle collisions	I-70 at Floyd Hill, MP 245 to 255	CDOT Region 1	Anticipate advertisement in 2012
I-70 -Active Traffic Management	Install ITS devices to actively manage speeds and traffic flow	I-70 - Silverthorne to Bakerville, and I-70 – Mount Vernon Canyon	CDOT Region 1	In progress
I-70 Mountain Corridor Preferred Alternative	Future non-infrastructure, Advanced Guideway System (AGS) transit, and highway capacity and safety improvements. See PEIS for preferred alternative description.	I-70 – C-470 to Glenwood Springs	CDOT Region 1 and CDOT Region 4	Funded projects include AGS feasibility study, Twin Tunnels EA, and CR 314 (frontage road) reconstruction between old Highway 40 and Hidden Valley interchange
Soda Creek Rd Asphalt Paving	Paving	I-70 to Pine Slope Rd	Clear Creek County	Design complete. Advertisement unknown.

The I-70 Frontage Road Improvements Project will not measurably impact air quality, noise, hazardous materials, farmland, threatened and endangered species, migratory birds, wildlife, wetlands, riparian areas, water quality, floodplains, archaeology/paleontology, historic, noxious weeds, land use, social and economic, or environmental justice resources, and, therefore, this analysis does not discuss cumulative effects on those resources.

Visual resources will be noticeably affected due to the walls associated with the CR 314 project as described in **Section 2.21**. Therefore, cumulative impacts were analyzed for visual resources. The study area for this analysis is the rugged V-shaped Clear Creek valley between I-70 Exit 241 and 243. Past actions affecting visual resources include mining activity, construction of houses and commercial buildings, road construction, and an overhead power line. A review of the current and future projects listed above shows that one project has the potential to measurably affect visual resources in the

immediate vicinity of the CR 314 project. The Twin Tunnels project will alter the visual resources in the area. A view of Walls 8 and 9 and of the Twin Tunnels project walls along I-70 are shown in **Figure 21**. The location of walls from the I-70 Frontage Road project and the Twin Tunnels project are shown in **Figures 22** and **23**.

Due to the strong protections mandated by the *I-70 Mountain Corridor PEIS/ROD*; guidance provided in *Mountain Mineral Belt Design Segment*; and ongoing coordination as part of the CSS process, visual resources will be protected to the extent possible and visual impacts minimized. An example of minimization measures includes the coordinated construction of the Phase I cut wall facades with Twin Tunnels and/or Phase II construction. This will allow for maximum consistency in the treatment of the cut walls, reducing the potential for adverse visual impact. Therefore, when combined with other past, present, and reasonably foreseeable future actions, the I-70 Frontage Road Improvements Project will not negatively affect cumulative visual resources.

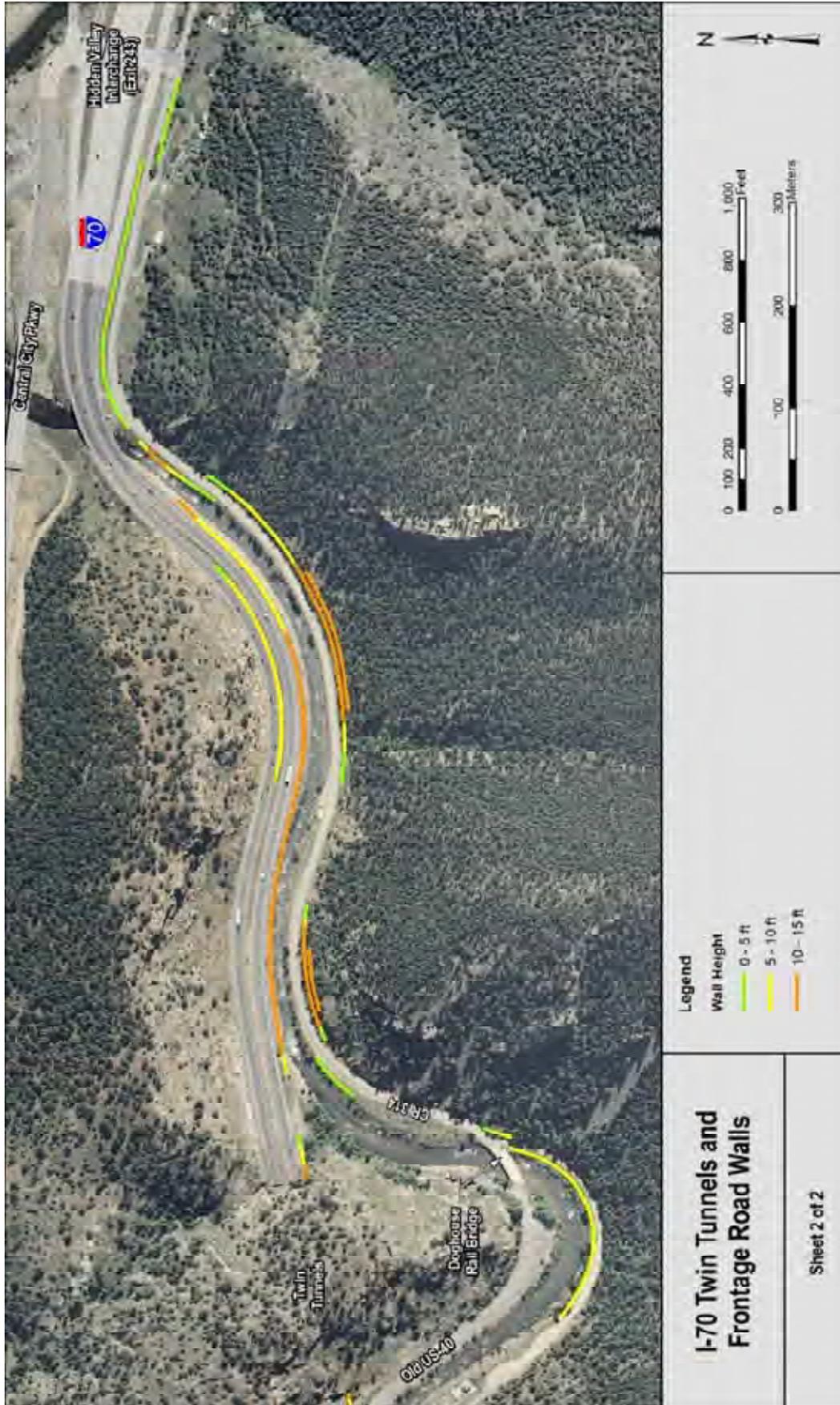
Figure 21: Cumulative View of Walls east of Twin Tunnels



Figure 22: Sheet 1 - I-70 Frontage Road Project and Twin Tunnels Project Wall Locations and Heights



Figure 23: Sheet 2 - I-70 Frontage Road Project and Twin Tunnels Project Wall Locations and Heights



## 4.0 References

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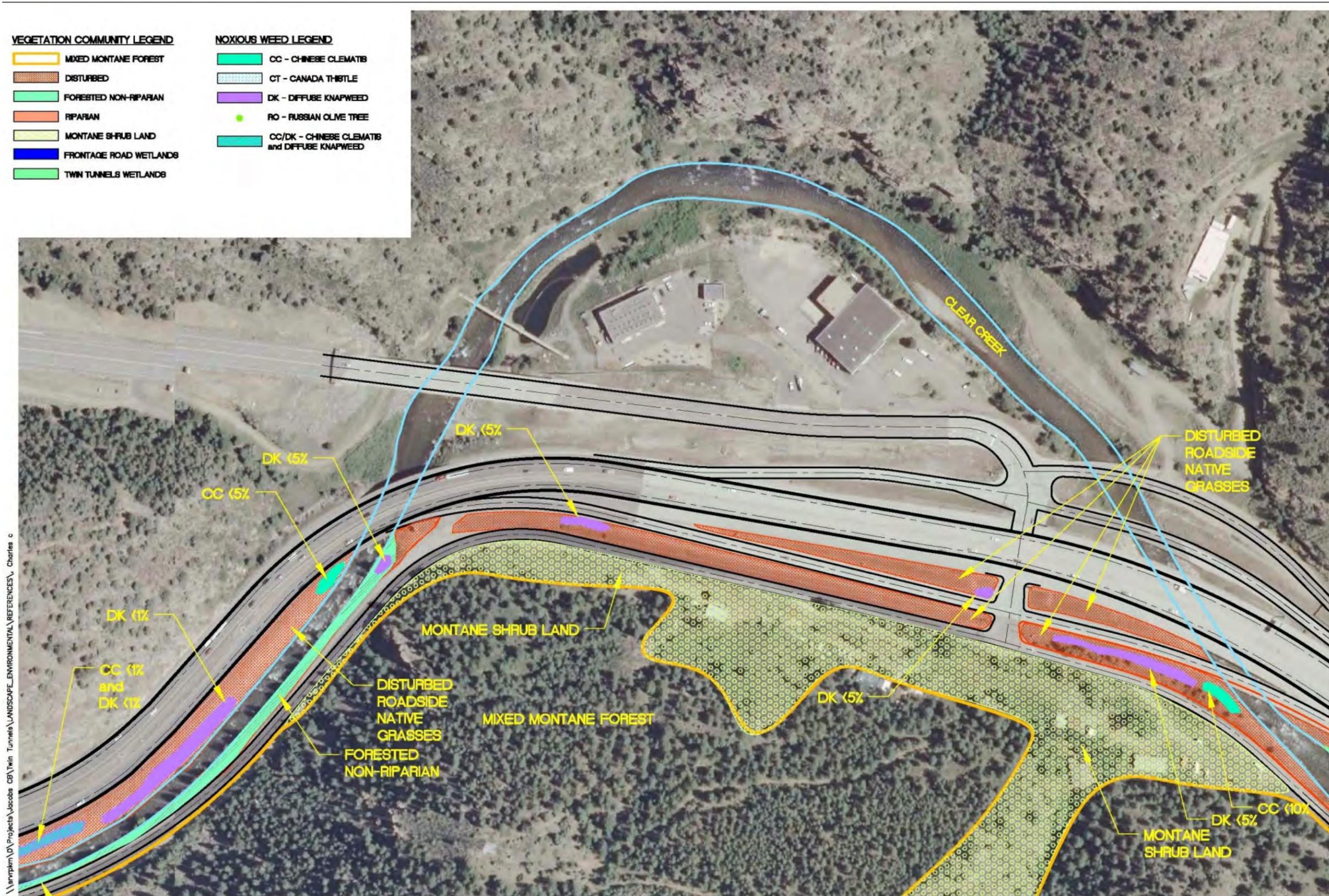
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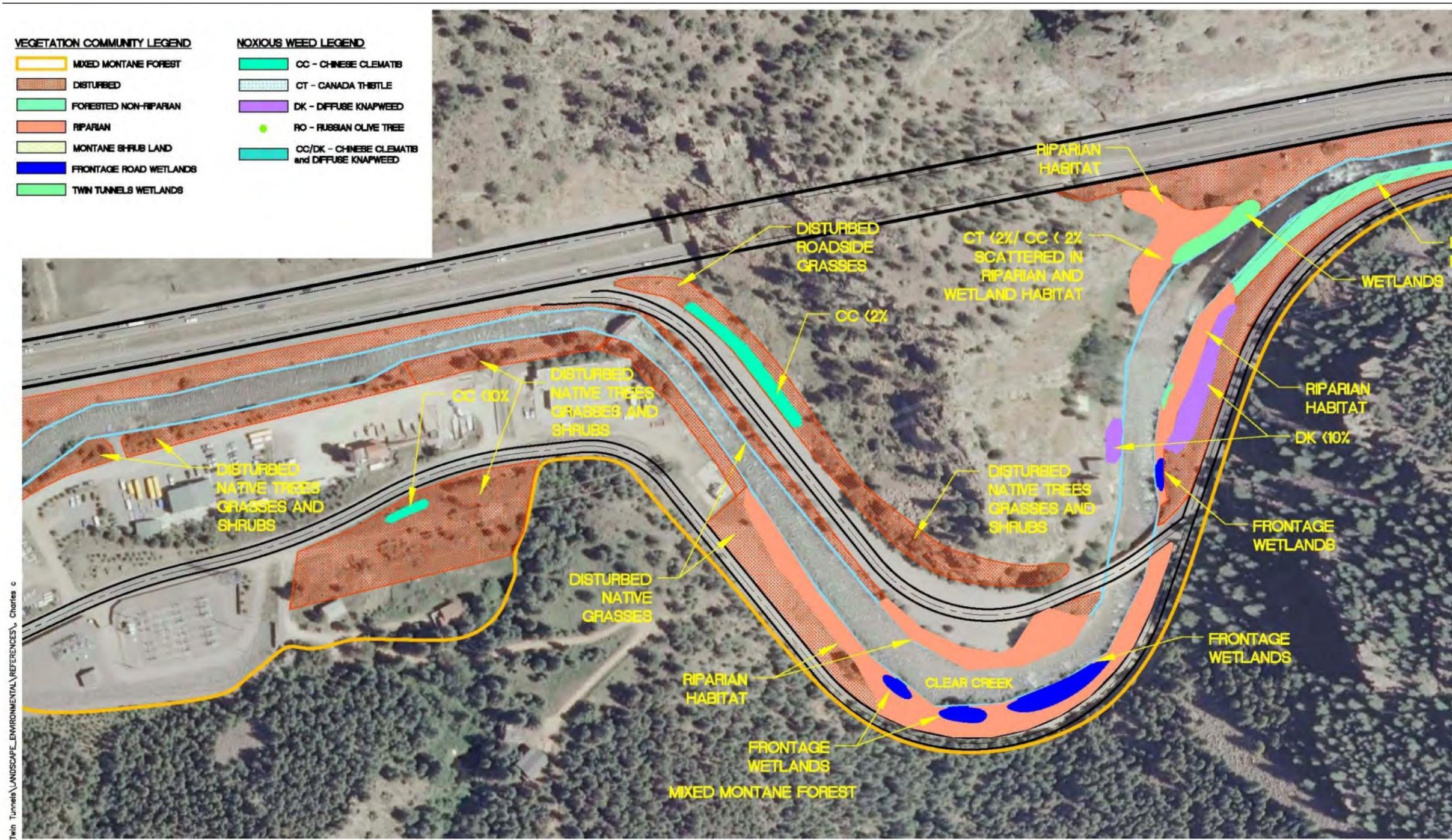
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## Appendix A: Noxious Weed Survey Maps



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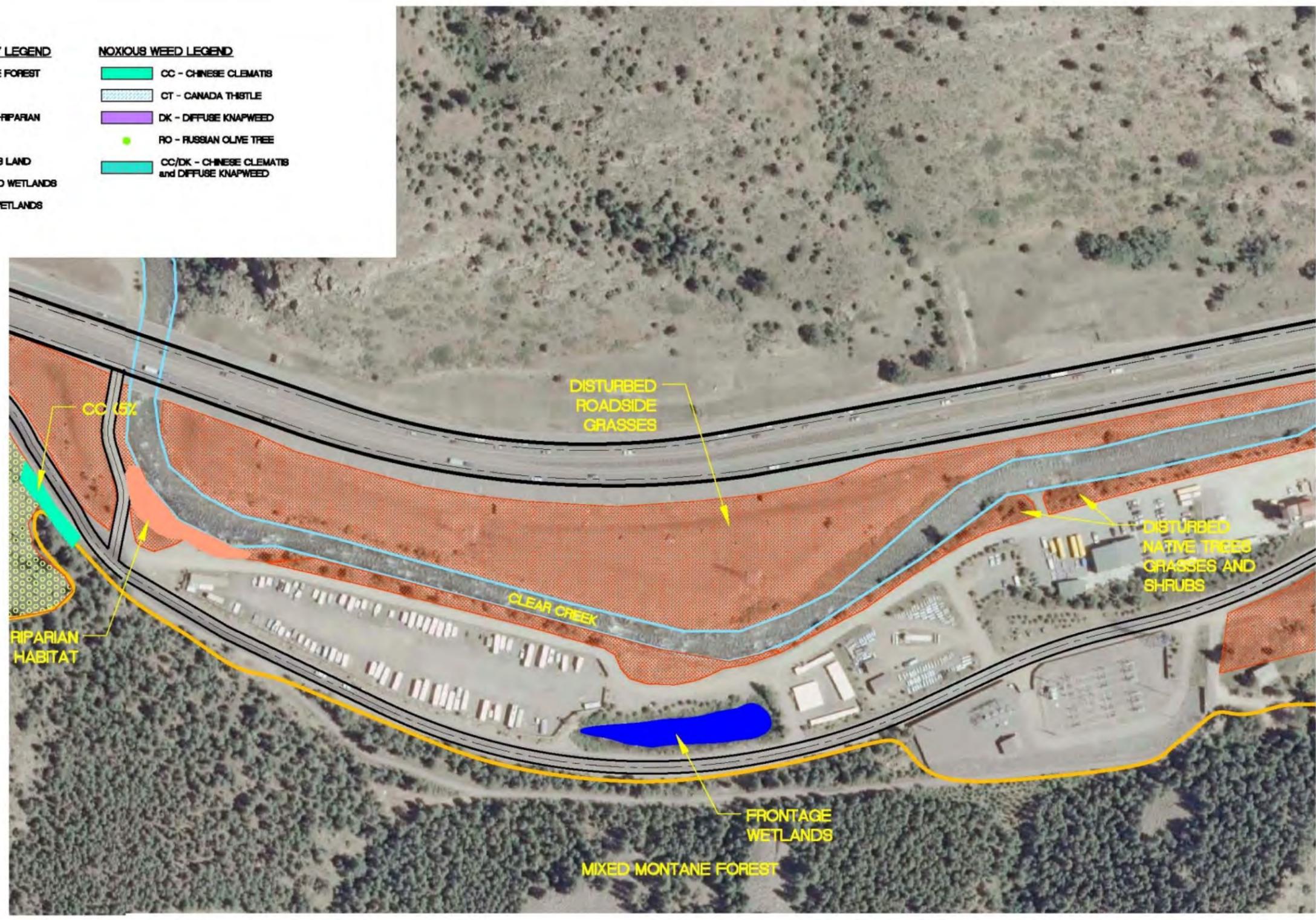


**VEGETATION COMMUNITY LEGEND**

- MIXED MONTANE FOREST
- DISTURBED
- FORESTED NON-RIPARIAN
- RIPARIAN
- MONTANE SHRUB LAND
- FRONTAGE ROAD WETLANDS
- TWIN TUNNELS WETLANDS

**NOXIOUS WEED LEGEND**

- CC - CHINESE CLEMATIS
- CT - CANADA THISTLE
- DK - DIFFUSE KNAPWEED
- RO - RUSSIAN OLIVE TREE
- CC/DK - CHINESE CLEMATIS and DIFFUSE KNAPWEED



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