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**1.1 ENVIRONMENTAL-RELATED INPUT RECEIVED FROM PUBLIC SCOPING ACTIVITIES**

The majority of the input received from public scoping activities is related to definition of the proposed action, other alternatives that should be considered (such as BRT and a tramway), needing to demonstrate that the proposed action will not preclude development of an AGS system and how this action is compatible with other actions in the area.

From an environmental impact perspective, the primary input we received during the public scoping process were the concerns expressed in the draft letter from Trout Unlimited, concerns expressed in the email from Joann Sorensen and the concerns expressed during the public meeting related to effect to the Scott Lancaster trail. These concerns are summarized here.

- Mineralization of the rock in the area and the potential for that to contaminate Clear Creek. The EA needs to determine the mineral profile of the rock and if found to be a concern, develop mitigation commitments to protect the Creek
- Effects of disturbing the mine waste that may have been used for a road base and development of mitigation to protect the Creek
- Potential for enhancement of Clear Creek, working together with the SWEEP team
- Need to address short term and long term runoff and sediment pollution
- Need to identify a plan for disposal of solid water from the tunnel
- Potential for enhancement of a raft launch site just east of the tunnels
- Will bike lanes be improved to be at least as good as they are now?
- During the detour, will there be continuous paved access for bikes, like there is now?

**1.2 ENVIRONMENTAL-RELATED INPUT RECEIVED DURING AGENCY SCOPING**

The primary environmental related input received during the agency scoping activities included:

- Will permitting for stormwater discharge be handled with an individual permit?
- Need to address TMDLs for cadmium
- Will need to develop specifics related to what is needed from CDPHE for a Construction Permit for fugitive dust
- CCC has no county ordinances for fugitive dust. The County follows state guidelines

- This is an attainment area for all air pollutants. The ozone area will not be expanding this far west. Need to address construction emissions only
- The EPA letter of October 6, 2011 addressed several specific environmental resource considerations:

**Air Quality.** One of the bullets under Climate and Air Quality Resources in Table 1 Mitigation Strategies in the Record of Decision (ROD) for the I-70 Mountain Corridor Programmatic EIS committed to conducting air quality monitoring during construction, including PM<sub>2.5</sub>, for Tier 2 projects. On the CDOT scoping form for this project, developing a methodology for assessing PM<sub>10</sub> was listed under the Air Quality as a consideration. The EPA recommends that both PM<sub>10</sub> and PM<sub>2.5</sub> be monitored. PM<sub>2.5</sub> would address emissions from combustion, primarily diesel engine emissions, while PM<sub>10</sub> would deal more with dust concerns. Also, the Draft EA should ensure that the mitigation measures committed to in the ROD will be implemented by CDOT for the Twin Tunnels project.

**Water Quality.** The section of Clear Creek in the 3-mile project corridor is listed as impaired for cadmium under the Clean Water Act (CWA) Section 303(d). Besides cadmium, other mining wastes such as zinc and pH may be present in this reach at elevated levels due to historical mining operations in the area. Therefore, CDOT should ensure that no further degradation related to the project occurs. In addition, the EPA recommends that CDOT apply for an individual stormwater construction permit.

**Wetlands.** The EPA understands that initially the project team had thought that the project would not exceed 0.5 acres of impacts to Clear Creek and wetlands that could allow for an expedited CWA Section 404 permitting process. Subsequently, the EPA has learned that there may be greater impacts. The EPA appreciates that CDOT will be working closely with the signers of the Stream and Wetland Ecological Enhancement Program Memorandum of Understanding to ensure that “appropriate mitigation strategies, including design, implementation and monitoring for anticipated environmental impacts likely to occur as a result of redevelopment of the I-70 Mountain Corridor” will be implemented.

**Noise.** The CDOT scoping form states, “May need a separate construction noise assessment, especially for detour route.” The EPA recommends performing this noise assessment, particularly because plans call for construction on a 24-hours a day, 7-days a week schedule.

**Peak Period Pricing.** The EPA understands that CDOT is considering tolling the new third lane during peak periods and that this initiative is part of a new policy that will help subsidize new transportation projects. At the agency scoping meeting, Denver Regional Council of Governments suggested that having a tolled lane might increase weaving and negatively impact two of the primary needs for this project—to increase safety and mobility. The EPA recommends that CDOT evaluate and address those concerns.

- The US Forest Service letter of October 11, 2010 addressed several potential indirect impacts to specific resources, as follows:

**Air Quality.** Short-term increase in dust and emissions from construction activities, along with the potential for long-term impacts resulting from increased emissions to the James Peak and Mt. Evans Wilderness Areas.

Cultural/historic. Short-term increase in noise and disruption during construction activities and the potential for long-term impacts resulting from increased road noise to the Clear Creek Ranger District Work Center which is within the Area of Potential Effect.

Recreation. Short-term impacts on forest recreational users during construction activities.

Solid waste/hazardous material. No disposal or release of solid or hazardous waste materials on National Forest System lands.

Water. Potential for erosion/sedimentation impacts resulting from modifications to Clear Creek in the Twin Tunnels area.

Wildlife/Fisheries. Short-term increase in disturbance to wildlife species due to noise, lighting, and other construction activities. Long-term impacts to movements of wildlife indigenous to National Forest System lands using the natural land bridge over the Twin Tunnels as an over pass to I-70 as a result of increased noise and lighting. Of particular note are potential disruptive impacts to the Georgetown bighorn sheep herd which uses this area regularly. They are a Forest Service sensitive species and should be specifically addressed in the EA.

- The September 29, 2011, DRCOG letter received during the scoping process expressed a recommendation that the tolling options should be examined, including tolling all three eastbound lanes all the time, congestion pricing of all three lanes during peak periods, and pricing of the new eastbound managed lane during peak periods. The letter also clarified that the project needs to be added to the DRCOG Plan under a plan amendment process.

### 1.3 REVISED ENVIRONMENTAL CONSIDERATIONS CHART

Based on this input, the Environmental Considerations chart has been revised.

TOPICS	CONSIDERATIONS
Air Quality	Coordination between CDOT, APCD, and DRCOG; dust emissions from tunnel boring likely high concern - discuss approach with APCD; currently in an attainment area, won't need MOVES modeling or hot spot analysis, confirm with APCD; boundaries of ozone area may change and include Clear Creek County; MSATs; updated traffic; tunnel emissions and ventilation. EPA recommends that both PM 2.5 and PM 10 be monitored during construction
Archaeology	Several recorded sites; one known eligible site won't be affected; intensive survey required
Cumulative Impacts	Limited effects of induced growth; Section 106 cumulative effects analysis; likely evaluation of cumulative effects to wildlife / fisheries
Environmental Justice	Tier 1 concerns from EPA and Clear Creek County; Tier 2 commitments to update and expand analyses; few residences directly within the project area; tolling impacts; detour impacts - commuting and access to jobs; 2010 Census data indicates areas of minority and low populations in project area
Farmlands	No farmlands in project area
Floodplains	Clear Creek channelized throughout; flood hazard zone throughout project area; portions of highway may be in floodplain, particularly east of tunnels
Hazardous / Solid Wastes	Historic mining sites and mill site locations in area and of concern to residents and agencies. Disturbance of mineralized rock formations may expose allow heavy metals to enter Clear Creek through stormwater runoff. Disposal of waste rock material from tunnel blasting.

TOPICS	CONSIDERATIONS
Historic Bridge	Confirm through survey but none recorded or likely
History	Potential Adverse Effect to twin tunnels; PA in place; separate mitigation agreement required; Draft APE has been reviewed by Section 106 consulting parties and, as a result of comments, has been expanded in several locations. APE for survey reflects revised APE boundary.
Land Use	Coordination / consistency with Idaho Springs Visioning and Greenway Plan
Native American Consultation	PA in place; no sites of known significance to Native Americans identified in this area in PEIS; tribal coordination has been initiated for this project
Noise	PEIS analysis based on representative locations. Existing noise measured at one location (M1) east of 241 on north side of I-70 modeled at 65 dBA (near NAC of 66 dBA); construction noise and valley/tunnel effect of concern; may need separate construction noise assessment, especially for detour route. Three (at least) sensitive receptors south of I-70; effects of noise on Clear Creek recreation; new noise guidance; updated traffic – for both tolling and non tolling. EPA recommends a separate noise assessment for construction be performed because the noise will be 24 hours a day, seven days a week.
Noxious Weeds/Weed Management Plan	Six designated noxious weeds present in Clear Creek County; standard BMPs and Noxious Weed management plans to be implemented
Paleontology	Early Proterozoic metamorphic rock units (no fossils) surround the project area; low potential around Clear Creek; field survey to be conducted
Public Involvement	Public coordination needed for multiple projects (frontage road, AGS, past studies); first tier 2 for CDOT; coordination with resource agencies; CSS process; SWEEP and ALIVE MOUs; Section 106 PA; PLT; I-70 Coalition; CE check-in; tolling issues
Recreation	Fishing, hiking, trails, and rafting. Access and economic impacts, particularly for rafting industry. Possible effect to Scott Lancaster bridge and Scott Lancaster trail; construction impacts to Clear Creek recreation uses; coordination/joint planning for future recreation sites associated with the Clear Creek County Greenway.
Right of Way	Improvements mostly, maybe completely, within ROW; one private parcel and USFS-administered land could be affected
Safety	Safety assessment to be updated and analysis isolated to project area; emergency response is concern in design and during construction; crash data to be obtained from Idaho Springs Police Dept.
Section 4(f) / 6(f)	Critical path – both recreation and historic sites present; adverse effect to twin tunnels; possible effect to Scott Lancaster bridge and Scott Lancaster trail; construction impacts to Clear Creek recreation uses; coordination/joint planning for future recreation sites associated with the Clear Creek County Greenway; will need to evaluate avoidance alternatives such as the viaduct over the Twin Tunnels; land bridge is not 4(f) because it is privately owned. Need to address maintenance of bike use during the detour.
Senate Bill 40	Alternatives may affect Clear Creek and associated riparian habitat along it
Socioeconomics	I-70 important to local & state economy; congestion and unmet demand affect both; REMI model used for PEIS aggregated economic data; tier 2 to focus on county-level impacts and benefits; construction impacts on social and economic values highly important to Clear Creek County; 2010 Census update; local economic impacts of recreation, especially rafting access and permits.
Storm / Water Quality	Clear Creek is listed as impaired for cadmium. SCAP and SWEEP MOU; tunnel discharges; effects of mine wastes and mineralized rock veining; winter maintenance activities; quality in Clear Creek is degraded due to sedimentation and heavy metal concentrations; SPWRAP (South Platte Water Related Activities Program); MS4 compliance may be required; construction dewatering. EPA recommends CDOT apply for an individual stormwater construction permit. EPA also states that CDOT shall ensure no further degradation to Clear Creek occur as a result of this project.
T or E Species	Scoping input from USFWS is that only T/E issues to address are downstream effects to S Platte River

TOPICS	CONSIDERATIONS
Traffic	Traffic studies conducted for zipper lanes to be modified and updated for project area (to isolate effects of tunnel improvements on congestion); likely concern of traffic impacts during construction. Impacts to pedestrian and bike access, particularly commuting, during construction.
Vegetation	Tier 2 commitment to assess pine beetle effect on habitat and forests; can likely use/reference USFS pine beetle assessment
Visual	Project area in valley, and improvements will be visible; visual changes to the Twin Tunnels will need to consider effects to historic integrity; aesthetic guidelines and area of special interest
Wetlands and Waters of the US	Wetland fringes along Creek Creek; WUS (Clear Creek) adjacent to project; SWEEP coordination; SCAP currently under development but primarily affects wetlands upstream of project area; 404 permit likely required; effects to downstream species. Disturbance of mineralized rock formations may allow heavy metals to enter Clear Creek through stormwater runoff.
Wildlife / Fisheries	Land bridge is important wildlife crossing; big horn sheep habitat; Clear Creek aquatic habitat; effect to Trout Unlimited Clear Creek restoration project a concern; SWEEP and ALIVE MOUs; noise impacts on wildlife; linkage interference zone (LIZ) identified as a barrier for wildlife movement at east end of project area

#### 1.4 NOTES FROM FIELD MEETINGS

On September 21, 2011, a field review meeting was held. Notes from that field meeting are included below.

##### **Hazardous and Solid Wastes**

(Marc Morton, CDOT Region 1 Environmental Unit)

We toured the project site, and received a briefing on the project elements and proposed action (Concept Package 2) and the phased “detour” project, which is being evaluated separately as a Categorical Exclusion. The detour will allow movement of eastbound I-70 traffic around the Twin Tunnels to facilitate construction and expansion of the EB bore, and widening of eastbound I-70. Based on my understanding, we (myself and Ms. Evans) will conduct Hazardous and Solid Waste resource evaluations for both the EA and the detour project (requiring separate submittals), although there is some overlap in the two projects limits and issues of concern.

For the purposes of the EA, it is my understanding we are to consider the detour project to be an “existing condition”, or a built feature as it pertains to the EA.

##### **Major Findings**

It is recognized and well understood that the project falls within the recognized limits of the Colorado Mineral Belt, and naturally elevated concentrations of various elements (primarily metals) are not uncommon. The area has a history of hard-rock mining, and the PEIS provides some information on location and identification of former mill and mining-related sites in the project vicinity, which will need to be verified and updated as needed. Therefore, there is a need to establish common ranges of “background” concentrations of contaminants (primarily metals) for use prior to, and during construction, and identification of applicable solid and hazardous waste regulations to guide materials management during construction.

It is also recognized and well understood that the project falls within the boundary of Central City—Clear Creek Superfund site, but my understanding is there are no active, proposed, or past areas of remediation or “Operable Units” within the project limits. Verification of this finding is needed, via review of available files, documents, websites, and inquiry of regulatory agency (EPA and CDPHE) personnel.

Other items discussed or considered include:

- Need to establish clear project limits/areas of disturbance, as well determination and verification of any right-of-way acquisitions (including easements).
- The need to schedule and conduct a focused field reconnaissance in the next 1 to 2 weeks to locate and identify sites/issues of concern within the limits of both projects.
- The need to identify “Recognized Environmental Conditions” via applicable investigative tools, methods, and field observations, in general accordance with CDOT guidelines and ASTM E1527-05 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.
- The need to identify areas of known or suspected fill materials (engineered or other placed fill) within the project limits that may be disturbed by project construction.
- The potential to task the contracted geotechnical consultant to collect, if needed, “environmental” samples for chemical analyses.
- The assessment and determination of action levels for contaminants (primarily metals), and establishment of “background” ranges of concentrations, and establishment of trigger levels to guide options for reuse or disposal of materials generated during construction.
- The need to coordinate significant findings with other resources significant findings with other related resource evaluations (i.e. Water Quality, Geology, etc.)

**Other items to note:**

It was recognized that the I-70 bridge east of the Twin Tunnels (at Mile Marker 243) contains painted elements (girders). Modification of this bridge is included as part of the EA proposed action. Due to the age of this bridge, the use of lead-containing paint (LCP) in its construction is possible, and the bridges removal may likely require appropriate specification or general notes regarding handling and disposal of painted structural elements. Inquiry will be made regarding LCP surveys on this bridge (and others in project limits) conducted to date (for LCP), and for prior surveys (of CDOT bridges) for the presence of Asbestos Containing Material in regulated quantities.

**Section 4(F)**

(Gina McAfee, Jacobs Engineering)

The primary purpose of the Section 4(f) field work was to GPS the existing parks/recreational facilities in the field. The focus of the field work was existing sites since all planned recreational facilities associated with the *Clear Creek County Greenway Plan* are assumed to be handled as an exception to Section 4(f), per 23 CFR 774.12 (i). The frontage road project will be working with Clear Creek County to obtain this agreement.

The field work included the Scott Lancaster trail and bridge, rafting access points and fishing access points. There were spots that deviated from those identified in the *Clear Creek County Greenway Plan*—one new rafting access point and one rafting access point that had

been identified on the Plan but was not apparent in the field. Many of these locations are not maintained, but serve as informal access points, therefore their boundary is ambiguous. The boundaries delineated during this field visit were generally based on the limits of the pull-outs as determined by the presence or absence of vegetation.

We talked with a representative of the Clear Creek Rafting Company who requested consideration of improvements to the take out spot just across from Kermitts.

The trail is used by Bike Jeffco, who sponsors bike rides along the trail/frontage road. Some local bicyclists use the trail to ride from Idaho Springs to Kermitts. There are people fishing who use the trail to access Clear Creek. The Clear Creek County Greenway Plan is also intended to be used as an alternate emergency access route for emergency vehicles

### **Biological Resources**

(Francesca Tordonato, Jacobs Engineering)

#### ***Wetlands and Waters of the U.S.***

Due to the steep gradient of Clear Creek (and steep, armored banks) within the project area, wetland presence along the project corridor is limited (wetlands primarily occur as small fringes or benches along the banks of Clear Creek). The wetland survey conducted for the project will also include mapping the ordinary high water mark (OHWM). Riparian habitat is also limited within the project area.

\*Note: Due to the steep banks of Clear Creek within the project area (and safety concerns accessing the north banks from I-70)—I inquired as to whether or not it would be possible to have the surveyors assist with mapping the ordinary high water mark (I discussed this with Bob Quinlan). We could also work with the hydraulic engineers and use the two year flood event as an estimate of the OHM. We need to discuss this approach with the Corps/hydraulic engineers.

We also need to obtain a figure that shows the extent of the proposed frontage road improvements (we will utilize this during our wetlands/waters of the U.S. inventory). A request has been submitted to Janet Gerak to obtain survey limits from Baker.

#### ***Wildlife Concerns***

Part of the proposed action for the project includes utilizing the old US 40 roadway south of the Twin Tunnels as a detour route, tying into the County's frontage road. The Twin Tunnels project includes evaluation of the impacts of using this as a detour. The temporary impact to wildlife movement (primarily large mammals such as deer and elk) is a major concern at this location because the rocky outcrop/Twin Tunnels acts as a land bridge that facilitates wildlife movement and allows larger mammals to cross I-70 safely, moving from Clear Creek up the slope north of I-70.

\*We need to schedule an onsite meeting and start coordination with the CDPW to discuss temporary impacts and specific mitigation strategies to facilitate wildlife movement at this detour location. Coordination will also be necessary to discuss impacts and potential mitigation strategies for bighorn sheep (I know fencing has been proposed in the vicinity of the Twin Tunnels).

## **Geology and Water Resources/Quality**

(Lauren Evans, Pinyon Environmental)

1. At Stop 1 (next to Clear Creek Rafting) (Pictures Pinyon09212011 Picture 1—Picture 3)
2. Will likely need a small toe wall to widen road above creek.
3. Walked to the tunnel (Pinyon 09212011 Pictures 4 and 5). Talked to Mike Crouse, who pointed out an area to the south of I-70, and west of our stop, where fill from the project might have been placed along the creek (Pinyon 09212011 Picture 4)
4. At Stop 2 (I-70 bridge over Clear Creek)
5. Will be replaced with a new bridge, which will include at least one drilled pier on the west side and several abutment walls. These will potentially be located in the current bank. Westbound bridge remains as is.
6. Bridge includes steel beam (painted, with flaking paint) (Pinyon 09212011 Picture 6)
7. Stop 3 (I-70 at US 6 exit, next to Kermitts)
8. Talked to Marc Morton, CDOT. He has an old picture of Kermitts that indicates it might have been a gas station
9. Will expand the decal lane from eastbound I-70. Will include a new cut that will be in the concrete slope paving, adjacent to the westbound lanes.
10. Miscellaneous
11. Rick Andres believes the retention basin will be on the east side of the tunnel
12. Marc Morton, Lauren Evans and Mike Crouse will conduct a future site visit once the historical information has been reviewed in more detail, and the regulatory agency database obtained.
13. Lauren Evans will expand her search area slightly to include all of the areas required by the Frontage Road evaluation. This increase will be mainly related to the north side of I-70 at Hidden Valley, as the bike path could be located in that area. (see Pinyon 09212011 Picture 7).

## **Noise**

(Larry Sly, Wilson and Company)

There appear to be very few CDOT Noise Abatement Criteria (NAC) activity category receptors within the project area and the 500 foot bubble beyond the project limits. The following potential NAC B and C receptors were identified during the initial field review:

- NAC Activity Category B residential receptors—There are roughly four(4), possibly five(5) homes located several hundred feet south of I-70 at Hidden Valley along the frontage road. Several of these homes may be within the future ROW of the frontage road improvements. One (1) home located south of the eastern portal of the Twin Tunnels will be purchased as part of the project and is not a concern. Three (3) homes located south and west of the western portal, behind the rafting company facility, are within roughly 475 feet of I-70 and 100 feet of the frontage road. One (1) other potential home is located a couple 100 feet south of the Idaho Springs EB on-ramp. All of these properties are on large lots.
- NAC Activity Category C recreational receptors—The Scott Lancaster Memorial Trail,

Creek Side Trail, potential park at the old sewage treatment site, proposed recreation resources at the Old Game Check Area, along with various boat access areas and fishing access areas were identified.

### **Socioeconomic Resources and Land Use**

(Colleen Roberts, CH2M Hill)

In conjunction with the group, we toured the project site, and received a briefing on the project elements and proposed action (Concept Package 2) for the Twin Tunnels EA and the adjacent Clear Creek County frontage road improvements, which are being evaluated under a Categorical Exclusion. The frontage road will likely be used as a detour during tunnel construction. CH2M HILL will conduct socioeconomic and land use resource evaluations for the EA.

Mary Keith Floyd at Michael Baker is the environmental lead for the frontage road CE and noted that she has information already gathered on Clear Creek County development plans that she will forward to me.

The detour will require vehicles to slow to approximately 35 mph as they turn south off of I-70 onto the detour route. Vehicles will remain at a similar reduced speed for the entirety of the detour. The detour will pass very close to the Scott Lancaster Memorial Bridge, which is used to carry bicyclists and pedestrians over Clear Creek. The design team currently believes the bridge can be left in place. Janet Gerak indicated that the county is comfortable with the bridge being relocated if it is needed.

The existing truck chain-up area immediately east of the east Idaho Springs interchange will likely be eliminated. A possible location for a new chain-up area is immediately west of the US 6/I-70 interchange.

Land uses south of I-70, west of the Twin Tunnels are commercial and industrial. The Clear Creek Rafting Company, Aggregate Industries, and a sewage treatment plant all operate in this area. The Scott Lancaster Memorial Trail and bridge generally follow the frontage road south of the project area and provide east-west pedestrian and bicycle mobility. A residence is located south of the east tunnel portal. No other residences or commercial buildings exist adjacent to the proposed I-70 improvements. Several residences are located on the south side of the frontage road in the detour area.

Few property acquisitions are expected to occur. The effects of construction-period traffic congestion and long-term operations on the Clear Creek County and Idaho Springs economy and emergency response will need evaluation in the EA. Indirect effects of construction-period detour route traffic on adjacent residences and local travelers may also need evaluation.

#### **Floodplains**

We have not contacted CDOT (Al Gross) specifically about the Clear Creek floodplain. During the site visit, we briefly discussed the existing floodplain mapping (Zone A) and lack of detailed study. As the hydraulic model for Clear Creek is developed to calculate an estimated 2-yr wsel, additional coordination with Al Gross, CDOT, can be conducted to also generate an estimated 100-yr wsel to confirm the Zone A floodplain delineation and

estimated 100-year wsel generated from the contour interpolation method. However, a detailed hydraulic analysis of Clear Creek is not scheduled to be prepared and at this time no Conditional Letter of Map Revision or FEMA submittal is being prepared.

### **Water Quality**

(Mike Crouse, CC Consultants)

This summary is based on the initial draft of maps for the Twin Tunnels project and field trip to the Twin Tunnel and Frontage Road areas. These observations will be elaborated upon further in conjunction with SWEEP and SCAP in the context of water quality improvement. The PLT and local residents are watching this project closely to see if CDOT will follow through on the commitments made in SWEEP and ALIVE. Providing some water quality improvements in either project is strongly recommended.

#### ***Interstate 70***

14. EB I-70, between MP 241.5 marker and 60 MPH speed sign, south side:
15. The I-70 cut goes through a highly mineralized rock knob that includes outcrop and finer material. The outcrop is on both this cut and the higher cut for the Frontage Road. The outcrop next to I-70 is partly covered with finer material that may also be remainders of a mine waste site. The finer material can increase both sediment and metals in Clear Creek.
16. EB I-70, chain-up area between Clear Creek and Twin Tunnels:
17. Runoff from the chain-up area and highway goes behind the current guardrail location and erodes the fill slope as it drains directly into Clear Creek.
18. Hidden Valley CDOT Maintenance Yard:
19. There can be liquid or solid deicer salts coming from the equipment that is parked outside. Drainage appears to run to an inlet in the middle of the yard, and also toward the east end of the yard to an inlet outside the fence next to I-70.
20. I-70 where super-elevation causes drainage towards Clear Creek:
21. It is apparent that where I-70 is super-elevated towards Clear Creek, there is erosion of the fill into Clear Creek and loss of guardrail stability caused by highway runoff.
22. The riprap rundown eastbound at the six-lane Hidden Valley bridge that is not functioning causing additional erosion.
23. The old eastbound bridge that is to be replaced has similar slope erosion into Clear Creek.
24. Bridge Drains:
25. Not sure if the bridges currently drain directly into Clear Creek or not. They should drain to the sides, then down a rundown pipe to avoid erosion loss of fill near the bridge abutments.
26. WB I-70 and Median Inlets:
27. Much of the runoff and entrained sediment along I-70 comes from the cut slopes which drain to the highway template. Also, drainage from the highway is toward the north (westbound) side in many areas while the eastbound lane drains to median inlets. Inlet protection should be considered to reduce sediment and other contaminants from entering Clear Creek.

28. The condition of these inlets and cross drain pipes to function properly is unknown.

**Frontage Road**

29. Cut Slopes

30. Several valleys between the rock knobs along the Frontage Road (Phase I) are producing sediment that runs onto the road or into drainage inlets to Clear Creek.

31. The condition of these inlets and cross drain pipes to function properly is unknown.

32. Frontage Road Dirt Portion:

33. The dirt portion of County Road 314 is a continuous source of sediment to Clear Creek and this road is used heavily to accommodate overflow traffic from I-70.

## **1.5 TIER 2 CONSIDERATIONS FROM THE PEIS**

### **Climate and Air Quality Resources**

The lead agencies will conduct project-specific Tier 2 processes in accordance with Federal Highway Administration (FHWA) and Environmental Protection Agency guidance available when analyses are conducted. Tier 2 processes will include localized air quality modeling (such as hot spot modeling for carbon monoxide and particulate matter) where appropriate in designated non-attainment or maintenance areas. Proposed projects will also need to demonstrate conformity with regional air quality plans. The lead agencies will comply with current practices and standards for modeling and estimating air pollutants and will use the Environmental Protection Agency's latest air quality model, MOVES, where appropriate.

Tier 2 processes will include more detailed analysis of environmental effects, including data for emissions in interim years, between the year of construction and the design year. The Environmental Protection Agency, a federal agency, requests MSAT analysis and mitigation during Tier 2 processes. The traffic volumes will generally exceed the level at which FHWA guidance requires quantitative emissions analysis. In populated areas along the Corridor, this analysis will be performed according to the most current FHWA guidance. New nitrogen dioxide standards will also be included in Tier 2 processes. Future scoping and coordination will be performed when Tier 2 process are initiated to ensure adequate analysis.

### **Biological Resources**

Lead agencies will conduct further analysis of direct and indirect impacts on biological resources, including protected species, during future project-specific Tier 2 processes. The following actions are included:

- Lead agencies will perform surveys for protected species and their habitat. The United States Fish and Wildlife Service, United States Forest Service, and Colorado Division of Wildlife will provide relevant and updated species lists. This information will be incorporated into the project's design to avoid or minimize effects on such species. Lead agencies will complete a biological assessment and biological report, using the Tier 1 process as a foundation, to analyze impacts on protected species.
- Lead agencies will determine the effects on federally listed species that occur downstream from the I-70 Mountain Corridor in coordination with the United States Fish and Wildlife Service.
- Lead agencies will discuss the influence of the mountain pine beetle on the forested

communities and its effects on wildlife habitat, in coordination with the United States Fish and Wildlife Service and United States Forest Service.

- Lead agencies will evaluate potential mitigation for winter maintenance and noise effects based on current research.
- Lead agencies will adhere to any new or revised laws or regulations pertaining to biological resources.
- Lead agencies will develop specific best management practices for each project.
- Lead agencies will develop specific and more detailed mitigation strategies and measures.
- Lead agencies will consider opportunities for enhancement on a project-by-project basis.
- Lead agencies will evaluate fisheries, including localized temperature concerns.
- Lead agencies will develop a Tier 2 Biological Impacts Plan to include analysis of sensitivity zones, terrestrial impacts, habitat connectivity, and cumulative impacts.
- Lead agencies will fulfill responsibilities set forth in the ALIVE and SWEEP Memoranda of Understanding.

### **Wetlands and Other Waters of the U.S.**

Tier 2 processes will include the following:

- A delineation of all wetlands in each project area, using the latest approved USACE methodology.
- Identification and analysis of impacts to fens for each specific project and in-depth field studies to identify potentially affected fens. In such cases, project plans will need to be modified to avoid affecting these areas.
- Functional Assessment of wetlands within the Corridor using the Functional Assessment of Colorado Wetlands (FACWet) Methodology.
- Analysis to separate jurisdictional and non-jurisdictional wetlands for permitting the specific alternative.
- A more detailed analysis of direct and indirect impacts on wetlands and other waters of the U.S.
- Development of specific and detailed mitigation strategies and measures.
- Development of specific best management practices for each project.

### **Water Resources**

Some of the water quality impacts cannot be assessed fully until additional details are known about design, pier placement, and roadway cuts. The following types of impacts could result from the Action Alternatives and will be investigated in detail during Tier 2 processes:

- Phosphorus concentrations in highway runoff impacts water quality.
- A decrease in stream flow caused by drought conditions lowers the stream's ability to dilute contaminants and might lower the amount of acceptable pollutants allowed in the stream.
- Further analysis of permanent stormwater best management practices along the Corridor could verify that potential reductions to stream concentrations of priority constituents could be achieved by the alternatives beyond existing annual conditions.

- Potential water quality issues arising from disturbance of mine tailings and therefore, metal loading, analyzed as part of detailed Regulated Materials and Historic Mining analysis.
- Evaluation and identification of permanent mitigation measures for specific issues could include structural controls (beyond the Black Gore Creek and Straight Creek Sediment Control Action Plan and the Clear Creek Sediment Control Action Plan that is currently under development).
- Specific identification of stream disturbance during construction, including construction disturbance areas, channelized segments, pier placement, and structural modifications (for example, embankment walls, cantilevered sections, or elevated structural segments and bridges). The USACE requires compliance with the Clean Water Act that requires Section 404 permitting of temporary and permanent impacts on stream flow and channels. Each Tier 2 process will determine the need for a Section 404 permit for the site-specific project being constructed under that process.
- Tunnel discharges are typically considered point source discharges under the Clean Water Act and require a Section 401 permit for dewatering. Further study will be necessary during Tier 2 processes to identify if any new tunnels will require permits and/or water treatment systems. Water rights issues must also be considered in the context of water law for new groundwater discharges or depletions of groundwater wells.
- Impacts associated with washout of sand onto bike paths.
- Impacts from Straight Creek runoff on the Blue River.
- How mitigation strategies developed by the SWEEP Committee will be incorporated in the project design will be specified.
- Additional data on subsurface conditions will be collected and analyzed to assess various construction techniques, particularly for tunnels, and their potential effects on groundwater sources.

### **Geologic Hazards**

Tier 2 processes will involve a more detailed analysis of the geologic hazards present in the Corridor and identify specific mitigation measures that will be required. For alternatives requiring tunneling, Tier 2 processes will address impacts of blasting activities and the disposal of waste materials. In locations where a strong potential for rockfall or avalanches exists, Tier 2 processes will consider the options that may be used to avoid or contain debris.

During Tier 2 processes, the lead agencies will accomplish the following activities:

- Develop specific and more detailed mitigation strategies and measures
- Develop best management practices specific to each project
- Adhere to any new laws and regulations that may be in place when Tier 2 processes are underway

### **Regulated Materials and Historic Mining**

Before properties are acquired, Phase I Environmental Site Assessments will be conducted in accordance with the American Society for Testing and Materials E1527-05 standard practice. Detailed information will be collected about possible contamination from all known or suspected sites to determine actual direct impacts on these sites as a result of the Action

Alternatives. Further assessments will be conducted of mine mills, mine waste dumps, Clear Creek/Central City Superfund sites, and areas of intense metal veining, including environmental conditions along Colorado Boulevard in Clear Creek County, where previous Initial Site Assessments identified mining activities and potential groundwater plumes.

The following activities will be done during Tier 2 processes:

- Involve stakeholders in the discussion of mine waste and regulated materials mitigation and develop specific mitigations and best management practices for each project.
- Consider alignments that avoid hazardous materials.
- Conduct a thorough analysis of the potential disturbance of acid mine drainage and acid rock drainage and recommend construction methods and best management practices in areas of mineralized rock.
- Provide a comprehensive listing and description of current regulations for regulated materials, including regulatory requirements for superfund and historic mining materials.
- Look at road construction as a source of metal loading from disturbance of mineralize veins in further detail and provide mitigation strategies to minimize or reduce metal loads from road construction.
- Provide procedures on identifying, characterizing, and handling waste in the study area. Information on contacting local authorities will also be provided in the event waste is encountered.
- Update information on regulated materials and historic mining.

### **Land Use and Right-of-Way**

The Colorado Department of Transportation will conduct further analysis of changes that affect the functionality of parcels near the I-70 highway, such as changes in access, visibility, and noise levels, during future project-specific Tier 2 processes. The analysis will include coordination with individual communities and agencies to determine functional impacts on businesses, homeowners, and other property owners and to determine appropriate mitigation. Regarding National Forest System lands, Tier 2 processes will provide a more definitive determination of impacts on special use permits and will work to avoid and minimize these impacts. Tier 2 processes will also analyze impacts to existing construction housing built during construction of the original I-70 highway (including potential environmental justice impacts), the future use of new workforce housing once construction is complete, and long-term housing needs for operations and maintenance staff.

The Colorado Department of Transportation convened a Community Values Issue Task Force to study mitigation strategies for impacts related to community values. The task force recommended that Tier 2 processes effectively coordinate projects with local communities and their land use plans. The lead agencies will consider those approaches, which include the following activities:

- Using United States Forest Service definitions in land use planning
- Including at least one local jurisdiction representative with a land use planning background on the Project Leadership Team
- Identifying an I-70 Mountain Corridor Context Sensitive Solutions manager and agency staff liaisons who can serve across the entire Corridor, to provide continuity in process
- Providing communities with possible improvements as early as possible to allow them to

make timely land use decisions

- The Colorado Department of Transportation will fund the I-70 Mountain Corridor Context Sensitive Solutions program during Tier 2 processes. For more information on I-70 Mountain Corridor Context Sensitive Solutions, see the **Introduction** to this document.
- The lead agencies will conduct the following activities during Tier 2 processes:
- Develop specific and more detailed mitigation strategies and measures
- Develop best management practices specific to each project
- Adhere to any new laws and regulations that may be in place when Tier 2 processes are underway

### **Social and Economic Values**

The lead agencies will conduct further analysis of local county economic impacts during future project-specific Tier 2 processes, and will develop information about county-level travel demand, project phasing, time-phased estimates of capital expenditures, worksite locations and scheduling, and sourcing of materials, equipment, services, and labor for use in the analysis. The REMI<sup>®</sup> model, which has the ability to incorporate travel demand data with a robust economic impact analysis engine, could be useful for local economic modeling during Tier 2 processes if it is used. With regard to construction impacts, Tier 2 processes will provide information about work duration, detours, lane closures, and other disturbances that would occur. The I-70 Mountain Corridor Context Sensitive Solutions Guidance, described in the **Introduction** to this document, will be followed during Tier 2 processes.

The lead agencies will conduct the following activities during Tier 2 processes:

- Develop specific and more detailed mitigation strategies and measures
- Develop best management practices specific to each project
- Adhere to any new laws and regulations that may be in place when Tier 2 processes are underway

### **Environmental Justice**

This document and the associated *I-70 Mountain Corridor PEIS Environmental Justice Technical Report* (CDOT, March 2011) provide an overview of the minority and low-income populations from a Corridor perspective. Local municipalities highlighted particular areas of concern that will be evaluated on a local level in Tier 2 processes. Most, if not all, of the Tier 2 processes can and will reference updated U.S. Census data as the 2000 U.S. Census is replaced with the 2010 U.S. Census.

Tier 2 processes will use the most current data and guidance, including updated data on affordable housing, to analyze impacts on minority and low-income populations. During Tier 2 processes, CDOT will:

- Develop specific and more detailed mitigation strategies and measures
- Develop best management practices specific to each project
- Adhere to any new laws and regulations that may be in place when Tier 2 processes are underway

- Continue to directly coordinate with local government entities and social services to identify low-income populations along the Corridor
- Coordinate with the Colorado Minority Business Office to obtain a listing of minority-owned business enterprises that register with the office in Colorado and are located along the study Corridor

Tier 2 processes will develop public involvement to ensure full and fair participation by all potentially affected communities in the transportation decision making process.

### **Noise**

Tier 2 processes will include a more robust analysis of potential noise impacts and mitigation based on the configuration of proposed highway improvements, associated traffic projections, and refined field noise measurements taken at potentially affected receptor locations. Noise studies will be conducted in accordance with appropriate regulatory standards; that is, following CDOT noise impact assessment methodology for highway improvements, and FTA noise impact assessment methods for rail improvements. Information about noise studies, methodologies, and modeling results will be included in any public involvement efforts associated with Tier 2 processes.

The Colorado Department of Transportation's noise policies suggest that a quantitative analysis of construction noise be considered for large, complex projects. This is the case here, and CDOT should conduct such an analysis as part of any future Tier 2 environmental processes. The Colorado Department of Transportation should also analyze construction vibration as part of Tier 2 processes.

The Colorado Department of Transportation will conduct the following activities during Tier 2 processes:

- Develop specific and more detailed mitigation strategies and measures
- Develop best management practices specific to each project
- Adhere to any new laws and regulations that may be in place when Tier 2 processes are underway, including new regulations regarding noise abatement criteria expected to go into effect in July 2011

### **Visual Resources**

The Colorado Department of Transportation will use the visual inventory developed in the first tier analysis to focus attention during Tier 2 processes on visual elements that have either Corridorwide or local importance. Additionally, CDOT will conduct a more detailed and localized analysis of visual resources in individual jurisdictions and segments along the Corridor to further define important visual elements and assess potential effects of Tier 2 processes. Additional analysis of direct impacts to visual resources during Tier 2 processes may determine the impact type (temporary or permanent) and description. The Colorado Department of Transportation will consider creating visual simulations during Tier 2 processes to accurately illustrate the visual change at specific locations. The Colorado Department of Transportation will continue to coordinate with all jurisdictions regarding direct and indirect impacts to visual resources. Mitigation options (such as design modifications) that could minimize disruption to or interference with the Corridor's historic

towns and mountain scenery will be explored using the I-70 Mountain Corridor Context Sensitive Solutions Aesthetic Design Guidelines.

The lead agencies will develop specific and more detailed mitigation strategies and measures, as well as establish best management practices specific to each project during Tier 2 processes. The lead agencies will also adhere to any new laws and regulations that may be in place when Tier 2 processes are underway.

### **Recreation Resources and Section 6(f) Discussion**

The Colorado Department of Transportation will conduct further analysis of direct and indirect impacts on recreation resources during future project-specific Tier 2 processes. Additional analysis of direct impacts on recreation resources during Tier 2 processes will determine the degree and extent of impact. The lead agencies will continue to coordinate with all jurisdictions regarding direct and indirect impacts to recreation resources, and specifically with Eagle County, Summit County, Clear Creek County, Jefferson County, and the United States Forest Service regarding ECO Trails, the *Clear Creek County Greenway Plan (2005)*, and United States Forest Service management activities. The mountain pine beetle infestation continues to change conditions surrounding recreation resources, and the United States Forest Service confirmed that these conditions are most appropriately addressed during Tier 2 processes.

Corridor communities strongly advocate maintaining and improving trail connectivity along the I-70 highway. The Colorado Department of Transportation will consider during Tier 2 processes the following approaches to incorporate and maintain future bike routes in the I-70 highway right-of-way and improve bike and other non-motorized path connectivity, in a manner compatible with CDOT and FHWA guidance:

- Refer to principles applied to the Glenwood Canyon bike path and river access
- Consider policies to help identify state and federal transportation funding for pedestrian enhancement and connectivity
- Consider whether moving trails elsewhere is a more economical option to modifying the design of proposed transportation components
- Continue to coordinate with local jurisdictions, including the United States Forest Service regarding their motor vehicle facilities

The lead agencies will develop specific and more detailed mitigation strategies and measures, and develop best management practices specific to each project, during Tier 2 processes. The lead agencies will also adhere to any new laws and regulations that may be in place when Tier 2 processes are underway.

### **Historic Properties and Native American Consultation**

For each Tier 2 process, CDOT will review existing information about historic properties within the project APE. The APE boundary will encompass the viewscape (the area within which a particular point is visible) and viewshed (the area visible from a particular point). The lead agencies will determine, in consultation with the SHPO and consulting parties, additional efforts needed during Tier 2 processes to identify historic properties and evaluate the effects of undertakings on historic properties.

Tier 2 processes will complete the Section 106 process, following the agreements in the *I-70 Mountain Corridor Section 106 Programmatic Agreement* and the tribal consultation Programmatic Agreement (the latter of which is included as Appendix B of the *I-70 Mountain Corridor Section 106 Programmatic Agreement*). The *I-70 Mountain Corridor Section 106 Programmatic Agreement* outlines specific requirements for each step of the Section 106 process, from identification of the APE through to identification of mitigation, and the tribal consultation Programmatic Agreement outlines consultation, treatment, monitoring, and recovery for sites of importance to tribes. In most cases, Tier 2 processes will include agreement on an APE for the individual project, an intensive survey of historic properties within the APE, determination of effects to include visual and noise effects of project designs, and agreement on mitigation measures with the SHPO and consulting parties.

### **Section 4(f) Discussion**

Section 4(f) evaluations for projects in the Corridor will be completed during Tier 2 processes when sufficient design and operational information about improvements are developed to determine Section 4(f) use. For Section 4(f) compliance during Tier 2 processes, further study of feasible and prudent avoidance alternatives and a least overall harm assessment according to 23 Code of Federal Regulations 774.3(c)(1) will be required for subsequent projects. This will include the following steps:

- **Step 1: Conduct continued coordination with the Officials with Jurisdiction.** This will be done to confirm the properties, confirm property boundaries, obtain input on the effects of the project and proposed mitigation, and if a de minimis impact is anticipated, obtain concurrence from Officials with Jurisdiction that the impact is indeed de minimis. Coordination with the State Historic Preservation Officer will also be done to obtain concurrence with eligibility of a property, with determination of effects, and with proposed mitigation. If a “no adverse effect” determination is proposed that will be used to determine a de minimis impact, the State Historic Preservation Officer will be notified of this intention on the part of CDOT and FHWA.
- **Step 2: Identify properties.** Tier 2 processes will include a step to confirm the eligibility of assumed Section 4(f) properties, including ownership details, property boundaries, and National Register of Historic Places eligibility if the property is a historic property and property management practice details from resource management plans for refuges, parks, and recreational properties.
- **Step 3: Collect information needed to determine detailed use by alternative.** This step will include laying the edges of physical disturbance and future right-of-way over the mapping of the property boundaries. This information will then be used to determine whether or not the anticipated use could be avoided or evaluated as a de minimis impact. Combining this information with the findings of noise analysis, access analysis, and visual analysis will be used to determine whether or not an alternative could result in a constructive use. Indirect impacts will be examined to determine if there is a constructive use of the property. Analysis of temporary impacts will be done as well to determine if the conditions for temporary occupancy are met, as defined in 23 Code of Federal Regulations 774.13 (d).
- **Step 4: Conduct Section 4(f) evaluations to determine if a prudent and feasible alternative that avoids the Section 4(f) properties exists.** This evaluation will include the I-70

Mountain Corridor Context Sensitive Solutions measures, alignment shifts, use of tunnels, use of design variances, and other design related measures. Uses of the properties will be considered and compared to the Tier 1 alternatives and this evaluation. If there is a substantial change in properties used, or in the significance of the use, a determination will be made of the need to revisit the Tier 1 decision. This determination will take into account the adaptive nature of implementing the Preferred Alternative.

- **Step 5: Identification of all possible planning to minimize harm.** This step will include development of full mitigation measures as well as other measures to minimize harm.
- **Step 6: Development of least harm analysis.** If no prudent and feasible avoidance alternative exists, more than one alternative is developed for Tier 2 processes, and both use Section 4(f) properties, a least harm analysis will be conducted to determine which alternative causes the least overall harm in light of the statute's preservation purpose.

### **Paleontology**

Tier 2 processes will use information gathered in Tier 1 to focus additional field surveys in areas of high or moderate paleontological potential. Tier 2 processes will include the following activities:

- Identification of any newly recorded and/or relocated previously recorded fossil localities
- An assessment of the scientific importance of identified sites
- A recommendation for mitigation if appropriate
- The Colorado Department of Transportation will conduct the following activities during Tier 2 processes:
  - Develop specific and more detailed mitigation strategies and measures, and best management practices specific to each project
  - Adhere to any new laws and regulations that may be in place when Tier 2 processes are underway

### **Energy**

The Colorado Department of Transportation will conduct more detailed analyses of energy impacts during future Tier 2 processes, which will use the most current data and guidance available. Tier 2 processes will include additional analysis of construction and operational impacts based on the specific improvements and mode(s) selected. This document considered fossil fuel as the primary fuel source when calculating energy consumption. Tier 2 processes will have further consideration of power sources and mixes of energy supply types (renewable/alternative energy, fossil fuel, and other future concepts). Tier 2 processes will also include development of specific best management practices for each project.

### **Irreversible and Irretrievable Commitment of Resources**

As projects are defined in greater detail during Tier 2 processes, irretrievable and irreversible commitment of resources will be identified, including, but not limited to, loss of wetlands and water resources, loss of materials incorporated into the transportation facility, loss of park and recreation resources, loss of or alterations to historic structures, and loss of right-of-way, energy consumption, natural habitats, and lands due to implementation of the proposed action.

### **Short-Term Uses versus Long-Term Productivity**

- As projects are defined in greater detail during Tier 2 processes, additional short-term uses may be identified, including, but not limited to:
- Locations of construction easements
- Locations of anticipated water quality impacts
- Locations of noise impacts due to construction
- Locations of any impairment to parks and recreation resources due to construction
- Temporary visual impacts on historic structures due to implementation of the proposed action.

## **1.6 SUMMARY OF SPECIFIC RESOURCE EXISTING CONDITIONS AND PROPOSED METHODOLOGIES**

### **1.6.1 Environmental Justice**

#### ***Existing Conditions***

Census data (2010) indicate that the project area is not densely populated and very small pockets of minorities reside within the study area. Low-income populations are located in the western edge of the project limits and reflect demographic characteristics within Idaho Springs, as none of the low-income households are located within or immediately adjacent to the project limits.

#### ***Methodology***

The environmental justice analysis will be consistent with *CDOT's Title VI and Environmental Justice Guidelines for NEPA Projects, Rev. 3*. Initial mapping of minority and low-income populations was performed for census blocks and block groups within 0.5 Mile of the area of potential effect for the project.

Based on the distribution on minority and low-income populations presented in this initial mapping, it is likely that impacts would be primarily related to temporary construction related nuisances such as detours, travel delays, and noise. Impact analysis should include a special consideration of socio-economic factors and travel patterns to identify any issues such the relationship between employment and commuting needs for minority and/or low-income residences in neighboring communities.

### **1.6.2 Socioeconomics**

#### ***Existing Conditions***

Within the project area there are few residential properties or community facilities. The area is partially undeveloped; development is primarily residential and industrial related uses. The eastern edge of Idaho Springs is adjacent to the proposed improvements and the proposed detour route. The project area does not have any sense of community cohesion because of the low population in the area, the land use designations in the area, and the limited community facilities. Community facilities comprise the Scott Lancaster Memorial Trail and Clear Creek, which serves as a recreational resource for fishermen and rafters.

Based upon 2010 U.S. Census data, the population of Idaho Springs has decreased since the 2000 U.S. Census by 172 and the population of Clear Creek County has also decreased by 234 over the 10 year period. The construction of I-70 bisected a portion of the city when it

was constructed. I-70 is the main travel corridor in the area, providing access to the Denver area located approximately 30 miles to the east. Tourism is a mainstay of the local economy, and a local river rafting company is located adjacent to the proposed project.

### **Methodology**

This methodology is generally based on *the CDOT NEPA Manual* and will be consistent with the requirements identified in Chapter 9 of the manual for social and economic resources. The previous work conducted as part of the I-70 Mountain Corridor PEIS will also be incorporated as applicable into the analysis. The analysis will adhere to the applicable laws, regulations, and orders relevant to the socioeconomic resources. The I-70 Mountain Corridor Context Sensitive Solutions Guidance will be followed as part of the analysis.

The most up to date data available will be collected and will include demographic information, historic and projected population, historic and projected employment, housing data, and economic data. Data will be collected from a number of sources including the U.S. Census, Colorado Department of Local Affairs, and the Denver Regional Council of Governments. Where applicable, information from the I-70 Mountain Corridor PEIS will be included. In general, the study area for the analysis will include an area within 0.5 mile of the proposed project for the social resources and at a regional level for the economic analysis, since some of the economic data are not available for smaller areas.

The analysis will identify impacts associated with the construction and operation of the project and if those impacts would affect the surrounding community. The analysis will only include a qualitative assessment of the potential economic impacts. No economic modeling will be performed, and the analysis will only draw on relevant information prepared for the I-70 Mountain Corridor PEIS in assessing employment impacts. The section will provide information with regards to work duration, detours, lane closures, and other disturbances that would occur during construction as well as any effects during operation. To address these effects specific mitigation measures and strategies, including the development of any best management plans, will be developed.

This section will not address any outreach efforts to minority and low-income populations. Those efforts will be addressed in the Environmental Justice section of the EA.

### **1.6.3 Land Use**

#### **Existing Conditions**

Land uses south of I-70, west of the Twin Tunnels are commercial and industrial. The Clear Creek Rafting Company, Aggregate Industries, and a sewage treatment plant all operate in this area. The Scott Lancaster Memorial Trail and bridge generally follow the frontage road south of the project area and provide east-west pedestrian and bicycle mobility. A residence is located south of the east tunnel portal. No other residences or commercial buildings exist adjacent to the proposed I-70 improvements. Several residences are located on the south side of the frontage road in the detour area.

#### **Methodology**

The Twin Tunnels Land Use section will be prepared in accordance with the CDOT NEPA Manual Guidance and will evaluate:

- Consistency with existing land uses and future proposed land uses
- Consistency with existing zoning and future proposed zoning
- Consistency with adopted land use plans

- Cumulative impacts from past, present, and reasonably foreseeable development projects
- Temporary construction impacts, including detours and maintaining access to businesses, which will be of great concern to those communities in which construction occurs.

Both qualitative and quantitative assessments of impacts to land use will be employed.

The following adopted land use plans and zoning will be evaluated for their relevancy to the lands in the Twin Tunnels study area and subsequently the Twin Tunnels project will be evaluated for consistency with adopted land use plans and zoning regulations.

<b>Land Agencies (within 1-mile of the I-70 centerline)</b>	<b>Adopted Plans &amp; Policies</b>
City of Idaho Springs	2008 Comprehensive Plan 3 Mile Plan
Clear Creek County	Clear Creek County Master Plan 2030 Greenway Plan Floyd Hill Gateway Development Master Plan
Denver Regional Council of Governments	2035 Metro Vision Regional Transportation Plan 2012-2017 Transportation Improvement Program
United States Forest Service	Special Use Permits

The following considerations were developed under the *I-70 Mountain Corridor Final PEIS* for Land Use Analysis during Tier 2 Processes and will be considered for the Twin Tunnels EA:

- Conduct further analysis of changes that affect the functionality of parcels near the I-70 highway, such as changes in access, visibility, and noise levels

Coordination with individual communities and agencies to determine functional impacts on businesses, homeowners, and other property owners and to determine appropriate mitigation

- Determination of impacts on special use permits on USFS land and will work to avoid and minimize these impacts
- Analyze impacts to existing construction housing built during construction of the original I-70 highway (including potential environmental justice impacts) (need to identify location of this housing), the future use of new workforce housing once construction is complete, and long-term housing needs for operations and maintenance staff (if applicable at this time)

#### **1.6.4 Right-of-Way**

##### ***Existing Conditions***

The immediate project area and detour route are surrounded by privately owned residential, commercial, and industrial properties and by publicly owned trails and undeveloped land.

##### ***Methodology***

The project footprint will be laid over surveyed parcel boundaries to determine the extent of temporary construction easements and permanent acquisitions required. The availability of access to properties along the detour route will also be considered, with acquisitions documented if existing access cannot be maintained during operation of the detour.

### **1.6.5 Traffic and Transportation (including Safety)**

Existing traffic conditions and methodology for the safety assessment and 2035 traffic projections will be documented in upcoming traffic reports.

### **1.6.6 Noise**

#### ***Existing Conditions***

There appear to be very few CDOT Noise Abatement Criteria (NAC) activity category receptors within the project area and the 500 foot bubble beyond the project limits. The following potential NAC B and C receptors were identified during the initial field review:

NAC Activity Category B residential receptors—There are roughly four(4), possibly five(5) homes located several hundred feet south of I-70 at Hidden Valley along the frontage road. Several of these homes may be within the future ROW of the frontage road improvements. One (1) home located south of the eastern portal of the Twin Tunnels will be purchased as part of the project and is not a concern. Three (3) homes located south and west of the western portal, behind the rafting company facility, are within roughly 475 feet of I-70 and 100 feet of the frontage road. One (1) other potential home is located a couple 100 feet south of the Idaho Springs EB on-ramp. All of these properties are on large lots.

NAC Activity Category C recreational receptors—The Scott Lancaster Memorial Trail, Creek Side Trail, potential park at the old sewage treatment site, proposed recreation resources at the Old Game Check Area, along with various boat access areas and fishing access areas were identified.

#### ***Methodology***

Prepare documentation in accordance with the CDOT Noise Analysis and Abatement Guidelines for the I-70 Twin Tunnels and Frontage Road Improvement projects. The noise analysis in the I-70 Mountain Corridor Final Environmental Impact Statement (FEIS) will be reviewed to ensure that the analysis for the Twin Tunnels and Frontage Road improvement project is consistent. Wilson & Company will perform the following:

A minimum of five field measurements will be taken in the project area. These locations will best represent sensitive receivers but also to address the question of the “tunnel affect” as mentioned in previous public comments. These measurements will be taken with free flowing traffic for appropriately 10 - 20 minutes while counting directional traffic and vehicle type. Travel speed will be determined through driving in the traffic stream.

An existing conditions model will be developed and validated using the existing roadway configuration, field measurements and other TNM parameters.

A future model will be developed for each alternative to predict future noise levels and assess impacts. Models will reflect design year roadway configuration, traffic and other expected changes

Abatement options will be developed and evaluated. CDOT Form 1209, Noise Abatement Determination Worksheet, will be completed to document recommendations.

Construction noise include blasting, drilling, and frequent rock loading/hauling ops will be reviewed focusing on receptors (homes and businesses) directly affected.

Prepare draft and final Noise report

Vibration analysis is not expected at this time.

### **1.6.7 Air Quality**

#### ***Existing Conditions***

The I-70 Twin Tunnels project is located in an unincorporated part of Clear Creek County, near the town of Idaho Springs (2010 Census population: 1,717). The project locale is about 2,000 feet higher than the elevation of Denver, and about 18 miles west of the Denver metro area (e.g. I-70/C-470 interchange). It is not included in the multi-county area (e.g., ozone nonattainment area) that is considered to contribute to air quality concerns in the Denver metro area. No air quality monitor is operated in nearby Idaho Springs as there are no substantial emission sources in the area. I-70 itself is the major emissions source, with an average of 42,000 vehicles per day, increasing to nearly 70,000 on its ten busiest days of the year (summer weekends) and to almost 65,000 on its ten busiest winter days (ski weekends). The average daily volume includes 2,500 tractor-trailers and 760 single-unit trucks operating on steep grades. There are a few homes, a trail, and a sewage treatment plant in the vicinity of the tunnels, but no sensitive receivers such as schools or hospitals. There are separate, ventilated bores for the eastbound and westbound traffic, so there is minimal potential for pollution buildup within the short tunnels themselves.

#### ***Methodology***

The air quality analysis for the I-70 Twin Tunnels project will focus on qualitative assessment and on mitigation commitments. The project is located outside of the Denver nonattainment area and thus is not subject to requirements for air quality conformity analysis. Qualitative assessment can be made regarding project area air quality and likely project impacts. The I-70 Mountain Corridor Programmatic EIS contained various mitigation commitments, which included air quality monitoring during construction. The Twin Tunnels air quality assessment will discuss what mitigation strategies will be used for the project and why.

Interagency consultation will be important for air quality. Project staff will participate in formal consultation with staff from the Air Pollution Control Division of the Colorado Department of Public Health and environment. A CDPHE letter of concurrence will be obtained if appropriate. Staff of the U.S. Environmental Protection Agency may also be involved in the consultation process, given CDPHE's interest in the project per their agency scoping comments.

### **1.6.8 Energy**

#### ***Existing Conditions***

Energy consumed on I-70 in the Twin Tunnels area is affected not only by the number of miles driven in this segment, but also vehicle speeds, grades, curvature, and vehicle mix. The dramatic congestion in this segment affects energy consumption during times of congestion.

#### ***Methodology***

Tier 2 commitments for energy consumption were that more detailed analyses of energy impacts during construction and operation would be developed, using the most current data and guidance available. This included a commitment to further consider power sources and mixes of energy supply types (renewable/alternative energy, fossil fuel, and other future concepts). Tier 2 commitments were also to include specific best management practices for each project.

The methodology will be developed together with the CDOT, FHWA, and the air quality and traffic operations analysts. Specific methodologies to be developed will include various assumptions for the energy related aspects of peak period pricing.

### **1.6.9 Hazardous and Solid Materials**

#### ***Existing Conditions***

Previous investigations for the I-70 Mountain Corridor PEIS identified historic mining and mill sites, and the potential for encountering associated mine dump materials, as the biggest potential hazardous materials issue in the project area. No former mines have been identified within the project study area; however, one former mill site has been noted. The Dixie Mill historically operated immediately to the west of the Hidden Valley exit (mile post 243), to the north of the interstate. This is outside of the project footprint, although it is possible that tailings and waste rock were deposited in areas now under the roadway, or used for fill material during construction of the highway. These materials could contain elevated concentrations of metals and sulfide materials, which could lower the pH or result in elevated levels of metals in stormwater. Additionally, several spills of hazardous materials resulting from transportation accidents have occurred within the project area. These spills have primarily involved diesel fuel or asphalt products, and were reportedly cleaned up at the time of the spill.

One bridge will be replaced, immediately to the west of the Hidden Valley exit. There are painted metal components on the bridge, and the paint could contain lead. Additionally, asbestos containing building materials could be located on the bridge structure.

#### ***Methodology***

Potential impacts from hazardous materials at the site would primarily relate to water quality and construction. Available information will be obtained and reviewed to identify specific areas of potential concern. Waste rock, tailings, or other mining-related wastes encountered during construction could require special handling and disposal methods. The potential for encountering these materials would primarily occur during excavation for construction of piers, retaining walls, and other structures. During geotechnical drilling in these areas, soil samples will be collected and analyzed for pH and metals to evaluate the presence of mining wastes, and to develop handling and disposal specifications for soils removed during construction. Additionally, this information will be provided to the water quality team for use in analysis of potential surface water impacts resulting from these wastes.

Paint samples will be collected from the bridge, and submitted to a laboratory for analysis of lead. Additionally, the potential for asbestos containing buildings materials to be present on the bridge will be evaluated, and samples collected as necessary for laboratory analysis. Finally, a Phase I Environmental Site Assessment will be completed for any property to be acquired by CDOT for right-of-way or other purposes.

### **1.6.10 Geology**

#### ***Existing Conditions***

A wide range of geologic conditions are represented and exposed along the corridor due to the vast amount of time represented in the multiple rock formations. The geologic time reflected along the Corridor ranges from recent river, debris, and mudflow deposits to Precambrian rocks between 1 and 2 billion years old. Within these formations and through the process of secondary mineralization, large concentrations of heavy metals occur naturally. The rock mined within the area contains many precious metals including gold, silver, copper, lead, and zinc. The historic metal mining activity was primarily confined to what is known as the Colorado Mineral Belt. The Colorado Mineral Belt is a zone of highly mineralized rock that trends northeast-southwest across the mountainous regions of Colorado. This zone extends from the La Plata Mountains west of Durango to the north end of Boulder County.

The varied and complex geologic and geomorphic process has led to the development of the several zones of instability and marginal subsurface material. Although a natural process, these features can pose a risk to the public either directly by an encounter with the hazard or indirectly through effect of the hazard on the highway, railway, or multiuse trails. Conditions that may adversely affect the public and/or the proposed improvements in the corridor include existing geologic hazards (debris/mudflows, rockfall, landslides, and the potential for mine collapse).

#### ***Methodology***

Geologic conditions present along the Corridor will be evaluated using information from geologic maps, US Geological Survey reports, Colorado Geological Survey publications, topographic maps, and aerial photographs. The impact assessment for geology and geologic hazards affected by the Twin Tunnels project will be based on previous evaluations presented in the *I-70 Programmatic Environmental Impact Statement*. In addition to the information contained in the PEIS, the following conditions specific to the Twin Tunnels project will be evaluated:

- Potential to exacerbate the existing geologic hazards in the Corridor and negatively impact safety, service, and mobility due to rockfalls, debris/mudflows, landslides and other hazards.
- Potential to intersect areas of geologic instability (adverse jointing fracture patterns and/or bedding) and create new geologic hazards
- Effects of construction in soils with high erosion hazard or located on instable or steep slopes.
- Potential to alter the appearance of the natural setting through the excavation of rock and other subsurface material.

### **1.6.11 Recreational Facilities and Activities**

#### ***Existing Conditions***

Clear Creek is a major recreation corridor in the county, providing fishing and rafting opportunities in the creek and pedestrian and bicycle trails along portions of the creek. The Clear Creek County Greenway Plan identifies a comprehensive set of trail and other recreational facilities to be implemented along the creek in the coming years. Existing recreational resources within the study area include multiple fishing and boating accesses to

Clear Creek, multiple trails and trailheads, a rock wall, and the Scott Lancaster Memorial Bridge.

**Methodology**

The Twin Tunnels Project is anticipated to result in both direct and indirect impacts to recreation resources through construction, operation, and maintenance of the alternatives being examined. These impacts may include roadway widening encroaching into areas designated for recreation use, temporary and permanent changes in the visual and auditory environment surrounding recreation areas, and temporary and permanent changes in access. The following methods will be used to quantify the existing conditions and to assess the potential impacts of each alternative on recreation resources and activities, such as rafting and fishing in Clear Creek.

The location of existing and planned recreational resources and activities will be determined through coordination with local jurisdictions and the Roosevelt National Forest, analysis of GIS data, and review of the current comprehensive land use, parks, and public services and facilities plans including the Clear Creek County Greenway Plan (2005). Impacts to private and public parks, recreation, and open space facilities resulting from the proposed project will be assessed based on the degree and extent of impacts to existing and planned facilities, and how well the project would accommodate planned facilities. This work is being coordinated with the Section 4(f) team.

The impact assessment for recreation resources will be based on previous evaluations presented in the I-70 Programmatic Environmental Impact Statement. In addition to the information contained in the PEIS and using the Tier 1 process as a foundation, the following actions will be taken:

- ▶ A field visit has been conducted to identify the location of recreation resources including determining the status of proposed future recreation resources. This field visit included collection of GPS data for use in impact assessment.
- ▶ Direct impacts to recreation resources and activities will be determined through use of GIS mapping technology to determine specific areas and size of encroachment.
- ▶ Indirect impacts will be assessed through noise modeling, travel data, access plans, and visual assessments.
- ▶ All affects to existing and proposed recreation resources and activities from the Twin Tunnels project will be determined in coordination with the local jurisdictions (including Roosevelt National Forest) and through public input.
- ▶ Regulatory guidance provided in the CDOT NEPA Manual will be adhered to.
- ▶ Best Management Practices to reduce impacts to existing recreation resources will be developed, as appropriate, for the Twin Tunnels project.
- ▶ Specific and detailed mitigation strategies and measures will be developed. This will be accomplished, in part, through coordination between the project team, CDOT, FHWA, Roosevelt National Forest, and local jurisdictions.
- ▶ CDOT will consider approaches to incorporate and maintain future bike routes in the I-70 highway right-of-way and improve bike and other non-motorized path connectivity, in a manner compatible with CDOT and FHWA guidance.

### **1.6.12 Historic Properties**

#### ***Existing Conditions***

Historic properties and potential historic properties were identified in the I-70 Mountain Corridor through the PEIS. The Twin Tunnels project area is mostly rural with limited development. Several sites within the project area have been identified, and CDOT is conducting an intensive survey of the project area to identify or validate properties that meet the National Register of Historic Places (NRHP) criteria.

Within the project area, few buildings are present. The tunnels themselves are a nationally significant interstate feature and will be subject to Section 106 compliance. Other features include segments of linear railroad and highway resources, potential remnants of mining and industrial properties, and archaeological sites.

CDOT held a meeting with consulting parties in November 2011 to discuss the scope of the Twin Tunnels project and historic assessments, including discussion of known properties and the Area of Potential Effects (APE). The consulting parties reviewed previously recorded properties from the PEIS and identified several additional properties of potential interest, including an abandoned mine shaft and power plant. The APE was also revised and expanded in several locations based on input from the consulting parties.

#### ***Methodology***

An intensive survey of the APE will be conducted to reevaluate previously identified properties and to determine if any additional properties present in the APE are eligible for the National Register of Historic Places. CDOT will follow the procedures outlined and agreed to in the *I-70 Mountain Corridor Section 106 Programmatic Agreement* to complete the Section 106 evaluation of historic properties, including inviting interested parties to consult on the study, and determining eligibility, effects, and mitigation if necessary in consultation with consulting parties. CDOT will comply with Tier 2 processes outlined in the PEIS and consider applying mitigation strategies outlined by the PEIS and the Programmatic Agreement.

### **1.6.13 Terrestrial Wildlife**

#### ***Existing Conditions***

Numerous wildlife species inhabit or frequent the Twin Tunnels project area, including mammals, such as bighorn sheep and deer, squirrels, marmots, beavers, and bats; birds; fish; and small number of reptiles and amphibians. The south-facing hillside in the project area is considered key Bighorn Sheep habitat. The Twin Tunnels rocky outcrop serves as a land bridge that facilitates wildlife movement and allows larger mammals to cross I-70 safely. Due to the steep gradient of Clear Creek (and steep, armored banks) within the study area, riparian habitat within the study area is limited (there are only pockets of riparian habitat that exist along Clear Creek).

#### ***Methodology***

The following methods will be utilized to quantify the existing conditions within the study area, and to assess the potential wildlife impacts (both temporary and long-term).

- Wildlife resources in the study area will be identified through field reconnaissance, coordination with the US Fish and Wildlife Service (USFWS), and Colorado Parks and

Wildlife (CPW) resource specialists/biologists. Information gathered during this coordination and field reconnaissance will include identification of known or historical occurrences, habitat, and areas of known animal movement corridors. GIS layers for known species occurrences/wildlife movement corridors will be obtained from agencies to use in impact and environmental conditions analysis. Agency personnel will be interviewed to determine known or historical occurrences of target species, and known migration or travel corridors within the study area.

- Impact analysis will be conducted on data gathered during the data collection phase of the project. Impacts (both temporary and long-term) will be determined by the effects the project would have on biological resources within the study area as determined by species needs, habitat, and population connectivity/migration corridors affected by the project construction (specifically the proposed detour route).
- Recommendations and responsibilities outlined in the ALIVE MOU for existing wildlife issues and habitat will be fulfilled.
- The influence of the mountain pine beetle on the forested communities and its effects on wildlife habitat will be assessed, in coordination with the United States Fish and Wildlife Service and the United State Forest Service.
- The potential mitigation for winter maintenance and noise effects will be evaluated based on current research.
- Specific best management practices will be developed.
- Opportunities for enhancement of wildlife habitat will be considered.

#### **1.6.14 Aquatic Resources, including Fisheries**

##### ***Existing Conditions***

- ▶ Numerous fish species, including species popular with anglers, inhabit Clear Creek. These include many species of trout (brown trout, rainbow trout, brook trout and occasionally cutthroat trout), and other fish such as fathead minnows, common carp speckled dace, sculpin and multiple species of sucker. Benthic invertebrate communities, known to inhabit or potentially inhabit Clear Creek are composed primarily of the major clean-water taxa, including mayflies, stoneflies, caddisflies, and midges. Water quality is currently impacted by various historic and current mine-related influences and drainages of mineralized geologic formations.

##### ***Methodology***

Impacts to aquatics and fisheries from the Twin Tunnels project are anticipated to result from habitat removal, modification or disturbance. Impacts include the effects of construction, operation, and maintenance of the proposed action. Temporary impacts to aquatic resources are also expected during construction. These impacts include increased erosion, sedimentation and runoff, and spilled fuels that potentially reduce water quality in Clear Creek. Depletion of the Platte River constitutes an action that may affect, and is likely to adversely affect threatened, endangered, proposed, and candidate species that depend on the river for their existence.

The impact assessment for aquatics and fisheries affected by the Twin Tunnels project will be based on previous evaluations presented in the *I-70 Programmatic Environmental Impact*

*Statement.* In addition to the information contained in the PEIS and using the Tier 1 process as a foundation, the following actions will be taken:

- A survey will be conducted for protected species and their habitat. The survey will involve contacting the USF&WS and CDP&W for relevant updated species lists.
- Affects on federally listed species that occur downstream from the Twin Tunnels project will be determined in coordination with the USF&WS.
- Laws and regulations pertaining to fisheries and aquatic resources will be reviewed for any updates.
- Best Management Practices will be developed, as appropriate, as appropriate for the Twin Tunnels project.
- Specific and detailed mitigation strategies and measures will be developed. This will be accomplished, in part, by working with and adhering to the Stream and Wetland Ecological Enhancement Program (SWEEP) Memorandum of Understanding (MOU) and Sediment Control Analysis Plan (SCAP) team, which is a component of the SWEEP MOU and who will be focusing on the Twin Tunnels project and identifying opportunities to avoid and mitigate water quality impacts to Clear Creek.
- Fisheries will be evaluated, including localized temperature concerns.
- Identify existing fisheries and stream conditions including on-going stream impacts/depletions, restoration projects and water quality issues. (Evaluate Trout Unlimited, SPWRAP and SWEEP projects and opportunities for project design to include mitigation enhancement and restoration.)

### **1.6.15 Threatened or Endangered Species**

#### ***Existing Conditions***

Protected species are “unlikely to occur” in the Twin Tunnels area. However, water depletions to the Platte River constitutes an action that may affect, and is likely to adversely affect, threatened, endangered, proposed, and candidate species that depend on the river for their existence. Threatened, endangered, and special status species downstream along the central and lower Platte River and Missouri River include:

- Whooping Crane
- Interior population of the Least Tern
- Piping Plover
- Western prairie fringed orchid
- Bald Eagle
- Pallid sturgeon

Depletions to the Platte River System due to CDOT activities are addressed by the State of Colorado’s participation in the South Platte Water Related Activities Program (SPWRAP) through the Memorandum of Agreement for Implementation and Operation of the Colorado Portion of the Platte River Recovery Implementation Plan (PRRIP) (SPWRAP 2006). The State of Colorado has made and continues to make financial and other contributions to the PRRIP. In addition, SPWRAP has created a “Class X-1” membership specifically for and limited to the State of Colorado for diversions and depletions by State agencies that are comparatively small. CDOT falls into this category because their typical depletive activities

such as wetland creation and water quality ponds, as well as water used for compaction, concrete, and dust control, do not generally require large amounts of water. According to the Memorandum of Agreement, contributions previously made are deemed payment of all SPWRAP assessments for the Class X-1 membership for the duration of the first Increment of the PRRIP, which expires in 2020. However, because the FHWA is funding the Twin Tunnels project, in order to satisfy their obligation under the Endangered Species Act, Section 7 consultation is required.

#### **Methodology**

- Section 7 with the U.S. Fish & Wildlife Service will be performed.
- A biological assessment will be prepared and submitted to the U.S. Fish & Wildlife Service for consultation. This biological assessment will estimate the water usage for the Twin Tunnels project. Following this consultation, it is anticipated the U.S. Fish & Wildlife Services will issue a biological opinion.
- Key wildlife species and habitat from *I-70 Corridor PEIS Biological Resources Technical Report* will be identified. (Direct and indirect impacts due to construction and increased barrier effect of temporary detours and new roadway improvements will be evaluated).
- Results of the Programmatic Biological Assessment/report for protected and federally listed species will be reviewed and conditions updated and presented in the environmental assessment. (Impacts on protected/federally listed species will be evaluated as necessary.)
- Issues and concerns presented in the ALIVE and SWEEP MOUs as impacted by Twin Tunnels project will be addressed.
- Wildlife movement and habitat connectivity conditions for protected and federally listed species as outlined in the Programmatic Biological Assessment/Programmatic Biological Opinion will be evaluated as necessary. (Potential barriers, sensitivity zones and impacts to wildlife will be evaluated and mitigation strategies as outlined in ALIVE considerations will be provided as appropriate.)
- Existing fisheries and stream conditions including on-going stream impacts/depletions, restoration projects and water quality issues will be evaluated. (Trout Unlimited, SPWRAP and SWEEP projects and opportunities for project design to include mitigation, enhancement and restoration will also be considered.)

#### **1.6.16 Vegetation, including Noxious Weeds**

##### **Existing Conditions**

The Twin Tunnels project crosses an elevation of approximately 7,800 feet in the Eastern Slope Montane life zone. The vegetation community represented in this life zone consists primarily of Aspen Forest, Douglas-fir Forest, Grass/Forb Meadows, Mountain Shrubland, Lodgepole Pine Forest, and Barren Land.

Noxious weeds have increased in the I-70 Mountain Corridor, including the Twin Tunnels project area, as a result of human activity. Based on field investigations, five noxious weeds are present in Twin Tunnels project area. These species include:

- Common mullein (*Verbascum Thapsus*)

- Canada thistle (*Cirsium arvense*)
- Chinese clematis (*Clematis orientalis*)
- Diffuse knapweed (*Centaurea diffusa*)
- Russian olive (*Elaeagnus angustifolia*)

Clear Creek County has implemented a weed-control program and has listed noxious weeds designated for management.

#### ***Methodology***

- The influence of the mountain pine beetle on forested communities and effects on wildlife habitat will be evaluated. (Evaluation will reference the USFS and USFWS pine beetle assessments and examine potential impacts to existing vegetation and wildlife in project area.)
- Areas of potential habitat restoration will be evaluated in coordination with the USFS and local entities. (Opportunities to restore and enhance vegetation to reduce project impacts and provide wildlife mitigation will be considered.)
- Occurrence of protected plant species within project area will be evaluated. (Opportunities for protection or restoration from construction/maintenance activities will be considered.)
- Existing vegetation/noxious weeds and areas of potential impact will be identified. (Existing vegetation for identification of habitat impacts, minimization of noxious weed increases and opportunities for landscape design use of native species for restoration and mitigation will be evaluated. Standard BMPs and Noxious Weed Management Plans will be prepared as appropriate.)

### **1.6.17 Floodplains**

#### ***Existing Conditions***

Clear Creek is currently shown as a Zone A floodplain by the Federal Emergency Management Agency on panels 0227D and 0226D for Clear Creek County, Colorado. This reach of Clear Creek does not include a detailed hydraulic study and effective 100-year water surface elevations have not been calculated. The detailed study ends just upstream (west) of the Twin Tunnels project.

#### ***Methodology***

For the Twin Tunnels project the FEMA Effective Zone A floodplain delineation will be used to identify potential project impacts into the floodplain. Using available lidar and project topography, 100-year water surface elevations will be estimated using the contour interpolation method.

### **1.6.18 Water Resources and Water Quality**

#### ***Existing Conditions***

34. Throughout the Twin Tunnel project area water resources and water quality can be affected by both natural and anthropogenic sources. I-70 cuts through highly mineralized rock and mine waste. The finer materials eroded from these rocks and wastes have increased sediment and metals concentrations in Clear Creek historically. Runoff of

liquid and solid deicer salts applied to I-70 have also increased magnesium and sediments within Clear Creek.

**Methodology**

- Existing water quality and flow data or reports will be compiled and reviewed for the Twin Tunnels segment of Clear Creek.
- Water quality characterization report for the affected environment portion of the EA will be developed.
- Potential impacts associated with the highway expansion will be evaluated.
- Mitigation measures will be evaluated that may include permanent erosion and sediment control best management practices (BMPs), temporary/construction BMPs, and a long-term highway sediment maintenance plan will be developed.
- Phosphorus concentrations in highway runoff will be evaluated.
- In-stream contaminant concentrations resulting from a decrease in stream flow caused by drought conditions will be evaluated. This condition tends to lower the stream's ability to dilute contaminants and might lower the amount of acceptable pollutants allowed in the stream.
- Permanent stormwater best management practices will be evaluated along the Twin Tunnels project to verify that potential reductions to stream concentrations of priority constituents could be achieved.
- Potential water quality issues arising from disturbance of mine tailings and therefore, metal loading, as part of detailed Regulated Materials and Historic Mining analysis will be evaluated.
- Permanent mitigation measures and structural controls for specific water quality issues will be identified and evaluated.
- Specific stream disturbances during construction, including construction disturbance areas, channelized segments, pier placement, and structural modifications (for example, embankment walls, cantilevered sections, or elevated structural segments and bridges) will be identified and evaluated.
- The need for a Section 404 permit (in coordination with the Wetlands and Waters of the U.S. assessment) will be determined.
- Tunnel discharges are typically considered point source discharges under the Clean Water Act and require a Section 401 permit for dewatering. As such, further study will be conducted to assess potential impacts to Clear Creek water quality.
- Permit requirements and/or water treatment systems needed will be identified as appropriate for the EB tunnel enlargement.
- Water rights issues in the context of water law for new groundwater discharges or depletions of groundwater wells will be evaluated.
- Impacts associated with washout of sand onto bike paths will be assessed.
- Mitigation strategies developed by the SWEEP Committee will be incorporated in the project design, as appropriate.
- Additional data on subsurface conditions will be collected and analyzed to assess various construction techniques, particularly for tunnels, and their potential effects on groundwater sources.

### 1.6.19 Wetlands and Waters of the US

#### **Existing Conditions**

Clear Creek and the wetlands associated with the creek represent the prominent waters of the U.S. present within the Twin Tunnels study area. Within the study area, Clear Creek is characterized as a high gradient mountain stream that has been altered where it flows in close proximity to I-70. The anthropogenic changes to the stream are primarily from bank armoring and some channelization where the stream flows encroach on I-70. Clear Creek is classified as a U.S. Army Corps of Engineers jurisdiction waterway and would be subject to Section 404 permitting if the project impacts the creek.

Wetlands within the study area are found along the banks of Clear Creek. These wetlands are found in narrow bands and are often associated with the higher quality riparian habitats found along this segment of Clear Creek. Vegetation within these wetlands is comprised of sedges (*Carex sp.*), rushes (*Juncus sp.*), alder (*Alnus sp.*), and several species of willow (*Salix sp.*). Riparian vegetation is absent along segments of Clear Creek within the study area due to the steep gradient and bank armoring. However, segments of Clear Creek within the study area do have higher quality riparian vegetative communities. The riparian vegetation is dominated by willows, narrow-leaf cottonwood (*Populus angustifolia*), and alders. Most of the larger areas of riparian vegetation are found on the south-side of Clear Creek. However, some larger segments of riparian habitat are found on the north side of the creek from approximately the east-bound lane exit of the Twin Tunnels and running east for approximately 2-3 miles.

#### **Methodology**

The Twin Tunnels existing conditions methodology for the waters of the U.S., including wetlands, will focus on collecting site-specific data for the following:

- Wetlands- Wetland classifications present within the study area including palustrine emergent, palustrine scrub-shrub, and palustrine aquatic bed will be delineated and mapped. Delineation of wetlands will be conducted in accordance with 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2).
- Other waters of the U.S.- Defined as all “open” waters such as riverine (year-round flow), intermittent or seasonal tributaries, and water storage features (ponds and lakes) will be identified and mapped..
- Fens will be identified by in-depth field studies and analyzed, as appropriate, for potential impacts related to the Twin Tunnels project.
- Functional Assessments will be conducted of wetlands within the Twin Tunnels study area using the Functional Assessment of Colorado Wetlands (FACWet) Methodology.
- Analyses will be conducted to separate jurisdictional and non-jurisdictional wetlands for permitting.
- Detailed analyses will be conducted of direct and indirect impacts on wetlands and other waters of the U.S.
- Specific and detailed mitigation strategies and measures will be developed.
- Specific best management practices will be developed for the Twin Tunnels project.

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The waters of the U.S. data collection will include the determination of the ordinary high water mark (OHWM) for Clear Creek. The method used to determine the OHWM will be to take the surveyed baseline current level of Clear Creek and model the 2-year flood event for the stream. This methodology for determination of the OHWM has been approved by the US Army Corps of Engineers (USACE) for the purpose of Section 404 permitting.

After wetlands and OHWM have been mapped, the project wetland and water resources staff will meet with the engineering team to determine possible impact to these waters. In areas of possible permanent impact, the interdisciplinary teams will work together to develop and evaluate avoidance and minimization measures. This information will be discussed with the USACE, as well as the potential need for an Individual Permit.

The Colorado Department of Transportation mitigates all impacts to jurisdictional and non-jurisdictional wetlands. Therefore, all wetlands delineated during this Tier 2 process will be submitted to the USACE for a jurisdictional determination. After the USACE jurisdictional determination is completed, the wetlands will be identified as jurisdictional and non-jurisdictional for the Tier 2 process and Section 404 permitting.

Mitigation opportunities, if needed, will be identified on site if possible.

## **1.6.20 Visual Resources**

### ***Existing Conditions***

The landscape setting throughout the project areas is characterized by rugged terrain, V-shaped valleys, and historically minded 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. North-and east-facing slopes are dominated by dense lodgepole pine. A large riparian floodplain along Clear Creek is lined with narrowleaf cottonwoods. The scenic attractiveness of the project area, as defined in the PEIS, consist of Class B, which indicates that the lands have some distinctive features but are overall typical of the landscape. The I-70 highway is bordered by Scott Lancaster Memorial Trail /Colorado Bikeway Route. Other sensitive views include recreation sites along Clear Creek. The project area sits in a valley, and improvements will be visible. The Twin Tunnel portals are distinctive visual features along I-70. Visual changes to the Twin Tunnels will need to consider effects to historic integrity, CSS aesthetic guidelines, and areas of special interest.

### ***Methodology***

The visual analysis will follow the Federal Highway Administration's (FHWA) *Visual Impact Assessment for Highway Projects* (FHWA-HI-88-054) guidance. In addition, the I-70 Mountain Corridor Final PEIS will be used as a resource for the analysis approach and identification of specific views and features that are designated for consideration and protection. The parameters of visual character, visual quality, and viewer response will be used to assess the viewshed's landscape units and views. Visual quality will be analyzed by evaluating vividness, intactness, and unity. Viewer response will be analyzed in terms of viewer exposure and viewer sensitivity. Up to five key views will be selected to represent the range of views available in the project area. The view selection process will include field reconnaissance of the corridor and assessment of potential visual character units from which

the existing highway and project are visible. The degree of visual impact will be determined by assessing the visual changes that will be introduced by the project. Up to five visual simulations will be prepared to represent the range of visual impacts and illustrating how the project may appear after construction. Development of mitigation strategies will involve the review of United States Forest Service, Bureau of Land Management, the local jurisdictions' visual standards, and the I-70 Mountain Corridor Context Sensitive Solutions Aesthetic Guidelines. The mitigation strategies are expected to focus on reducing visual contrast associated with the project.

**Key Goal:** Review and consideration of the United States Forest Service, Bureau of Land Management, the local jurisdictions' visual standards, and the I-70 Mountain Corridor Context Sensitive Solutions Aesthetic Guidelines to identify a design solution for the tunnel portals and interior structure.

**Key Risk:** Given the aggressive schedule, development of the project design and engineering plans to the level of detail needed for the visual simulations, so that they will accurately illustrate visual change and provide the basis for mitigation options.

### **1.6.21 Cumulative Impacts**

#### ***Existing Conditions***

Present and near-term transportation projects to consider in the cumulative effects analysis include improvements to the frontage road (CR 314), the study of AGS in the I-70 Mountain Corridor, the refurbishment of the bridge at the US 6 exit, the recently completed Central City Parkway and Hidden Valley interchange, and CDOT's speed harmonization tests. The Clear Creek Sediment Control Action Plan and Clear Creek County Greenway Plan will also be considered. Development and growth projects include future highway-related development around the Hidden Valley interchange and the expansion of recreation-related commercial enterprises such as rafting companies.

#### ***Methodology***

The geographic study area for the cumulative impacts analysis will be the boundaries of Clear Creek County for social resources and the Clear Creek watershed for natural resources. The temporal study area will span from the time before the interstate was built to 2035. Past trends for resources in the study area will be characterized, and research will identify past, present, and reasonably foreseeable future actions that may contribute to cumulative effects on resources in the project area. Initial analysis identifies the following resources for consideration in the cumulative effects analysis, provided impacts on these resources would occur as a result of the Twin Tunnels project: air quality, water quality, aquatic resources, wildlife, threatened and endangered species, wetlands, historic resources, and possibly visual and recreation resources.

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