

3.19 Mitigation Summary

One role of the PEIS is to provide general mitigation policies and strategies to guide the subsequent Tier 2 level of the NEPA process and implementation of the proposed action. These mitigation policies and strategies will undergo necessary refinement as a result of public review and comment on the Draft and Final PEIS, and will become specific mitigation commitments in the Tier 1 Record of Decision (ROD). The environmental impacts and resource mitigation for alternatives are described in sections 3.1 through 3.18. This section summarizes the efforts to avoid or minimize environmental and community impacts, describes Tier 1 mitigation policies, and provides a summary of resource mitigation.

At the Tier 2 level of the NEPA process, project-specific mitigation will be further shaped with design efforts to avoid and minimize impacts to the greatest extent possible.

The historic context of I-70 planning and construction provides a backdrop and perspective for establishing the role of mitigation policies for the future. At the inception of the Interstate Highway System in 1956, crossing the Continental Divide in Colorado was considered an almost insurmountable challenge. Establishing the alignment of I-70 through the Colorado Rocky Mountains involved nearly 40 years of planning and construction from the 1950s to the mid-1990s. Various alignments and tunnel locations over the Continental Divide and Vail Pass and through Glenwood Canyon were studied, and detailed siting occurred throughout the Corridor. The resulting planning, design, and mitigation for construction of the I-70 alignment has resulted in some of the most outstanding achievements in the entire Interstate Highway System. It is also recognized that establishing the existing I-70 alignment resulted from compromise, and there are lingering environmental and community effects that are still apparent today, as addressed in Chapters 3 and 4.

Through the PEIS process, several alternatives were studied to determine whether the project need could be met by utilizing alternate routes to I-70, or by creating new alignments for alternatives not adjacent to I-70. As described in section 2.1, it became apparent that alternate routes would not meet the project need, and new alignments would result in disruption of the environment and communities. As a result, these alternatives were screened from further consideration. The 21 alternatives that were retained for the PEIS would all be either adjacent to I-70 or would modify the existing I-70 template as described in section 2.2 to avoid or minimize further impacts in the Corridor.

3.19.1 Efforts to Avoid and Minimize Environmental and Community Impacts

Practical measures have been taken throughout the PEIS process to identify alternatives that would minimize environmental and community impacts. These efforts have centered on developing alternatives through the coordination of conceptual planning, design, and environmental studies, with the intent of minimizing alternative footprints. In addition, committees were formed to address issues and mitigation potential associated with sensitive resources. These measures will be key considerations in selection of the preferred alternative, design strategies for Tier 2, and implementation.

Key strategies in development of alternative alignments and design concepts to avoid and minimize environmental and community impacts are described below. Other efforts to avoid or minimize impacts that have been considered in the PEIS are provided in section 2.1.

- **Detailed planning to reduce alternative template width.** Throughout the Corridor, walls were used to reduce certain cut-and-fill areas. In areas where cut or fill slopes had the potential to extend beyond 30 feet, a retaining wall was added to the conceptual design to avoid the expansive slopes.

- **Use of existing I-70 area.** Efforts to minimize harm have been made in the conceptual design of alternatives. These efforts include using as much of the existing disturbed roadbed as possible and constructing walls to minimize slopes.
- **Snow storage areas.** Highway alternative templates include snow storage areas in select locations to capture snow and other roadway runoff, to reduce impacts on adjacent ecosystems.
- **Detailed planning in restrictive locations.** These areas include Dowd Canyon, Eisenhower-Johnson Memorial Tunnels (EJMT), Silver Plume, Georgetown, Fall River Road, Idaho Springs, Hidden Valley, and the US 6/I-70 interchange.
 - **Constraints near the EJMT.** To minimize the effect of alternatives on Loveland Ski Area operations, the third tunnel bore associated with each action alternative was located north of I-70 instead of south of I-70. More detailed studies will be required to confirm the feasibility of locating the third tunnel bore at this location.
 - **Alignments considered near Silver Plume.** In an attempt to avoid encroachment on Silver Plume, interchange alternatives were developed. Community development exists on both sides of I-70 through Silver Plume. Any expansion of transportation facilities through Silver Plume would alter the interchange and directly affect the community. In response to community comments, the westbound exit/entrance ramps would be relocated to the west edge of Silver Plume. During any Tier 2 NEPA analysis, a full range of design options for this interchange (including keeping the ramps in place) would be evaluated. Tunnel alternatives that would potentially avoid Silver Plume were studied and found to be infeasible. In addition, a new tunnel would have significant impact on the town.
 - **Rockfall hazard near Georgetown.** All alternatives were expanded to the south of I-70 near Georgetown Hill to avoid the constraints of this rockfall hazard area. A tunnel was considered in this area to further avoid impacts on Georgetown and Silver Plume; however, a tunnel is not considered feasible due to geological constraints from historic mining.
 - **Minimizing footprint in Idaho Springs.** Several measures were taken to minimize the footprint of alternatives near Idaho Springs, due to the proximity of I-70 to community development, the football field, the Charlie Taylor Waterwheel Park, Clear Creek, and steep slopes. All alternatives through Idaho Springs may be structured or overlapped to reduce template width in this area. Elevated sections could be located on the eastbound or south side of I-70 to minimize impacts on the town. The Rail with IMC and AGS alternatives were located on the south side of Idaho Springs to avoid community impacts. As a result, alternatives would be nearer to Clear Creek and wetlands due to the restricted topography of Clear Creek Canyon. A full range of design options will be considered in Idaho Springs during Tier 2 analysis.
 - **Visual effects at the Genesee Bridge.** This bridge is locally known as the Picture Bridge due to the framed views of the Continental Divide and Denver afforded from the highway at this vantage point. This panoramic viewshed is the last glimpse of the Continental Divide from westbound I-70 until west of Silver Plume. In order to avoid disruption of the panoramic views, Transit alternatives in this location were designed to traverse under the bridge.

Supporting Documentation

- Appendix F, Biological Resources and Wetlands Documentation
- Appendix G, Water Resources
- Appendix I, Regulated Materials and Historic Mining
- Appendix K, Overview of Water Availability and Growth, and Forest Service Land Management
- Appendix N, Historic Property Survey, Native American Consultation, and Paleontological Resources

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- **Rail with IMC and AGS alignments.** Alignment locations for the Rail with IMC and AGS alternatives vary (north or south side of I-70) based on proximity of sensitive features. The ability to alternate sides of I-70 allows for avoidance of geologic constraints, streams, wetlands, communities, and other sensitive features.
- **Avoiding impacts on wetlands.** Impacts on wetlands, other waters of the US, riparian areas, and aquatic habitats would be avoided where possible by means of alignment shifts away from the resource, in accordance with 404 (b)(1) guidelines. Impacts on fens will be avoided entirely.
- **Protecting Historic Properties.** Alignments and design concepts have been developed to avoid or minimize effects on historic properties. Alternatives within the Georgetown-Silver Plume National Historic Landmark (NHL) District; the Lawson, Downieville, Dumont historic area; and Idaho Springs (includes Historic Commercial District and potential historic area) have been located so that footprints are minimized. Other alternatives considered (for example, a Georgetown Hill tunnel) were found to be infeasible and were screened from further consideration. A Programmatic Agreement (PA) will be developed with input from consulting parties for compliance with Section 106 of the National Historic Preservation Act to protect historic properties.

3.19.2 Mitigation Policies

The following mitigation policies will be implemented by CDOT and FHWA during Tier 2 studies:

1. Employ design strategies to further minimize impacts on communities and the environment, including the following:
 - a. 1A – Utilize the general alignment and design elements selected during Tier 1 unless other reasonable and feasible alternatives with similar or fewer impacts surface.
 - b. 1B – Use standard design parameters. In isolated instances, consider variances from standard designs in order to further minimize impacts, as long as the resulting alternatives are reasonable and feasible.
 - c. 1C – Utilize the principles of “Context Sensitive Design,” including significant involvement of affected communities in determining the ultimate footprint, aesthetic elements, and other features germane to the alternative.
 - d. 1D – Determine noise mitigation strategies with affected communities, residents, and businesses.
 - e. 1E – Encourage interested parties to develop and evaluate a list of reasonable design refinements to the selected alternative that would represent an affected community’s ideal of aesthetically pleasing infrastructure.
2. Apply the conditions to be set forth in the Programmatic Agreement between the consulting parties involving Section 106 of the National Historic Preservation Act.
3. Fulfill responsibilities set forth in the ALIVE (A Landscape level Inventory of Valued Ecosystem components) agreement and the Biological Assessment to be developed in conjunction with USFWS. The ALIVE program provides opportunities to address issues related to improving wildlife movement and reducing habitat fragmentation in the Corridor. Mitigation measures will be developed to offset impacts on species identified in the Biological Report for the WRNF and ARNF.
4. Comply with the 404(b)(1) guidelines of the Clean Water Act. Engage stakeholders to continue the work of the Stream and Wetland Ecological Enhancement Program (SWEEP) committee in an effort to integrate water resource needs (such as water quality, fisheries, wetlands, and riparian

areas) with design elements for construction activities and long-term maintenance and operations of the transportation system.

5. Integrate winter storm management and maintenance procedures into the template of the infrastructure. Highway alternative templates throughout Clear Creek County would include snow storage areas in select locations to capture snow and other roadway runoff to reduce impacts on adjacent ecosystems.
6. Implement the Sedimentation Control Action Plans (SCAPs) developed specifically for Straight Creek and Black Gore Creek to identify methods to control the existing transport of winter sanding materials. Consider other Corridor areas such as the upper reaches of Clear Creek for additional SCAP activity.
7. Develop information systems (such as advertising campaigns to support local businesses, signage with hours of operation, and detour plans) to inform affected communities, I-70 travelers, businesses, and homeowners about construction activities and schedules.

Other examples of design strategies are outlined in section 3.19.3 and Table 3.19-1.

3.19.3 Summary of Resource Mitigation

The environmental issues and mitigation described in this section are programmatic in nature. All alternatives could result in varying degrees of impact on the resources under study. Mitigation strategies are comprehensive in nature and crafted for this Corridor to address the types of resource impacts reported in sections 3.1 through 3.18.

The mitigation policies and strategies presented in this section will be shaped to the preferred alternative as a result of public review of and comment on this Draft PEIS, then presented in the Final PEIS. These policies and strategies will undergo any necessary refinement resulting from public review and comment on the Final PEIS, and will become specific mitigation commitments in the Tier 1 ROD.

At the Tier 2 level of the NEPA process, project-specific mitigation will be further shaped with design efforts to further avoid and minimize impacts to the greatest extent possible.

Table 3.19-1, Summary of Resource Mitigation, recaps the mitigation contained in sections 3.1 through 3.18.

Table 3.19-1. Summary of Resource Mitigation

Resource Topic	Issues	Mitigation
3.4, Water Resources	<p>Direct Impacts</p> <ul style="list-style-type: none"> • Highway runoff and winter roadway maintenance activities' impact on water quality • Disturbance of historic mine waste materials due to highway construction activities that might release contaminants (such as heavy metals) into streams • Potential additional impacts on water quality impaired streams and streams with classifications and standards requiring special consideration • Effects on stream stability, hydrologic function, system health, and riparian system <p>Indirect Impacts</p> <ul style="list-style-type: none"> • Spills and hazardous materials transport possibly releasing contaminants into nearby waterways • Development and urbanization possibly resulting in impacts on water quality and streams • Channelization and other changes to stream morphology 	<p>All action alternatives would require effective drainage of the roadway surface to maintain the integrity of the roadbed and the safety of the traveling public. All water that is captured within the I-70 transportation template will be discharged rapidly through an effective drainage system.</p> <p>Local watershed initiatives will be incorporated into Tier 2 project alternative mitigation strategies, and mitigation will consider the goals of the local watershed planning entity. BMPs implemented along the Corridor, for example, could be designed to address individual watershed entity concerns. In some cases, a monitoring program could be implemented to provide timely information needed for ongoing management of the watershed. Any required control regulations, TMDLs, National Pollutant Discharge Elimination System (NPDES) permits, state standards, or other mandatory control measures, as well as voluntary measures, could then be included in the overall program. CDOT will coordinate with local watershed entities during Tier 2 studies and during design/construction stages to achieve these goals and ensure consistency in the process. In addition, CDOT will work closely with regulatory and resource agencies and the general public throughout this process to ensure adherence to water quality goals at the local, state, and federal levels.</p> <p>In Tier 2 studies, steps will be taken to safeguard intakes for public water supplies in the immediate vicinity of I-70, including alluvial wells associated with Corridor streams, from sediment, deicers, and other constituents contained in highway runoff.</p> <p>Implementation of a project alternative will be done in conformity with Section 107.25 and Section 208 of the CDOT <i>Standard Specifications for Road and Bridge Construction</i>. These specifications also include measures that protect water quality and streams. Tier 2 studies will evaluate and identify permanent mitigation measures for specific issues, including structural controls (beyond the Black Gore Creek and Straight Creek SCAPs).</p> <p>Winter Maintenance and Stormwater Runoff</p> <p>Increased impervious surface would impact winter maintenance activities and stormwater runoff. BMPs, highway maintenance strategies, and drainage/sediment control structures will be implemented as appropriate to minimize impacts from winter maintenance and increased stormwater. Methods of capturing and reducing the amount of sand/salt applied to the Corridor include structural sediment control and retrieval, automated deicing systems, solar snow storage zones, and porous pavement (CDOT 2002a, 2002b).</p> <p>Areas requiring the most plowing and use of traction sand are the higher elevation zones of the Corridor above 9,000 feet that receive more snowfall. Black Gore Creek and Straight Creek are areas where application of traction sand has impaired stream water quality.</p> <p>The SCAPs developed for the Black Gore Creek and Straight Creek I-70 corridors rely extensively on detention basins for collection of sediment (CDOT 2002). These sediment control devices or structural BMPs are effective in reducing suspended solids and total phosphorus in highway discharges. Many of the sediment control measures specified in the SCAPs have already been successful in reducing sediment loads from I-70. Reductions have been measured in Straight Creek and Black Gore Creek. When the SCAPs are fully implemented, sediment load reductions of up to 80 percent are possible (CDOT 2002). However, load reductions would be highly variable due to factors such as runoff distribution, drainage control, sand applications, maintenance procedures, and BMP design. Full implementation of SCAPs could occur in a more timely fashion with the development of a selected alternative.</p>

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Resource Topic	Issues	Mitigation
3.4, Water Resources (continued)	See previous page.	<p>Construction and Stream Disturbance Construction impacts would primarily be mitigated through implementation of appropriate BMPs for erosion and sediment control according to the CDOT <i>Erosion Control and Storm Water Quality Guide</i> (CDOT 2002). According to the guide, a stormwater management plan (SWMP) must be developed before any major construction project that specifies water quality protection BMPs. Both structural and nonstructural control measures are described in the document to reduce water quality impacts from areas disturbed by construction. The SWMP may include monitoring of erosion and water quality during and after construction. Soil stabilization and revegetation measures are commonly employed to reduce long-term impacts from construction disturbance. Drinking water sources and special considerations such as instream flow requirements for fisheries will be evaluated in light of I-70 construction requirements during Tier 2.</p> <p>The portion of I-70 from C-470 to the Clear Creek County border falls under the designated CDPHE NPDES Phase II regulations (as designated and administered by CDPHE-WQCD). This area includes the Mount Vernon Creek, Soda Creek, and Beaver Brook watersheds. CDOT has an NPDES permit (Permit No. COS-000005) authorizing new or existing discharges composed entirely of stormwater from CDOT's municipal separate storm sewer system (MS4). The Storm Water Management Program included in the permit consists of eight programs, including maintenance of structural controls, industrial facilities, construction sites, and facility runoff control. The permit requires BMPs during construction (including site dewatering) and post-construction permanent BMPs to be considered early in the project development process. This commitment will address right-of-way and design of permanent stormwater quality controls in detail to avoid the necessity of retrofitting the stormwater quality control structures in the future. Classifications and uses of the state waters affected by the ramps and roadways would drive the types of permanent water quality control structures necessary to protect these uses. In addition, CDOT's New Development/Redevelopment MS4 Stormwater Management Program calls for increased protection of waters identified as sensitive. An individual NPDES permit could be required for discharge to streams with TMDLs or other special circumstances.</p> <p>Implementation of a project alternative would be done in conformity with Section 107.25 and Section 208 of the CDOT <i>Standard Specifications for Road and Bridge Construction</i> and Senate Bill 40 (SB 40) certification. These specifications would also include measures that protect water quality and streams. Tier 2 studies will evaluate and identify permanent mitigation measures for specific issues, including structural controls beyond the Black Gore Creek and Straight Creek SCAPs. Stream restoration measures might include creation of drop structures and/or bioengineering techniques.</p> <p>Temporary and permanent impacts on stream flow and channels require CWA 404 permitting by the Corps of Engineers (see section 3.6). Impacts on areas that have previously been disturbed by existing I-70 would provide opportunities for stream restoration measures that might improve stream environments and aquatic habitat. Stream restoration measures might include creation of drop structures (used to create riffle and pool areas) and revegetation of barren areas, or possible realignment in Idaho Springs as part of context sensitive design preferences.</p> <p>Impacts from disposal of tunnel waste materials and tunnel construction staging areas would be minimized by rigorous application of SWMPs and BMPs (including site dewatering) that keep construction-originated materials from entering waterways. Tunnel construction would generate large quantities of process/wastewater. CDOT would dispose of process/wastewater according to CDPHE-WQCD requirements. Disposal methods generally include appropriate treatment for disposal to Corridor streams, temporary construction pond disposal, or transport to a treatment facility. The original construction of the EJMT included capture of wastewater in detention basins to allow sediment to settle out. Water was then discharged to Clear Creek and Straight Creek.</p> <p>Additional technical research (Tier 2) will be required to evaluate the possibility of the Floyd Hill tunnel (part of the Six-Lane Highway 65 mph alternative) to affect area groundwater flows that are important today for individual water well owners. Permitting and coordination under CWA Regulation 404 and under water rights and appropriations considerations with the DWR might be necessary. If resident water wells were affected due to the tunnel, mitigation requirements would most likely consist of drilling deeper wells for the affected area residents. Such mitigation would be considered generally feasible. While unlikely based on Tier 1 information, if deeper wells are found not to be feasible, mitigation with an alternative water supply (that is, not local groundwater) might be unrealistic.</p> <p>Floodplain analysis in compliance with 23 CFR 650 will be conducted during Tier 2 studies.</p> <p>Transportation Operations <i>Hydraulic Disruption of Tributary Streams</i> The initial construction of I-70 through Corridor valleys resulted in the interception of numerous tributary streams. Many of the tributaries are ephemeral, flowing only after precipitation events. In some areas along the Corridor, these tributaries drain unconsolidated geologic materials that are subject to severe erosion and sediment or debris transport. Typical measures taken to convey tributary flows included installation of cross-drain culverts beneath I-70. Larger streams require box culverts or bridges.</p> <p>Under conditions of high sediment or debris transport from these tributaries, I-70 can serve as a dam by preventing part or all of the sediment and debris from depositing on the valley floor or in receiving streams and rivers. In these instances, I-70 may reduce the sediment loading to receiving waters. However, significant maintenance of the highway shoulders and culvert drains is required to maintain hydraulic conveyance and to prevent encroachment of debris on the highway. Sediment dikes have been installed in several high debris flow areas along I-70 in the lower Eagle River Valley.</p> <p>In the Clear Creek watershed where these tributaries drain mine waste, I-70 can serve as an effective sediment dam that reduces metal loading. These tributaries are prevalent along I-70 between Idaho Springs and Silver Plume. If additional sediment control structures were installed and maintained in these areas, net cumulative improvements to water quality through reduced sediment metal loading could be realized.</p> <p>Effective hydraulic design and maintenance measures would minimize impacts from tributary hydraulic disruption. For some alternatives, it may be possible to mitigate existing hydraulic problems, resulting in overall improvements to the transportation system and decreased environmental impacts.</p> <p><i>Tunnel Maintenance and Operation</i> Tunnel discharges are typically regulated as point source discharges under the Clean Water Act, requiring an NPDES permit. Further study (Tier 2) will be required to identify tunnels that might require water discharge systems, water treatment systems, and/or NPDES permits. Water rights issues must also be considered in the context of Colorado water law for new groundwater discharges.</p>

Resource Topic	Issues	Mitigation
3.5, Fisheries	<ul style="list-style-type: none"> • Effect on Gold Medal fisheries and "high-value" fisheries as identified by CDOW • Effect on fish and benthic invertebrate habitat, including impact on stream structure, seasonal and spawning habitat, and organic material supply • Impact of water quality and quantity on riparian areas, aquatic habitat, and fisheries • Impacts of sedimentation on aquatic organisms' reproductive success, biodiversity, and biomass • Effects of altered water temperature from construction and operation of roadway modifications on sensitive coldwater species 	<p>See Water Resources above for other applicable mitigation.</p> <p>Mitigation techniques for restoration/replacement of fish habitat generally include placement of boulder cloisters, rock vortex structures, root wads, and protection/transplanting/replacement of vegetation. Other requirements for mitigation plans would include photographic documentation and surveys of "fish holes" so that they can be replaced or cleaned to previous conditions. Additional evaluation of fisheries, including localized temperature concerns, will be performed during Tier 2 studies. The design of project alternative structures would include measures that ensure continued aquatic habitat connectivity and do not cause any obstruction to fish movement. Mitigation and avoidance of impacts on streams (including impacts on water quality and riparian habitat) are further discussed in section 3.4, Water Resources; section 3.6, Wetlands, Other Waters of the US, and Riparian Areas; and Chapter 4, Cumulative Impacts Analysis. Specific mitigation plans for the protection/restoration of fisheries are beyond the scope of the PEIS and will be addressed during Tier 2 studies.</p>
3.6, Wetlands, Other Waters of the US, and Riparian Areas	<ul style="list-style-type: none"> • Loss of wetlands, springs/fens, other waters of the US and riparian areas • Reduced function of wetlands, springs/fens, other waters of the US, and riparian areas • Changes in surface and subsurface hydrology and water quality (for example, inflows, sedimentation, winter maintenance) that result in loss of either area or function 	<p>While mitigation activities are expected to minimize impacts, some impacts on Corridor wetlands and other water resources are still likely. Wetlands and other water resources would have the potential to be affected during construction by erosion-sedimentation material and by runoff from the roadbed during operations. Impacts on wetlands and other water resources will be addressed more specifically for each project that is evaluated during Tier 2. At the Tier 2 level of analysis, detailed delineations will be conducted to define and map wetlands as a basis from which to assess impacts, compare alternatives (as part of meeting CWA Section 404(b)(1) guidelines), and establish a framework for 404 permits. CDOT will examine the feasibility of requiring specific mitigation measures at the Tier 2 level of analysis, including the following:</p> <ul style="list-style-type: none"> • Ensuring construction contracts include a clause requiring the contractor to not spoil waste/excavated materials into a water of the US or other nonjurisdictional aquatic sites • Ensuring construction contracts include a clause stating that all aggregates must be acquired from onsite excavation or pre-existing aggregate mines • Identifying areas of the Corridor where there would be opportunities to restore wetlands and/or enhance wetland functional value along the Corridor and also identifying areas where wetlands could be expanded (such as SWEEP coordination) • Redesigning structures that would impede hydrologic continuity • Controlling the amount of winter traction sand, liquid deicer, and other roadway runoff that affect wetlands and stream systems <p>Efforts to minimize impact have been made in the design of alternatives with such considerations as using as much of the existing highway footprint as possible and erecting walls to minimize slopes. Impacts on wetlands, springs/fens, other waters of the US, and riparian areas would be avoided where possible through alignment shifts away from the resource. Further mitigation strategies will be implemented in the Tier 2 level of study. CDOT is committed to avoid fens through project planning at the Tier 2 level of study.</p> <p>Permanent impacts from expanding the existing transportation template to accommodate transit, additional lanes, or both would be avoided or minimized to the extent possible during engineering design of specific projects. Areas that could not be avoided would be mitigated by restoring and enhancing wetlands or, if these opportunities do not exist, establishing new wetlands. New wetlands sites are being identified for wetland mitigation, and to date one site has been secured in Clear Creek County just west of US 40. CDOT owns a 70-acre parcel that has been set aside for wetland mitigation.</p> <p>BMPs would be used during construction operations, the specifics of which will be developed for each project in the Tier 2 level of study. Possible BMPs include:</p> <ul style="list-style-type: none"> • Erecting exclusion fencing to protect wetlands from intrusions of equipment • Erecting silt fencing and other erosion control materials to protect wetlands and stream systems from erosion run-in • Locating equipment servicing and staging areas at a suitable distance from wetland and drainage systems to protect these areas from contaminants, and placing a berm at the downgradient position between such operations and wetlands-drainage systems • Revegetating areas used for construction support as soon as possible to curtail erosion and rapid runoff that may affect wetlands and aquatic habitats • Developing and implementing stormwater management plans for each phase of the project • Developing noxious weed management plans for each phase of the project • Following CDOT guidelines for concrete washout areas, locating them well away from wetlands, springs/fens, other waters of the US, and riparian areas, and controlling runoff from these areas • Maintaining existing vegetated buffers or establishing buffers to protect wetlands and streams <p>Means to reduce the impacts on area streams of winter sanding operations are currently being evaluated. SCAPs focus on Black Gore Creek (Upper Eagle River sub-basin) and Straight Creek (Upper Blue River sub-basin) because these systems have already been adversely affected by traction sand. This action will result in new practices to provide a beneficial effect on many of the stream systems and associated wetlands along I-70. Other measures to address winter maintenance are currently being evaluated and include sand retrieval, automated deicing systems, and solar snow storage zones.</p>

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3.8, Regulated Material and Mining Waste	<ul style="list-style-type: none"> • Properties contaminated by hazardous waste or petroleum products • Containing hazardous material • Highway accidents potentially releasing environmental contaminants into adjacent land and streams • Potential for contamination from mine tailings and wastes from historic mines in the Corridor 	<p>As a general rule, CDOT would take the following steps to minimize and avoid potential environmental impacts resulting from the disturbance of regulated materials and historic mine wastes:</p> <ul style="list-style-type: none"> • Minimize property acquisition and disturbance of mine wastes, tailings, drainage tunnels, and areas in active/inactive leaking underground storage tank (LUST) sites • Minimize impacts on the Clear Creek channel and floodplain both during and after disturbance of mine waste, tailings, and drainage tunnels • Manage mine waste and tailings materials onsite as far as possible to minimize potential problems resulting from offsite disposal • Minimize wind-blown dust from mine tailings on construction sites by wetting or other dust control measures • Manage mine waste and tailings materials under CDPHE and EPA guidance and authority • Manage contaminated soil and groundwater under applicable CDPHE, EPA, Colorado OPS, and CDOT regulations and guidance • Follow CDOT procedures and other applicable guidance for storage and handling of regulated materials and historic mine waste during construction activities • Work cooperatively with various local, state, and federal agencies and local watershed groups to help avoid further impacts on and possibly improve Clear Creek water quality, including management of mine piles and tunnels within the I-70 right-of-way <p>LUST Sites Disturbance of identified LUST sites would require coordination with Colorado OPS to ensure proper handling and disposal of contaminated materials (also see CDOT requirements and BMPs below). Construction activities associated with the alternatives may also uncover petroleum contamination from identified LUST sites or from LUST site contamination that was not indicated by PEIS research activities (or during subsequent research). Should contamination be discovered, construction activities would be temporarily halted until characterization/storage/disposal/cleanup requirements could be discussed with the Colorado OPS or a professional familiar with OPS procedures and requirements. Non-petroleum contaminants might also be encountered and would be handled under CDPHE Solid Waste or RCRA Hazardous Materials regulations and requirements, and EPA toxic substances requirements if applicable.</p> <p>UST Sites USTs from existing and historic service stations might also be encountered. USTs must be removed according to Colorado OPS requirements during excavation/construction activities for any of the alternatives where they would be affected by the project footprint. Tank removal would generally include sampling and analysis of underlying soil and soil removal (if necessary) to meet OPS designated standards.</p> <p>Dewatering Excavation and grading activities for all of the alternatives, especially those that would include tunnel construction, might encounter groundwater and require dewatering activities. Tunnel construction practices would include consolidation grouting to minimize inflow into the tunnel. However, dewatering activities would be required on the tunnel and at the waste disposal (spoil) areas. Should dewatering be required, permit acquisition (from CDPHE) for discharge of groundwater into nearby surface water may require water analyses, removal of specific contaminants to CDPHE- and EPA-approved levels, and lowering of total suspended solids (TSS) to acceptable levels. Groundwater treatment might be accomplished by filtration, air stripping for volatile compounds, or stage dewatering methods. A permit variance may be necessary for effluent parameter to meet discharge standards. Construction dewatering would require coordination with CDPHE to determine necessary treatment and handling of extracted water before final discharge/disposition.</p> <p>Acid Rock Drainage Excavation of road cuts in areas of mineralized rock would have the potential to introduce conditions for the leaching of metals from these excavated materials. Potential areas of mineralized rock requiring excavation will be specifically identified during Tier 2 studies. Tier 2 mitigation plans will ensure that acid rock drainage would not affect Corridor water quality through the implementation of appropriate BMPs and appropriate disposition activities for these materials.</p> <p>Metal Highway Structures Disturbance or replacement of highway structures such as painted guardrails, signs, or metal bridge components would require appropriate characterization and disposal according to CDPHE guidelines and requirements.</p> <p>CDOT Requirements and BMPs CDOT contractors are required to comply with Section 250, Environmental, Health and Safety Management of the CDOT Standard Specifications, when applicable. The specifications provide guidelines and requirements for health and safety measures during construction, the investigation and testing of contaminated materials, and procedures to use if contamination is encountered during construction.</p> <p>All petroleum products and other hazardous materials (for example, fuel, solvents) used for action alternatives' construction purposes would be handled and stored per CDOT BMPs to prevent accidental spillage or other harm to the project area. If suspected hazardous or petroleum products were encountered during construction, samples of the material would be collected and analyzed for metals, hydrocarbons, organic chemicals (volatile or semivolatile organic compounds), and other toxicity and characteristic parameters to determine what special handling and disposal requirements are appropriate. The telephone numbers for medical and emergency services would be maintained onsite. If any unplanned occurrence requires assistance, the site supervisor or designated person would contact the appropriate response team.</p> <p>Historic Mine Waste CDPHE and EPA coordination would be required for the handling of mine waste materials, and specific CDPHE and EPA approval may be required for construction disturbance of sites that are currently designated as NPL sites within the Clear Creek/Central City Superfund Area. Other Clear Creek historic mining sites that pose considerable threats to Clear Creek might also require specific regulatory actions under CERCLA. Regulatory authority for mine tailings and waste would fall under various state and federal programs, depending on where the waste is located and its designation under CERCLA. CDPHE would be the lead agency (working with EPA) for regulatory actions at the Clear Creek/Central City Superfund Area, and the CDPHE Solid Waste Division would have authority for mine tailings not covered by CERCLA.</p> <p>In addition, FHWA encourages "participation in transportation projects that include the use and redevelopment of contaminated sites when appropriate." Alternative implementation might offer a means to clean up contaminants that might not otherwise be addressed by means of the FHWA 1998 Brownfields Economic Redevelopment Initiative. The initiative, administered by EPA, provides assistance and incentives to agencies for the assessment, cleanup, and economic reuse of contaminated properties known as Brownfields.</p>

Resource Topic	Issues	Mitigation
3.8, Regulated Material and Mining Waste (continued)	See previous page.	<p>To address multiple regulatory authorities and to ensure consistent and effective handling of waste materials, CDPHE has recommended that CDOT's materials handling plan be formalized into a Memorandum of Agreement (MOA) between CDOT, EPA, and CDPHE (with involvement of the Solid Waste and CERCLA programs). This MOA would require that CDOT's proposed mine waste management be consistent with CERCLA cleanups that have taken place elsewhere in the area. The MOA would seek CDPHE's and EPA's prior approval of a Materials Management Plan, which includes results of waste pile sampling, a Corridor-wide plan based on performance goals similar to those required by the CDPHE Solid Waste Unit program, and site-specific details similar to the as-builts required by Solid Waste staff. CDOT will work with CDPHE and EPA to develop the Corridor-wide MOA, coordinate MOA activities with local watershed organizations, and provide for public comment as needed.</p> <p>A detailed discussion of the intended contents of the MOA is provided in Appendix I, Regulated Materials and Historic Mining. In general, CDOT would attempt to avoid disturbance of mine waste wherever possible. If avoidance would not be feasible, CDOT would characterize the mine materials and reuse the material onsite according to MOA procedures if possible. Offsite disposal of mine waste materials would be the least desirable mitigation option. Long-term impacts would include the potential to release contaminants from disturbance of mine waste (or other contaminants encountered in soil or groundwater) during construction activities. Such impacts could be avoided with appropriate handling of materials and implementation of state-of-the-practice erosion and sediment control plans.</p> <p>Although contaminant sampling and testing has not yet specifically been performed for mine waste materials within the alternative footprints, it is expected (based on previous studies) that much of these waste materials would have relatively low levels of contaminants and would not be within or from sites requiring specific CERCLA remedial actions. Such materials may be suitable for construction material uses, including backfill and landscaping. These materials would be stabilized and maintained during and after construction to minimize environmental impacts. In certain cases, highway improvements through proper handling and stabilization of these materials, would serve to enhance environmental conditions in the Corridor.</p>