

3.19 Mitigation Summary

One role of this document is to provide general mitigation strategies guiding subsequent Tier 2 National Environmental Policy Act (NEPA) processes and implementation of the Preferred Alternative. These mitigation strategies may become specific mitigation commitments in Tier 2 processes.

Practical measures were taken throughout this process to identify alternatives minimizing environmental and community impacts. These efforts 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. See **Section 6.5 “Who participated in the public and agency information and involvement program?”** for more information. These measures are key considerations in design strategies for Tier 2. In Tier 2 processes, project-specific mitigation is further shaped and implemented with design efforts to further avoid and minimize impacts to the greatest extent possible.

Sections 3.1 through 3.18 describe the environmental impacts and resource mitigation strategies for alternatives. **Table 3.19-1** provides a compilation of the mitigation strategies contained in **Sections 3.1 through 3.18**.

In addition to the mitigation strategies, the lead agencies will comply with all laws and agreements including the following:

1. Employ I-70 Mountain Corridor Context Sensitive Solutions design criteria for engineering and aesthetic guidance to further minimize impacts on communities and the environment.
2. Apply the conditions set forth in the Programmatic Agreement among the consulting parties involving Section 106 of the National Historic Preservation Act.
3. Fulfill responsibilities set forth in the ALIVE Memorandum of Understanding (A Landscape level Inventory of Valued Ecosystem components) to be developed in conjunction with the ALIVE Committee comprised of city, county, local, and federal representatives. The ALIVE program provides opportunities to address issues related to improving wildlife movement and reducing habitat fragmentation in the Corridor.
4. Fulfill responsibilities set forth in the Biological Assessment/Biological Opinion developed in conjunction with the United States Fish and Wildlife Service.
5. Mitigation measures will be developed to offset impacts on species identified in the Biological Report for the White River National Forest and the Arapaho and Roosevelt National Forests.
6. Comply with the Section 404(b)(1) guidelines of the Clean Water Act.
7. Engage stakeholders to continue the work of the Stream and Wetland Ecological Enhancement Program (SWEEP) Committee to integrate stream and wetland improvements (such as water quality, fisheries, wetlands, and riparian areas) with design elements for construction activities and long-term maintenance and operations of the program of projects within the Corridor.
8. Integrate winter storm management and maintenance procedures into any of the proposed improvements. Highway Alternative improvements throughout Clear Creek County will include snow storage areas in select locations to capture snow and other roadway runoff to reduce impacts on adjacent ecosystems.

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9. Address specifically identified Total Maximum Daily Load (TMDL) thresholds, and implement the Sediment Control Action Plans developed specifically for Straight Creek and Black Gore Creek to identify methods to control the existing transport of winter sanding materials. Develop Sediment Action Control Plans for other Corridor areas such as the upper reaches of Clear Creek.
10. 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.
11. The full Section 4(f) evaluation 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 the Tier 2 screening, 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.

Table 3.19-1. Mitigation Strategies

Resource Topic	Potential Impacts	Mitigation Strategies
<p>3.1, Climate and Air Quality Resources</p>	<ul style="list-style-type: none"> • Continued vehicular emissions of pollutants of concern globally and locally • Emissions of vehicle and dust generated during construction 	<p>The Colorado Department of Transportation will support policies and programs, as described below to improve air quality in the Corridor:</p> <ul style="list-style-type: none"> • Support local jurisdiction efforts, such as those in Clear Creek County, to secure grants to help develop data that will better inform the air quality measurements and mitigation • Support engine idling ordinance to restrict emissions produced from idling auto and commercial vehicles, especially buses, delivery trucks, etc. • Continue to explore highway maintenance strategies to minimize the amount of sand used for winter maintenance and to remove the sand from the roadway to minimize re-entrained dust • Continue to support regional, statewide, and national efforts to reduce air pollutants and comply with current air quality regulations <p>This document acknowledges some issues of air quality, particularly emissions of greenhouse gases, are global issues that are difficult to affect on a project-specific level. As such, the lead agencies are committed to working on these broad issues, as described in Chapter 4, Cumulative Impacts Analysis, while also incorporating measures to control air pollutant emissions locally.</p> <p>Because project alternatives are not anticipated to cause or result in violations of any National Ambient Air Quality Standards, most mitigation measures for air quality will center on controlling fugitive dust during construction, operations, and maintenance. The following conceptual techniques for mitigation of construction impacts could be considered:</p> <ul style="list-style-type: none"> • Control fugitive dust through a fugitive dust control plan, including wetting of disturbed areas • Use the cleanest fuels available at the time in construction equipment and vehicles to reduce exhaust emissions • Keep construction equipment well maintained to ensure that exhaust systems are in good working order • Control blasting and avoid blasting on days with high winds to minimize windblown dust from blasting, particularly near community areas • Minimize dust from construction in or near tailing areas • Air quality monitoring during construction, including PM 2.5 monitoring • Investigate requirements or incentives for retrofitting construction vehicles and equipment to reduce emissions (e.g., idling equipment) <p>During Tier 2 processes, CDOT will conduct the following activities:</p> <ul style="list-style-type: none"> • 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

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3.2, Biological resources: Vegetation and Wildlife Habitat	<ul style="list-style-type: none"> • Vegetation and habitat loss due to construction • Disturbance of nesting birds • Downstream impacts to aquatic species 	<p>The Colorado Department of Transportation will identify areas of potential habitat restoration, in coordination with the United States Forest Service and local entities. Construction work affecting migratory birds will comply with the requirements of the Migratory Bird Treaty Act and will be performed according to CDOT specifications to avoid impacts to migratory birds before and during construction. Also, mitigation of protected bird and fish species will comply with South Platte Water Related Activities Program, the Platte River Recovery Implementation Program, and the Colorado River Recovery Implementation Program.</p>
3.2, Biological Resources: Noxious Weeds	<ul style="list-style-type: none"> • Introduction and/or spread of noxious weeds into lands adjacent to the I-70 Mountain Corridor 	<p>The Colorado Department of Transportation will manage the clearing and earthmoving operations to minimize the potential for weeds to infest new areas and/or increase in abundance through the construction disturbance area. This includes the application of best management practices to all construction sites to manage open soil surfaces and topsoil stockpiled for reuse, including landscape and planning designs that incorporate the use of native vegetation and integrated noxious weed controls. The Colorado Department of Transportation will prepare and implement Noxious Weed Management Plans for all projects, which are usually completed just prior to construction so they reflect the most recent federal and local noxious weed lists and guidance. Noxious Weed Management Plans will identify the status and location of noxious weed infestations in and near individual project areas and identify control methods (e.g. herbicides) and best management practices that will be used to eradicate or control weeds during and after construction. These best management practices generally include, but are not limited to, minimization of soil disturbance, use of native species in seeding and revegetation plans, use of weed free hay, topsoil management, equipment cleaning and management, and coordination with relevant stakeholders such as County Weed Supervisors.</p>
3.2, Biological Resources: Winter Maintenance	<ul style="list-style-type: none"> • Increased sedimentation and salinization of streams in the I-70 Mountain Corridor 	<p>The Colorado Department of Transportation will limit the effects of winter maintenance by controlling the runoff of contaminants and winter maintenance materials to the greatest extent possible. The Colorado Department of Transportation will continue to refine its approach to winter maintenance in an effort to decrease the use of deicers and traction sand. Mitigation strategies will be designed to be complementary to the existing Sediment Control Action Plans on Straight Creek, Black Gore Creek, and Clear Creek.</p>
3.2, Biological Resources: Habitat Connectivity and Animal Vehicle Collisions	<ul style="list-style-type: none"> • A larger highway footprint increases the barrier effect of wildlife movement and the likelihood of animal vehicle collisions 	<p>The lead agencies will follow the processes outlined in the ALIVE (A Landscape Level Inventory of Valued Ecosystem Components) Memorandum of Understanding (see Appendix E) to reduce animal-vehicle collisions and increase habitat connectivity throughout the Corridor. This includes, but is not limited to, the use of underpasses or overpasses dedicated to wildlife movement, fencing, berms, and vegetation to guide wildlife to crossing structures, as well as signage to alert motorists of wildlife presence. In addition, existing natural features that enhance habitat connectivity, such as the Twin Tunnels Wildlife Land Bridge, will be protected, if feasible.</p>

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<p>3.2, Biological Resources: Aquatic Habitat</p>	<ul style="list-style-type: none"> • Increased sedimentation due to erosion and stormwater runoff • Increased channelization due to stormwater runoff • Loss of fish habitat due to construction in and/or adjacent to streams in the I-70 Mountain Corridor. 	<p>The lead agencies will incorporate the recommendations developed by the SWEEP Committee. In addition, CDOT will use best management practices and erosion control measures to reduce soil losses, soil inundation, and sedimentation in areas adjacent to the construction area and provide sufficient cross-slope drainage structures during new construction to allow natural hydrologic conditions to be maintained on both sides of the right-of-way. Fish habitat will be restored and replaced, using photo documentation to help return these areas to previous conditions.</p>
<p>3.3, Wetlands and Other Waters of the U.S.</p>	<ul style="list-style-type: none"> • Loss of wetlands, fens, and other waters of the U.S. • Reduced function of wetlands, fens, and other waters of the U.S. • Changes in surface and subsurface hydrology and water quality (for example, inflows, sedimentation, and winter maintenance) that result in loss of either area or function • Indirect impacts of sedimentation and stormwater runoff on wetlands and other waters of the U.S. during construction, during road maintenance operation, and post-construction 	<p>At the first tier the focus of mitigation is on avoidance and minimization of impacts. Impact avoidance and minimization strategies were incorporated into the development of Action Alternative alignments and design concepts. However, while mitigation activities are expected to avoid and minimize impacts, some impacts on Corridor wetlands and other water resources are still likely.</p> <p>The Colorado Department of Transportation is committed to implementing the Stream and Wetland Ecological Enhancement Program (SWEEP) Memorandum of Understanding as the foundation of mitigation for aquatic resource impacts during projects along the Corridor and its communities (see Appendix D, SWEEP Memorandum of Understanding). The SWEEP Committee will identify and recommend appropriate mitigation strategies, including design, implementation, and monitoring to anticipate environmental impacts resulting from redevelopment of the Corridor. The SWEEP Committee will coordinate with the ALIVE Committee to increase the permeability of the I-70 Mountain Corridor to terrestrial and aquatic species to provide and maintain long-term protection and restoration of wildlife linkage areas, improve habitat connectivity, and preserve essential ecosystem components.</p> <p>Overall mitigation strategies provide the opportunity to reduce impacts and enhance wetland environments in the Corridor. Impacts on wetlands, and other waters of the U.S. will be addressed more specifically for each project evaluated during Tier 2 processes. Additionally, CDOT's policy is to mitigate all impacts on a one-to-one per acre basis, regardless of whether the wetland is jurisdictional or non-jurisdictional. The Colorado Department of Transportation owns the Clear Creek Mitigation Bank, which has been set aside for wetland mitigation. This site is located just west of US 40.</p>

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<p>3.4, Water Resources</p>	<ul style="list-style-type: none"> • Increase existing mine waste, tailings, and drainage tunnels impacts (acids, minerals, additives) on watershed water quality through project disturbance of these areas • Increased sedimentation and salt issues due to construction activities or increased road surface requiring winter maintenance • Increased metals being released into the watershed due to disturbance of baseline soils having high contents of these metals or due to increased roadway wash from stormwater runoff • The increase of hydraulic disruption (length of stream alteration) of tributary flows into the main creek, stream, and river channels • The unnatural increase in water flow caused by induced growth in the area that influences the need to import water and the affects of these flows on the natural system 	<p>The Colorado Department of Transportation will incorporate the following strategies to minimize and avoid potential environmental impacts on water resources from the proposed project. A more comprehensive discussion of mitigation strategies is found in the <i>I-70 Mountain Corridor PEIS Water Resources Technical Report</i> (CDOT, March 2011).</p> <ul style="list-style-type: none"> • Water resource mitigation recommendations developed by the SWEEP Committee will be integrated into Tier 2 processes. • The Colorado Department of Transportation will work cooperatively with various local, state, and federal agencies and local watershed groups to avoid further impacts on and possibly improve Clear Creek water quality, including management of impacted mine waste piles and tunnels within the Corridor and through the use of appropriate best management practices during storm water permitting. For additional information on minimizing water quality effects from disturbing mine waste, tailings, and drainage tunnels, see discussion of regulated materials and historic mining in Section 3.6, Regulated Materials and Historic Mining. • Local watershed initiatives will be incorporated into site-specific Action Alternative mitigation strategies, and mitigation will consider the goals of the local watershed planning entity. Detention basins for the collection of sediment as outlined in the Sediment Control Action Plans developed for the Black Gore Creek and Straight Creek corridors (Clear Creek Sediment Control Action Plan is under development) will be part of the mitigation strategy for this Corridor. Sediment Control Action Plans could be implemented concurrently with development of an Action Alternative, and will consider drinking water source protection. • The Colorado Department of Transportation is looking into ways to mitigate for winter maintenance activities beyond the implementation of SWEEP that will provide for sediment and stormwater catchment basins. Better training for snowplow staff so they know when they can minimize the use of sand or deicers if the roadway conditions do not need as much as for other times would help minimize the introduction of these contaminants over time. <p>The Colorado Department of Transportation will manage construction impacts through the implementation of a Stormwater Management Plan which provides detailed guidance on the location, installation, and maintenance of stormwater best management practices for erosion and sediment control. A Stormwater Management Plan will be prepared for each construction project within the Corridor in accordance with the CDOT Standards and Specifications for Road and Bridge construction, specifically subsection 208 Erosion Control. The best management practices identified in the Stormwater Management Plan must be installed prior to commencement of construction activity and maintained throughout construction until the site has achieved stabilization and vegetation has been established. Efforts will be included in further design phases to minimize impacts to water quality and other water resources by refining placement of roadway and road piers to avoid impacts when feasible.</p>

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3.5, Geologic Hazards	<ul style="list-style-type: none"> • Existing geologic hazards could be disturbed and exacerbated, adversely affecting safety, service, and mobility due to rockfalls, debris flows, mudflows, avalanches, landslides, and other hazards • Construction could intersect areas of geologic instability (adverse jointing fracture patterns and/or bedding) and create geologic hazards • Boring of new tunnels will generate large quantities of wastes that are difficult to manage and dispose of 	<p>The lead agencies will incorporate mitigation strategies learned from previous projects, such as:</p> <ul style="list-style-type: none"> • Incorporating new design features to minimize slope excavation and follow natural topography. • Use of excavation and landscaping techniques to minimize soil loss and reverse existing erosion problems. • Use of rock sculpting, which involves blasting rock by using the existing rock structure to control overbreak and blast damage, to create a more natural-looking cut. • Use of proven techniques, such as rockfall catchments, mesh, cable netting, and fences, as well as scaling and blasting, to address rockfall from cut slope areas. • Reuse of excavated material from tunnel construction onsite where possible. If materials are used on National Forest System lands, the lead agencies will follow the <i>Memorandum of Understanding Related to Activities Affecting the State Transportation System and Public Lands in the State of Colorado among the Federal Highway Administration, Colorado Department of Transportation, Bureau of Land Management, and United States Forest Service</i>. • Adhering to the <i>Programmatic Agreement among the Federal Highway Administration, Advisory Council on Historic Preservation, United States Forest Service, Colorado Department of Transportation and State Historic Preservation Officer Regarding Rockfall Mitigation Projects along Interstate 70 within the Georgetown-Silver Plume National Historic Landmark District (2009)</i>.
3.6, Regulated Materials and Historic Mining	<ul style="list-style-type: none"> • Potential for impacting and/or acquiring properties contaminated by hazardous waste, petroleum products, and/or mining waste • Potential release of environmental contaminants into adjacent lands and streams from highway accidents and/or construction disturbance • Contamination from existing mine tailings and wastes from historic mines could be encountered in the Corridor 	<p>The Colorado Department of Transportation will take the following steps to minimize and avoid potential environmental impacts resulting from regulated materials and historic mine waste:</p> <ul style="list-style-type: none"> • Minimize property acquisition and disturbance of mine wastes, tailings, drainage tunnels, and areas adjacent to or within active/inactive leaking underground storage tank 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, when possible, to minimize disposal problems and costs • Minimize wind-blown dust from mine tailings on construction sites by wetting or appropriate other dust control measures. If dust control occurs near surface waters, ensure that proper stormwater management best management practices are in place to protect surface waters from runoff if water is applied excessively for dust control. • Manage mine waste and tailings materials under Colorado Department of Public Health and Environment and Environmental Protection Agency guidance and authority • Manage contaminated soil and groundwater under applicable Colorado Department of Public Health and Environment, Environmental Protection Agency, Division of Oil and Public Safety, and CDOT regulations and guidance • Follow CDOT procedures and other applicable guidance for storage and handling of regulated materials, as well as historic mine waste during construction activities • Work cooperatively with various local, state, and federal agencies and local watershed groups to avoid further impacts on and possibly improve water quality

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		<ul style="list-style-type: none"> • Develop a monitoring and a sampling program, as necessary, to monitor contamination, with consideration of the mining history in the Corridor. Previous studies have identified the need to monitor and sample eight metals regulated under the Resource Conservation and Recovery Act due to extensive historic mining in the Corridor. • Any soil removed during trenching or augering will be conducted in accordance with specified health and safety regulations concerning the handling of soils with heavy metal content. <p>Leaking Underground Storage Tank Sites</p> <p>Disturbance of identified leaking underground storage tank sites will require coordination with Division of Oil and Public Safety to ensure proper handling and disposal of contaminated materials (also see CDOT requirements and best management practices below). Construction activities associated with the alternatives may also uncover petroleum contamination from identified leaking underground storage tank sites or from leaking underground storage tank site contamination that was not indicated by research activities (or during subsequent research). Should contamination be discovered, construction activities will be temporarily halted until characterization/storage/disposal/ cleanup requirements can be discussed with the Division of Oil and Public Safety or a professional familiar with Division of Oil and Public Safety procedures and requirements.</p> <p>Non-petroleum contaminants might also be encountered and will be handled under Colorado Department of Public Health and Environment Solid Waste or Resource Conservation Recovery Act Hazardous Materials regulations and requirements, and Environmental Protection Agency toxic substances requirements, if applicable.</p> <p>Underground Storage Tank Sites</p> <p>Underground storage tanks from existing and historic service stations might also be encountered. Underground storage tanks must be removed according to Division of Oil and Public Safety requirements during excavation/construction activities for any of the alternatives where they are affected by the project footprint. Tank removal will include sampling and analysis of underlying soil and soil removal (if necessary) to meet Division of Oil and Public Safety designated standards.</p> <p>Dewatering</p> <p>Excavation and grading activities for all of the alternatives, especially those that will include tunnel construction, might encounter groundwater and require dewatering activities. Tunnel construction practices will include consolidation grouting to minimize inflow into the tunnel. However, dewatering activities will be required on the tunnel and at the waste disposal (spoil) areas. Permit acquisition (from Colorado Department of Public Health and Environment) for discharge of groundwater into nearby surface water will require water analyses, removal of specific contaminants to Colorado Department of Public Health and Environment and Environmental Protection Agency approved levels, and lowering of total suspended solids to acceptable levels. Groundwater treatment will be accomplished by filtration, air stripping for volatile compounds, or stage dewatering methods. A permit variance will be necessary for effluent parameter to meet discharge standards. Construction dewatering will require coordination with Colorado Department of Public Health and Environment to determine necessary treatment and handling of extracted water before final discharge/disposition.</p>

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		<p>Acid Rock Drainage Excavation of road cuts in areas of mineralized rock will 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 processes. Tier 2 mitigation plans will ensure that acid rock drainage will not affect Corridor water quality through the implementation of appropriate best management practices 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 will require appropriate characterization and disposal according to Colorado Department of Public Health and Environment guidelines and requirements.</p> <p>Colorado Department of Transportation Requirements and Best Management Practices The Colorado Department of Transportation contractors are required to comply with Section 250, Environmental, Health and Safety Management of 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 such as fuel and solvents, used for Action Alternatives' construction purposes will be handled and stored per CDOT best management practices 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 will 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 will be maintained onsite. If any unplanned occurrence requires assistance, the site supervisor or designated person will contact the appropriate response team.</p> <p>Historic Mine Waste The Colorado Department of Public Health and Environment and Environmental Protection Agency coordination will be required for the handling of mine waste materials, and specific Colorado Department of Public Health and Environment and Environmental Protection Agency approval will be required for construction disturbance of sites that are currently designated as National Priority List sites within the Clear Creek/Central City Superfund Area. Other Clear Creek historic mining sites that pose considerable threats to Clear Creek will also require specific regulatory actions under the Comprehensive Environmental Response, Compensation, and Liability Act. Regulatory authority for mine tailings and waste fall under various state and federal programs, depending on where the waste is located and its designation under the Comprehensive Environmental Response, Compensation, and Liability Act. The Colorado Department of Public Health and Environment will be the lead agency (working with Environmental Protection Agency) for regulatory actions at the Clear Creek/Central City Superfund Area, and Colorado Department of Public Health and Environment Solid Waste Division will have authority for mine tailings not covered by the Comprehensive Environmental Response, Compensation, and Liability Act.</p>

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		<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 Environmental Protection Agency, provides assistance and incentives to agencies for the assessment, cleanup, and economic reuse of contaminated properties known as Brownfields.</p> <p>The Colorado Department of Transportation will attempt to avoid disturbance of mine waste wherever possible. If avoidance is not feasible, CDOT will characterize the mine materials and reuse the material onsite, if possible. Offsite disposal of mine waste materials will be the least desirable mitigation option. Long-term impacts will 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 will have relatively low levels of contaminants and will not be within or from sites requiring specific Comprehensive Environmental Response, Compensation, and Liability Act remedial actions. Such materials may be suitable for construction material uses, including backfill and landscaping. These materials will 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 will serve to enhance environmental conditions in the Corridor.</p>
3.7, Land Use and Right-of-Way	<ul style="list-style-type: none"> • The Action Alternatives increase the footprint of the I-70 highway and its interchanges. This impacts properties adjacent to the I-70 highway, primarily in Clear Creek County, as well as National Forest System lands and special use permits • Induced growth likely occurs in Summit and Eagle counties, and in Garfield County, which is susceptible to changes in Eagle County • Construction workers need temporary housing in the Corridor throughout the construction period. Affordable housing is not available and Corridor communities are 	<p>The phased approach of the Preferred Alternative provides ongoing opportunities to avoid and minimize impacts to adjacent land use, establish effective mitigation, employ I-70 Mountain Corridor Context Sensitive Solutions, and implement future phases of the alternative based on future needs and associated triggers for further action. Primary mitigation strategies to avoid or reduce direct effects to adjacent properties include design refinement, particularly at interchanges, and physical measures such as the use of retaining walls or elevated structures.</p> <p>For any person(s) whose real property interests may be impacted by Tier 2 projects, the acquisition of those property interests will comply fully with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act). The Uniform Act is a federally mandated program that applies to all acquisitions of real property or displacements of persons resulting from federal or federally assisted programs or projects. It was created to provide for and insure the fair and equitable treatment of all such persons. To further ensure that the provisions contained within this act are applied “uniformly,” CDOT requires Uniform Act compliance on any project for which it has oversight responsibility regardless of the funding source. Additionally, the Fifth Amendment of the United States Constitution provides that private property may not be taken for a public use without payment of “just compensation.” All impacted owners will be provided notification of the acquiring agency’s intent to acquire an interest in their property including a written offer letter of just compensation specifically describing those property interests. A Right of Way Specialist will be assigned to each property owner to assist them with this process.</p>

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	<p>concerned about the reuse of housing once construction is complete</p>	<p>In certain situations, it may also be necessary to acquire improvements that are located within a proposed acquisition parcel. In those instances where the improvements are occupied, it becomes necessary to “relocate” those individuals from the subject property (residential or business) to a replacement site. The Uniform Act provides for numerous benefits to these individuals to assist them both financially and with advisory services related to relocating their residence or business operation. Although the benefits available under the Uniform Act are far too numerous and complex to discuss in detail in this document, they are available to both owner occupants and tenants of either residential or business properties. In some situations, only personal property must be moved from the real property and this is also covered under the relocation program. As soon as feasible, any person scheduled to be displaced shall be furnished with a general written description of the displacing Agency’s relocation program which provides at a minimum, detailed information related to eligibility requirements, advisory services and assistance, payments, and the appeal process. It shall also provide notification that the displaced person(s) will not be required to move without at least 90 days advance written notice. For residential relocatees, this notice cannot be provided until a written offer to acquire the subject property has been presented, and at least one comparable replacement dwelling has been made available. Relocation benefits will be provided to all eligible persons regardless of race, color, religion, sex, or national origin. Benefits under the Act, to which each eligible owner or tenant may be entitled, will be determined on an individual basis and explained to them in detail by an assigned Right of Way Specialist.</p> <p>Regarding workforce housing, the lead agencies will consider coordinating with local jurisdictions and federal housing authorities to create and implement a Workforce Plan addressing workforce housing needs and permanent housing strategies.</p> <p>The lead agencies will follow United States Forest Service standards and guidelines provided by White River National Forest and Arapaho and Roosevelt National Forests resource specialists for the protection of National Forest System lands. (See the <i>I-70 Mountain Corridor PEIS Land Use Technical Report</i> (CDOT, March 2011) for a list of these standards and guidelines categorized by forest and resource.) Any deviations from standards must be analyzed and documented in a Resource Management Plan amendment; deviations from guidelines require explanation of reasons for the deviations, but not a Resource Management Plan amendment. Tier 2 processes will include conceptual mitigation plans for impacts on United States Forest Service special use permits, including measures such as maintaining access to permitted areas and uses during construction, relocating permitted structures and utility easements, and minimizing interruptions to service during construction.</p> <p>The Colorado Department of Transportation will consider an approach to promote and assist communities, as possible, in the adoption of more comprehensive, regional growth management plans that can be applied to Tier 2 processes. The recommendations for this approach include exploring the possibility of creating grants for communities that lack the resources to develop a growth plan; working with local councils of government and the Colorado Department of Local Affairs to assist with funding; and promoting the consideration of open space as community separators, or view sheds distinguishing communities, including studies led by the United States Forest Service and Bureau of Land Management. While the lead agencies will consider this type of policy approach, efforts to control growth are greatly dependent on local planning and community political direction.</p>

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<p>3.8, Social and Economic Values</p>	<ul style="list-style-type: none"> • Induced growth likely occurs in Summit and Eagle counties, and in Garfield County, which is susceptible to changes in Eagle County • Construction causes congestion and delay for residents and visitors in the Corridor and restricts visitor access to businesses 	<p>The phased approach of the Preferred Alternative allows ongoing opportunities to avoid and minimize economic impacts, establish effective mitigation, and employ I-70 Mountain Corridor Context Sensitive Solutions. Corridorwide coordination, state involvement and support, and localized efforts to control growth and maintain quality of life would improve the ability of Corridor communities to maintain and protect and social and economic values.</p> <p>The lead agencies will coordinate a variety of construction mitigation strategies to avoid and minimize construction impacts on Corridor communities. This may include the development of a Tier 2 Public Involvement and Marketing Plan or other strategies. Some of the construction mitigation strategies that would be considered are listed below. This list is not inclusive, and the lead agencies will develop specific mitigation strategies, in concert with the Corridor communities, during Tier 2 processes in response to specific impacts.</p> <ul style="list-style-type: none"> • Not permitting lane restrictions in the peak direction during peak periods. • Providing optimal spacing between work zones would allow traffic flow to recover between work zones. • Requiring contractors to demonstrate that there is no reasonable alternative to a proposed lane closure. When lane restrictions and closures are required, CDOT will work with local communities to minimize impacts on local traffic and transit services. If actual total closure and/or stoppage of traffic are needed, they will be advertised and communicated to the public in advance of when they would occur. • Maintaining community and business access to the highest degree possible. Information technologies, such as well-placed and highly visible signs, provide safe and efficient access during construction activities. • Determining an appropriate scheduling approach to day versus night work during Tier 2 processes. • Considering public concerns about local mobility in CDOT construction contracts and traffic control strategies. • Holding public meetings at critical construction phases to provide information and discuss mitigation strategies. Providing construction information exchange centers in the Corridor for public input and up-to-date construction information. • Including as public information strategies media advisories, variable message signs, advance signs, a telephone hotline, real-time web cameras, the use of intelligent transportation systems and technology in construction work zones, a construction project website, and alternate route advisories. • As each construction phase is undertaken, working with communities to identify community representatives. These persons will partner in the construction traffic control program and provide assistance/feedback to the traffic control team. • Providing emergency responders traffic control contact information. In an emergency, responders contact the traffic control office, provide their approximate arrival time at the construction zone, and traffic control could provide a clear path through the construction zone. • Providing effective directional signage. • Being sensitive to blockage during prime business hours.

Resource Topic	Potential Impacts	Mitigation Strategies
		<ul style="list-style-type: none"> • Providing outreach to impacted businesses as early as possible before any construction. • Identifying business relocation opportunities. • Coordinating with local chambers and town economic offices to help develop promotional strategies during construction. • Establishing a specialized website for businesses to access construction schedules that might affect their businesses. <p>Mitigation will consider strategies to address the disparity in the distribution of benefits and impacts that might result from construction activities. Tier 2 processes will include strategies to avoid and minimize construction impacts on Clear Creek communities, including but not limited to:</p> <ul style="list-style-type: none"> • Considerations for peak seasonal traffic (e.g., cessation of construction activities during ski season weekends) • Accessibility to Idaho Springs businesses • Assisting the county with historic tourism marketing • Developing a site-specific Tier 2 interpretive signage plan. <p>The lead agencies will address safety issues on the I-70 highway, which will reduce the number of crashes on the highway. This will reduce the frequency of emergency response to crashes on the I-70 highway, which will in turn reduce local community emergency services costs.</p>
3.9, Environmental Justice	<ul style="list-style-type: none"> • No disproportionate adverse effects to communities on a Corridorwide level • Potential for pockets of minority- or low-income populations to be affected, particularly near proposed facilities and construction 	<p>Mitigation strategies for social and economic resources will apply to all communities in the Corridor and also would benefit minorities and low-income populations. If Tier 2 processes conclude that disproportionately high or adverse impacts would occur to low-income or minority populations, CDOT will work to avoid, minimize, or mitigate such impacts. Tier 2 processes that occur in populated areas will consider pockets of minority and/or low income populations that may require additional attention and/or mitigation for such issues as listed below:</p> <ul style="list-style-type: none"> • Localized air quality impacts • Noise impacts • Shading from elevated structures or walls • Residential and business relocations • Changes in access or travel patterns • Loss of community cohesion. <p>The lead agencies will consider mitigation, enhancement measures, and offsetting benefits when determining whether there will be disproportionately high and adverse effects on minority and low income populations. If after considering these factors, a disproportionately high impact to minority or low-income populations is identified, the project “will only be carried out if further mitigation measures or alternatives that would avoid or reduce the disproportionately high and adverse effects are not practicable. In determining whether a mitigation measure or an alternative is ‘practicable,’ the social, economic (including costs) and environmental effects of avoiding or mitigating the adverse effects will be taken into account” (FHWA, 1998).</p>

3.19. Mitigation Summary

Resource Topic	Potential Impacts	Mitigation Strategies
3.10, Noise	<ul style="list-style-type: none"> • Without noise mitigation, projected noise levels exceed noise abatement criteria (NAC) in some areas of the Corridor under most or all alternatives. • During construction, intermittent noise from diesel-powered equipment ranges from 80 to 95 dBA at a distance of 50 feet. Impact equipment such as rock drills and pile drivers generate louder noise levels. 	<p>The lead agencies do not propose any specific mitigation strategies at this time but will consider a full range of mitigation options in Tier 2 processes to reduce highway noise for impacted communities. See the <i>I-70 Mountain Corridor PEIS Noise Technical Report</i> (CDOT, March 2011) for details. Mitigation options to be considered include noise walls, noise berms, concrete barriers, creation of noise buffer areas, enforcing engine compression brake muffler use, noise insulation of buildings, pavement type, active noise control, cut and cover, tunnels, and adjusting vertical and horizontal alignments.</p> <p>The Federal Highway Administration does not consider pavement type as noise mitigation at this time, because the long-term effectiveness of pavement types in noise mitigation has not yet been proven. Active noise control and cut and cover tunnels are also not considered as noise mitigation by FHWA, although CDOT may consider them in addition to other federally-approved noise mitigation measures.</p> <p>The lead agencies will follow the I-70 Mountain Corridor Context Sensitive Solutions Aesthetic Guidelines and consider landscaping and vegetated berms for noise mitigation during design. The Colorado Department of Transportation will work with local planning agencies to minimize noise effects on planned development in the Corridor.</p> <p>Generally, the most practical noise mitigation strategy to avoid or reduce direct effects in the Corridor includes the construction of noise barriers. In some areas, topography may reduce the effectiveness of noise barriers—for example, when receptors sit higher than the road—and Tier 2 processes will conduct project-specific noise analyses to determine where noise barriers would be effective mitigation. Other strategies to mitigate noise impacts, such as land acquisition for buffer zones and altering the horizontal and vertical alignment, are effective but may be less practical in the Corridor because of topographic and development constraints.</p> <p>Construction noise impacts could be mitigated by limiting work to certain hours of the day when possible, requiring the use of well-maintained equipment, and other strategies.</p>
3.11, Visual Resources	<ul style="list-style-type: none"> • Alternatives change landscape setting and scenery in sensitive viewsheds • Change within sensitive viewsheds: <ul style="list-style-type: none"> ▪ Adjacent to the interstate (views from communities and recreation areas) ▪ From the interstate itself (views from I-70) • Compliance with United States Forest Service and Bureau of Land Management visual resource management prescriptions 	<p>Mitigation strategies for visual resources will be defined in Tier 2 processes in coordination with Corridor communities and will focus on reducing visual contrast associated with implementation of Action Alternatives. Any Tier 2 process involving transit will impact the entire Corridor. Because visual contrast is most closely associated with the addition of structural elements and changes to landform characteristics, mitigation measures will consider efforts to minimize impacts related to both landform and structures.</p> <p>Development of mitigation strategies will involve the review of United States Forest Service and Bureau of Land Management and other jurisdictions' visual standards. The lead agencies will refer to the I-70 Mountain Corridor Context Sensitive Solutions Aesthetic Guidelines and create a site-specific Tier 2 Aesthetic Plan and Lighting Plan. Additionally, the lead agencies will consider creation of a Visual Impact and Mitigation Plan for each Tier 2 process that addresses the following items:</p> <ul style="list-style-type: none"> • Past visual impacts and scarring • Project-related visual impacts • Consideration of mitigation strategies for both that includes: <ul style="list-style-type: none"> ▪ Review and consideration of all United States Forest Service, Bureau of Land Management and other jurisdictions' visual standards (as agreed to or amended)

Resource Topic	Potential Impacts	Mitigation Strategies
		<ul style="list-style-type: none"> ▪ Non-obstructed views of narrow canyons to valleys, rivers, etc. • Adopt rock fall mitigation measures • Minimal use of signage, light poles, guard rails, or other infrastructure elements, where safety permits • Use of vertical and horizontal alignments to preserve views of items such as rivers, canyons, etc. • Use minimum amount of road cuts, fills, turnarounds, etc.
<p>3.12, Recreation Resources and Section 6(f) Discussion</p>	<ul style="list-style-type: none"> • The Action Alternatives increase the footprint of the I-70 highway and its interchanges, impacting recreation resources adjacent to the Corridor. • Induced growth in the Corridor and induced recreation trips by visitors from outside the Corridor increase the use of recreation resources accessed by the I-70 highway. • Construction temporarily restricts access to some recreation resources and temporarily closes or detours some trails and bike paths. Construction causes congestion and delay for recreation visitors traveling on the Corridor. 	<p>The phased approach of the Preferred Alternative allows for ongoing opportunities to avoid and minimize impacts to recreation resources, establish effective mitigation, and employ I-70 Mountain Corridor Context Sensitive Solutions. Primary mitigation strategies to avoid or reduce direct effects to recreation resources include replacement or enhancement of functions of parklands or trails; design efforts to minimize the area of impact; and realignment of affected trails. The lead agencies will consider principles applied to the Glenwood Canyon recreation resources—including the bike path, hiking amenities, and river access—during development of mitigation for impacted recreation resources elsewhere in the Corridor. The lead agencies must mitigate any impacts to Section 6(f) resources with replacement lands of equal value, location, and usefulness as the impacted lands.</p> <p>Other strategies to mitigate direct impacts may include the following: facilitate efficient access to recreation sites from transportation networks; include outdoor recreation and tourism in the CDOT regional planning processes; consider intermodal transportation networks and transportation hub development; consider off-peak use incentives; consider river access “hot spots” mitigation actions; increase the capability to access recreation sites on mountain passes from road networks.</p> <p>Mitigation of indirect impacts would include strategies outlined in the <i>Statewide Comprehensive Outdoor Recreation Plan</i> (Colorado State Parks, 2008) and United States Forest Service consideration of forest management plans and the continuing and evolving use of forest management techniques. The availability of resources and funding for implementation of recreation and land management techniques is a major factor in the accommodation of increased visitation and protection of recreation resources. The <i>Statewide Comprehensive Outdoor Recreation Plan</i> suggests these goals can potentially be achieved by establishing funding partnerships through regional collaborative forums and through state/federal cost-share agreements to renovate federal properties.</p> <p>Mitigation of construction impacts on bike paths, trail heads, and other recreational amenities would include maintaining pedestrian and bicycle access during construction and addressing special events to maintain access during those times. Mitigation strategies to accommodate the demand for recreation-oriented trips on the I-70 highway during construction include minimizing lane closures or reductions during peak travel weekends. Section 3.8, Social and Economic Values, provides additional mitigation strategies for providing timely and accessible public information on construction activities.</p>

3.19. Mitigation Summary

Resource Topic	Potential Impacts	Mitigation Strategies
3.13, Historic Properties and Native American Consultation	<ul style="list-style-type: none"> All Action Alternatives affect historic properties directly and indirectly. Based on currently identified properties, between 48 and 70 historic properties could be directly affected by one or more of the Action Alternatives. Additional properties are affected by the change in visual setting in the Corridor that has an adverse effect on the historic character and integrity of the Corridor and individual properties. 	<p>Historic context is one of the core values of the I-70 Mountain Corridor Context Sensitive Solutions process, and the lead agencies, in cooperation with the State Historic Preservation Office, are developing documentation for seven dominant historical themes in the Corridor. The lead agencies commit to using this context on future projects to guide and inform evaluation of historic properties in the Corridor and will consider historic context in developing designs for future projects in the Corridor.</p> <p>Mitigation for adverse effects to historic properties will not occur until Tier 2 processes when historic properties are identified through intensive survey and enough information is available to determine effects to those properties. Strategies for mitigation and Section 106 compliance for Tier 2 processes are well defined in two relevant Programmatic Agreements:</p> <ul style="list-style-type: none"> Strategies for consultation, treatment, monitoring, and recovery for sites of importance to tribes are described in the <i>Section 106 Tribal Consultation Process for the I-70 Mountain Corridor Programmatic Agreement</i>. The <i>I-70 Mountain Corridor Project Programmatic Agreement</i> (included in Appendix B, I-70 Mountain Corridor Section 106 Programmatic Agreement) stipulates how consultations will occur and how each phase of the Section 106 process will be carried out in Tier 2 processes. Mitigation strategies for historic properties are included in Section VI of the Programmatic Agreement (Resolution of Adverse Effects). <p>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 process. The lead agencies will also adhere to any new laws and regulations that may be in place when Tier 2 processes are underway.</p>
3.14, Section 4(f) Discussion	<p>Potential Use of Section 4(f) Properties</p> <ul style="list-style-type: none"> Historic: <ul style="list-style-type: none"> Properties listed on or eligible for the National Register of Historic Places National Historic Landmarks Properties listed on or eligible for the State Register of Historic Places Parks, Recreation Areas, and Wildlife Refuges: <ul style="list-style-type: none"> Recreations Areas Wildlife Refuges Trails River Access 	<p>Actions have been taken at this Tier 1 level to ensure that opportunities to minimize harm are not precluded in subsequent Tier 2 processes. These actions include development of the Programmatic Agreement for complying with Section 106 of the National Historic Preservation Act and development of the I-70 Mountain Corridor Context Sensitive Solutions process.</p> <p>All Possible Planning to Minimize Harm/Mitigation</p> <ul style="list-style-type: none"> Development of the Programmatic Agreement for complying with Section 106 of the National Historic Preservation Act. See mitigation strategies for Section 3.13, Historic Properties and Native American Consultation. Development of the I-70 Mountain Corridor Context Sensitive Solutions process and a commitment to implement I-70 Mountain Corridor Context Sensitive Solutions principles in Tier 2 processes. <p>All Possible Planning for Tier 2 Processes</p> <ul style="list-style-type: none"> Design modifications to avoid or minimize use Replace land or facilities of comparable value and function Provide monetary compensation to enhance remaining property Promote agreements with Officials with Jurisdiction over historic sites on preserving activities, features or attributes Encourage joint planning/development of I-70 improvements and future recreational properties

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Resource Topic	Potential Impacts	Mitigation Strategies
3.15, Paleontology	<ul style="list-style-type: none"> Paleontological resources could be disturbed during construction activities that affect sensitive geologic units. Damage would be permanent. 	<p>All construction in areas of moderate or high paleontological sensitivity in the Corridor will include pre-construction survey and evaluation, construction monitoring, implementation of a Worker Awareness Training Program, and spot-check monitoring of sensitive formations during construction. All work will be overseen by the CDOT staff paleontologist or other qualified and permitted paleontologist and will follow CDOT's <i>Paleontology Analysis and Documentation Procedures</i> (CDOT, 2006). In the event of discovery of unanticipated fossil remains such as unexpected concentrations of fossils, unusually large specimens, or unexpected discoveries in sediments, all ground disturbances in the area will cease immediately. The qualified paleontologist and appropriate project personnel will be notified immediately to assess the find and make further recommendations.</p> <p>Mitigation will follow the <i>Society of Vertebrate Paleontology Standard Guidelines</i> (Society of Vertebrate Paleontology, 1995) for treatment of sensitive paleontological resources and <i>CDOT Paleontology Analysis and Documentation Procedures</i> (CDOT, 2006).</p>
3.16, Energy	<ul style="list-style-type: none"> Increased vehicle miles of travel Increased use of fuel and materials (for example, aggregate) during construction 	<p>Mitigation strategies for energy impacts will be developed and refined in Tier 2 processes in the context of a specific project. However, mitigation strategies that typically apply to construction projects to reduce impacts are addressed below. Construction and operational impacts will be mitigated through implementation of appropriate best management practices.</p> <p>The following conceptual strategies could be included to reduce energy consumption during construction:</p> <ul style="list-style-type: none"> Limiting the idling of construction equipment; Encouraging employee carpooling or vanpools for construction workers; Encouraging the use of the closest material sources (for example, aggregate, concrete); Locating construction staging areas close to work sites; Using cleaner and more fuel-efficient construction vehicles (for example, low sulfur fuel, biodiesel, or hybrid technologies); Using alternative fuels and asphalt binders; and Implementing traffic management schemes that minimize motorist delays and vehicle idling. <p>The following conceptual strategies included as non-infrastructure components of the Preferred Alternative could reduce operational energy consumption:</p> <ul style="list-style-type: none"> Carrying out maintenance activities during periods of reduced traffic volumes; Encouraging greater use of transit through measures such as incentive programs; Working with chambers of commerce or tourist organizations to encourage resort operators to offer incentives for visitors who use transit or who use low emission or alternative fuel vehicles; and Promoting carpooling for regular facility users.

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Resource Topic	Potential Impacts	Mitigation Strategies
3.17, Irreversible and Irretrievable Commitment of Resources	<ul style="list-style-type: none"> Permanent loss of resources 	<p>Certain resource loss is unavoidable, but can be minimized to the extent practicable by employing the concepts of sustainability and best management practices. The I-70 Mountain Corridor Context Sensitive Solutions Working Group developed guidance and criteria for CDOT to incorporate sustainability into the “5 life cycles” of any project on the Corridor. The Colorado Department of Transportation defines the life cycles from planning through operations, maintenance, and monitoring. Each phase has its own set of requirements and expectations. The criteria incorporate sustainability and encourage creative approaches for use beginning at project development through to construction. Each project is rated based on sustainability and adherence to environmentally sensitive practices and work is rewarded to the projects that reach and exceed expectations. The I-70 Mountain Corridor Context Sensitive Solutions program also developed specialized Engineering Design Criteria for the Corridor to increase the sustainability of the transportation facilities. See the Introduction and Appendix A, I-70 Mountain Corridor Context Sensitive Solutions for more information about the I-70 Mountain Corridor Context Sensitive Solutions process.</p>
3.18, Short-term Uses Versus Long-term Productivity	<ul style="list-style-type: none"> Short-term construction impacts to natural and human resources 	<p>Specific mitigation strategies, such as employment of best management practices, will be identified in Tier 2 processes to offset temporary impacts due to construction near or adjacent to natural, biological or man-made resources.</p> <p>Short-term impacts due to construction may be unavoidable, but these can be greatly offset by the long-term productivity associated with the proposed action. Because projects are often identified in the comprehensive planning process, the short-term impacts will attempt to be consistent with the maintenance and enhancement of long-term productivity because the process takes into account the needs and goals of the communities for land use, transportation, environmental protection, and economic development.</p>