

Executive Summary

ES.1 Why did the Colorado Department of Transportation prepare this Revised Draft Programmatic Environmental Impact Statement?

The Colorado Department of Transportation (CDOT) and Federal Highway Administration (FHWA) (lead agencies) prepared this Revised Draft Programmatic Environmental Impact Statement (Revised DPEIS) to provide reader-friendly, concise information about the Interstate 70 (I-70) Mountain Corridor National Environmental Policy Act (NEPA) process. This Revised DPEIS (referred to as “this document”) replaces the 2004 Draft Programmatic Environmental Impact Statement (2004 Draft PEIS), which contains detailed information that is summarized in this document where appropriate. The information in this document is based on the 2004 Draft PEIS plus any changes that have occurred since 2004.

This document is the first tier of a Programmatic NEPA process. It is a stand-alone document that addresses the same topics as the 2004 Draft PEIS and brings the data and analysis up to date, under Council on Environmental Quality regulation 40 Code of Federal Regulations (CFR) 1502.9(a). This document analyzes alternatives developed since the Notice of Intent was issued in January 2000; it includes the alternatives evaluated in the 2004 Draft PEIS, the Preferred Alternative, and the No Action Alternative. This document is responsive to comments received during and since the 2004 Draft PEIS comment period, but does not provide a comment-by-comment response.

In response to public and stakeholder input received following publication of the 2004 Draft PEIS, CDOT initiated the I-70 Mountain Corridor Context Sensitive Solutions process and the Collaborative Effort team, discussed later in the Executive Summary.

ES.2 Why are improvements needed on this Corridor?

Population and employment growth in the Corridor, in the Denver metropolitan area and nationwide, along with accompanying traffic growth has noticeably increased traffic volumes on I-70 for more than 15 years. Recreational travelers currently experience substantial traffic delays on weekends and holidays on the eastern side of the corridor. The western side of the Corridor experiences work trip delays during the week. Congestion periods on both sides of the Corridor will expand with corresponding population and employment resulting in weekday congestion on the eastern side of the corridor

This substantial congestion has a negative impact on the local and statewide economy, decreases mobility, including for freight traffic, compromises the ability of emergency service providers to respond promptly to emergencies and increases accidents.

ES.3 How bad will traffic get in the future without these improvements?

In 2000, drivers traveling to and from the mountains (between Silverthorne and C-470) during weekend peak hours typically experienced an extra hour of driving time; on weekdays, the extra time occasioned by peak traffic conditions amounted to 20 minutes. If no improvements are made beyond those included in the No Action Alternative, congestion in the Corridor will continue to worsen, for example:

- Weekend travel time in 2035 will be about three times higher than today.
- Weekday travel time in 2035 would be more than double what weekday travel time was in 2000.

Executive Summary

- Traffic will be especially congested between Copper Mountain and Denver on weekends in 2035, requiring two more hours to make that trip during weekend peak hours. On weekdays, the morning and afternoon peak periods will experience an extra 1 hour and 35 minutes.
- The Eisenhower-Johnson Memorial Tunnels are expected to have 55 percent more weekend traffic in 2035 than today. Weekday demand is expected to increase 85 percent.

ES.4 What is the purpose and need for this project?

The purpose for transportation improvements is to increase capacity, improve accessibility and mobility, and decrease congestion for travel demand, projected to occur in 2035 and 2050, to destinations along the I-70 Mountain Corridor as well as for interstate travel, while taking into account environmental sensitivity, community values, transportation safety, and ability to implement the proposed solutions for the Corridor.

The I-70 Mountain Corridor is shown on **Figure ES - 1**.

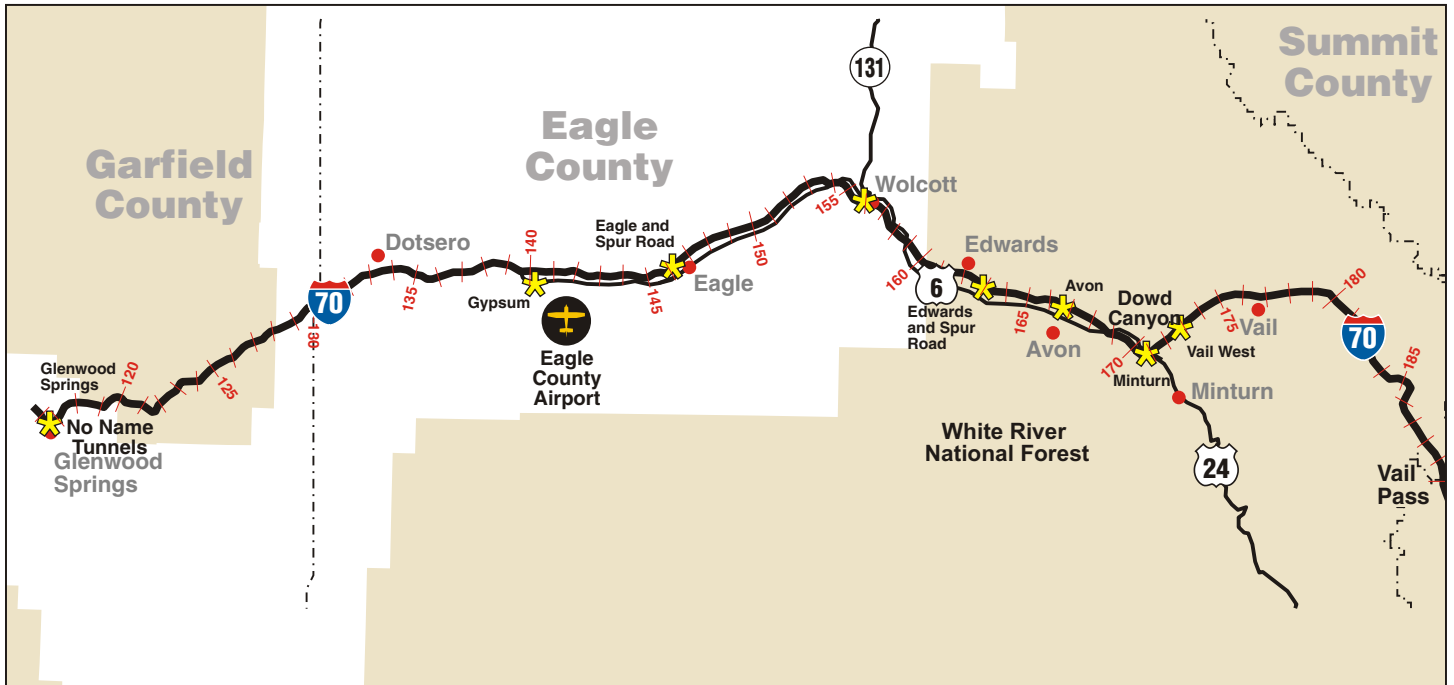
Safety plays a strong role in mobility, accessibility, and congestion. As such, in areas where safety problems currently exist, safety will be considered inherent in the project needs.

The project purpose and specific needs form the basis for developing and evaluating alternative transportation solutions for the I-70 Mountain Corridor, as they are measurable and apply throughout the Corridor. However, addressing transportation needs in the I-70 Corridor requires careful consideration of the physical, environmental and community constraints and requirements created by the mountain and valley terrain of the Corridor. The protection of the narrow mountain valleys, existing historic communities, and extensive natural resources is critical to the State and the communities in the Corridor and these resources—along with natural hazards—define critical constraints for transportation solutions in the Corridor. Alternatives must meet the transportation needs and be developed in a manner that provides for and accommodates the following:

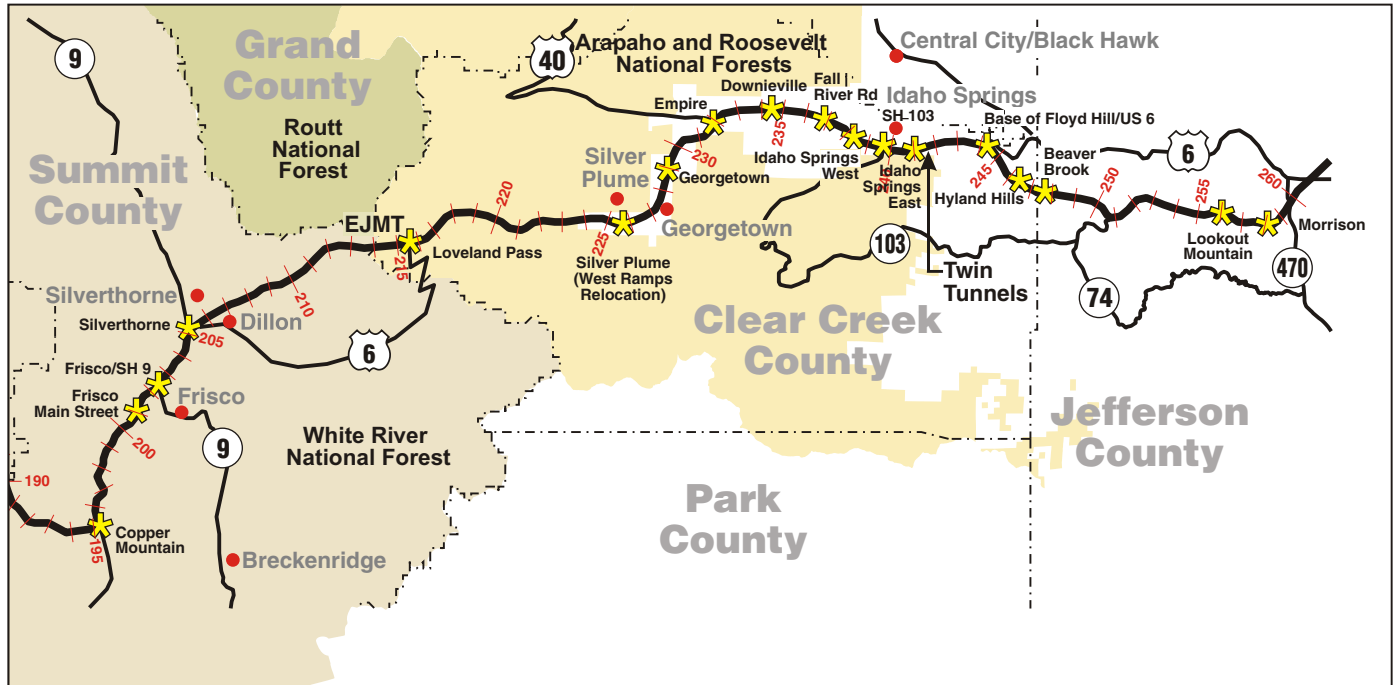
1. **Environmental Sensitivity** – Avoid and minimize adverse impacts on and, where possible, enhance environmental resources, including, but not limited to, stream sedimentation, water quality, wildlife crossings, and impacts on wetlands.
2. **Respect for Community Values** – Avoid and minimize adverse impacts on and, where possible, enhance air quality, historic resources, noise levels, visual resources, and social and economic values, as well as minimize the transportation system’s footprint on the mountain communities. Consider the possible growth changes and economic effects that might occur, depending on the ease or difficulty of access.
3. **Safety** – Improve where possible problematic roadway geometric conditions, such as tight curves and lane drops, and consider the safety characteristics of the modes of travel. Many safety conditions along the I-70 Mountain Corridor have been identified as directly affecting the project need, specifically the mobility, accessibility, and congestion elements.
4. **Ability to Implement** – Consider technical feasibility (that is, overall use of a mode and the feasibility of the technology), as well as affordability in terms of capital costs, maintenance and operational costs, user costs, and environmental mitigation costs. Implementation includes construction impacts on existing mobility and the communities along the Corridor.







Figure ES-1. I-70 Mountain Corridor

Western Portion of Corridor



Eastern Portion of Corridor



-  Potential Interchange Modification Locations
-  County Boundaries
-  White River National Forest
-  Routt National Forest
-  Arapaho and Roosevelt National Forests
-  Milepost

Note: EJMT = Eisenhower-Johnson Memorial Tunnels

ES.5 Who are the Corridor stakeholders?

Since the Corridor serves such a vital function for many different transportation needs, there are many stakeholders who care about improving mobility and accessibility of I-70 and who care about in what manner this is done. Examples of key stakeholders include the people who live and work in the mountain communities, people who live and work in the Denver metro area and use I-70 for work or recreational trips, freight haulers, recreational business owners including the ski resorts, regular recreational users of the Corridor (including skiers), regular commuters on the Corridor, and environmental groups.

ES.6 How were members of the public and stakeholders informed of and involved in the process?

The Colorado Department of Transportation developed and implemented a public and agency information and involvement program to engage members of the public, agencies, and stakeholders throughout the PEIS process. The program included:

- Notices published in the *Federal Register*.
- Newsletters, project website, telephone information line, and news media.
- Scoping meetings and public open houses.
- Community interviews and internal coordination and planning meetings with local communities; special interest groups; and federal, local, and state agencies.
- Native American consultation.
- Announcement and distribution of 2004 Draft PEIS for public and agency review.
- Public hearings in January and February 2005.
- Establishment of the I-70 Mountain Corridor Context Sensitive Solutions team to develop the I-70 Mountain Corridor Context Sensitive Solutions Guidance.
- Formation of the Collaborative Effort team to reach consensus on a recommended alternative for the Corridor (see **Section ES.15** for more information).
- Creation of a Project Leadership Team to complete the Final PEIS and Record of Decision.
- Formation of three Issue Task Forces to develop mitigation for impacts to cultural resources, environmental resources, and community values.

ES.7 How were agencies and stakeholders involved in the decision-making?

Stakeholders, including counties, municipalities, community associations, and special interest groups with various affected interests, attended agency scoping meetings and served on the several project committees and teams. Following release of the 2004 Draft PEIS, stakeholders became more involved through the formation of the I-70 Mountain Corridor Context Sensitive Solutions team, Project Leadership Team, Issue Task Forces, and the Collaborative Effort team. Project committees and teams are listed below:

- **Technical Advisory Committee (TAC)** – A cross-section of local, state, and federal agencies, counties, municipalities, community associations, and special interest groups with various affected interests formed to provide technical expertise relevant to the project and knowledge about resource areas and issues. The TAC merged with the Mountain Corridor Advisory Committee later in the process.
- **Mountain Corridor Advisory Committee (MCAC)** – Representatives from counties, municipalities, community associations, and special interest groups with various affected interests.

- **Federal Interdisciplinary Team** – Decision-makers from federal and state agencies, who provided expertise relevant to the resources managed by their respective agencies.
- **A Landscape Level Inventory of Valued Ecosystem Components Committee (ALIVE)** – Wildlife professionals from federal and state agencies who identified wildlife habitat of high ecological integrity, wildlife habitat linkages, and barriers to wildlife crossings along the Corridor. They developed a landscape-based ecosystem approach for consideration of wildlife needs and conservation measures, and identified measures to improve existing aquatic and terrestrial ecosystem connectivity across the I-70 Mountain Corridor between Denver and Glenwood Springs. In April 2008, CDOT, FHWA, U.S. Fish and Wildlife Service, the U.S. Department of Agriculture Forest Service, Bureau of Land Management, and Colorado Department of Natural Resources Division of Wildlife signed a Memorandum of Understanding documenting their commitment to identify mitigation and conservation measures during future Tier 2 processes to increase the permeability of the I-70 Mountain Corridor to terrestrial and aquatic species.
- **Stream and Wetland Ecological Enhancement Program (SWEEP)** – Representatives from federal and state agencies, watershed associations, and special interest groups. Members identified and addressed environmental issues related to the improvement of wetlands, streams, and fisheries in the Corridor.
- **Section 4(f) and 6(f) Ad Hoc Committee** – Representatives of state, federal, tribal, and historic entities. Section 4(f) and 6(f) Ad Hoc Committee members identified and inventoried Section 4(f) and Section 6(f) properties, including historic resources, recreation properties and waterfowl and wildlife refuges, within the Corridor.
- **Finance Committee** – Representatives of state, federal, and county agencies. Finance Committee members explored the potential affordability and economic feasibility of the alternatives.
- **Peer Review Committee** – Seven technical experts in their respective fields provided guidance and suggestions on the inputs to the 2025 travel demand model as it was being developed, and reviewed model outputs.

ES.8 How were alternatives developed?

A systematic screening process with public and agency input led to the development of more than 200 alternative elements, which consist of various components based on the following seven alternative element families:

- Transportation management
- Localized highway improvements
- Fixed guideway transit
- Rubber tire transit
- Highway
- Alternate routes
- Aviation

Tunnels are also considered separately because they are major infrastructure projects that apply to highway and transit families.

After evaluation and screening, the lead agencies advanced approximately 80 alternative elements, and retained approximately 10 alternative elements which are similar to those advanced and may be reconsidered during subsequent Corridor processes (called Tier 2 processes) as needed. These alternative elements are represented in the reasonable range of alternatives evaluated in this document. The alternative elements advanced combined to form the components of the 21 Action Alternatives. An

Executive Summary

Action Alternative is a package of transportation components evaluated on its ability to address the project needs and evaluation criteria.

Alternative elements evaluated within each of the seven alternative element families listed above included:

- Ten transportation management alternative elements.
- Several localized highway improvements, including curve modifications, auxiliary lanes, and evaluation of 40 interchanges.
- Numerous variations of Fixed Guideway Transit.
- Five rubber tire transit alternative elements.
- Six primary highway improvements, including six-lane widening (horizontal and vertical widening), smart widening (barrier separated/variable shoulder), flex lanes, reversible/High Occupancy Vehicle/High Occupancy Tolloed lanes, movable median, parallel routes).
- Seventeen alternate routes.
- Six aviation alternative elements.

ES.9 How were alternatives evaluated?

The alternative elements were evaluated based on their ability to address the project purpose and need, and on how well those elements met environmental, community, safety, and implementation criteria for the Corridor.

In recognition of the need for a short- and long-term sustainable transportation vision, the evaluation uses both a 2035 planning horizon and a 2050 long-term horizon. Data for the year 2035 are based on available projections from a variety of sources and provide the foundation for developing and evaluating alternatives. The 2035 planning horizon also provides a “stepping stone” allowing projections to 2050. The year 2050 provides a long-term horizon for developing solutions for the Corridor. The alternatives are developed and evaluated on a variety of performance measures that can be reliably established for 2035 and for their ability to meet travel demand in 2050.

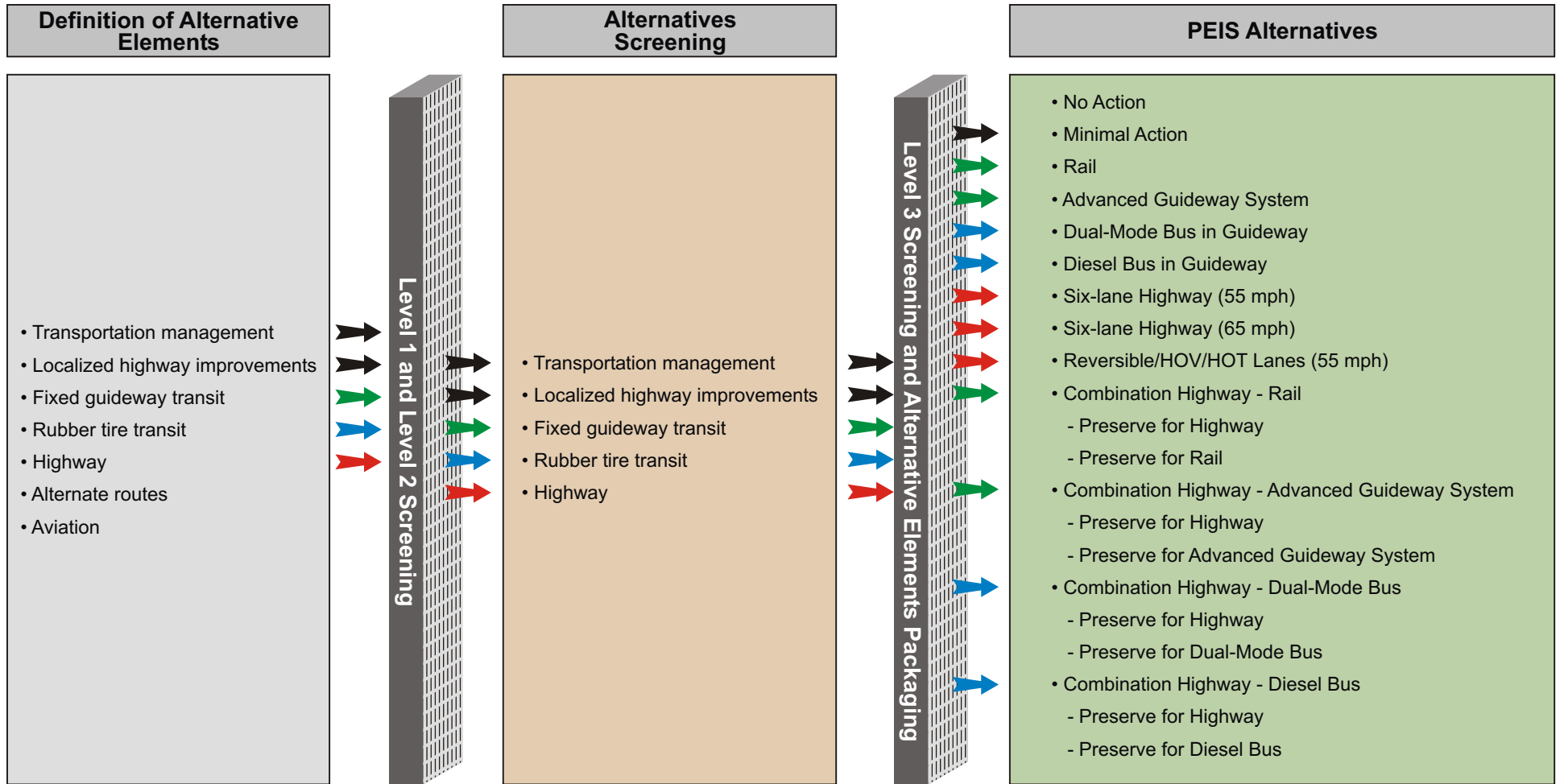
This evaluation used the following three sequential levels of screening:

- **Level 1** screening uses an initial conceptual level of evaluation and screening based on purpose and need.
- **Level 2** screening uses criteria based on purpose and need and Corridor issues applied to many alternative elements at a greater level of detail.
- **Level 3** screening uses detailed screening and refinement of the remaining alternative elements.

Through this three-step screening process, the alternative elements were eliminated, combined, modified, or enhanced into the components of the Action Alternatives that were advanced for further analysis as documented in this document.

Figure ES - 2 shows the alternative screening process.

Figure ES-2. Alternatives Screening Process



Screening and Packaging of Alternatives

- ➡ Minimal Action Elements Common to All Alternatives
 - ➡ Fixed Guideway Transit Elements
 - ➡ Rubber Tire Transit Elements
 - ➡ Highway Elements
- mph = Miles per Hour

Note: See Section 2.5 for more screening details.

Executive Summary

This project began in 2000. During model development beginning in 2000, the 2000 data set provided a complete snapshot of conditions in the Corridor, and it was used for calibration of the travel demand model. Furthermore, the 2000 data set on characteristics of the Corridor provides a base year for comparison purposes to future year scenarios. This data set includes a large amount of travel and socioeconomic data, including the 2000 US Census as well as the I-70 User Survey conducted by the project.

The year 2000 remains valid as a base year for the Tier 1 process of this document because during the development of the PEIS, no major changes have taken place in the 144-mile Corridor that notably alter the snapshot of Corridor conditions provided by the year 2000. There have been no major or minor I-70 infrastructure improvements since 2000, and travel patterns and needs of Corridor users have not changed substantially. Confirmation of the travel demand model performance is provided by a comparison of the future trendline projected by the model with actual counts for 2008. The actual counts are below the model's projection for 2008, by an average of about 17 percent. This is a reasonable comparison given the economic conditions in the nation and the state of Colorado, and the circumstances of abnormally high petroleum prices during the year of 2008. As the economy rebounds, it is expected the demand for travel in the Corridor will again follow the trendline projected by the model to 2025, 2035, and 2050.

ES.10 What is the outcome of this process?

The decisions regarding the transportation solution at the first tier include travel mode, capacity, and general location. This document presents alternatives for this Tier 1 decision. These decisions will not be revisited during Tier 2 NEPA processes unless other laws, such as the Clean Water Act, require revisiting them. The public may comment on any aspect of this document, but the lead agencies would specifically like to hear the views of the public on factors relating to these decisions because these decisions will not be revisited at Tier 2. Although mitigation strategies are proposed at Tier 1 based on potential impacts, additional and specific mitigation measures will be developed at Tier 2.

The analysis of transit modes in this document is made with a representative technology for purposes of including a reasonable range of transit alternatives for broad decision making. Detail regarding a choice of technologies is not available for this Tier 1 decision and will be developed during the Tier 2 process consistent with the mode decision from this Tier 1. Transit technology decisions will be made during Tier 2 processes. The transit modes considered at Tier 1 include Advanced Guideway System, steel wheels-on-steel rail, and bus in guideway.

Tier 2 NEPA processes will refine alternatives, specific alignment, design, and mitigation decisions consistent with the Tier 1 Record of Decision, which is the final decision document for the first tier process. For the first transit-focused Tier 2 NEPA process, the transit technology decision will be made and then incorporated into subsequent Tier 2 NEPA processes. The technology decision may influence other decisions, such as station location or maintenance facility location.

ES.11 What alternatives were advanced for detailed analysis in this document?

The evaluation process resulted in 22 alternatives, including the No Action Alternative and the Preferred Alternative. The 22 alternatives advanced for analysis in this document include:

- No Action Alternative
- Minimal Action Alternative
- Preferred Alternative (Consensus Recommendation)
- Rail with Intermountain Connection
- Advanced Guideway System
- Dual-mode Bus in Guideway

- Diesel Bus in Guideway
- Six-Lane Highway 55 mph
- Six-Lane Highway 65 mph
- Reversible/HOV/HOT Lanes
- Combination Six-Lane Highway with Rail and Intermountain Connection
 - Build Transit with Highway Preservation
 - Build Highway with Transit Preservation
- Combination Six-Lane Highway with Advanced Guideway System
 - Build Transit with Highway Preservation
 - Build Highway with Transit Preservation
- Combination Six-Lane Highway with Dual-mode Bus in Guideway
 - Build Transit with Highway Preservation
 - Build Highway with Transit Preservation
- Combination Six-Lane Highway with Diesel Bus in Guideway
 - Build Transit with Highway Preservation
 - Build Highway with Transit Preservation

Refer to **Figure ES - 2**, which shows the results of the screening process. Many of the alternatives share many common components. For example, many alternatives simply provide different combinations of the same transit or roadway improvements.

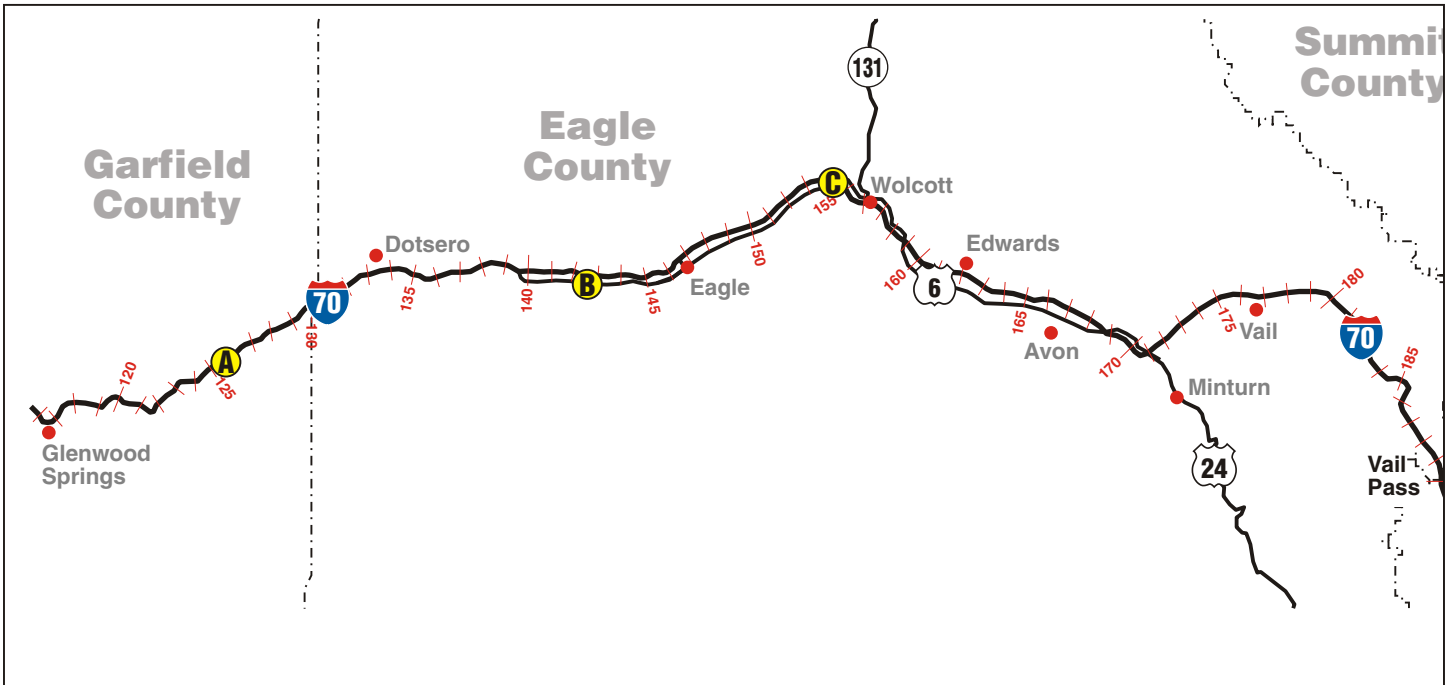
ES.12 What is the No Action Alternative?

The No Action Alternative includes only ongoing highway maintenance and improvements with committed funding sources highly likely to be implemented by the 2035 planning horizon. These improvements are committed whether or not any other improvements are constructed with this I-70 Mountain Corridor project. The No Action Alternative is assessed and used as a baseline for environmental analysis and represents what would exist if no action were taken based on the NEPA process. The No Action Alternative includes the following elements and is shown on **Figure ES - 3**.

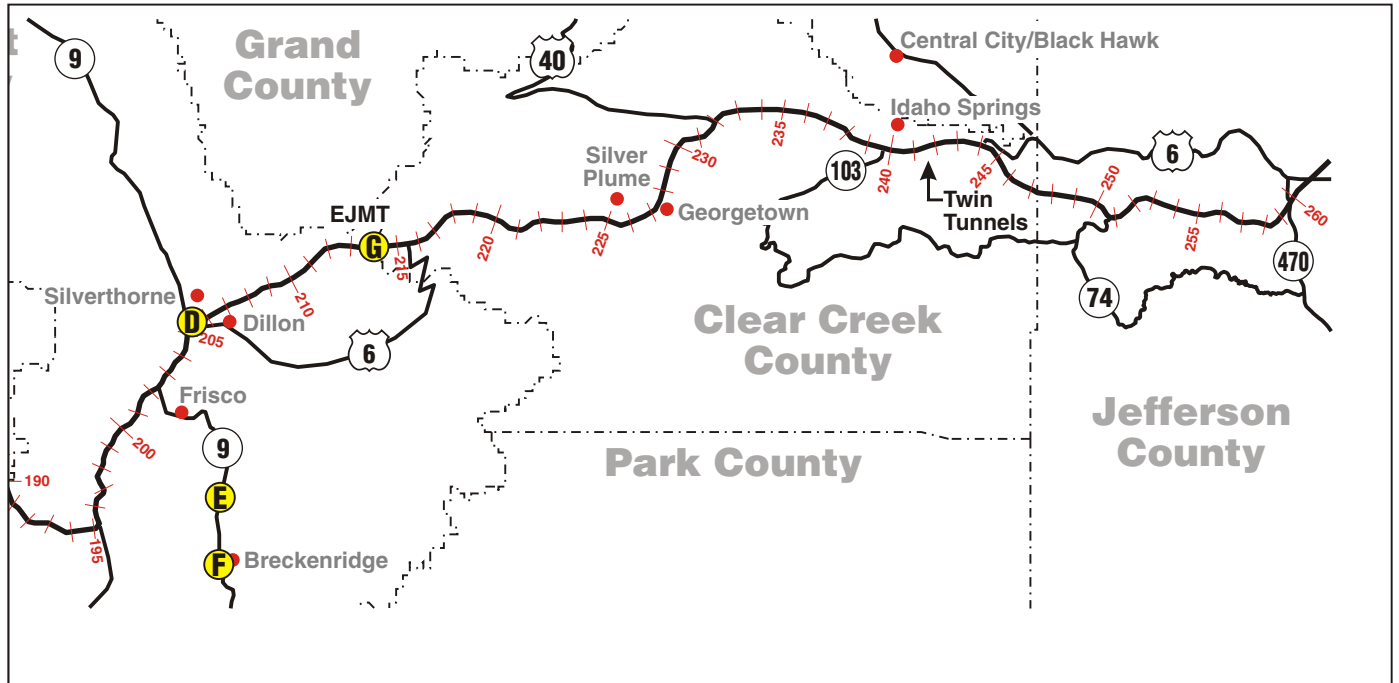
- Eagle County Regional Airport Interchange improvements
- Upgrading SH 9 between Frisco and Breckenridge to four lanes
- Overlay and shoulder widening on US 6 between milepost 153 and milepost 158
- Two new park-and-ride facilities at Silverthorne (milepost 206) and Breckenridge (SH 9)
- Enhancements to Hanging Lake Tunnel in Glenwood Canyon, and Eisenhower-Johnson Memorial Tunnels
- Routine safety, resurfacing, bridge repairs, sediment control, and other maintenance activities

Figure ES-3. No Action Alternative

Western Portion of Corridor



Eastern Portion of Corridor



Highway

- B** Eagle County Regional Airport Interchange (mp 142-143) - EA
- C** US 6 Improvements (mp 153-158)
- E** Widening SH 9 from I-70 to Breckenridge (mp 203) - EIS

Park-and-Ride Facilities

- D** Silverthorne (mp 205.5)
- F** Breckenridge (SH 9)

Tunnel Enhancement

- A** Hanging Lake (mp 125)
- G** EJMT (mp 213.5-215)

GENERAL IMPROVEMENTS NOT SHOWN ON MAP

- Routine Safety
- Resurfacing
- Bridge Repairs
- Other Maintenance Activities
- Sediment Control

Note: EJMT = Eisenhower-Johnson Memorial Tunnels

ES.13 What is the Minimal Action Alternative?

The Minimal Action Alternative provides a range of local transportation improvements along the Corridor without providing major highway capacity widening or dedicated transit components. These improvements include:

- **A transportation management program** that includes Transportation Demand Management (TDM), Transportation System Management (TSM), and Intelligent Transportation Systems (ITS).
- **Interchange modifications** to 26 Corridor interchanges.
- **Auxiliary lane improvements** for slow-moving vehicles at 12 locations.
- **Curve safety modifications:** proposed in four locations to increase design speed on mainline curves.
- **Sediment control programs** at Black Gore Creek, Straight Creek, and Clear Creek to provide better control of runoff from snowmelt and are early action projects.
- **Frontage road improvements** from Hidden Valley to US 6 Frontage Road.
- **Bus service in mixed traffic:** This was eliminated as a standalone alternative but is part of the Minimal Action Alternative to provide a corridorwide transit option where none currently exists. This bus service connects existing bus transit systems in the Corridor.

What is TDM / TSM / ITS?

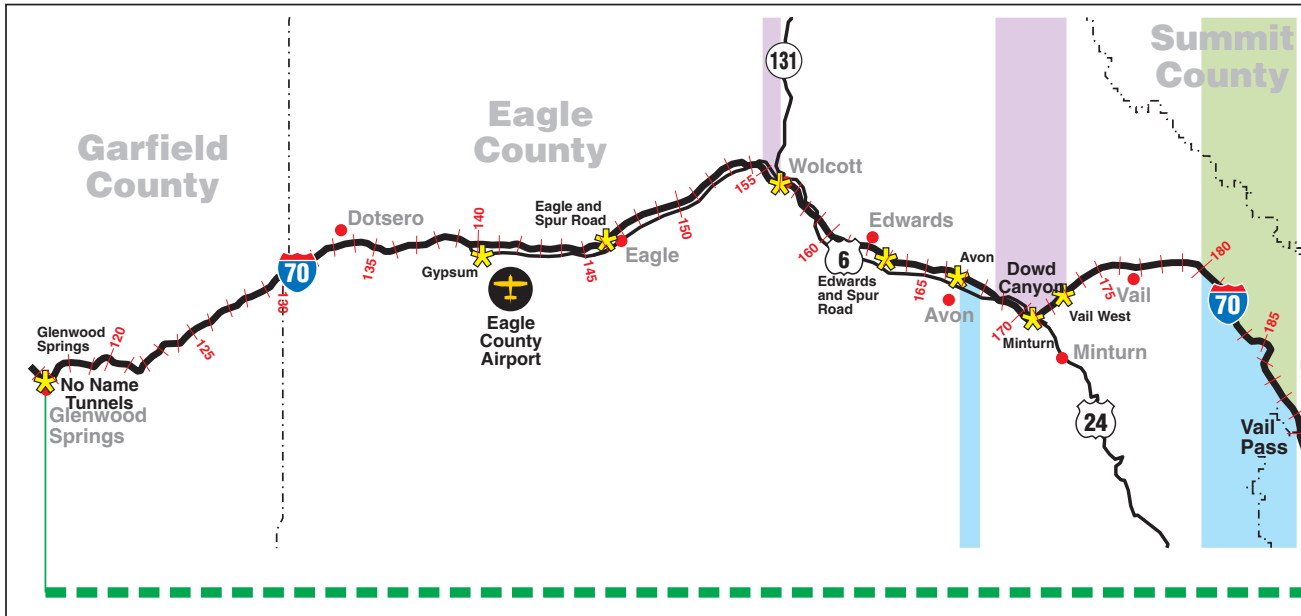
- TDM increases roadway effectiveness by encouraging traveler behaviors that reduce vehicular demand during peak periods, such as ridesharing and telecommuting.
- TSM improves the operation of the physical roadway infrastructure, through the use of ramp metering (regulates the amount of traffic entering freeways through the use of a traffic signal based on traffic conditions) and traffic operations plans.
- ITS uses advanced applications of electronics and communications to achieve TSM and TDM goals, such as enhanced traveler information and variable message signs. □

Figure ES - 4 shows these improvements by area. All or portions of this alternative are added to the other Action Alternatives and could proceed as early action projects (see **Introduction** of this document).

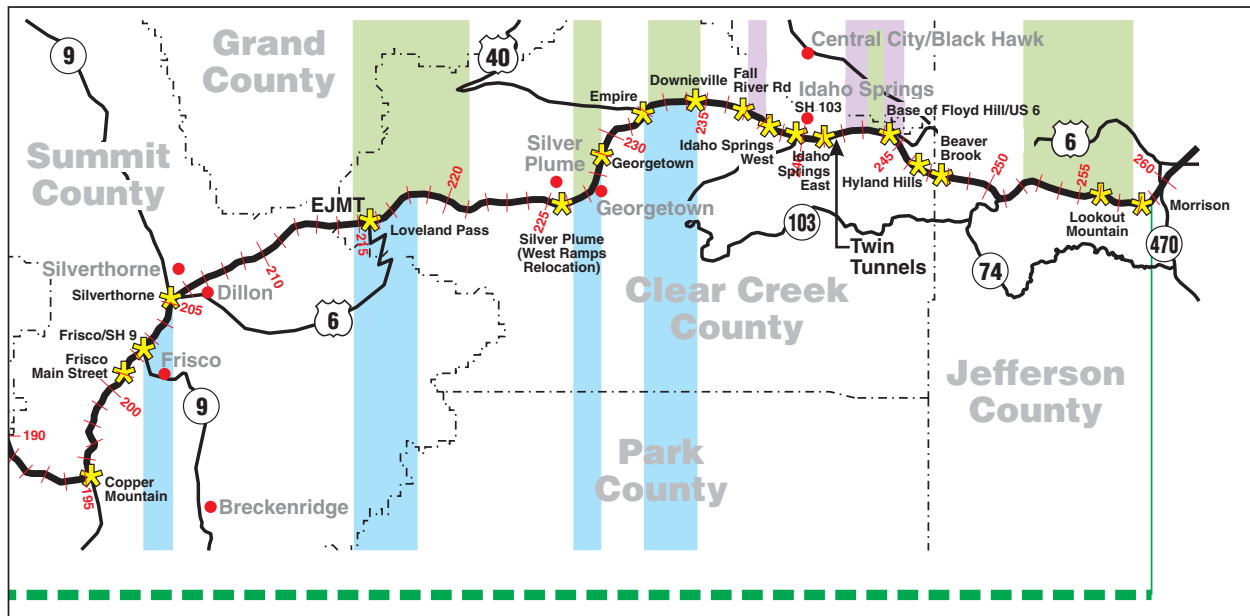
Executive Summary

Figure ES-4. Minimal Action Alternative

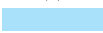
Western Portion of Corridor



Eastern Portion of Corridor



Potential Interchange Modification Locations



Eastbound Auxiliary Lane Locations



Westbound Auxiliary Lane Locations



Curve Safety Modifications



Bus in Mixed Traffic System (Service Coordinated with/Provided by Local Transit Agencies)

Note: EJMT = Eisenhower-Johnson Memorial Tunnels

ES.14 What components are included in the remaining Action Alternatives?

Components that form the Action Alternatives include:

- Minimal Action Alternative Components
- Transit Alternative Components
- Highway Alternative Components
- Tunnels
- Combination Alternatives and Preservation Options

These components are summarized below.

ES.14.1 Minimal Action Alternative

The Minimal Action Alternative components discussed above are included in each of the 20 Action Alternatives, except as described below:

- All Action Alternatives with six-lane highway widening have auxiliary lane improvements in only the following locations:
 - Eastbound Avon to Post Boulevard,
 - Both directions on the west side of Vail Pass,
 - Eastbound Frisco to Silverthorne, and
 - Westbound Morrison to Chief Hosa.

Auxiliary lanes are not needed in locations where six lanes are provided.

- Transit Alternatives do not have curve safety modifications at Dowd Canyon and only have auxiliary lane improvements at eastbound Eisenhower-Johnson Memorial Tunnels to Herman Gulch and westbound Downieville to Empire.
- With the Six-Lane Highway (65 mph) Alternative only, the curve safety modification at Dowd Canyon is replaced by tunnels.
- Action Alternatives do not include bus in mixed traffic because a more extensive transit system is provided and it does not provide travel time improvement commensurate with the added cost.

Potential Transit Station Locations

- Eagle County Regional Airport
- Town of Eagle
- Edwards/Wolcott
- Avon/Beaver Creek
- Vail
- Copper Mountain
- Frisco
- Silverthorne
- Loveland
- Georgetown
- Empire
- Idaho Springs
- US 6 / Gaming Station
- El Rancho
- Jefferson Station/C-470

ES.14.2 Variations in Minimal Action Alternative Components Among Action Alternatives

The Action Alternatives include some or all components described in the Minimal Action Alternative. In some cases, the Minimal Action components are designed differently because of the particular characteristics of the alternative. In other cases, certain Minimal Action Alternative components are not needed due to a particular alternative's ability to provide capacity or safety improvements. These variations are discussed below.

Transit Alternatives (including the Transit with Highway Preservation Alternatives) do not include the Dowd Canyon curve safety component because the high cost increases the overall cost of those alternatives without substantially improving the travel time characteristics. Because these Transit

Executive Summary

Alternatives reduce the overall highway demand, only two of the 12 auxiliary lane improvements are needed:

1. The Eisenhower-Johnson Memorial Tunnels to Herman Gulch eastbound auxiliary lane, and
2. The Downieville to Empire westbound auxiliary lane.

Because the Highway Alternatives (including Combination Alternatives that package highway in combination with transit or highway with transit preservation) increase capacity instead of reducing demand on the highway, some of the auxiliary lanes are not needed. Only one of the seven auxiliary lanes east of the Eisenhower-Johnson Memorial Tunnels is included in the Highway Alternatives. This is the Morrison to Chief Hosa westbound auxiliary lane. For the Six-Lane Highway 65 mph Alternative, curve widening at Dowd Canyon is not needed because a new tunnel for I-70 would be constructed in this area, avoiding Dowd Canyon.

ES.14.3 Transit Alternative Components

Three Transit Alternative components were advanced for consideration in this document. All Transit Alternative components, unless noted, operate between the east end of the Corridor at the end of line (Jefferson Station/C-470) for the FasTracks light rail corridor to the Eagle County Regional Airport. Transit alignments could be on either side of the I-70 facility but are typically in median areas where six-lane highway widening occurs. All transit systems connect with the Regional Transportation District network at the Jefferson Station/C-470 and local and regional transit services at most stations along the route, such as Roaring Fork Transportation Authority, ECO Transit, and Summit Stage.

- **Rail with Intermountain Connection:** combines heavy rail with the Intermountain Connection. The rail portion includes a primarily on-grade electric facility adjacent to the I-70 facility with portions in the median and elevated sections where needed between Vail and C-470 to minimize impacts. The specific technology for the rail is not defined, other than electric rail. A specific technology would be defined in a Tier 2 process. This alternative would upgrade the existing Union Pacific Railroad track from the Minturn interchange to the Eagle County Regional Airport and new track from Minturn to Vail.
- **Advanced Guideway System:** is generally a high-speed fixed guideway transit system. It is fully elevated for 118 miles and varies in alignment between the north, the south, and the median of I-70. This system is not defined by a specific technology in this document but represents several technologies considered, such as monorail and magnetic levitation (maglev) transit systems. This document assumes an urban maglev system for analysis. However, the actual technology would be developed in a Tier 2 process.



Example of Advanced Guideway System

- Bus in Guideway (Dual-Mode and Diesel):** is evaluated generally within the median of I-70 and consists of a single guideway eastbound from the Eagle County Regional Airport to the west portal of the Eisenhower-Johnson Memorial Tunnels, and a bidirectional guideway from the Eisenhower Johnson Memorial Tunnels to C-470. The guideway is dedicated to special buses with guideway attachments such as guide wheels used for steering control permitting a narrow guideway and safer operations. The specific technology and alignment would be determined in a Tier 2 process. Two vehicle types are considered in this document: dual-mode and diesel. The dual-mode buses use electric power in the guideway and diesel power when outside the guideway in the general purpose lanes. The diesel buses use diesel power at all times. Because buses can drive outside the guideway in general purpose lanes, buses provide continuous routing, without transfers, between several Denver metropolitan area locations and multiple I-70 served destinations. In addition to stops along the Corridor, these destinations include Central City, Black Hawk, Winter Park Resort, Keystone Resort, Arapahoe Basin Ski Area, and Breckenridge.



Bus in Guideway

ES.14.4 Highway Alternative Components

Two Highway Alternative components are incorporated into some of the Action Alternatives. These include:

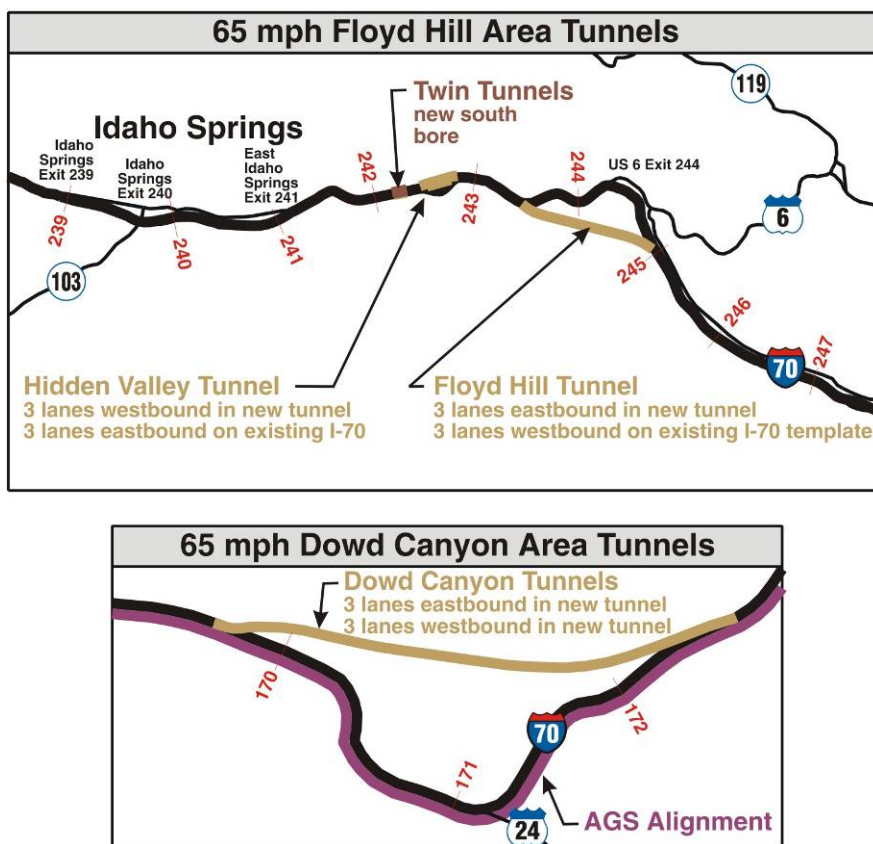
- Six-Lane Highway Widening (55 mph and 65 mph):** widening in Dowd Canyon (Eagle-Vail to Vail West) between milepost 170 and milepost 173, and Continental Divide to Floyd Hill between the Eisenhower-Johnson Memorial Tunnels (milepost 213.5) and Floyd Hill (milepost 247).
- Reversible/HOV/HOT Lanes:** A reversible lane accommodates HOV and HOT lanes and changes traffic flow directions as needed to accommodate peak traffic demand. High occupancy toll lanes allow high occupancy vehicles (3 or more persons) to use the facility for free, while low occupancy vehicles use the facility for a fee. It includes two additional reversible traffic lanes and is built from the west side of the Eisenhower-Johnson Memorial Tunnels to just east of Floyd Hill. From the Eisenhower-Johnson Memorial Tunnels to US 6, two lanes are built with one lane continuing to US 6 and the other lane to the east side of Floyd Hill. The only entry and exit points for the lanes are at US 6 and the Empire Junction interchange. This component includes one additional lane in each direction at Dowd Canyon (milepost 170 to milepost 173) but is not barrier-separated or reversible. A structured configuration in Idaho Springs minimizes impacts on the community as with the six-lane highway widening at 55 mph and 65 mph.

ES.14.5 Tunnels Common to Many or All Action Alternatives

The Action Alternatives include the following new or rebuilt tunnels:

- For all Action Alternatives (Highway, Transit, and Combination), except the Minimal Action Alternative, new (third) tunnel bores are required at both the Eisenhower-Johnson Memorial Tunnels and the Twin Tunnels to accommodate improvements.
- For the Six-Lane Highway 65 mph Alternative, three new tunnels are required to accommodate the higher speed. The locations are in the Dowd Canyon area and the Floyd Hill area (westbound Hidden Valley tunnel and eastbound Floyd Hill tunnel). **Figure ES - 5** shows these tunnels.

Figure ES - 5. 65 mph Local Tunnel Alternatives



ES.15 What is the Collaborative Effort Team?

The Colorado Department of Transportation commenced a Collaborative Effort team to address the public involvement, the stakeholders' lack of trust, and the stakeholders' desire to be involved in the identification of the Preferred Alternative. An interview process involving more than 50 stakeholders throughout the Corridor was conducted by the U.S. Institute for Environmental Conflict Resolution to identify stakeholder issues and make recommendations regarding a process for developing consensus on a preferred alternative. Stakeholders voiced a range of procedural interests, concerns, and suggestions, ranging from a lack of trust and confidence in agency decision making, to acknowledgement that not all stakeholder groups have identical interests and a desire to better reflect factors that have changed since publication of the 2004 Draft PEIS.

Based on interview results, CDOT formed a 27-member Collaborative Effort team that included representatives of the following entities:

- Blue River Group, Sierra Club
- City of Idaho Springs
- Clear Creek County
- Colorado Association of Transit Agencies
- Colorado Dept. of Transportation (2)
- Colorado Environmental Coalition
- Colorado Motor Carriers Association
- Colorado Rail Passenger Association
- Federal Highway Administration
- Federal Transit Administration
- Garfield County
- Rocky Mountain Rail Authority
- Sierra Club, Rocky Mountain Chapter
- Summit Chamber
- Summit Stage
- Town of Frisco

- Colorado Ski Country USA
- Colorado Trout Unlimited
- Denver Mayor's Office
- Denver Metro Chamber of Commerce
- Eagle County
- Town of Georgetown, Georgetown Trust
- Town of Vail
- U.S. Army Corps of Engineers
- United States Forest Service
- Vail Resorts

The Collaborative Effort team's objective was to reach a consensus recommendation for Corridor transportation solutions that address these stakeholder issues. In June 2008, the Collaborative Effort team used a process consistent with the 2004 Draft PEIS Purpose and Need Statement to identify a "Consensus Recommendation" that included a multimodal solution, an incremental and adaptive approach to transportation improvements, and a commitment to continued stakeholder involvement. The Collaborative Effort process adhered to the purpose and need and provides for the long-term transportation needs beyond 2035 by establishing a vision for 2050. The Collaborative Effort team also agreed that the Preferred Alternative had to meet a 2050 Vision. The lead agencies committed to adopt the Collaborative Effort team's Consensus Recommendation as the Preferred Alternative in the Final PEIS. The Collaborative Effort team will convene at key project milestones during completion of this document and the Final PEIS, and will continue to meet through 2020.

ES.16 What is the I-70 Mountain Corridor Context Sensitive Solutions Process?

The Colorado Department of Transportation developed, adopted, and endorsed the I-70 Mountain Corridor Context Sensitive Solutions guidance and process to consider the total "context" of the proposed transportation projects—not just the study's physical boundaries. The CDOT NEPA Manual includes guidance on incorporating Context Sensitive Solutions in the NEPA process. In Section 3.3, the manual states that "CSS represents an evolution in the philosophical approach to transportation and supports the social, economic, and environmental context of the facility... It should be reflected in the way the NEPA process is implemented."

In 2007 CDOT formed an I-70 Mountain Corridor Context Sensitive Solutions team of 150 public and agency stakeholders to develop Context Sensitive Solutions Guidance for the Corridor. The I-70 Mountain Corridor Context Sensitive Solutions process is built on a commitment to collaborative decision making. The key principles of collaborative decision making are:

- Principle-based
- Outcome-driven
- Multidisciplinary

To achieve a truly collaborative process, the I-70 Mountain Corridor Context Sensitive Solutions team developed a 6-Step Process that can be used for all projects at any phase of the project life cycle. This process is based on the three principles above and uses the constructs of Decision Science to guide effective, collaborative decision making. The six steps are:

- **Step 1: Define Desired Outcomes and Actions:** Using the CSS Guidance and other relevant materials, this step establishes the project goals and actions. It also defines the terms to be used and decisions to be made.
- **Step 2: Endorse the Process:** This step establishes participants, roles, and responsibilities for each team. The process is endorsed by discussing, possibly modifying, and then finalizing with all teams the desired outcomes and actions to be taken.
- **Step 3: Establish Criteria:** This step establishes criteria, which provides the basis for making decisions consistent with the desired outcomes and project goals. The criteria measure support for the Core Values for the I-70 Mountain Corridor.

Executive Summary

- **Step 4: Develop Alternatives or Options:** The Project Staff works with the Project Leadership Team, stakeholders, and the public to identify alternatives or options relevant to the desired outcomes, project-specific vision, and goals.
- **Step 5: Evaluate, Select, and Refine Alternative or Option:** The process of analyzing and evaluating alternatives applies the criteria to the alternatives or options in a way that facilitates decision making. This may be a one-step or multi-step process depending on the complexity of the alternatives and the decision.
- **Step 6: Finalize Documentation and Evaluate Process:** Documentation should be continuous throughout the process. Final documentation will include each of the previous steps, final recommendations, and the process evaluation.

These steps are intended to provide a clear, repeatable, and scalable process that is fair and understandable. The order of the steps is as important as the activities within each step.

The I-70 Mountain Corridor Context Statement is:

- The I-70 Mountain Corridor is a magnificent, scenic place. Human elements are woven through breathtaking natural features. The integration of these diverse elements has occurred over the course of time.
- This corridor is a recreational destination for the world, a route for interstate and local commerce, and a unique place to live.
- It is our commitment to seek balance and provide for twenty-first-century uses.
- We will continue to foster and nurture new ideas to address the challenges we face.
- We respect the importance of individual communities, the natural environment, and the need for safe and efficient travel.
- Well-thought-out choices create a sustainable legacy.

The I-70 Mountain Corridor Core Values, in concert with the Context Statement, represent a vision and goals for the I-70 Mountain Corridor. They are:

- Sustainability
- Safety
- Health Environment
- Biological Resources
- Climate and Air Quality
- Hazardous Materials
- Wetlands and Water Resources
- Wildlife
- Historic Context
- Communities
- Mobility and Accessibility
- Aesthetics
- Life Cycle Phases (planning, project development, project design, project construction, and operations, maintenance, and monitoring)

The I-70 Mountain Corridor Context Sensitive Solutions Guidance commits to form collaborative stakeholder teams, called Project Leadership Teams, on all Corridor projects. The I-70 Mountain Corridor Context Sensitive Solutions Guidance authorizes Project Leadership Teams to create Issue Task Forces to address specific issues outside the Project Leadership Teams' area of expertise. The I-70 Mountain Corridor Context Sensitive Solutions Guidance document is available on the project website at

www.i70mtncorridorcss.com, and should be amended to remain flexible to address and incorporate innovations, new techniques, advanced technologies, and emerging trends in the Corridor.

To be in compliance with the I-70 Mountain Corridor Context Sensitive Solutions Guidance, the I-70 PEIS Project Leadership Team was formed in October 2008 to facilitate completion of the NEPA process, including completion of this Revised Draft PEIS, the Final PEIS, and Record of Decision. The I-70 PEIS Project Leadership Team formed a Cultural Resources Issue Task Force, Environmental Issue Task Force, and Community Values Issue Task Force to develop potential mitigation strategies for impacts to resources identified. The lead agencies will incorporate the suggested mitigation strategies into the Final PEIS. This does not indicate that all strategies will be implemented—the decision on appropriate mitigation will be made on a project-by-project basis during Tier 2 processes.

Tier 2 processes are needed before any projects covered in this document can be built. This first tier study formalizes decisions on location, mode (type of improvement) and capacity of transportation improvement. Details needed in order to construct a project are not identified now but rather will be defined during a subsequent process of study that is more localized in nature.

ES.17 How was the Preferred Alternative (Consensus Recommendation) developed?

The lead agencies identified the Preferred Alternative for the I-70 Mountain Corridor based on the Consensus Recommendation (See **Appendix C**) developed by the Collaborative Effort team (see **Section ES.15**). The lead agencies participated in the development of the Consensus Recommendation for the Corridor. During the consensus building process they agreed to adopt the Recommendation as the Preferred Alternative if all of the stakeholders could reach consensus.

The Collaborative Effort process and the Consensus Recommendation adhere to the purpose and need and provide for the long-range transportation needs beyond 2035 by establishing a vision for 2050. The Consensus Recommendation identifies a 2050 Vision for a multimodal solution, with transit and highway improvements based on proven needs to enhance the Corridor, its environment, and its communities. The criteria below informed the Collaborative Effort's recommendation and will serve as criteria of effectiveness moving forward:

1. The solution should improve safety and mobility for all users.
2. The solution should be responsive and adaptive to broader global trends that will affect the way we make travel decisions in the future.
3. The solution will meet the purpose and need and all environmental and legal requirements.
4. The solution should preserve, restore and enhance community and cultural resources.
5. The solution should preserve and restore or enhance ecosystem functions.
6. The solution should be economically viable over the long term

The Consensus Recommendation is fully evaluated and referred to in this document as the Preferred Alternative.

ES.18 What does the Preferred Alternative consist of?

The Preferred Alternative consists of near-term and general long-term improvements for the Corridor to meet the travel demand for 2050 and address immediate Corridor needs. To address the future uncertainties, trigger points (see **Section ES.23** for details) and stakeholder involvement will be used to reassess the Corridor needs to determine the most appropriate transportation improvements to meet the future demands within the Corridor.

The Preferred Alternative is a multimodal solution and includes non-infrastructure related components, an Advanced Guideway System, and highway improvements.

Triggers for Long-Term Improvements

- Triggers create a mechanism for defining the specifics of future transportation solutions consistent with the Corridor vision.
- Triggers are used to evaluate the future needs to meet 2050 demand and are based on completion of specific highway improvements, feasibility of Advanced Guideway System, and global, regional, and local trends.

1. **Non-infrastructure Related Components** – These strategies can begin in advance of major infrastructure improvements to address immediate issues in the Corridor. These strategies and the potential tactics for implementation require actions and leadership by agencies, municipalities, and other stakeholders beyond the lead agencies. The strategies include, but are not limited to:
 - Increased enforcement
 - Bus, van, or shuttle service in mixed traffic
 - Programs for improving truck movements
 - Shift passenger and freight travel demand by time of day and day of week
 - Modify traveler behavior through driver education, and implementing promotions and incentives for high occupancy travel and transit use,
 - Expanded use of existing transportation infrastructure in and adjacent to the Corridor
 - Use of technology advancements and improvements to increase mobility without additional infrastructure
 - Traveler information and other ITS
 - Convert day trips to overnight stays
 - Other TDM measures to be determined
2. **Advanced Guideway System**– The Advanced Guideway System is a central part of the Preferred Alternative and includes the commitment by the lead agencies to evaluate and implement an Advanced Guideway System within the Corridor. The evaluation includes a vision of transit connectivity beyond the study area and local accessibility to such a system. At this first tier level, the Advanced Guideway System represents a mode encompassing a range of technologies, not a specific technology. A specific Advanced Guideway System technology would be determined in subsequent study or a Tier 2 process. The Colorado Department of Transportation commits to provide funding for studies to determine the viability, including cost and benefits, safety, reliability, environmental impacts, technology, and other considerations of an Advanced Guideway System. These studies will involve the Collaborative Effort stakeholder committee and follow the I-70 Mountain Corridor Context Sensitive Solutions process.

The Advanced Guideway System provides transit service from the Eagle County Regional Airport to C-470, a distance of approximately 118 miles. It is a fully elevated transit system on two tracks and aligns to the north, south, or in the median of I-70. The Advanced Guideway System connects to the Regional Transportation District network in Jefferson County and local and regional transit services at most of the 15 proposed transit stations along the route. The

Advanced Guideway System requires new tunnel bores at both the Eisenhower-Johnson Memorial Tunnels and the Twin Tunnels.

3. **Highway Improvements** – Additional highway improvements are needed to address current Corridor conditions and future demands. No priority has been established for improvements and those improvements must be planned considering all components of the Preferred Alternative consistent with local land use planning. The “specific” highway improvements are called out specifically as the triggers for consideration of the future highway and non-Advanced Guideway System transit capacity improvements and need to be completed before implementing any future highway and non-Advanced Guideway System transit capacity improvements. For more information on these triggers, see **Section ES.23**. The “other” highway improvements are not subject to the parameters discussed under the triggers.

For analysis purposes, these improvements (non-infrastructure, Advanced Guideway System, and highway) represent the initial set of improvements and are the minimum program of improvements under the Preferred Alternative analyzed in **Chapter 3**. Agencies and stakeholders will review progress and effects of these improvements at least every two years to determine the need for additional highway and non-Advanced Guideway System transit capacity improvements. To meet the 2050 travel demand based on current understanding the Preferred Alternative needs to be equivalent to the Combination Six-Lane Highway with Advanced Guideway System Alternative. For National Environmental Policy Act analysis, this combination represents the maximum program of improvements and impacts under the Preferred Alternative and is analyzed in **Chapter 3** of this document. The Preferred Alternative Maximum Program comprises all of the improvements listed above and those included with the Combination Six-Lane Highway with Advanced Guideway System Alternative.

The six-lane highway widening improvements included with the Preferred Alternative Maximum Program include both 55 mph and 65 mph design options. This design option will be determined in Tier 2. The 55 mph option uses the existing I-70 alignment. The 65 mph design requires additional tunnels at Dowd Canyon, Hidden Valley, and Floyd Hill. At Dowd Canyon, two tunnels are required for eastbound and westbound traffic.

In **Chapter 2** of this document, **Table 2-10** lists and **Figure 2-11** illustrates the improvements associated with the Preferred Alternative.

ES.19 How much will this project cost?

The Preferred Alternative identifies a minimum and maximum range of multi-modal improvements ranging in cost from \$16.1 billion to \$20.2 billion (in year of expenditure assuming the mid year of construction for the whole alternative is 2025).

The 21 Action Alternatives evaluated in this document range in cost from \$1.949 billion to \$20.163 billion (in year of expenditure assuming the mid year of construction for the whole alternative is 2025). See **Chapter 2** for more information on the alternatives.

Cost estimates for alternatives were developed in 2003 from preliminary design item costs, cost estimating contingency factors and other component costs. To update costs for this document, CDOT used cost escalations for each alternative, using the Colorado Highway Construction Cost Index as a basis for determining long-term future cost escalation. The Preferred Alternative resulted in a current year cost (2010) of \$9.2 billion to \$11.2 billion dollars. The Advanced Guideway System cost estimates were established in conjunction with the Federal Transit Administration’s Colorado Urban Maglev Project and were independently reviewed and confirmed by the Rocky Mountain Rail Authority as part of their High Speed Rail Feasibility Study. See *I-70 Mountain Corridor PEIS Cost Estimates Technical Report* (CDOT, August 2010) for detail on estimated methodology and assumptions.

Executive Summary

The process of escalating costs provides a uniform treatment of alternatives for relative comparison. CDOT updated the 2010 cost estimate based on a revised methodology to provide a more reasonable range of costs consistent with a Tier 1 document for the 21 Action Alternatives, including the Preferred Alternative. The revised methodology focuses on Year of Expenditure cost assuming the mid-year of construction is 2020 for the Minimal Action, while all other alternatives assume mid-year of construction is 2025. The year 2025 was used because it is the midyear of the planning period. **Chart ES - 1** shows the capital costs by alternative. The year 2020 was used for the Minimal Action because the construction scope is much smaller and the belief is that that alternative could be delivered on a shorter time frame than the other alternatives.

The timeframe for implementing components of the Preferred Alternative is wide ranging; future Tier 2 processes will identify project level improvements. Those studies will include more detailed design information, specific mitigation measures to offset impacts and project specific cost estimates.

ES.20 Is the money for this project available?

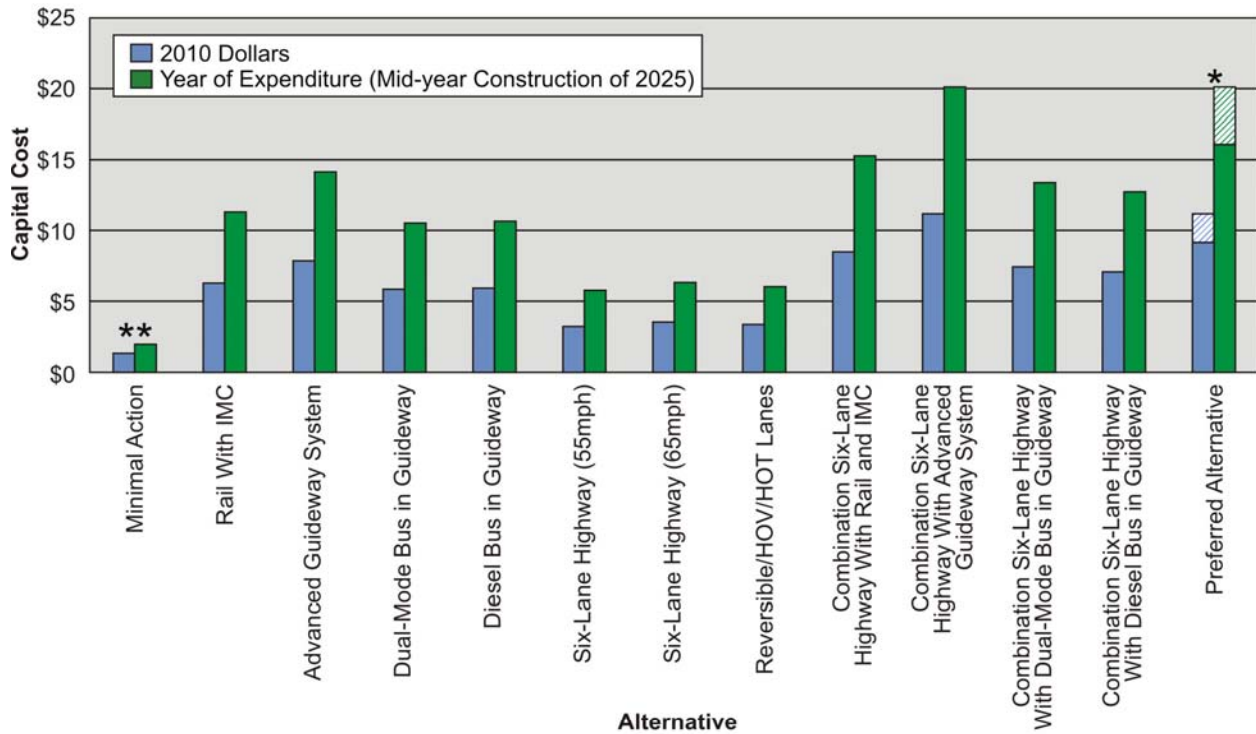
The Colorado Department of Transportation's revenue is obtained from federal and state funding sources. The Colorado State Constitution, federal law, and state statutes determine how CDOT can use these funds. In the past decade, transportation revenues have fluctuated significantly in receipts from these various revenue sources. This uncertainty is expected to continue into the future. These funding sources include, but are not limited, to, the Motor Fuel Tax, Senate Bill 09-108 called Funding Advancements for Surface Transportation and Economic Recovery (FASTER), and Senate Bill 09-228.

The Colorado Department of Transportation does not have enough available revenue sources to fund the Preferred Alternative improvements. To implement the Preferred Alternative, additional funding sources must be secured. Lawmakers and citizens recognize the I-70 Mountain Corridor is a key component of Colorado's economy and competes as one of the highest priorities in the state in need of capital improvements as new funding opportunities arise.

New funding sources are needed to fund the Preferred Alternative improvements. U.S. Congress is discussing a new long-term transportation bill that could provide opportunities for increased funding for highway and transit improvements identified in this document. The Transportation Finance and Implementation Panel formed by Governor Ritter released a 2008 report proposing a statewide vision for transportation, policy change recommendations, new investment categories, and funding for increased investment in transportation. The report estimates a minimum of \$1.5 billion is needed annually above the existing investment to improve Colorado's transportation system. Six revenue options were recommended in the final report. Proposals for raising additional funds for the Corridor improvements must be approved by a public vote, by action of the Colorado General Assembly, or a combination of the two.

Options for innovative funding sources include public/private partnerships, tolling, bonding/loans, and corridor-specific resources (which are funding sources that apply to limited geographic areas and require voter approval, constitutional amendments, or both).

Chart ES - 1. Capital Costs by Alternative



* The Maximum Program presents the range of impacts that could occur with the Preferred Alternative. The solid bar represents the implementation of the Minimal Program only. The hatched bar area shows the range of the Maximum Program. It is presented as a range because the adaptive management component of the Preferred Alternative allows it to be implemented based on future needs and associated triggers for further action. The top end of the bar represents the full implementation of the Maximum Program. Section 2.7 of this document describes the triggers for implementing components of the Preferred Alternative.

** The methodology focuses on year of expenditure cost to a mid-year of construction of 2020 for the Minimal Action Alternative.

ES.21 How will stakeholders be involved with implementing necessary improvements in this corridor?

Some planning, design, construction, and maintenance activities can take place before signing a Record of Decision. These activities are “early action projects.” Early action projects must be common elements to all the Action Alternatives and have a clear need. These include:

- **Empire Junction (US 40/I-70) improvements** – Improves mobility and has public support.
- **I-70/Silverthorne interchange** – Has strong public support.
- **Eagle interchange** – Improves mobility.
- **Minturn interchange** – Enhances safety.
- **Edwards interchange** – Improves mobility.
- **Black Gore Creek and Straight Creek Sediment Control** – Provides environmental mitigation.
- **I-70 Wildlife Fencing** – Enhances safety.
- **Clear Creek Sediment Control Action Plan** – Provides environmental mitigation.

All Preferred Alternative components, including transit, must go through the established planning process. Because the transportation planning process identifies and prioritizes projects, the components will be defined into projects. The planning process involves coordination with transportation planning regions and metropolitan organizations to identify and prioritize projects to be included in a long-range

Executive Summary

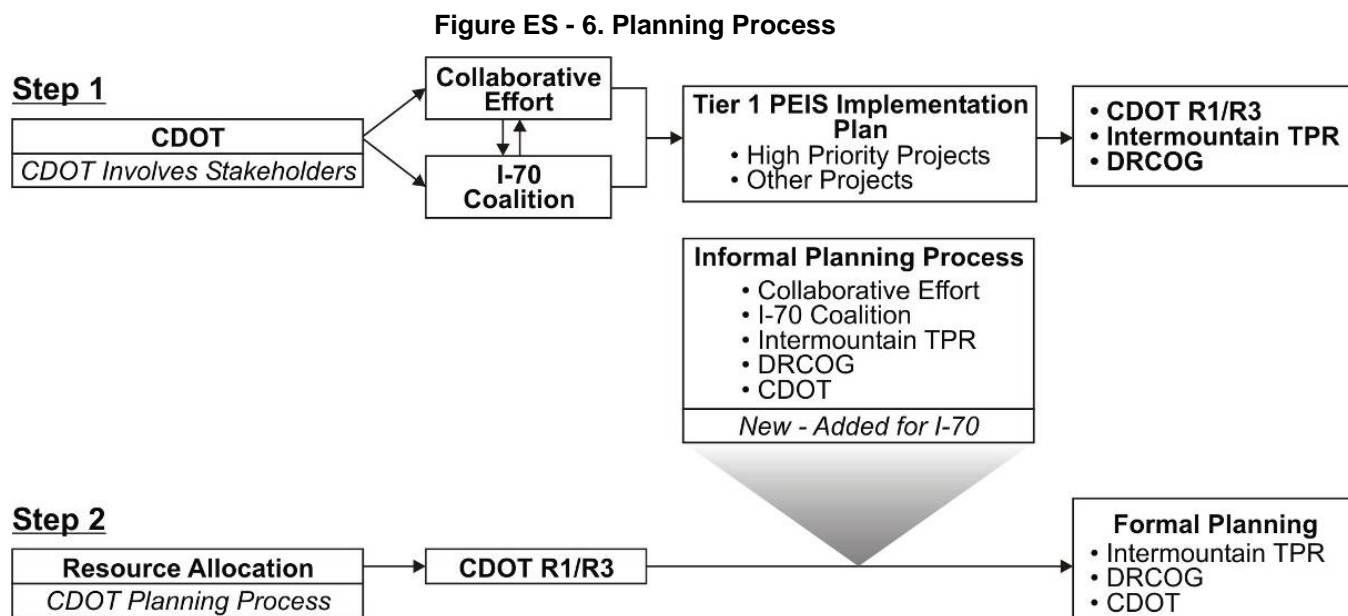
(20+ year) Statewide Transportation Plan and a short-range (six-year) Statewide Transportation Improvement Program, which is updated every four years using a Project Priority Programming Process (4P) guidance adopted by the Colorado Transportation Commission. Funding availability is considered in the identification and prioritization of projects.

The Tier 1 decision identifies general capacity, mode, and location for transportation improvements in the Corridor and establishes the framework for future project-level activities. The Statewide Transportation Improvement Program identifies funds for feasibility studies, Tier 2 processes, design, or construction phases before a project is initiated. Funds for the completion of a project identified in the Tier 2 NEPA process must be reasonably anticipated in the long-range Statewide Transportation Plan. Sequencing, funding, and construction of projects within the Corridor are balanced among other statewide priorities and needs.

The Colorado Department of Transportation and the stakeholders will:

- Guide and monitor the implementation of projects in the Corridor; and
- Assess the Corridor’s needs and priorities for recommendations by the Collaborative Effort, including assessments of larger projects for feasible options to phase and implement through planning and Tier 2 processes.

Step 1 in **Figure ES - 6** indicates the implementation process outlined in this document. The Colorado Department of Transportation and the stakeholders will communicate the priorities identified from the Preferred Alternative with the appropriate transportation planning regions and metropolitan planning organizations. As noted in Step 2, CDOT will work directly with the planning partners to facilitate the integration of the Collaborative Effort and other interested stakeholders into the formal 4P process.



Key of Abbreviations/Acronyms

CDOT = Colorado Department of Transportation DRCOG = Denver Regional Council of Governments
 PEIS = Programmatic Environmental Impact Statement R1/R3 – Region 1/Region 3
 TPR = Transportation Planning Region

The considerations for priorities can change or be elevated in consultation with the stakeholders. The Preferred Alternative includes convening the Collaborative Effort or a stakeholder group with similar composition every two years to identify considerations and priorities for the Corridor.

The Colorado Department of Transportation is committed to advancing all elements of the Tier 1 decision through the federally mandated planning process. The Colorado Department of Transportation will pursue current and future priorities identified through stakeholder engagement in this process regardless of mode, including Advanced Guideway System and non-infrastructure improvements. The Colorado Department of Transportation will work with stakeholders to identify additional funding and innovative approaches to construct the Preferred Alternative.

ES.22 In what order would improvements be made?

While widening to six lanes at some locations and constructing an Advanced Guideway System are necessary to relieve congestion and accommodate increasing demand, it is recognized that construction funds are not currently available. In addition, local and regional conditions may change over time and require different solutions to be considered.

The Consensus Recommendation provides for an adaptive management approach, allowing Corridor stakeholders and agencies to assess impacts of improvements and funding availability over time before new improvements are implemented. This flexibility is needed to meet long-term transportation needs while adapting to changes in local and regional conditions.

The Preferred Alternative identifies high priority improvements, including:

- Widening I-70 to six lanes—three in each direction—between Floyd Hill and the Twin Tunnels, while improving curvature and grade. That five-mile segment between Genesee to the tunnels just east of Idaho Springs is where some of the worst weekend congestion occurs.
- Adding frontage roads and a bike trail from Idaho Springs East to Hidden Valley and Hidden Valley to US 6.
- Improving Empire Junction, where I-70 meets US 40.
- Constructing an eastbound auxiliary lane from the Eisenhower-Johnson Memorial Tunnels to Herman Gulch, a distance of 28 miles.
- Constructing a westbound auxiliary lane from Bakerville to the Eisenhower-Johnson Memorial Tunnels, a distance of 7 miles.

These improvements could slow the rate of worsening congestion for a few years, but alone would not accommodate projected traffic increases through 2050.

Concurrent with the highway improvements is the evaluation and implementation of the Advanced Guideway System, as described in **Section ES.14**.

ES.23 What are the triggers for additional highway and non-Advanced Guideway System transit capacity improvements?

The Preferred Alternative is responsive and adaptive to future trends within the Corridor. The use of triggers is consistent with the needs of the Corridor and recognizes that future travel demand and behavior is uncertain and that additional transportation solutions should be based on proven need. The triggers create a mechanism for defining the specifics of future transportation solutions consistent with the Corridor vision.

Executive Summary

Additional highway and non-Advanced Guideway System transit capacity improvements may proceed if and when:

- The “specific” highway improvements are complete and an Advanced Guideway System is functioning from the Front Range to a destination beyond the Continental Divide, OR
- The “specific” highway improvements are complete and Advanced Guideway System studies that provide additional information on the ability to implement Advanced Guideway System within the Corridor are complete, OR
- Global, regional, local trends or events, such as climate change, resource availability, and/or technological advancements have unexpected effects on travel needs, behaviors, and patterns and demonstrate a need to consider other improvements.

The Colorado Department of Transportation will convene a committee that retains the Collaborative Effort member profile to check in at least every two years to review progress made on the above triggers. At these check-in points, the committee will:

- Review the current status of all projects,
- Identify unmet needs in the Corridor, and
- Consider the triggers in evaluating the need for additional capacity improvements beyond those specified.

In 2020, there will be a thorough reassessment of the overall purpose and need and effectiveness of the improvements to review study results and global trends before implementing additional transportation improvements. This will occur regardless of the status of the triggers. At this time, the full range of improvement options may be reconsidered to address the needs in the Corridor.

ES.24 What are some of the other highway improvements that can be made?

Other highway improvements identified in the Consensus Recommendation and included in the Preferred Alternative Minimum Program of Improvements are:

- More and better pullouts, chain stations, and parking spots for trucks
- Safety improvements on the interstate west of Wolcott
- An eastbound auxiliary lane from Frisco to Silverthorne
- An eastbound auxiliary lane from Avon to Post Boulevard
- A westbound auxiliary lane from Morrison to Chief Hosa
- Auxiliary lanes eastbound and westbound west of Vail Pass
- Safety and capacity improvements in Dowd Canyon
- Interchange improvements in 20 locations, some of the corresponding to potential Advanced Guideway System transit stops at:
 - East Glenwood Springs
 - Eagle
 - Minturn
 - Frisco/Main Street
 - Loveland Pass
 - Fall River Road
 - Lookout Mountain
 - Frisco/SH 9
 - Georgetown
 - Base of Floyd Hill/US 6
 - Morrison
 - Eagle County Regional Airport Interchange*
 - Avon
 - Copper Mountain

- Gypsum
- Edwards
- Vail West
- Silverthorne
- Downieville
- Hyland Hills/Beaver Brook

**Eagle County Regional Airport Interchange was carried out as a separate action from this Tier 1 process. A NEPA clearance has been completed for this interchange.*

ES.25 Why are both transit and highway improvements needed?

Through the alternatives development, screening, and evaluation process, the lead agencies and stakeholders determined that no single mode improvement alone would meet the purpose and need of the project. This is because the relationship of capacity and congestion is not direct. Lack of capacity may lead to congested conditions but increased capacity will not necessarily reduce congestion as the additional capacity can also result in more people traveling and using any additional capacity. As a result, both increased capacity and decreased congestion need to be addressed. The transit component provides enough additional capacity to be able to relieve some of the highway congestion and still be able to also improve accessibility and mobility. Another benefit of the combined improvements is that they offer travelers different options for traveling along the Corridor depending on their travel purpose.

ES.26 How do metro Denver residents access the Advanced Guideway System?

C-470 is the eastern terminus for all modes due to the system interchange of I-70 and C-470, the increase in I-70 volumes, and the predominance of urban travel patterns to the east of C-470. At its eastern terminus, the Advanced Guideway System connects to the Regional Transportation District system in Jefferson County, allowing people from the Denver metro area to ride a bus or light rail train and then transfer to the Advanced Guideway System. These termini do not preclude other NEPA transportation improvement studies outside the Corridor. Additional studies and NEPA processes may extend beyond these termini if needed.

ES.27 Do the dual-mode transportation improvements make traveling the Corridor safer?

Improving safety was one of the key factors considered during the development and evaluation process, and all alternatives were evaluated on their ability to address the safety issues identified in the Corridor.

Alternatives that include a Fixed Guideway Transit component provide a safer means of transportation for travelers than highway vehicle travel. National crash rates for rail modes are markedly lower than the comparable rates for motor vehicles. Buses operating in general purpose lanes are on average safer than automobile travel, but not as safe as rail technologies in fixed guideways. No separate statistics are available at a national level for buses operating in a separate guideway.

A number of Minimal Action highway components included in all of the Action Alternatives were developed to address safety problem areas. For this reason the Action Alternatives are not substantially different from each other in terms of highway safety. The higher profile safety problem areas in the Corridor addressed by all Action Alternatives include:

- Wolcott curve
- Dowd Canyon (not included with the Transit Alternatives)
- Silverthorne Interchange
- Eisenhower-Johnson Memorial Tunnels to Herman Gulch (eastbound)
- Base of Floyd Hill (Twin Tunnels to the US 6 interchange).

Executive Summary

Fatality rates were used for comparison as the best measure of safety among the alternatives. The No Action Alternative is projected to have a fatality rate of 0.50 per 100 million person miles. In comparison, the Minimal Action Alternative, with its components that address most highway safety problems, has a rate of 0.37. Highway Alternatives are higher, with fatality rates that range between 0.40 and 0.42, since unimproved sections of the facility attract more vehicle miles of travel compared to the Minimal Action Alternative. Alternatives with transit, reflecting different transit technologies and usage, have rates ranging from 0.31 to 0.36. The Preferred Alternative has a fatality rate ranging from 0.31 to 0.34 per 100 million person miles, and the majority of those are on the highway.

ES.28 Are there other ways to decrease congestion without the Advanced Guideway System and/or widening the highway?

The Preferred Alternative includes non-infrastructure components that include the following elements (see **Section ES.18** for a complete list):

- Promoting public transportation and high-occupancy travel
- Promoting transit with incentives for more bus, van or shuttle traffic on I-70.
- Increasing traffic law enforcement
- Shifting traveler and freight demand by time of day and day of week.

Although these measures ease congestion on the I-70 Mountain Corridor, alone they do not address this project's purpose and need to increase capacity, improve accessibility and mobility, or decrease congestion for travel demand.

ES.29 Why do we need highway and transit improvements?

The ability of the alternatives to accommodate the 2050 travel demand is measured by the year network capacity is reached. This term means the year that the average speed on the highway drops to 30 miles per hour. The year network capacity is reached and the 2050 travel demand is based on projections for population and employment data. These projections are less reliable than the population and employment data used to model 2035 travel demand due to the uncertainties of growth and travel assumptions beyond the year 2035, but they provide a relative comparison between alternatives.

Analysis shows that the only alternatives with network capacity to accommodate the 2050 travel demand are the Combination Alternatives and the Preferred Alternative. The No Action Alternative reaches network capacity between 2010 and 2025. The Minimal Action Alternative performs slightly better but still reaches network capacity in the eastern portion of the Corridor by 2015. The Transit Alternatives reach network capacity in 2030, and the Highway Alternatives reach network capacity between 2035 and 2040. The Combination Alternatives provide a network capacity to 2050 if both transit and highway elements are constructed. If the transit corridor is preserved, these Combination Alternatives perform like Highway Alternatives, and if highway improvements are preserved, these alternatives perform like Transit Alternatives.

For the Preferred Alternative, the year network capacity is reached ranges from 2030 to 2050 for east of Silverthorne and 2050 for west of Silverthorne due to the peak recreation travel demand.

ES.30 What is SWEEP?

SWEEP stands for Stream and Wetland Ecological Enhancement Program. This group is made up of representatives from federal and state agencies, watershed associations, and special interest groups. Members identified and addressed environmental issues related to the improvement of wetlands, streams, and fisheries in the Corridor. The Stream and Wetland Ecological Enhancement Program group drafted a Memorandum of Understanding to serve as the foundation of mitigation for aquatic resource impacts

during projects along the Corridor and its communities. The Colorado Department of Transportation is committed to implementing the terms outlined in the Memorandum of Understanding. A draft is included in **Appendix D** of this document. The Colorado Department of Transportation will continue to work toward finalizing this Memorandum of Understanding to include with the Final PEIS.

ES.31 What is ALIVE?

ALIVE stands for A Landscape Level Inventory of Valued Ecosystem Components Committee. This group consists of wildlife professionals from federal and state agencies who identified wildlife habitat of high ecological integrity, wildlife habitat linkages, and barriers to wildlife crossings along the Corridor. They developed a landscape-based ecosystem approach for consideration of wildlife needs and conservation measures, and identified measures to improve existing aquatic and terrestrial ecosystem connectivity across the I-70 Mountain Corridor between Denver and Glenwood Springs. In April 2008, CDOT, FHWA, U.S. Fish and Wildlife Service, the U.S. Department of Agriculture Forest Service, Bureau of Land Management, and Colorado Department of Natural Resources Division of Wildlife signed a Memorandum of Understanding documenting their commitment to identify mitigation and conservation measures during future Tier 2 processes to increase the permeability of the I-70 Mountain Corridor to terrestrial and aquatic species. The Colorado Department of Transportation is committed to implementing the terms outlined in the Memorandum of Understanding.

ES.32 What are the types of environmental impacts of greatest concern?

Of the environmental resources listed above, resources shown to be of greatest concern to the public and stakeholders include:

- Air quality
- Wildlife (Linkage Interference Zones)
- Water resources and water quality (watersheds, rivers, streams, creeks)
- Regulated materials (hazardous substances/waste, petroleum products, mining contaminants)
- Noise
- Visual conditions
- Recreation resources
- Historic properties
- Socioeconomic considerations (including induced growth and land use)

Impacts to these resources are summarized below.

ES.32.1 How will air quality be impacted?

For all the alternatives, carbon monoxide emissions in 2035 are less than current day emissions, even though 2035 traffic volumes are higher than 2000 volumes. Emissions in the future (generally to 2035) are projected to be lower because older, higher-polluting vehicles continue to be replaced by newer, low-polluting vehicles.

Similar trends are forecast for small particulate matter (dust.) Forecasts for all of the alternatives show that particulate emissions decrease substantially from current levels, and all Action Alternatives are less than or equal to the No Action Alternative emissions.

Between 2035 and 2050, improvements in air quality because of emissions controls may reach their maximum point of effectiveness. After this time, trends in air pollution from vehicles may be more closely correlated with amount of travel.

Executive Summary

ES.32.2 How will wildlife be impacted?

The Action Alternatives have varying effects on habitat for birds and mammals, including deer, elk, bighorn sheep, lynx, and other species. Habitat loss occurs due to actual construction of the transportation improvements. In addition, the improvements further impede the ability of wildlife to move across I-70.

The Colorado Department of Transportation examined habitat connectivity and animal-vehicle collisions through an interagency committee known as “A Landscape Level Inventory of Valued Ecosystem Components” (ALIVE). The committee identified 13 areas where the I-70 Mountain Corridor interferes with wildlife migration, including elk, mule deer, bighorn sheep, and Canada lynx. These locations are referred to as linkage interference zones. By focusing on areas of known migration and wildlife use, and creating wildlife crossings, animal-vehicle collisions can be reduced and habitat connectivity increased. A Memorandum of Understanding, signed in April 2008, details the responsibilities of each agency in addressing animal-vehicle collisions (see **Appendix E, ALIVE Memorandum of Understanding**). The removal, modification or disturbance of habitat also has an impact on fisheries and aquatic species.

ES.32.3 How will historic properties be impacted?

Historic resources identified in the I-70 Mountain Corridor include several nationally significant properties, including the Georgetown-Silver Plume National Historic Landmark District and the nationally significant portions of the interstate itself, along with many sites of statewide and local significance. Towns throughout the Corridor contain historic buildings and associations, and historic mining sites are abundant in the Corridor. Research suggests that hundreds of properties are officially eligible for listing or listed in the National Register within the Area of Potential Effect, and many more are likely to be identified once intensive surveys are completed.

Potential direct effects include physical destruction, alteration, or removal of historic properties, including archaeological and historic archaeological sites. Indirect effects generally include changes to a property’s setting or use, or the introduction of visual, atmospheric, or audible elements that diminish a property’s historic integrity.

As many as 75 different historic properties could be directly affected by one or more of the Action Alternatives. None of the Action Alternatives affect all 75 properties but the Action Alternatives affect different properties and each of the 75 properties is affected by one or more of the Action Alternatives. The impacts for the Preferred Alternative fall within the range of the other Action Alternatives. It is difficult to quantify the numbers of historic properties that may be subject to indirect effects alone. Based on footprint size and whether there are transit or highway improvements, certain Action Alternatives have greater potential for indirect effects than others, but the details of these effects will not be understood until the Tier 2 processes.

The lead agencies have worked closely with local communities and other agencies to develop the I-70 Mountain Corridor Section 106 Programmatic Agreement, which stipulates specific procedures to be undertaken to identify and protect historic properties (see **Appendix B** of this document).

ES.32.4 How will water resources be impacted?

All Action Alternatives have an impact on water quality. This impact largely results from contamination from vehicles on I-70 which then is washed into nearby streams. It ranges from a low of a 2 percent increase to a high of a 43 percent increase in runoff. The Preferred Alternative ranges from a 16 percent to a 24 percent increase in runoff compared to the No Action Alternative.

However, with the implementation of mitigation strategies associated with the Action Alternatives, water quality will improve above the No Action levels. The No Action Alternative would not improve water quality.

The Colorado Department of Transportation is leading an effort to define and accomplish water quality and water resource mitigation strategies. This is called the Stream and Wetland Ecological Enhancement Program (SWEET). Implementation of these strategies will address many of the anticipated impacts to water resources.

ES.32.5 How will fish and fishing streams be impacted?

Removal, modification or disturbance of habitat for aquatic species including fish and important streams will occur with the Action Alternatives. Impacts on Gold Medal and “high-value” fisheries are greatest for the Combination Alternatives and Rail with Intermountain Connection Alternative because these alternatives have the largest overall footprint. The Preferred Alternative has a range of impacts comparable to the range of impacts between the Combination Alternatives and Rail with Intermountain Connection Alternative.

Alternatives that add more traffic lanes, the Highway and Bus in Guideway Alternatives require additional winter maintenance (such as the use of liquid deicers and traction sand), thereby leading to increased water quality impacts when compared to alternatives with less new roadway construction.

Agreements reached through the SWEET Memorandum of Understanding were formulated specifically to mitigate impacts to fish and aquatic species.

ES.32.6 How will geologic hazards be affected?

The I-70 Mountain Corridor contains a variety of geologic hazards, including landslides, rockfall hazard areas, avalanche prone areas, mud slides and debris flow areas. All alternatives, including the No Action Alternative, affect geologic hazards and need careful examination during future Tier 2 processes to locate and design improvements to minimize the effect of the alternatives on these geologic hazards.

ES.32.7 How will regulated materials be impacted?

Regulated materials are hazardous substances, hazardous waste or petroleum products. A key issue of concern along the I-70 Corridor is the presence of hazardous waste or contamination from historic mining activities, including mill sites, mine waste and mine tunnel drainage. Construction activities may disturb these structures which may release contamination.

Action Alternatives have varying effects on regulated materials, depending on the amount, location and depth of construction needed.

The Colorado Department of Transportation has standard protective procedures to assure worker, local community and traveler safety when encountering regulated materials. Additional analysis will be done during Tier 2 processes to carefully identify the extent and nature of regulated materials of concern.

ES.32.8 What noise impacts will result?

Noise levels in the Corridor vary between decibels in the mid 50s to decibels in the low 70s, depending on how close the recipient of the noise is to the highway. The Colorado Department of Transportation considers a noise impact to occur when the loudest hour of noise is at or above 66 dBA or when there is an increase of 10 dBA or more affecting a noise receptor. Noise levels of less than 3 dBA are generally considered imperceptible to humans. Increases of 3 to 5 dBA are considered noticeable, and increases of 10 dBA are perceived as a doubling of loudness. Alternatives with this trait encompass the No Action, Bus in Guideway, and Highway Alternatives. However, the Rail with Intermountain Connection and Advanced Guideway System Alternatives involve introducing noise sources with different frequency and time characteristics. Noise from these sources are likely noticeable even when it is less loud than the highway.

Executive Summary

The No Action Alternative noise increases range from 0 dBA to 2 dBA. The Minimal Action Alternative noise increases range from 0 dBA to 4 dBA. The remaining Action Alternatives increase noise levels between 1 dBA (imperceptible) and 5 dBA (noticeable). The Preferred Alternative noise increases range between 1 dBA to 5 dBA, similar to those of the other Action Alternatives.

ES.32.9 How will visual conditions be impacted?

Action Alternatives with larger footprints or more elevated features are more likely to be visible and perceived as having a negative visual impact. The Advanced Guideway System Alternative generates a noticeable visual impact because it is elevated throughout the Corridor with supporting piers placed every 80 to 100 feet and a lattice structure underneath the guideway deck. The Combination Advanced Guideway System and Highway Alternatives including the Preferred Alternative (including the range between the Minimum or Maximum program) result in the greatest adverse visual impact by adding both highway widening and the Advanced Guideway System elements.

ES.32.10 How will recreation resources be impacted?

The Action Alternatives physically impact recreation resources adjacent to the I-70 highway, and indirectly affect resources farther afield, due to access and capacity changes. Up to five Section 6(f) resources could be impacted. In general, the Combination Alternatives impact recreation resources the most because they have both the largest footprint and the biggest increase in capacity (and thus recreation use). Increased visitation benefits commercial recreation providers and strains the sustainability of forest land resources. The Transit Alternatives have fewer direct impacts than the Highway Alternatives but result in higher increases in visitation. The Highway Alternatives have more direct impacts than the Transit Alternatives, but result in only modest visitation increases because the former have less capacity than the Transit Alternatives and therefore induce fewer recreation-oriented trips. The Preferred Alternative results in impacts similar to the Transit Alternatives, resulting from the Minimum Program of improvements. Direct impacts are lower, but visitation increases are high. Later phases of improvements under the Maximum Program, if implemented, have similar impacts to the Combination Alternatives, with more direct impacts and a higher increase in recreation visitation. The Preferred Alternative directly affects between approximately 65 and 90 recreation sites with the low end of the range similar to the Transit alternatives and the high end of the range similar to the Combination Alternatives. The Highway Alternatives' impacts fall in a range between the Transit and Combination Alternatives.

Close coordination with the United States Forest Service in the development of recreation and forest management techniques to effectively manage any increases in visitation rates is a key mitigation strategy to mitigate impacts to United States Forest Service lands due to the increased access.

ES.32.11 What will be the effects on the local economy and culture?

All alternatives including the No Action Alternative and the Action Alternatives affect the local economies and character of the mountain communities. The Action Alternatives likely suppress local economies during construction, but after construction all Action Alternatives except for the Minimal Action Alternative meet or surpass a Gross Regional Product of \$4 billion a year. The Combination Alternatives have the greatest positive effect on the local economy. The effect of the Preferred Alternative is a range, depending on the extent of full transportation improvements that are implemented.

All Action Alternatives except the Minimal Action are expected to induce more population and employment growth in the Corridor. The amount and type of this varies, with the Transit, Combination and Preferred Alternatives (including the range between the Minimum and Maximum program) likely to induce the most. Eagle County, Summit County and Garfield County are all likely to experience this induced growth where as Clear Creek County is not expected to see growth.

Economic growth places pressure on property values, community services and other social infrastructure. The adaptive management approach of the Preferred Alternative allows improvements to be implemented over time, which may allow communities to better manage effects of economic growth. **Figure ES - 7** shows the 2000 to 2035 population and employment growth

ES.32.12 Summary of Impacts and Mitigation

Impacts to all environmental resources and mitigation measures are summarized in **Table 3.19-1** of this document. They are defined in much more detail in Chapter 3 of this document.

ES.33 How can the public provide input on this document?

The lead agencies will distribute this document for a 60-day public comment period, during which time public hearings will be held to present the findings in this document and obtain public input. The public hearing dates and locations are as follows:

Summit County:	Clear Creek County:	Eagle County:
October 5, 2010	October 6, 2010	October 7, 2010
5:00 PM to 8:00 PM	5:00 PM to 8:00 PM	5:00 PM to 8:00 PM
Silverthorne Pavilions	Clear Creek High School	Eagle County Fairgrounds
400 Blue River Parkway	185 Beaver Brook Canyon Road	0426 Fairgrounds Road
Silverthorne, Colorado 80498	Evergreen, Colorado 80439	Eagle, Colorado 81631

Notices announcing availability of the document, comment period dates, opportunities to review the document, methods to provide comments, and dates and locations of the public hearings will be issued prior to the start of the comment period. Methods used to distribute the notices will include, but not be limited to, mailings, news advertisements, and project website.

The lead agencies will review all comments received and provide responses in the Final PEIS. These comments will be considered prior to preparing a final decision to be documented in the Record of Decision, which concludes the NEPA process for this Tier 1 study.

ES.34 What are the next steps in the PEIS process?

Remaining steps to complete the first tier NEPA process for the I-70 Mountain Corridor PEIS after this document is issued include:

- Prepare Final PEIS, including responses to individual comments received during the public comment period.
 - Issue Notice of Availability
 - Provide 30-day review period
- Hold I-70 PEIS Project Leadership Team and Collaborative Effort team meetings through completion of the Record of Decision, as appropriate.
- Prepare and publish Record of Decision, the final decision document that concludes the NEPA process for this Tier 1 process.

The lead agencies anticipate the following public and agency involvement during future Tier 2 processes:

- The Colorado Department of Transportation will complete site-specific Tier 2 processes for future projects in the Corridor and develop public and agency involvement programs for each study, including scoping meetings, public open houses, project information distribution, public and agency document review and comment, and public hearings. The level of public involvement depends on the NEPA action undertaken (Environmental Impact Statement, Environmental Assessment, or Categorical Exclusion). The Colorado Department of Transportation will follow the I-70 Mountain Corridor Context Sensitive Solutions Guidance for each project.
- The Colorado Department of Transportation will continue stakeholder engagement through completion of the Final PEIS and Record of Decision, and site-specific Tier 2 processes. In 2020 the Colorado Department of Transportation will coordinate with the Collaborative Effort Committee to assess the overall purpose and need and effectiveness of implementation of those decisions. At that time, the lead agencies and the stakeholder committee may consider the full range of improvement options, not just those included in the PEIS recommended improvements.
- The Colorado Department of Transportation is committed to follow I-70 Mountain Corridor Context Sensitive Solutions Guidance for future Tier 2 processes on the Corridor to maintain ongoing stakeholder involvement in future decisions to help foster partnerships and communication sharing.

A Collaborative Effort Committee using the Collaborative Effort team member profile will meet at least once every two years through 2020 to review the status of Tier 2 processes and consider the need for additional capacity improvements based on specific milestones or “triggers” included in the Consensus Recommendation.

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