



I-70 Floyd Hill to Veterans Memorial Tunnels

Recreational Resources Technical Report

May 2021

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List of Acronyms

ADA	Americans with Disabilities Act
CCMRD	Clear Creek Metropolitan Recreation District
CDOT	Colorado Department of Transportation
CMGC	Construction Manager/General Contractor
CPW	Colorado Parks and Wildlife
CR	County Road
CSS	Context Sensitive Solutions
dba	A-weighted decibel
EA	Environmental Assessment
FHWA	Federal Highway Administration
GIS	Geographic Information System
Greenway	Clear Creek Greenway
I-70	Interstate 70
ITF	Issue Task Force
MEXL	Mountain Express Lane
MP	Milepost
mph	Miles per hour
MSE	Mechanically Stabilized Earth
NEPA	National Environmental Policy Act
PEIS	Programmatic Environmental Impact Statement
ROD	Record of Decision
US 6	U.S. Highway 6
US 40	U.S. Highway 40
USFS	U.S. Forest Service

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1. Introduction and Purpose of this Report

The Colorado Department of Transportation (CDOT) and the Federal Highway Administration (FHWA), in cooperation with local communities and other agencies, are conducting the Interstate 70 (I-70) Floyd Hill to Veterans Memorial Tunnels Environmental Assessment (EA) to advance a portion of the program of improvements for the I-70 Mountain Corridor identified in the 2011 Tier 1 *Final I-70 Mountain Corridor Programmatic Environmental Impact Statement* (PEIS) and approved in the 2011 *I-70 Mountain Corridor Record of Decision* (ROD). The EA is a Tier 2 National Environmental Policy Act (NEPA) process and is supported by resource-specific technical reports.

The purpose of this technical report is to document the existing conditions, impacts, and mitigation for recreational resources. This report also includes a description of applicable laws and regulations and a summary of the resource analysis and mitigation framework from the PEIS and ROD.

2. Proposed Action and Alternatives

2.1. Description of Proposed Action and Alternatives

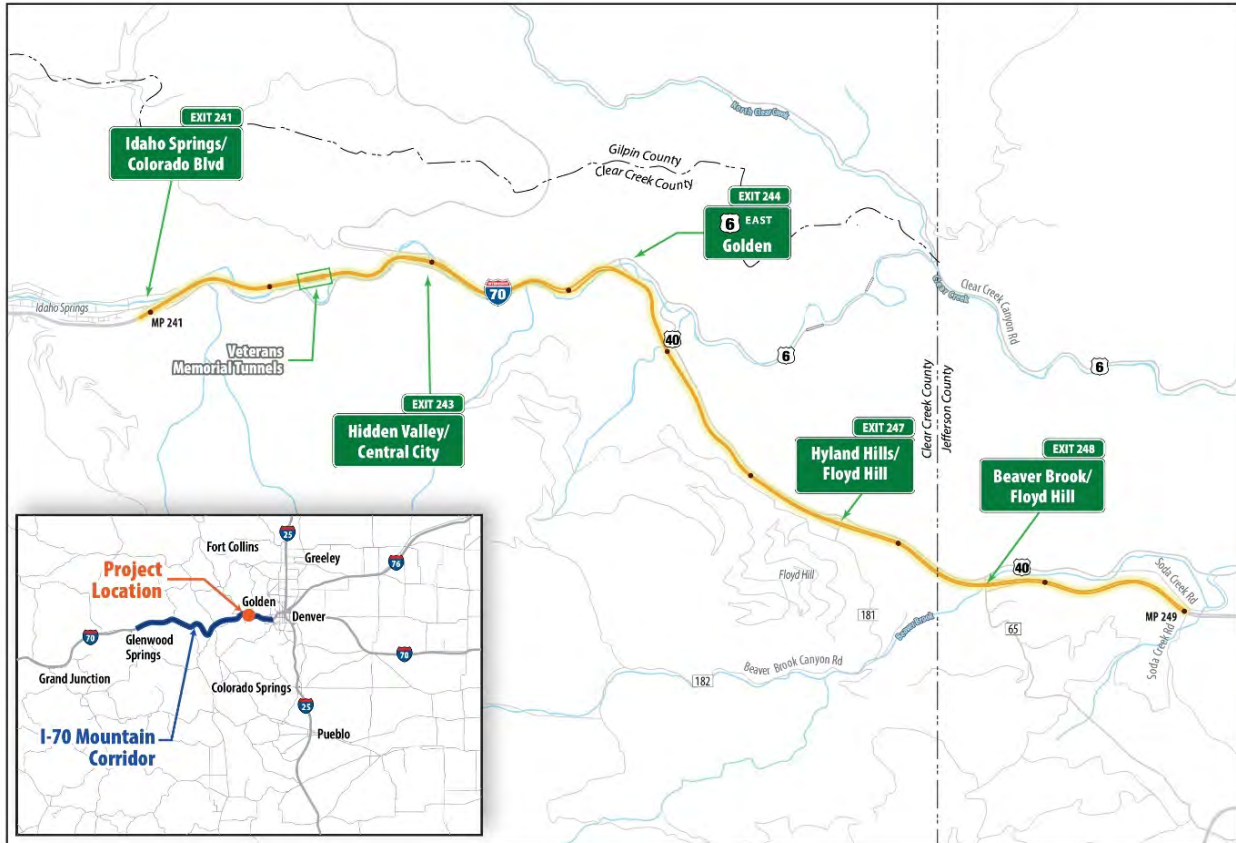
CDOT and FHWA propose improvements along approximately 8 miles of the I-70 Mountain Corridor from the top of Floyd Hill through the Veterans Memorial Tunnels to the eastern edge of Idaho Springs. The purpose of the Project is to improve travel time reliability, safety, and mobility, and address the deficient infrastructure through this area.

The major Project elements include:

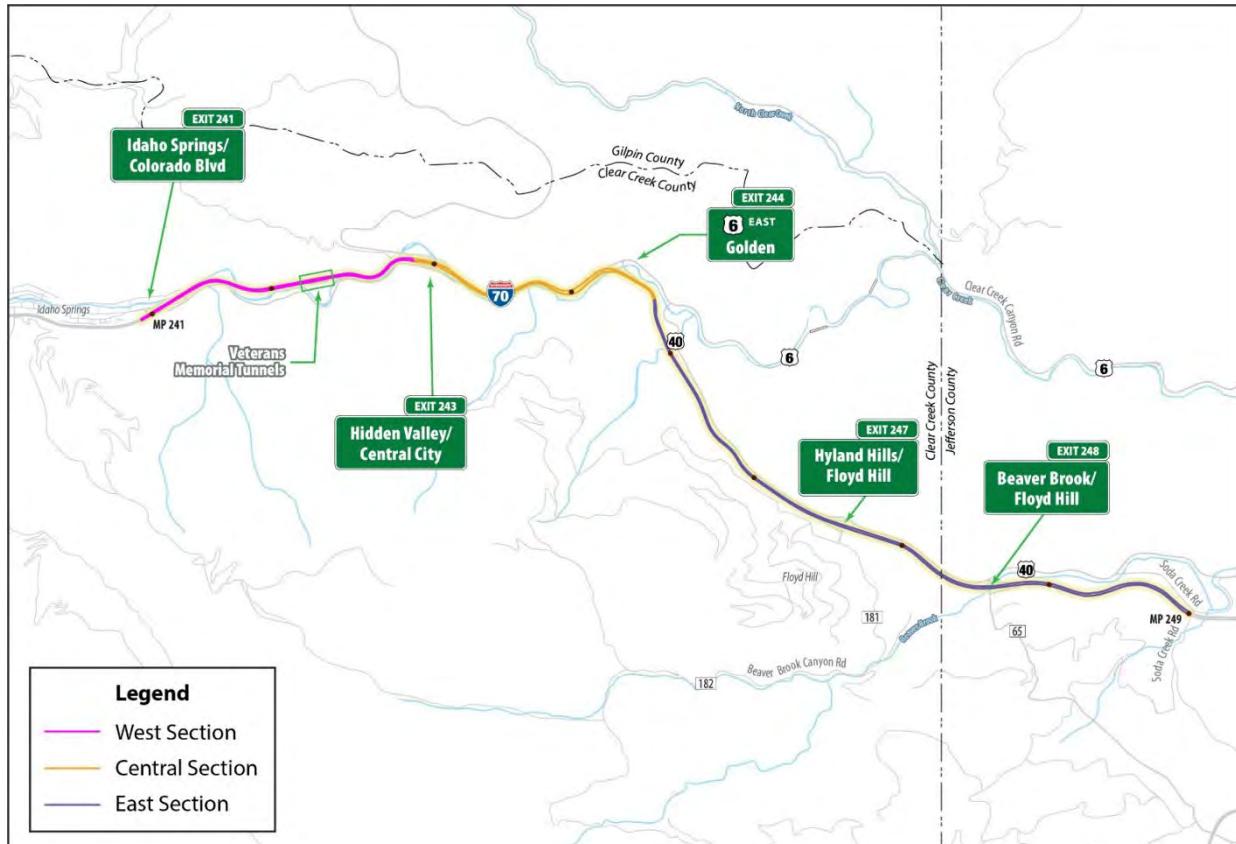
- Adding a third westbound travel lane to the two-lane section of I-70 from the current three-lane to two-lane drop (approximately milepost (MP) 246) through the Veterans Memorial Tunnels
- Constructing a new frontage road between the U.S. Highway 6 (US 6) interchange and the Hidden Valley/Central City interchange
- Improving interchanges and intersections throughout the Project area
- Improving design speeds and stopping sight distance on horizontal curves
- Adding an eastbound auxiliary lane to I-70 on Floyd Hill between the US 6 interchange and the Hyland Hills/Floyd Hill interchange
- Improving the multimodal Clear Creek Greenway Trail between US 6 and the Veterans Memorial Tunnels
- Reducing animal-vehicle conflicts and improving wildlife connectivity with new and/or improved wildlife overpasses or underpasses
- Providing two permanent air quality monitors at Floyd Hill and Idaho Springs to collect data on local air quality conditions and trends
- Coordinating rural broadband access with local communities, including providing access to conduits and fiber in the interstate right-of-way

The Project is located on I-70 between MP 249 (east of the Beaver Brook/Floyd Hill interchange) and MP 241 (Idaho Springs/Colorado Boulevard), west of the Veterans Memorial Tunnels. It is located mostly in Clear Creek County, with the eastern end in Jefferson County (see Exhibit 1). The primary roadway construction activities would occur between County Road (CR) 65 (the Beaver Brook/Floyd Hill interchange) and the western portals of the Veterans Memorial Tunnels (MP 247.6 and MP 242.3, respectively), with the Project area extended east and west to account for signing, striping, and fencing.

Exhibit 1. Project Location



Three alternatives are being evaluated in the EA: (1) No Action Alternative, (2) Tunnel Alternative, and (3) Canyon Viaduct Alternative. The Project improvements are grouped into three geographic sections: (1) East Section (top of Floyd Hill to US 6 interchange), (2) Central Section (US 6 interchange to Hidden Valley/Central City interchange), and (3) West Section (Hidden Valley/Central City interchange through Veterans Memorial Tunnels) (see Exhibit 2).

Exhibit 2. East, Central, and West Project Sections


The action alternatives—the Tunnel Alternative and Canyon Viaduct Alternative—include the same improvements in the East Section and West Section to flatten curves, add a third westbound travel lane (the new lane would be an Express Lane), provide wildlife and water quality features, and improve interchange/intersection operations.

Through the Central Section between the US 6 interchange and the Hidden Valley/Central City interchange, the action alternatives vary in how they provide for the third westbound I-70 travel lane and frontage road connections as follows:

- The **Tunnel Alternative** would realign westbound I-70 to the north (along the curve between MP 244.3 and MP 243.7) through a new 2,200-foot-long tunnel west of US 6. Eastbound I-70 would be realigned within the existing I-70 roadway template to flatten curves to improve design speed and sight distance. This alternative also would include two design options for the alignment of the new frontage road—north or south of Clear Creek. The Clear Creek Greenway trail would be reconstructed in its current location on the south side of Clear Creek.
- The **Canyon Viaduct Alternative** would realign approximately one-half mile of both the westbound and eastbound I-70 lanes (along the curve between MP 244 and MP 243.5) on viaduct structures approximately 400 feet south of the existing I-70 alignment on the south side of Clear Creek Canyon. Through the realigned area, the frontage road would be constructed under the viaduct on the existing I-70 roadway footprint north of Clear Creek. The Clear Creek Greenway would be reconstructed in its current location on the south side of Clear Creek. The viaduct would cross above Clear Creek and the Clear Creek Greenway twice.

Additional information regarding the alternatives evaluated in the EA can be found in *the I-70 Floyd Hill to Veterans Memorial Tunnels Alternatives Analysis Technical Report* (CDOT, 2020a).

2.2. No Action Alternative

The No Action Alternative includes ongoing highway maintenance. In addition, due to its poor condition, the westbound I-70 bridge at the bottom of Floyd Hill is programmed to be replaced regardless of whether CDOT moves forward with one of the action alternatives. Therefore, replacing the bridge in kind (as a two-lane bridge) is part of the No Action Alternative. Under the No Action Alternative, the bridge would be replaced in its current location but would need to be designed to current standards, with a 55 mile-per-hour (mph) design speed and improved sight distance with wider shoulders.

2.3. Action Alternatives: East Section

In the East Section between the top of Floyd Hill and the US 6 interchange, the action alternatives are the same. Through this section, westbound I-70 would be widened to the south to accommodate a third travel lane, which is planned as an Express Lane. The typical section would include an additional 12-foot travel lane and inside and outside shoulders of varying widths, depending on sight distance needs around curves. The proposed footprint would include a 4-foot buffer between the new Express Lane and the existing (general purpose) lanes.

In the eastbound direction, the three travel lanes would be retained but the roadway would be realigned where needed to accommodate westbound widening or curve modifications to improve sight distance and safety. An approximately one-mile-long eastbound auxiliary (climbing) lane would be added in the uphill direction from the bottom of Floyd Hill to the Hyland Hills/Floyd Hill interchange (Exit 247). Water quality features would be added along the south side of the eastbound lanes.

At the Beaver Brook/Floyd Hill and Hyland Hills/Floyd Hill interchange systems, the split diamond interchange configuration (with on- and off-ramps connected by U.S. Highway 40 [US 40]) would remain, and no new accesses would be provided. However, roundabout intersections constructed on US 40 as part of a separate project address immediate issues with traffic flow and delays at the Floyd Hill neighborhood ingress and egress.

Wildlife fencing would be added along the north and south sides of I-70 between the Hyland Hills/Floyd Hill interchange on the west and Soda Creek Road on the east to reduce wildlife-vehicle collisions.

2.4. Action Alternatives: Central Section

The Central Section of the Project involves the most substantial improvements—including realigning curves, adding a third westbound travel lane, improving the Clear Creek Greenway, and providing the frontage road connection. These improvements occur within the most-constrained section of the Project area, where the existing I-70 footprint and planned roadway improvements are located between canyon rock faces north and south of existing I-70 and Clear Creek. Because of these constraints, the action alternatives within this section include the same improvements but differ with respect to the I-70 mainline and frontage road alignments and the relationship of the roadway improvements to the rock faces and the creek. The Clear Creek Greenway would be reconstructed generally along its existing alignment under both action alternatives, but the Clear Creek Greenway's location to the creek and roadway infrastructure would differ as described below.

2.4.1. I-70 Mainline

The I-70 mainline through this section continues the same roadway typical section from the East Section. Both alternatives would provide an additional westbound 12-foot travel lane; inside and outside shoulders of varying widths, depending on sight distance needs around curves; and a 4-foot buffer between the new Express Lane and the existing (general purpose) lanes.

Under the Tunnel Alternative, approximately one mile of westbound I-70 would be realigned to the north near the US 6 interchange. A portion of the realignment would extend through a 2,200-foot-long tunnel that would tie in to the existing westbound I-70 alignment and elevation just east of the Hidden Valley/Central City interchange. The three eastbound I-70 lanes through this area would remain within the existing roadway prism but would be realigned, moving approximately 100 feet north into the rock face adjacent to the existing westbound lanes to flatten horizontal curves and improve the design speed and sight distance.

Under the Canyon Viaduct Alternative, the westbound I-70 alignment would shift to the south on a new 5,300-foot-long viaduct beginning at approximately MP 245 east of the exit ramp to US 6 and it would rejoin the existing alignment about one-half mile east of the Hidden Valley/Central City interchange at approximately MP 243.5. Through this area, eastbound I-70 also would be realigned on a separate viaduct structure next to westbound I-70 from MP 243.4 east to just beyond MP 244.3. Both viaduct structures would cross Clear Creek and the Clear Creek Greenway twice near MP 243.9 and MP 243.5 (approximately 60 feet above ground level).

2.4.2. Frontage Road

Both alternatives include a new approximately 1.5-mile-long frontage road connection between the Hidden Valley/Central City interchange and the US 6 interchange. The frontage road would run from the intersection of CR 314 and Central City Parkway (south of the I-70 eastbound off-ramp at the Hidden Valley/Central City interchange where CR 314, which acts as a frontage road from east Idaho Springs, terminates) to the US 6/I-70 ramp terminal. The roadway section for the frontage road would consist of two 11-foot lanes (one in the eastbound direction and one in the westbound direction) with consistent 2-foot shoulders. The design speed would be 30 mph and the roadway would be constructed to comply with Clear Creek County local access standards.

The Tunnel Alternative includes two design options for this frontage road:

- **North Frontage Road Option** would provide the new frontage road connection between the two interchanges mostly on the north side of Clear Creek. The I-70 mainline would be realigned north into the mountainside, requiring substantial rock cuts (150 feet high) to make room for the frontage road between the creek and existing I-70. The Clear Creek Greenway would be reconstructed along its current alignment north of Clear Creek. In the Sawmill Gulch area where the existing trail's grade does not meet Americans with Disabilities Act (ADA) standards, the Greenway trail would be lowered to meet grades.
- **South Frontage Road Option** would provide the new frontage road connection between the two interchanges mostly on the south side of Clear Creek. Moving the frontage road to the south side of the creek would require new rock cuts on the south side of Clear Creek Canyon and less substantial rock cuts on the north side of I-70. The Clear Creek Greenway would be reconstructed generally along its current alignment south of Clear Creek; in the Sawmill Gulch area, an approximately 1,500-foot new section of the Greenway trail would be constructed

across the creek to the north (with two pedestrian bridge crossings of the creek) to be ADA compliant, and the existing trail would remain in place but not be resurfaced. The Clear Creek Greenway would be located closer to the frontage road than under the North Frontage Road Option; although the design seeks to maximize horizontal and vertical separation between the facilities and includes a new section of trail to meet ADA compliance, the alignment of the frontage road nearer to the Greenway and between the Greenway and creek is not supported by Clear Creek County, Idaho Springs, community members, or the Project Technical Team because it diminishes the recreational experience.

Under the Canyon Viaduct Alternative, the existing I-70 pavement under the elevated structures would be repurposed for the frontage road; excess right of way would be available for other uses—presumably, creek and recreation access—through this approximately one-mile area of the canyon.

2.5. Action Alternatives: West Section

The West Section between the Hidden Valley/Central City interchange and the Veterans Memorial Tunnels continues the widening of the interstate to add the third westbound travel lane and to flatten the S-curve in this location. Improvements in this section are the same under both action alternatives. The curve modifications require realigning both the I-70 mainline and frontage road through this section. The I-70 mainline alignment would shift south approximately 100 feet around the first curve from the Hidden Valley/Central City interchange, then north around the second curve approximately 50 feet, continuing a slight (25 foot) shift north before tying in to the existing alignment at the Veterans Memorial Tunnels. Much of CR 314 would be realigned south between the Doghouse Rail Bridge over Clear Creek near the Veterans Memorial Tunnels east portal and the Hidden Valley/Central City interchange. A small section of CR 314 (between MP 242.6 and MP 242.7) would remain and connect to the reconstructed portions west and east.

These alignment shifts result in substantial rock cuts on both the north and south sides of the canyon. On the north side, rock cuts up to 160 feet high would be required next to the I-70 westbound lanes (along the curve in the area where CR 314 is not reconstructed). To realign CR 314 south, rock cuts from 70 feet to 100 feet high are required on the south side of the canyon. Additionally, a 1,200-foot section of Clear Creek, which is located between I-70 and CR 314, would need to be relocated south near MP 242.5.

The Hidden Valley/Central City interchange would not be reconstructed, and the I-70 bridges would remain because they are wide enough to accommodate the widened I-70 footprint without being replaced. All the on- and off-ramps for the interchange would be reconstructed, but the bridges over Clear Creek for the I-70 westbound off-ramp and I-70 eastbound on-ramp also can be retained. New bridges over Clear Creek to the west would be needed for the I-70 westbound on-ramp and I-70 eastbound off-ramp to accommodate the curve flattening and shift of I-70 to the south in this location. The CDOT maintenance facility would need to be relocated.

No changes are required west of the Veterans Memorial Tunnels. Within the westbound tunnel, the roadway would be restriped for the third lane (the expansion of the tunnel to accommodate the third lane was completed in 2014). After the tunnel, restriping and signing would continue west to the next interchange at Idaho Springs/Colorado Boulevard (Exit 241), where the third lane would terminate. The Express Lane would operate in conjunction with the westbound Mountain Express Lane (MEXL) during peak periods (mostly winter and summer weekends and holidays).

2.6. Construction of Action Alternatives

CDOT is planning to use a Construction Manager/General Contractor (CMGC) delivery method for construction of the Project. This contracting method involves a contractor advising in the design phases to better define Project technical requirements and costs, improve design quality and constructability, and reduce risks through the construction phase. This method promotes innovation and aligns well with the multidisciplinary Context Sensitive Solutions process. It was used successfully on the Twin Tunnels projects to reduce environmental impacts and accommodate community values in the design and construction project development phases.

Construction of the action alternatives is anticipated to be complex and take four to five years but could occur generally within the proposed right of way. CDOT would work with the CMGC to refine the construction details and develop a plan that promotes safety and minimizes disruption to the traveling public and nearby residents and businesses.

The Tunnel Alternative would take approximately one year longer to build than the Canyon Viaduct Alternative; most of the additional time would be needed for the tunnel rock blasting and construction that could take place without disrupting traffic. However, in addition to the tunnel rock blasting, the Tunnel Alternative has considerable rock cuts at the tunnel portals and along the north side of I-70 to realign curves, widen the highway, and add the frontage road connection. Rock cuts, staging for the excavation of the tunnel portals, and haul of waste rock are major construction activities that are likely to interrupt traffic on I-70 due to increased construction equipment traffic on the highway and the proximity of construction to live traffic, the need for temporary lane closures and detours, and closures for blasting. The North Frontage Road Option has significantly larger (taller and longer) rock cuts than the South Frontage Road Option.

The Canyon Viaduct Alternative has substantially less rock cuts and blasting compared to the Tunnel Alternative but would require more work in the existing highway right of way. Bridge construction over and pier placement within the highway template will need to be carefully coordinated. However, construction of some elements, such as the bench portion of the viaduct, are separated from the existing I-70 alignment and could be constructed offline similarly to the tunnel excavation.

Specific construction methods and phasing will be determined with contractor input and could affect the duration and/or physical requirements for construction activities. The focus of environmental impact analysis during the NEPA process is to identify resources and locations sensitive to construction impacts and incorporate reasonable mitigation measures, including the potential to avoid impacts by avoiding sensitive areas, to inform the contractor's plans. Final design and construction plans will consider changes in resource impacts, and reevaluations will be completed as needed during final design.

3. Applicable Laws, Regulations, and Guidance

Planning documents relevant to recreational resources within the Study Area include:

- *Clear Creek Metropolitan Recreation District (CCMRD) System-Wide Master Plan* (CCMRD, 2011)
- *Clear Creek County 2017 Community Master Plan* (Clear Creek County, 2017)
- City of Idaho Springs, *Envision Idaho Springs 2017 Update* (City of Idaho Springs, 2017)
- *Clear Creek County Open Space Plan* (Clear Creek County, 2005b)
- *Clear Creek Greenway Plan* (Clear Creek County, 2005a)
- *Floyd Hill Gateway Development Master Plan* (Clear Creek County, 2009)
- *Clear Creek County Vision for the I-70 Mountain Corridor* (Clear Creek County, 2014)

The *CCMRD System-Wide Master Plan*, *Clear Creek County Community Master Plan*, and *Envision Idaho Springs* plan endorse the proposals found in the 2005 *Clear Creek Greenway Plan* and defer to the recreation development and management details outlined in that plan.

This report documents recreational resources in the Study Area. Specific discussion of protection of recreational resources under Section 4(f) of the U.S Department of Transportation Act of 1966 and Section 6(f) of the Land and Water Conservation Fund Act of 1965 (Public Law 88-578, 78 Stat 897) are addressed in separate memoranda.

4. Recreational Resources in the Tier 1 PEIS

4.1. Context

The Tier 1 PEIS and associated I-70 Mountain Corridor PEIS Recreation Resources Technical Report (CDOT, 2011c) evaluated recreation resources and their relationship to I-70 mobility. I-70 provides access from the Denver metropolitan area, located approximately 35 miles to the east, to numerous recreation destinations in Jefferson, Clear Creek, Grand, Summit, Eagle, and Garfield counties, including the White River National Forest and the Arapaho-Roosevelt National Forest. Recreational travel is the predominant contributor to peak I-70 traffic, especially during summer and winter weekends.

Because I-70 is the principal artery to Colorado's high-elevation recreation areas, mobility on I-70 is critical to the tourism industry in Colorado. However, public and agency input during the PEIS process highlighted concerns that increased mobility on I-70 would bring more visitors to public lands, deteriorating resources and visitor experiences. The PEIS included an evaluation of the indirect impacts of I-70 mobility on forest land visitation and concluded increased visitors would benefit ski areas and other developed commercial recreation facilities on forest lands and would strain the integrity of other forest resources without additional forest management action.

The PEIS noted I-70 provides access to a diverse range of recreational opportunities within Clear Creek County, including rafting, hiking, biking, riding the historic narrow-gauge railroad, and touring historic mines. Recreation sites within the I-70 Corridor in Clear Creek and Jefferson counties include several Denver mountain parks, Jefferson County open space lands, the Loveland Ski Area, the Scott Lancaster Memorial Trail/Colorado Bikeway Route, which runs parallel to I-70 from Idaho Springs to US 40, the Charlie Tayler Water Wheel Trail, the Clear Creek Greenway, and numerous other recreation areas and trails. In addition, there are 15 private rafting companies in Clear Creek County that provide rafting opportunities in Clear Creek along I-70 (Clear Creek County, 2019).

Potential impacts to recreational resources identified in the PEIS that are applicable to the Floyd Hill Project include:

- Direct impacts to recreational resources due to increasing the roadway footprint
- Increased use of recreational resources due to increased recreation trips by visitors from outside the corridor and increased population growth within the corridor
- Temporary access restrictions to recreational resources and temporary closures or detours to trails and bicycle paths due to construction activities

4.2. Analysis in Tier 2 Processes

The Tier 1 PEIS and associated I-70 Mountain Corridor PEIS Recreation Resources Technical Report (CDOT, 2011c) provided an overview of recreation resource issues from a Corridor perspective. The Tier 1 PEIS and ROD committed to conducting specific additional analysis and coordination regarding impacts to recreational resources during Tier 2 projects. As such, the recreational resources analysis conducted for the Tier 2 I-70 Floyd Hill to Veterans Memorial Tunnels Project was developed to evaluate the specific improvements identified between Exit 241 and MP 248, using the most current data and guidance available.

The following commitments from the PEIS and ROD are applicable to this Tier 2 Project:

- CDOT will conduct further analysis of direct and indirect impacts on recreation resources during future project-specific Tier 2 processes. Additional analysis of direct impacts on recreation resources during Tier 2 processes will determine the degree and extent of impact.
- The lead agencies will continue to coordinate with jurisdictions regarding direct and indirect impacts to recreation resources, specifically with Clear Creek County regarding the *Clear Creek Greenway Plan (2005a)*, Jefferson County, and the United States Forest Service (USFS) regarding USFS management activities.

The Tier 1 PEIS recognized the local communities' desire to maintain and improve trail connectivity along the I-70 Mountain Corridor and maintain the many creek access points. As part of the Proposed Action, CDOT has considered approaches to incorporate and maintain current and future bicycle routes in the I-70 highway right of way, improve path connectivity, and continue to provide river access points in a manner that is consistent with CDOT and FHWA guidance.

5. Affected Environment

5.1. Recreational Study Area

The Recreational Study Area (Study Area) for the I-70 Floyd Hill to Veterans Memorial Tunnels EA recreational resources evaluation comprises areas where direct and indirect impacts to recreational resources may occur. It encompasses the I-70 corridor, extending from 600 feet east of MP 248 to 600 feet west of Exit 241, and it is approximately 1,200 feet wide, 600 feet north and 600 feet south of the I-70 centerline (see Exhibit 3). Analysis extended beyond this buffer in instances where access to recreational facilities outside the Study Area has the potential to be affected by Project actions.

5.2. Environmental Conditions

The context statement and core values for the Project, developed through the CSS process, acknowledge the importance of recreational resources and visitation within the Study Area. The context statement notes, “Floyd Hill is the entry point to the I-70 Mountain Corridor communities’ rich natural and historic heritage and thriving tourist attractions. Visitors from around the world come to recreate in the Arapaho-Roosevelt National Forest—the third busiest National Forest in the U.S.—to experience world-class hiking, rafting, skiing, hunting, fishing, climbing, and other recreational opportunities in the region. There is a strong desire among Floyd Hill stakeholders to preserve and protect wildlife, habitat, and natural features along with the unique small mountain-town aesthetics and historical landmarks.” Recreation is identified as a Core Value for the Project, with critical issues focusing on community preference, multi-use, and recreation access.

Existing recreational resources within the Study Area include parks, trails, Clear Creek recreational access points, open space, and an informal rock-climbing area (see Exhibit 3). These resources are described below and summarized in Exhibit 4.

5.2.1. Parks

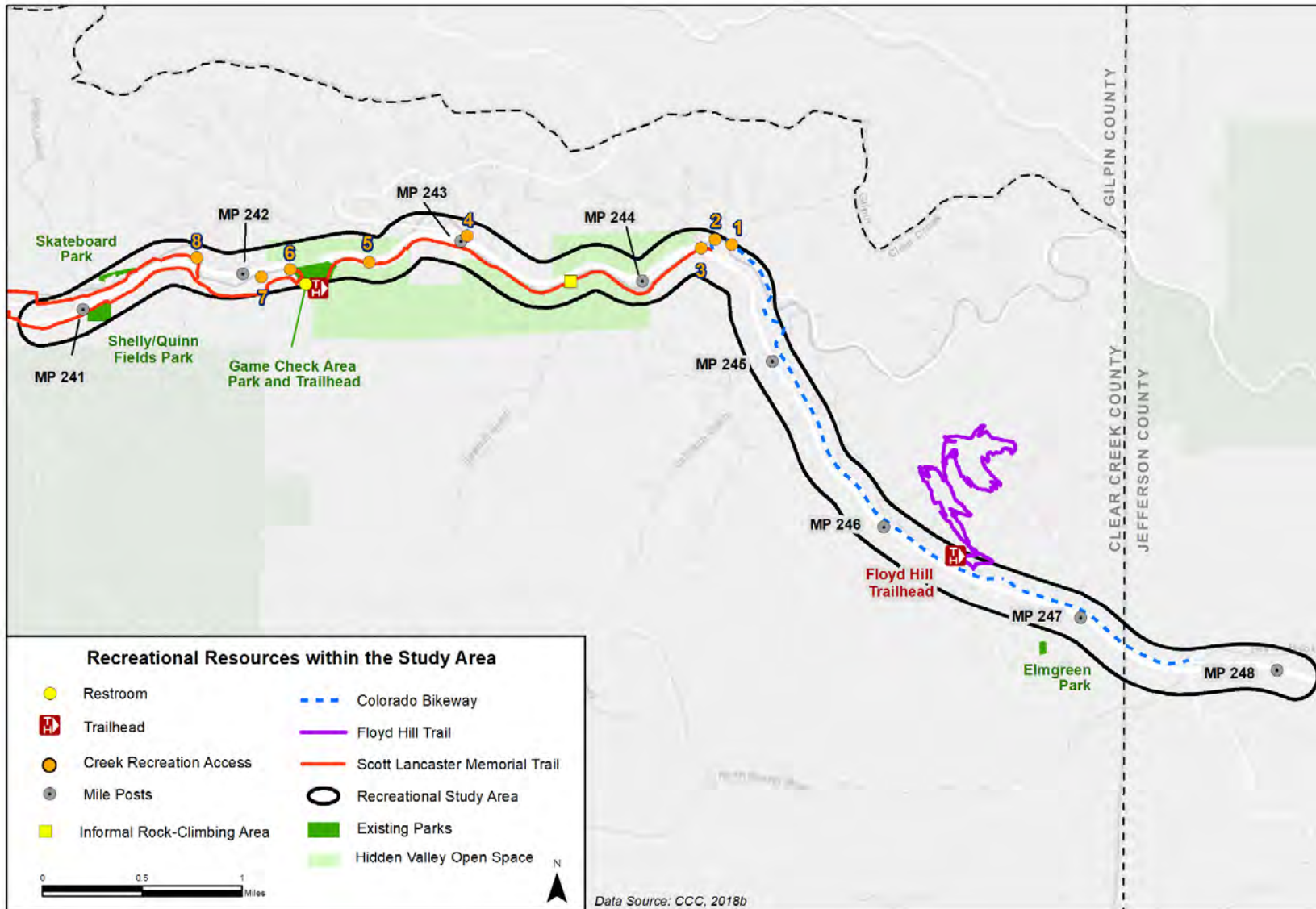
5.2.1.1. Elmgreen Park

Elmgreen Park, located on the eastern end of the Study Area near I-70 and the Clear Creek County High School, is a neighborhood park owned and maintained by the CCMRD. It primarily serves the residents of Floyd Hill with a playground, picnic area, tennis court, basketball equipment, and restroom facilities.

5.2.1.2. Game Check Area Park

Located in the Veterans Memorial Tunnels area, the Game Check Area Park and Trailhead provides access to the Scott Lancaster Memorial Trail and functions as a park area offering parking, a bicycle rack, restroom, river access, and other recreational opportunities. The park was constructed as part of the Greenway (Clear Creek County, 2005a), which is discussed in more detail below in Section 5.2.5 of this document.

Exhibit 3. Recreational Resources within the Study Area



5.2.1.3. Skateboard Park

On the western end of the Study Area, the Skateboard Park is located on the east side of Idaho Springs and the north side of I-70. The park is owned by the City of Idaho Springs and operated and maintained by the CCMRD. It is an aging skateboard park that is currently closed and not expected to reopen at the current location. Due to concerns with safety, visibility, and access, the City is planning to move the park to a new location. However, to date, a new location for the park has not been identified. As such, the park has not been carried forward into the impact analysis section of this document.

5.2.1.4. Shelly/Quinn Fields Park

The Shelly/Quinn Fields Park is located on the western end of the Study Area, on the east side of Idaho Springs, and on the south side of I-70. It serves as an informal trailhead for the Scott Lancaster Memorial Trail and includes two lighted ball fields, concessions, restrooms, picnic tables, and an off-street parking area.

5.2.2. Trails and Trailheads

5.2.2.1. Floyd Hill Trail and Trailhead

The Floyd Hill Trail is an unpaved, natural-surface trail that consists of multiple interconnected loops north of I-70 Exit 247 (Hyland Hills/Floyd Hill interchange) (Clear Creek County, 2018a). The relatively new trails are used primarily for hiking, mountain biking, and trail running and were created by combining new single-track trail with old wagon roads. The Floyd Hill Trailhead and parking lot are accessible from US 40 at the bottom of Floyd Hill on the north side of the Hyland Hills/Floyd Hill interchange. The dirt parking lot does not have formal parking spaces but accommodates numerous vehicles at a time.

5.2.2.2. Colorado Bikeway

The Colorado Bikeway is located on US 40, between I-70 Exit 248 (Beaver Brook/Floyd Hill interchange) and the convergence of I-70 and US 6 (Clear Creek County, 2018b) (see Exhibit 3). US 40 in this location is a paved two-lane roadway with a narrow shoulder of less than 4 feet (CDOT, 2009). The Bikeway is an on-road bikeway that is not confined to a specific location or path within the transportation right of way. It is considered a regionally important bicycle route because it connects the eastern portion of Floyd Hill with the Scott Lancaster Memorial Trail and allows bicyclists to bypass the interstate.

5.2.2.3. Scott Lancaster Memorial Trail and Trailheads

The Scott Lancaster Memorial Trail, which is part of the Greenway (see Section 5.2.5), is a 5-mile-long, mostly off-street trail that starts at the convergence of I-70, US 40, and US 6 at Floyd Hill and continues west into Idaho Springs. It has an asphalt surface and includes segments of 8-foot-wide off-street trail, as well as segments of on-street trail (shared with the I-70 frontage road/CR 314). Trailheads for the Scott Lancaster Memorial Trail located within the Study Area include:

- The Shelly/Quinn Ball Fields Park—The parking lot is an informal trailhead located on the eastern side of Idaho Springs that is used by the public to access the Scott Lancaster Memorial Trail. As mentioned above, this location includes concessions, restrooms, picnic tables, and a gravel parking area.
- The Game Check Area Park and Trailhead—This site was constructed as part of the Greenway (see Section 5.2.5, below) and is considered part of the Scott Lancaster Memorial Trail. The

park includes restrooms, garbage cans, benches, bicycle racks, and a parking lot with 19 spaces, 3 of which are ADA compliant. There also is ample room for boat trailers to turn around.

5.2.3. Clear Creek Recreation Access Points

Clear Creek recreation activities are important to Clear Creek County from an economic development perspective (CDOT, 2012). There are 15 private rafting companies in the County that provide rafting opportunities in Clear Creek, and four local fishing outfitters. The stretch of Clear Creek within the Study Area is a popular fishing destination for people living in the Denver metropolitan area because it is easily accessible from I-70. It is also preferred by local rafting companies (CDOT, 2012).

The bank of Clear Creek, at several locations, slopes gently down to the water, making these areas highly desirable boating and fishing access points. There also has been a concerted effort to increase and improve fishing access to Clear Creek. Through the Fishing is Fun Program (Colorado Parks and Wildlife [CPW], 2019a), Clear Creek County—in collaboration with CDOT, Clear Creek Watershed Foundation, West Trout Unlimited, and Albert Frei and Sons Quarry—installed steps at 11 locations along Clear Creek to improve safety and accessibility for anglers in Clear Creek County. Within the Study Area, there are eight Clear Creek recreational access points (Exhibit 3) (Clear Creek County, 2005a). For discussion purposes, these access locations have been numbered 1 through 8 and are referred to as such through the remainder of this document. All these locations are within the transportation right of way and do not include formal parking areas or recreational facilities.

5.2.4. Additional Recreation Sites

5.2.4.1. Hidden Valley Open Space

Located between the US 6 interchange and Idaho Springs, the Hidden Valley Open Space consists of approximately 464 acres of undeveloped land on both sides of I-70 west of the US 6/I-70 interchange that is owned and managed by Clear Creek County Open Space (Clear Creek County, 2020), which has a mission of "... preserving and maintaining the county's unique character and natural environment by protecting streams, woodlands, meadows, wildlife habitat, recreational opportunities, prominent vistas, geologic features, and cultural resources to enhance the quality of life for residents and the enjoyment of the out-of-doors for residents and visitors" (Clear Creek County, 2020). The south side of Clear Creek through this Open Space contains natural areas where Clear Creek County Open Space has identified recreational amenities that could be improved and protected to meet Open Space goals.

In the Sawmill Gulch area, several old roads and social trails provide informal hiking along the ridgelines in the Open Space. Most of these trails follow old access roads that are steep and exposed in places. They are neither signed nor maintained and have limited interconnectivity, but they do show evidence of periodic use (Clear Creek County, 2020). There also is an informal parking area within the Open Space area south of Clear Creek and east of the Hidden Valley/Central City interchange (Clear Creek County, 2020).

Existing recreational facilities within the Open Space corridor, such as the Scott Lancaster Memorial Trail and Game Check Area Park and Trailhead, are addressed separately in this document.

5.2.4.2. Informal Rock-Climbing Area

There is an informal rock-climbing area located on the south side of I-70, at MP 243.5. It is a natural geological feature that is accessible from the Scott Lancaster Memorial Trail (Clear Creek County, 2018c).

Exhibit 4. Recreational Resources Within the Study Area (listed from east to west)

Resource Name	Location	Amenities/Information
Parks		
Elmgreen Park	South of I-70 at MP 247	Park with tennis courts, volleyball court, playground, picnic tables, and shelter.
Game Check Area Park and Trailhead	On the south side of the Veterans Memorial Tunnels	Restrooms, parking (ADA compliant), trailhead, and bicycle rack. Constructed as part of the Greenway, which is discussed in Section 5.2.5 of this document.
Skateboard Park	North of I-70 on the east side of Idaho Springs	Aging skate park that is currently closed and not expected to reopen at the current location. As a result, the park has not been carried forward into the impact analysis portion of this document.
Shelly/Quinn Fields Park	South of I-70 MP 241, on the east side of Idaho Springs	Two lighted softball/youth ball fields, concessions, restrooms, picnic tables, a gravel parking area.
Trails and Trailheads		
Floyd Hill Trail and Trailhead	North of I-70 and south of US 6	Natural surface trail system accessible from US 40 at the bottom of Floyd Hill on the north side of the Hyland Hills/Floyd Hill interchange; primarily used for hiking and mountain biking; trailhead includes a dirt parking lot with several parking spaces.
Colorado Bikeway	On the US 40 roadway, from I-70 south to Jefferson County	The Bikeway is located on the US 40 roadway. It is not confined to a specific location or path within the transportation right of way.
Scott Lancaster Memorial Trail	Follows Clear Creek and CR 314 from the US 6 and I-70 junction, west to Idaho Springs	Asphalt surface trail with off-street and on-street sections; the Game Check Area Park is a formal trailhead and the Shelly/Quinn Fields Park is an informal trailhead.
Clear Creek Recreation Access Points		
Clear Creek Recreation Access Point #1	At the junction of US 6 and I-70	Informal fishing and boating access from a pull-off on US 6.
Clear Creek Recreation Access Point #2	At the junction of US 6 and the I-70 Exit 244 Ramp	Informal fishing and boating access from a dirt pull-off on the side of the road.
Clear Creek Recreation Access Point #3	On the south side of Clear Creek at the US 6 and I-70 junction	Informal fishing access on the south side of Clear Creek; accessible from the Scott Lancaster Memorial Trail.
Clear Creek Recreation Access Point #4	At the junction of I-70 and the Central City Parkway	Informal fishing and boating access from pull-off on frontage road.
Clear Creek Recreation Access Point #5	On the east side of the Veterans Memorial Tunnels along CR 314	Informal fishing and boating access from a small pull-off on CR 314.
Clear Creek Recreation Access Point #6	On the west side of the Veterans Memorial Tunnels	Informal fishing access, accessible from the Game Check Area Park and Trailhead.

Resource Name	Location	Amenities/Information
Clear Creek Recreation Access Point #7	South of I-70 at approximately MP 242	Informal boating access from private property on the south side of Clear Creek that is owned by the Clear Creek Rafting Company.
Clear Creek Recreation Access Point #8	North of I-70 at MP 241.7	Informal fishing and boating access from pull-off on frontage road.
Additional Recreation Sites		
Hidden Valley Open Space Park	Adjacent to I-70 on the north and south between Idaho Springs and the US 6 and I-70 interchange	464 acres of undeveloped land owned and managed by Clear Creek County Open Space.
Rock-Climbing Area	On the south side of I-70 at MP 243.5	Informal rock-climbing area that is accessible from the Scott Lancaster Memorial Trail.

5.2.5. Clear Creek Greenway Trail and Facilities

The Greenway, as envisioned in the *Clear Creek County Open Space Plan* (Clear Creek County, 2005b) and the *Clear Creek Greenway Plan* (Clear Creek County, 2005a), is a countywide trail system tying local communities together with a string of open spaces, parks, and recreational facilities along the creek. It generally follows Clear Creek through the County and connects Clear Creek recreational access points that are used for kayaking, rafting, fishing, and general recreational purposes. The Greenway is envisioned to serve as the recreational backbone of the County and, when complete, will be a 36-mile stretch of trail connecting the Peak-to-Peak Trail in Jefferson County to the Continental Divide National Scenic Trail in Summit County.

The development of the Greenway has become a priority for the Clear Creek County Open Space Program. Several existing trails, including the Scott Lancaster Memorial Trail, have been incorporated into the Greenway system. Improvements are focused on connecting existing trail segments and enhancing user experience by providing facilities such as picnic areas, campgrounds, restrooms, plazas, and bike depots (Clear Creek County, 2018c).

Within the Study Area, the status of the Greenway varies by location (Exhibit 5). Several facilities and trail segments have been constructed already or occur naturally, including the Clear Creek Access Points, an informal rock-climbing area, the Game Check Area Park and Trailhead, and the Scott Lancaster Memorial Trail, which also connects to the the Shelley/Quinn Fields Park. These facilities are described above, in Section 5.2.1 through Section 5.2.4 of this document.

Future trail segments and facilities that are planned for construction within the Study Area include:

- US 6 Trail Segment—This section of trail is planned from the eastern end of the Scott Lancaster Memorial Trail at the US 6 interchange and would follow Clear Creek to the east along the US 6 corridor.
- Trailhead—A trailhead is planned to be constructed at the US 6 interchange. It would consist of a defined parking area to accommodate many types of users/activities (rafting, fishing, biking, hiking, etc.) and have a few long-term parking spots. It would have restrooms, trash receptacles, a comfort station, signage, and a clean-up launch (rocks). The exact location of the trailhead is dependent on CDOT’s final configuration of the interstate in this location (Clear Creek County, 2005a).
- Hidden Valley North Trail Segment—This segment is planned on the north side of the Hidden Valley/Central City interchange (MP 245). It would follow the alignment of Clear Creek under

the interstate and ramp bridges and connect with the Scott Lancaster Memorial Trail on the south side of I-70. When completed, the trail would have a concrete surface.

- Restroom—A restroom is planned to be constructed on the west end of the Study Area, north of I-70, along a planned section of the Greenway Trail.
- Rest Area—A rest area is planned along the Scott Lancaster Memorial Trail at approximately MP 244. It will include benches and trash receptacles.

At completion, the Greenway would weave together existing segments of multi-use trails with new links and establish a defined recreational trail network connecting the municipalities and distinct areas along the I-70 corridor.

Potential impacts to the Greenway are discussed below for each recreational resource that comprises the Greenway.

5.2.6. Additional Planned Recreational Resources

In addition to the planned Greenway facilities, which are discussed above in Section 5.2.5 of this document, Clear Creek County has plans for a future expansion of the Floyd Hill Trail, which will include a one-way downhill trail back to the parking lot and several miles of trail that will connect to existing trails in Clear Creek Canyon along US 6 (Exhibit 6). The difficulty rating of the trail system will vary and include a combination of easy, intermediate, and advanced mountain biking trails and a few hiking-only trails. The Floyd Hill Trailhead, as mentioned above in Section 5.2.2, is planned to be upgraded to include 20 parking spaces; an informational kiosk with maps, regulations, and other materials; portable toilets in an enclosed structure; wildlife-resistant trash cans; and a picnic table. Construction and upgrades are planned as funding becomes available.

Exhibit 5. Clear Creek Greenway within the Study Area

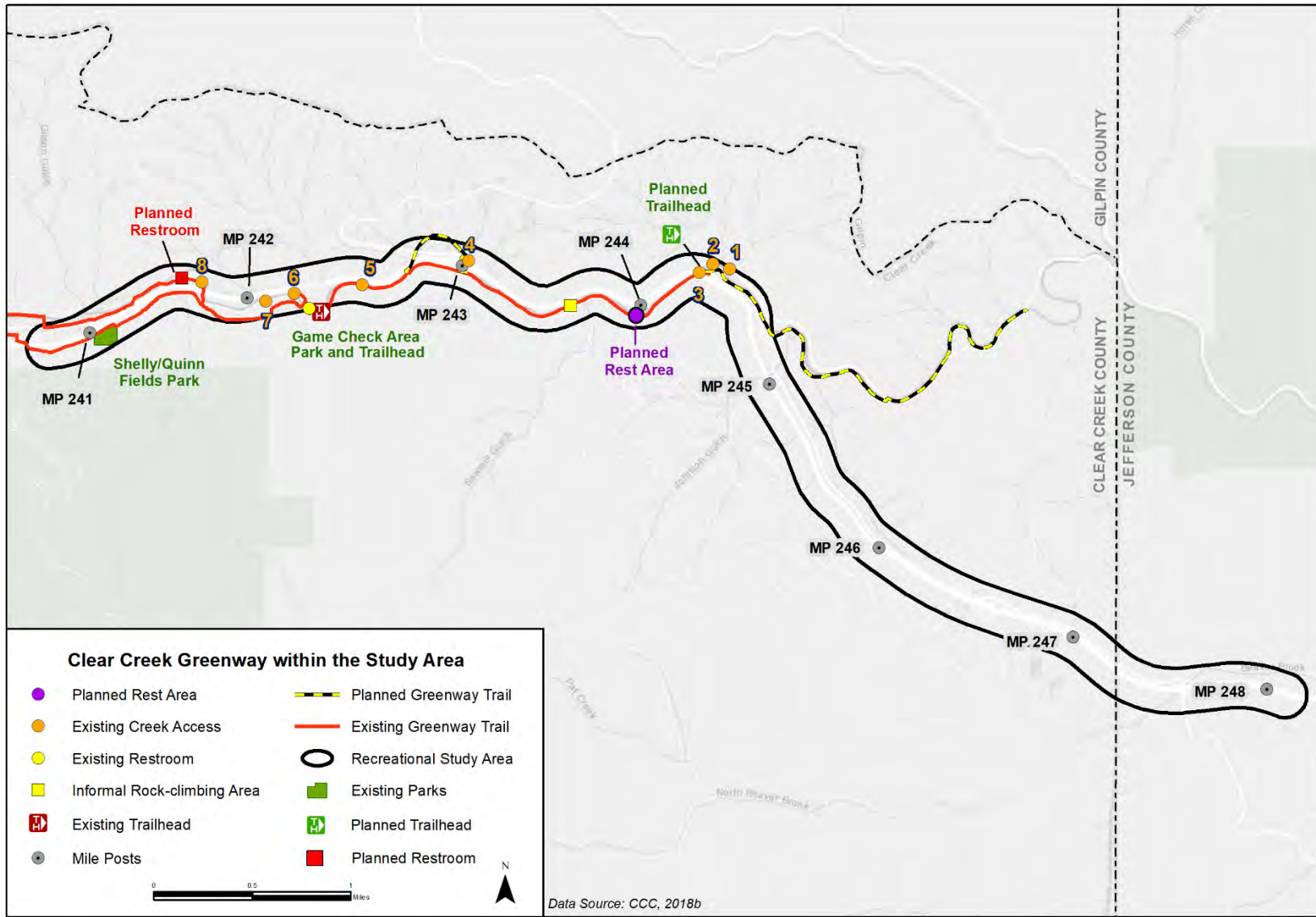
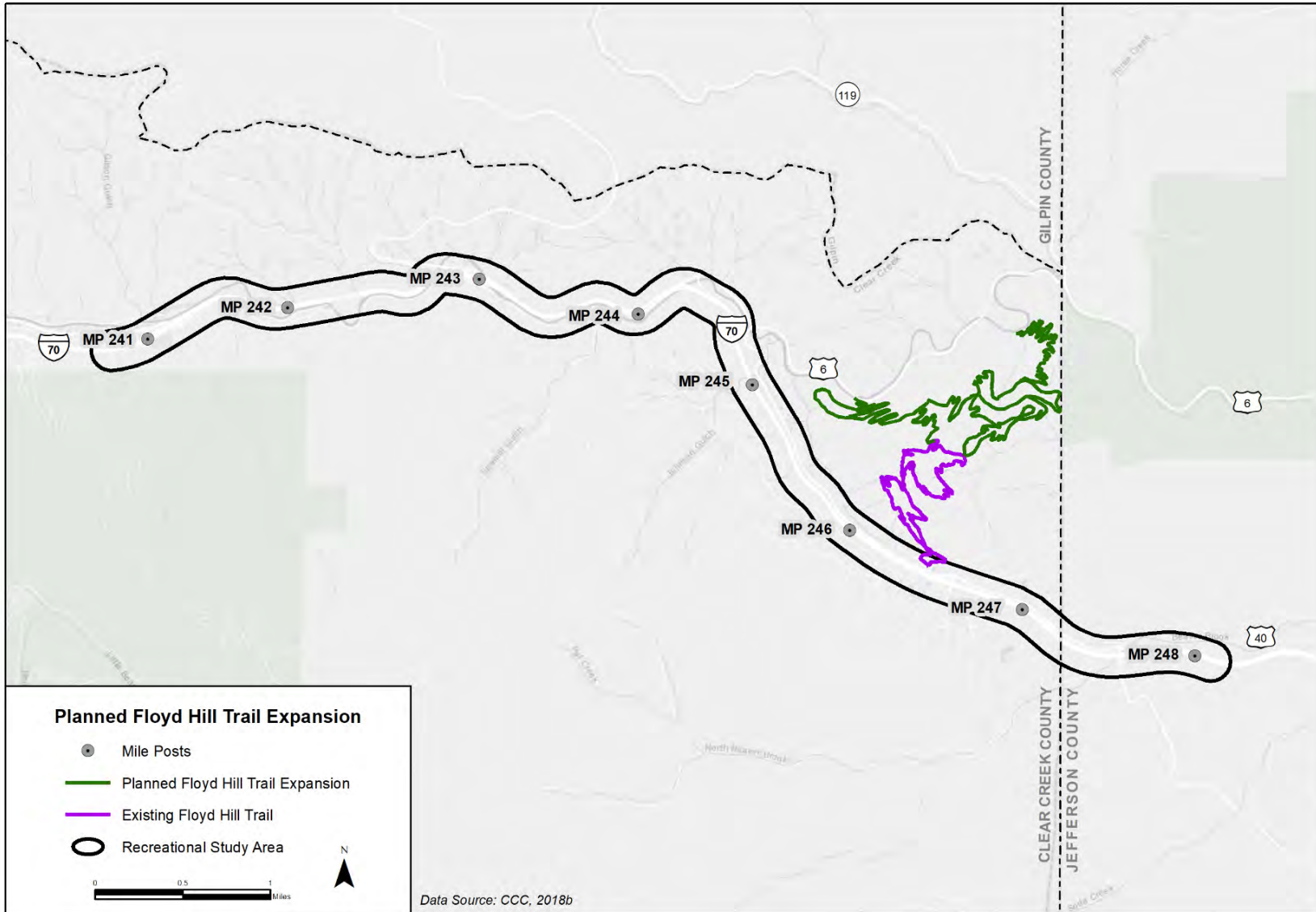


Exhibit 6. Planned Floyd Hill Trail Expansion



6. Impacts

This section describes the potential direct and indirect impacts of the No Action Alternative and action alternatives (the Tunnel Alternative and Canyon Viaduct Alternative) on existing and planned recreational resources.

6.1. Methodology

Existing and planned recreational resources were identified and mapped using geographic information systems (GIS) and information provided by Clear Creek County, Jefferson County, and the City of Idaho Springs, including the adopted plans listed in Section 3 of this document.

Direct impacts were identified by overlaying the construction limits of the proposed action alternatives on maps showing the locations of all recreational resources in the Study Area. Locations where construction limits and recreational resources overlapped and required land acquisition were identified as having direct impacts. Indirect impacts were assessed by identifying changes in access, noise levels, and viewsheds.

6.2. No Action Alternative Impacts

As described in Section 2.2 of this document, the No Action Alternative would include ongoing highway maintenance and the replacement of the westbound I-70 bridge at the bottom of Floyd Hill. The bridge crosses over the east end of the Scott Lancaster Memorial Trail and one Clear Creek recreational access point. Construction and use of the new bridge would not directly impact these resources; however, for safety reasons, temporary impacts may include periodic delays for trail users and river recreationalists during construction. Noise modeling indicates that throughout the corridor, an average noise increase of approximately 2 decibels (dBA) would occur by 2045, a level described by FHWA guidance as barely perceptible. There would be no visual changes associated with this alternative.

6.3. Tunnel Alternative Impacts

6.3.1. East Section

Project elements in this location include adding a third lane in the westbound direction, modifying I-70 horizontal curves to improve sight distance and safety, and adding an eastbound auxiliary lane from the bottom of Floyd Hill to the Hyland Hills/Floyd Hill interchange (Exhibit 7). Additionally, water quality features would be added along the south side of the eastbound lanes, and wildlife fencing would be installed on both the north and south sides of I-70 between the Floyd Hill/Hyland Hills interchange and Soda Creek Road (approximately MP 249).

The following is a list of recreational resources located within the East Section of the Project area and a description of potential direct and indirect impacts to each resource.

6.3.1.1. Elmgreen Park

Elmgreen Park is located approximately 900 feet south of I-70 in the Floyd Hill neighborhood, and no right of way is required from this resource (see Exhibit 7). The Park is accessed via US 40 and the Homestead Road Bridge over I-70, which would remain open during construction. Due to the distance

between the Park and the roadway, noise impacts are not anticipated. Project improvements would be visible from this location; however, they would be minor in nature and are not expected to alter the recreational experience associated with the park. Park users would continue to see transportation infrastructure, as they do today.

6.3.1.2. Floyd Hill Trail and Trailhead

No right of way is required from the Floyd Hill Trail and Trailhead. The trailhead is located approximately 100 feet north of I-70 and is accessed via I-70 and US 40, which would remain open during construction (see Exhibit 7). Noise modeling at the trailhead indicates permanent noise levels would increase by less than 2 dBA by 2045, which is defined in FHWA noise guidance as a barely perceptible change. Noise levels also may temporarily increase at the trailhead during construction. Aesthetically, the interstate is visible from this location and would continue to be visible after construction. Additionally, the Project would improve vehicle access from I-70 and may result in increased recreational visitation rates.

6.3.1.3. Colorado Bikeway

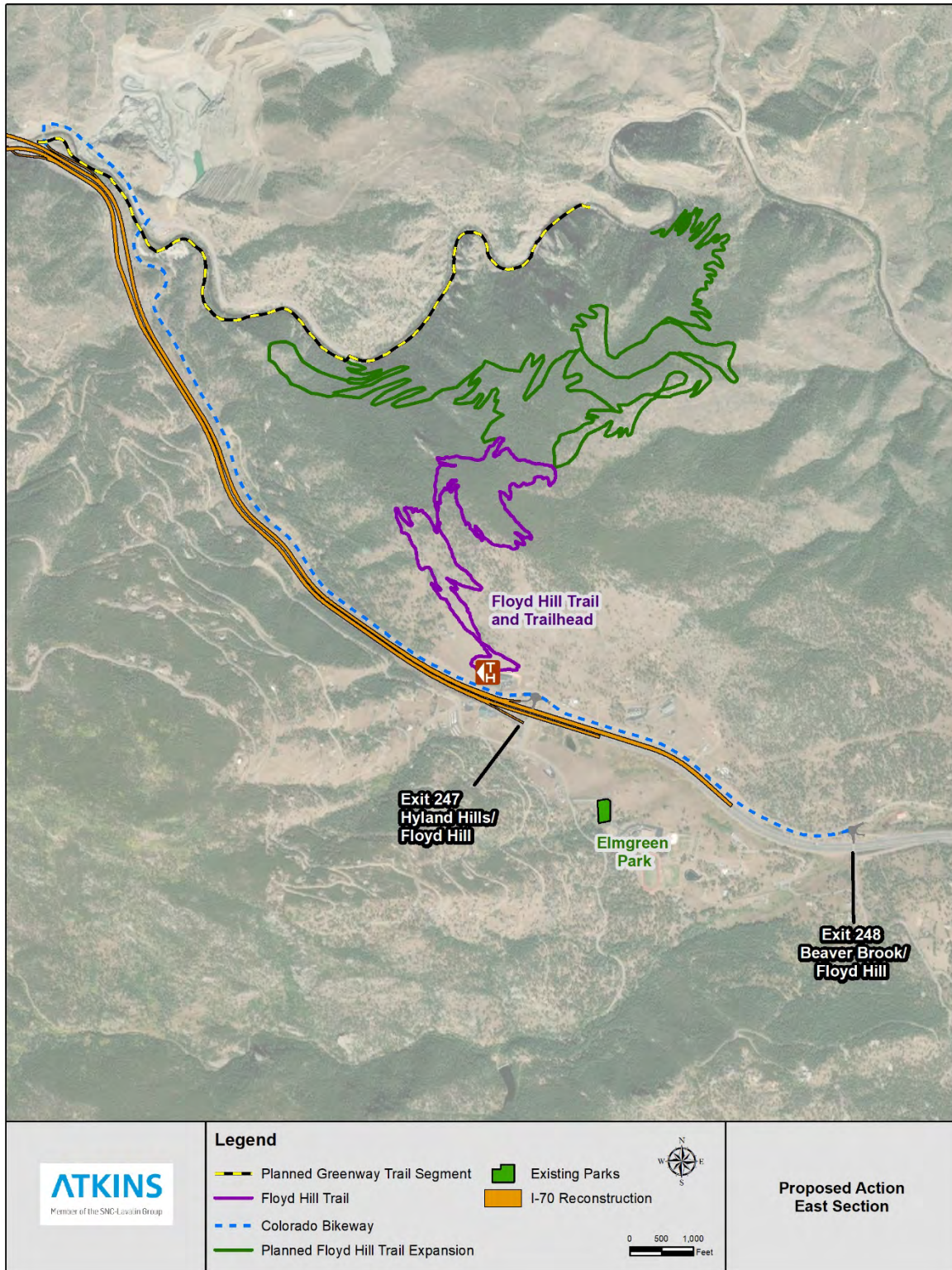
The Colorado Bikeway is located along US 40 and is not confined to a specific location or path within the transportation right of way (see Exhibit 7). Project implementation would not impede recreational use of US 40. Noise modeling at the US 6 interchange area indicates that permanent noise levels would increase by approximately 2 dBA by 2045, which is defined in FHWA noise guidance as a barely perceptible change.

US 40 would stay open during construction, but bicyclists may experience short delays at the intersections with CR 65 and Homestead Road during construction and delays at the US 6 and I-70 interchange area during tunnel construction. Bicyclists also may choose to avoid the Bikeway during construction due to the presence of heavy equipment and temporarily increased noise levels associated with tunnel blasting. When construction is complete, US 40 would connect to the US 6 frontage road, which would extend west to the Hidden Valley/Central City interchange and provide additional access to the Scott Lancaster Memorial Trail. This new connection would make the Colorado Bikeway more attractive to many bicyclists, and recreational use may increase.

6.3.1.4. Planned Recreational Resources

Planned recreational resources in the East Section include the Greenway Trail along US 6 and the Floyd Hill Trail expansion and Trailhead improvements (see Exhibit 7). The Tunnel Alternative would not require additional right of way in these locations and would not interfere with planning and future construction of these resources.

Exhibit 7. Proposed Action—East Section



6.3.2. Central Section

Tunnel Alternative elements in the Central Section with potential to impact recreational resources include:

- Realigning curves and rock blasting
- Adding pavement for the third westbound travel lane
- Improving the Greenway
- Constructing the frontage road connection between the Hidden Valley/Central City and US 6 interchanges.

Below is a list of recreational resources within the Central Section of the Project area and a description of the Tunnel Alternative's potential direct and indirect impacts for the North and South Frontage Road Options.

6.3.2.1. Scott Lancaster Memorial Trail

The Scott Lancaster Memorial Trail would be reconstructed in its current location south of Clear Creek (see Exhibit 8 and Exhibit 9). When complete, the path would be approximately 10 feet to 12 feet wide with a concrete surface that extends farther east under the I-70 westbound off-ramp at the US 6 interchange than the existing trail. The trail also would be modified in the Sawmill Gulch area to bring the vertical grade into compliance with ADA requirements. This design differs between the North Frontage Road Option and South Frontage Road Option, as described below. Additionally, a new eastbound I-70 on-ramp would be constructed over the Scott Lancaster Memorial Trail within the Greenway; however, construction of the ramp would not directly impact the trail.

Noise modeling on the east end of the trail, between the US 6 interchange and Sawmill Gulch, indicates permanent noise levels would decrease by approximately 2 dBA by 2045 because the I-70 westbound lanes would be constructed through a tunnel. Permanent noise levels on the west end, by the Hidden Valley/Central City interchange, would increase by approximately 1 dBA by 2045, an increase undetectable to the human ear. Recreationalists would experience a temporary increase in noise levels during construction.

Project improvements would not permanently impact trail access points, which would be maintained during construction. However, temporary closures of the trail and access points may occur while resurfacing takes place. For safety reasons, the trail also would be closed for short durations at the US 6 interchange during tunnel blasting activities.

Visual changes would occur at various locations along the trail. Just east of the US 6 interchange, existing I-70 is constructed on a roadway embankment having a natural surface of rocks and vegetation (see Exhibit 10). The Tunnel Alternative would widen the radius of the curve in this location by reconstructing I-70 on a bridge to the north of the existing westbound lanes (see Exhibit 11). The bridge would change the view and potentially affect user experience at this location on the Scott Lancaster Memorial Trail. However, the natural landscape under the bridge would remain, thereby reducing the visual impacts.

Exhibit 8. Recreational Resources and Elements of the Tunnel Alternative, North Frontage Road Option—Central Section

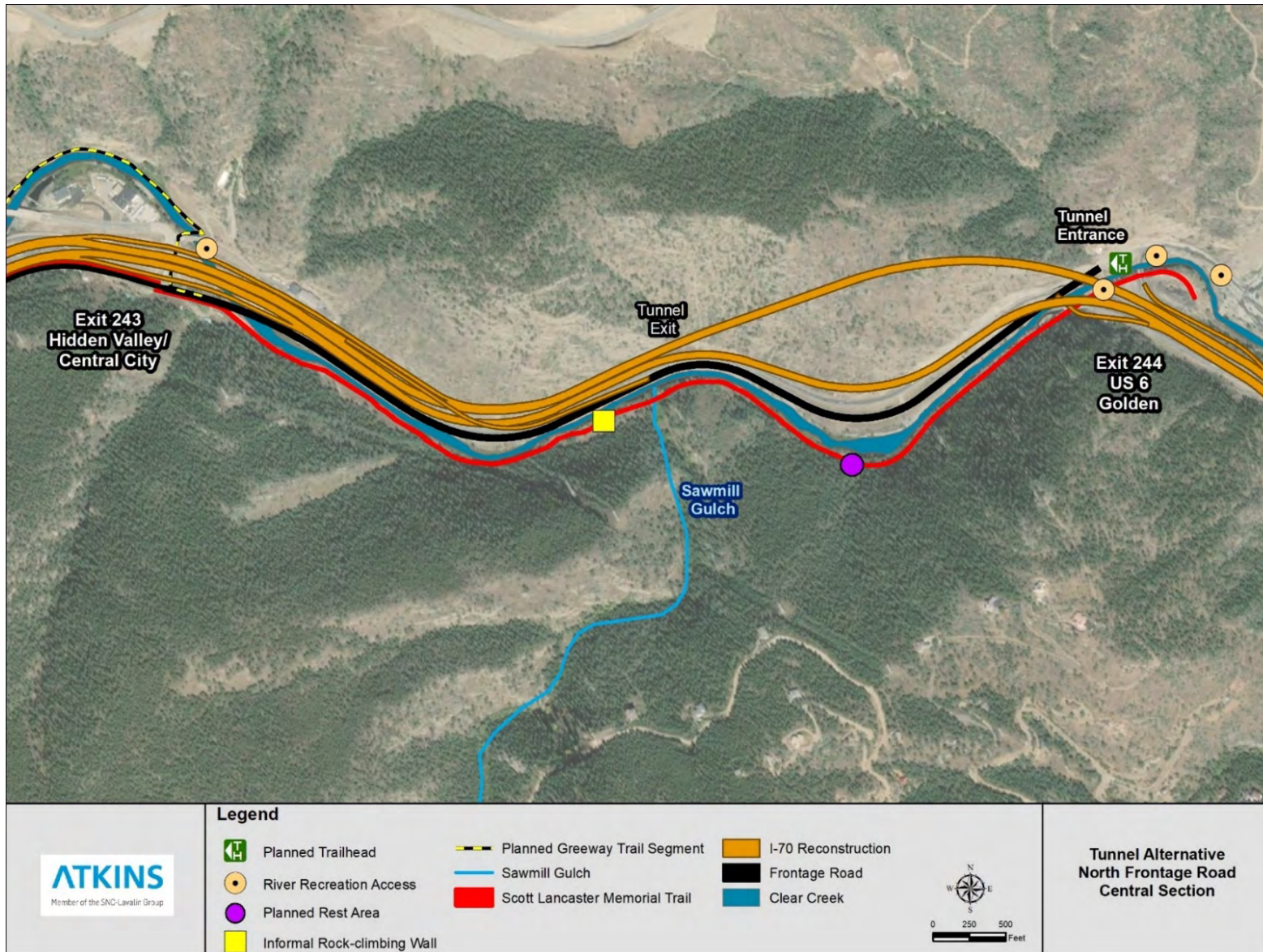


Exhibit 9. Recreational Resources and Elements of the Tunnel Alternative, South Frontage Road Option—Central Section

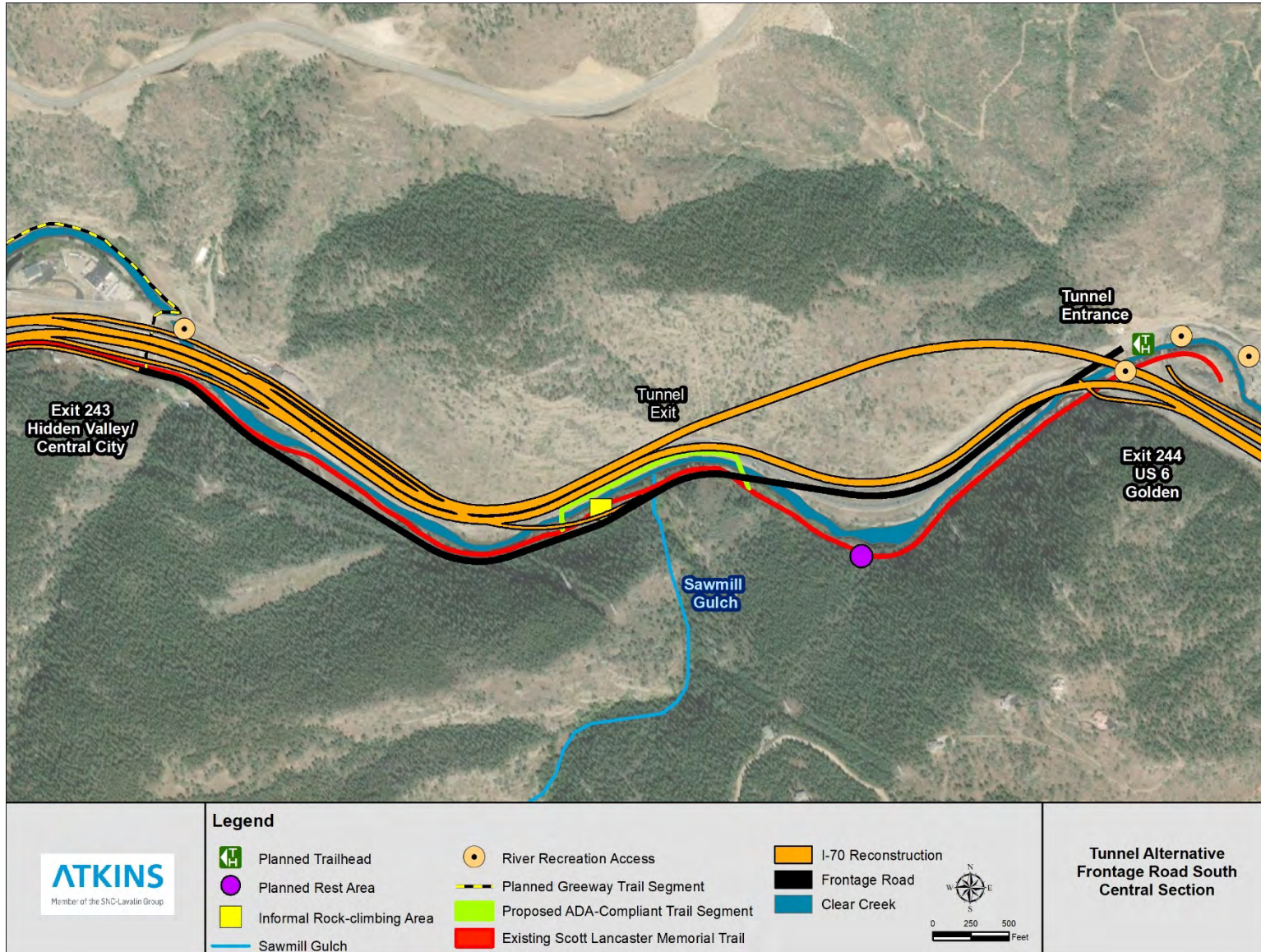
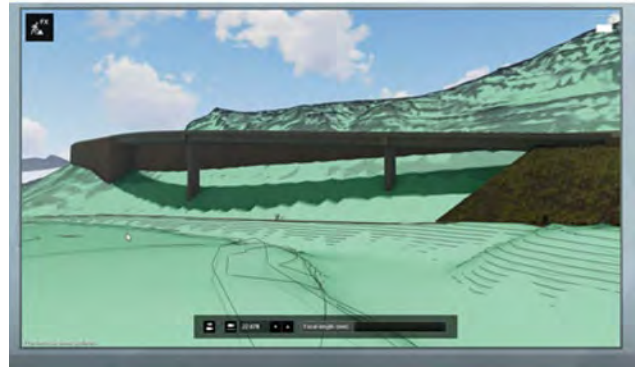


Exhibit 10. Existing I-70 Roadway Embankment



Exhibit 11. Tunnel Alternative, Visual Simulation, Proposed I-70 Westbound Bridge



The above impacts to the Scott Lancaster Memorial Trail pertain to both the North and South Frontage Road Options. The sections below describe impacts specific to each option.

North Frontage Road Option

To bring the trail into compliance with the ADA, the trail would be lowered in the Sawmill Gulch area to flatten the vertical slope of the existing trail, which would require excavation, rock cuts, and tree removal (Appendix A, Figure A-1). The southern slope would change from a gradual incline covered in native grasses, shrubs, and trees to a vertical wall created from rock cuts or the installation of a retaining wall, which may be required for slope stabilization. Some of the trees that currently provide a visual buffer between the trail and I-70 would be removed, and the interstate would become more visible to trail users.

The tunnel, bench, and rock cuts on the north side of I-70 and the US 6 flyover would be visible from the Scott Lancaster Memorial Trail in some locations and screened by trees in others. In locations where these new Project elements would be visible, recreationalists on the trail would experience adverse visual impacts. Other than trail reconstruction to meet ADA standards in the Sawmill Gulch area, no project-related impacts would occur south of Clear Creek, which allows existing trees to buffer trail users from I-70 and the frontage road in some locations. See the *I-70 Floyd Hill to Veterans Memorial Tunnels Visual Impact Assessment Technical Report* (CDOT, 2020c) for additional detail on visual impacts.

South Frontage Road Option

In the Sawmill Gulch area, a second section of trail would be constructed north of Clear Creek that complies with ADA slope requirements. Trail users would be able to cross over to the north side of Clear Creek via two pedestrian bridges, one on the west side of Sawmill Gulch and one on the east side (see Appendix A, Figure A-2). The existing trail segment would remain in place, creating a loop around Clear Creek and providing options for trail users.

The tunnel, bench, and rock cuts north of I-70 would be visible from the Scott Lancaster Memorial Trail in many locations; the rock cuts for the South Frontage Road Option would be much smaller than those required for the North Frontage Road Option because I-70 would not shift as far north (Appendix A, Figure A-3). However, the South Frontage Road Option would have more Project elements that would be visible to recreationalists from the trail than the North Frontage Road Option: two additional bridges

would cross Clear Creek and the Greenway in locations where no bridges currently exist; the US 6 to I-70 westbound on-ramp flyover structure would be longer; and the south frontage road would result in new roadway infrastructure, retaining walls, cut and fill slopes, and associated vegetation removal on the south side of the canyon between US 6 and Hidden Valley.

East of the Sawmill Gulch area, the new frontage road would cross over Clear Creek and the Scott Lancaster Memorial Trail on a new bridge, and the new frontage road would then travel along the south side of Clear Creek and the trail to the Hidden Valley/Central City interchange. Just west of the Sawmill Gulch area, a new I-70 westbound on-ramp from the frontage road would cross back over the trail and Clear Creek on a new bridge, to the north side of I-70. In these locations, mechanically stabilized earth (MSE) walls would be constructed on each side of the new bridges (Appendix A, Figures A-4 and A-5).

Additionally, between Sawmill Gulch and the Hidden Valley interchange, the new frontage road and existing trail would be adjacent, but the distance between them would vary (Exhibit 9). The new roadway would be constructed higher in elevation than the trail (Appendix A, Figure A-6), with an MSE wall approximately 5 feet tall below the new roadway, on its north side (between the trail and the frontage road), and rock cuts varying in height from 10 feet to 100 feet above the new roadway, on its south side for slope stabilization (Appendix A, Figure A-6). Guardrail would be installed on the north side of the road, above the MSE wall.

The existing landscape on the south side of Clear Creek is dominated by evergreen trees. Construction of the South Frontage Road Option would replace many of the trees with MSE walls, guardrails, and other roadway structures. The viewshed would change, and transportation facilities would become a more dominant visual presence than they currently are, which would impact trail user experience throughout the Central Section of the Project area.

This design option would remove the existing eastbound I-70 lanes on the north side of the creek and provide opportunities to improve riparian habitat and create additional trail and creek access points. Improvements could include planting willows and other tall vegetation that would buffer the trail from the rock cuts and transportation facilities on the north side of the creek.

6.3.2.2. Clear Creek Recreational Access Points

There are four Clear Creek recreational access points in the Central Section of the Project (see Exhibit 8 and Exhibit 9). Three are located at the US 6 interchange and one is located at the Hidden Valley/Central City interchange. Construction is not expected to directly impact these resources. However, during tunnel blasting activities at the US 6 interchange, recreational access to the banks of Clear Creek would be restricted and the creek would be closed for safety reasons. No boating or fishing access would be allowed during this time. The impact of Clear Creek closures to recreational river rafting is anticipated to be minimal because the closures are planned to occur outside of rafting season.

Visual changes at the US 6 interchange would be the same as those described above for the Scott Lancaster Memorial Trail. Just east of the US 6 interchange, the Tunnel Alternative would reconstruct I-70 on a bridge to the north of the existing westbound lanes (see Exhibit 11). The bridge would change the view and potentially affect user experience at this location. However, the natural landscape under the bridge would remain, thereby reducing the visual impacts (see Exhibit 10 and Exhibit 11). Noise levels are expected to increase slightly, but the increases would be undetectable to the human ear.

No impacts are anticipated for the recreational access point at the Hidden Valley/Central City interchange area. Impacts at the US 6 interchange would be the same for the North and South Frontage Road Options.

6.3.2.3. Hidden Valley Open Space

In the Central Section of the Project area, noise modeling on the eastern portion of the Hidden Valley Open Space indicates permanent noise levels would decrease by approximately 2 dBA by 2045 because the I-70 westbound lanes would be constructed through a tunnel. Permanent noise levels on the western end, between Sawmill Gulch and the Hidden Valley/Central City interchange, would increase by approximately 1 dBA by 2045, an increase described by FHWA noise guidance as “No Change.”

Additional potential impacts to the Hidden Valley Open Space differ between the North and South Frontage Road Options and are discussed below.

North Frontage Road Option

The North Frontage Road Option would directly impact approximately 15 acres of the Hidden Valley Open Space (see Exhibit 12). The 2,200-foot-long tunnel would be constructed through the Open Space to the north of the existing I-70 alignment and the existing sharp curve at MP 244 would be realigned, which would require cutting into the hillside to the north. At the highest point, the rock cut would be approximately 200 feet tall.

The land on the north side of I-70 is inaccessible and too steep for recreation (Clear Creek County, 2020). Therefore, construction activities would not impact the recreational value of the Hidden Valley Open Space. The rock cut would be visible from I-70 and other areas within the canyon. However, the top of the hillside would not be impacted by construction activities.

South Frontage Road Option

The South Frontage Road Option would directly impact approximately 26 acres of the Hidden Valley Open Space (see Exhibit 13). Impacts on the north side of I-70 would be the same as those listed above for the North Frontage Road Option, but rock cuts would be much smaller because I-70 would not shift as far north. At the highest point, the rock cut would be approximately 120 feet tall, which is 80 feet shorter than the North Frontage Road Option rock cut.

In addition, frontage road construction would require rock cuts south of Clear Creek. The southern hillside is forested with evergreen trees that would be impacted by large equipment during construction or removed before rock blasting occurred. After rock blasting, tall MSE walls would be installed to stabilize the slope (Appendix A, Figure A-6).

The viewshed would change, and transportation facilities would become a more dominant visual presence than they currently are, which would impact the recreational experience throughout the canyon. See the *I-70 Floyd Hill to Veterans Memorial Tunnels Visual Impact Assessment Technical Report* (CDOT, 2020c) for additional detail on visual impacts. Also, the tall MSE walls would block access to the old roads and social trails in the Sawmill Gulch area. Recreationalists on the Scott Lancaster Memorial Trail would be unable to cross over the frontage road and the MSE walls to access these trails.

Construction would not permanently impact the informal parking area south of Clear Creek and east of the Hidden Valley/Central City interchange. However, for safety reasons, the parking area would be closed temporarily during rock blasting.

This design option would remove the existing eastbound I-70 lanes and restore the area to a natural setting. This provides an opportunity to plant willows and other tall trees along the creek and create additional parking and access to the Hidden Valley Open Space.

Exhibit 12. Tunnel Alternative, North Frontage Road Option—Hidden Valley Open Space, Right-of-Way Impacts

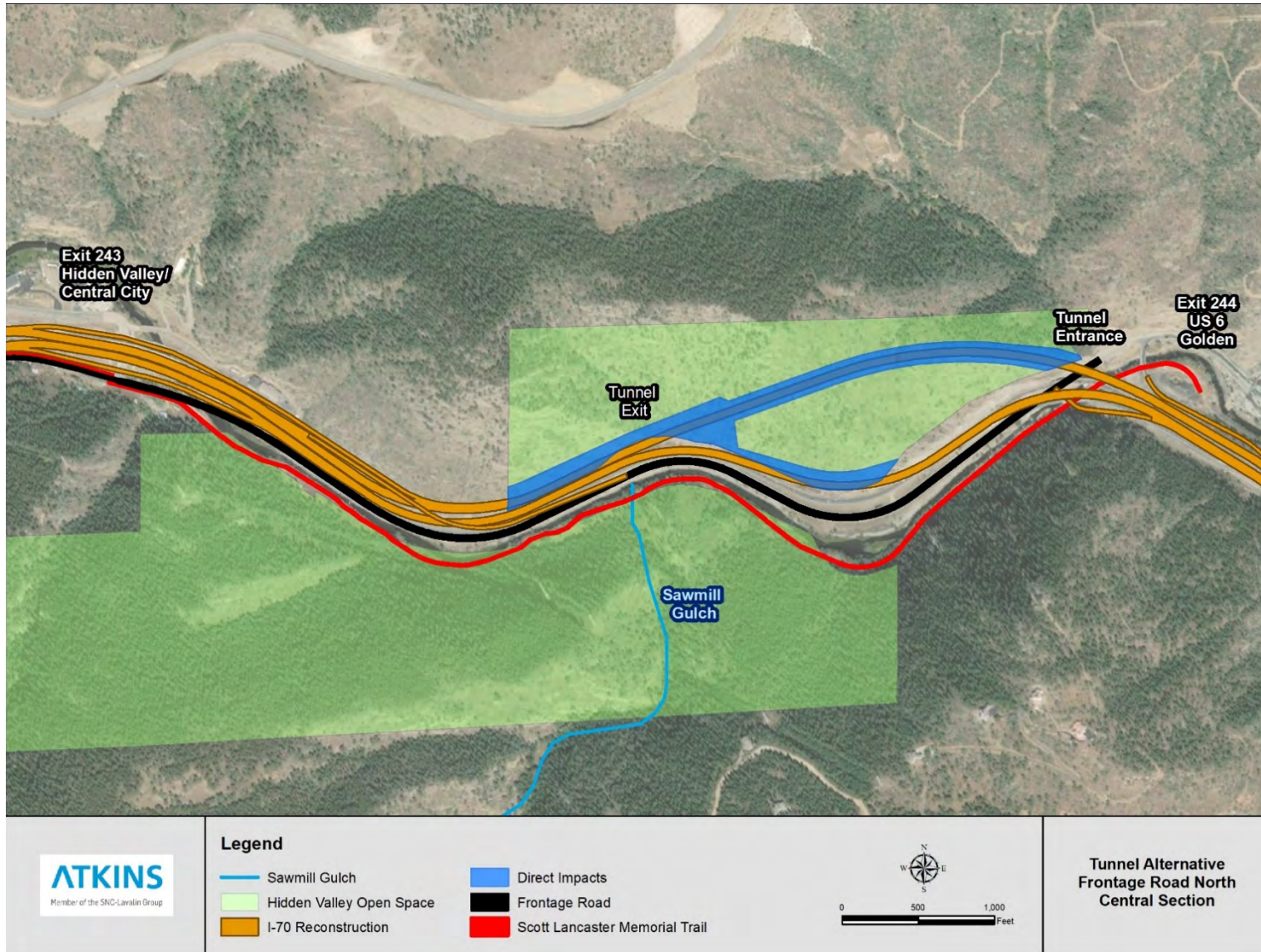
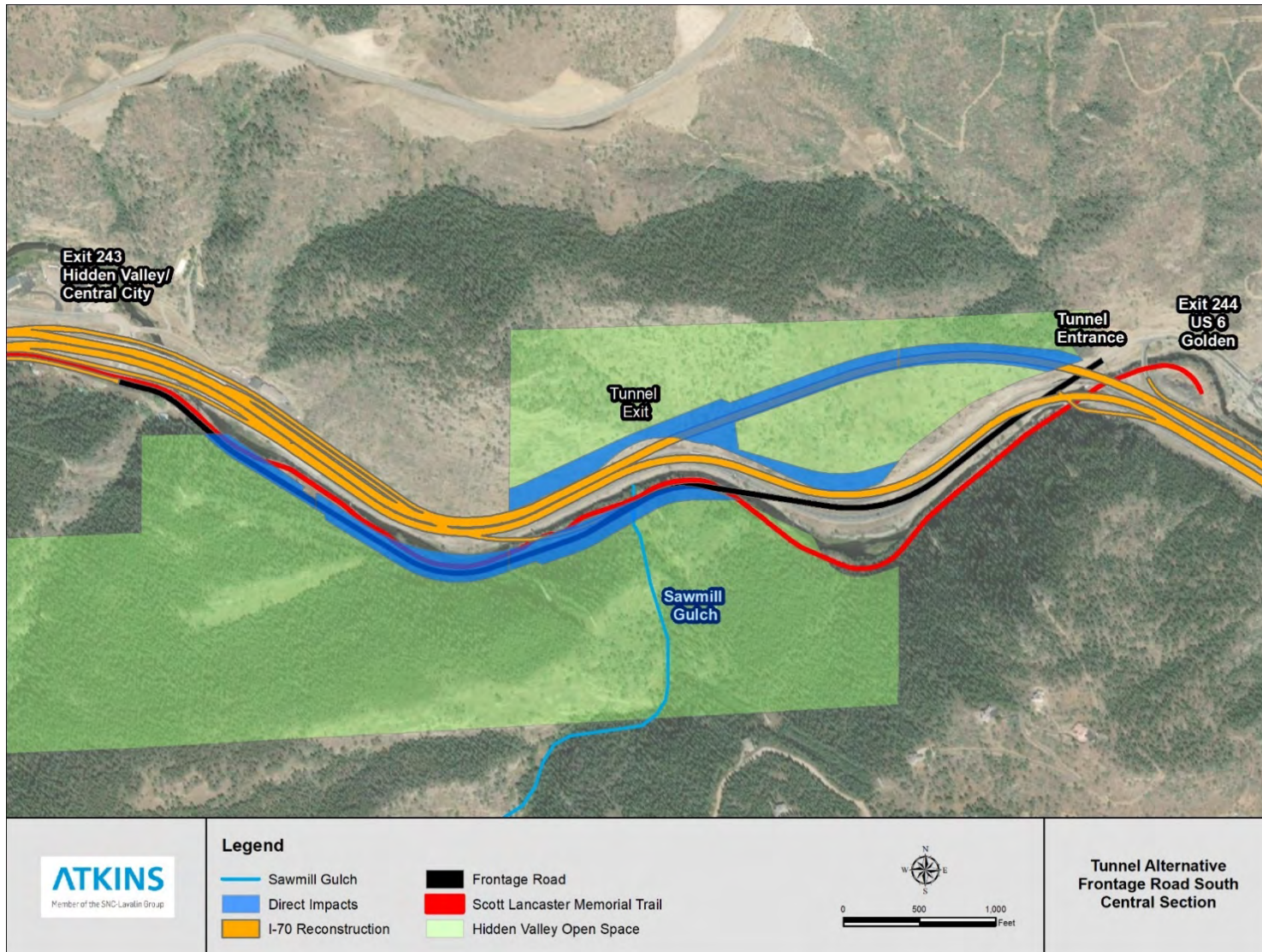


Exhibit 13. Tunnel Alternative, South Frontage Road Option—Hidden Valley Open Space, Right-of-Way Impacts



6.3.2.1. Informal Rock-Climbing Area

The informal rock-climbing area is located on the south side of the Scott Lancaster Memorial Trail in the Sawmill Gulch area (Exhibit 8 and Exhibit 9). Potential impacts from the Tunnel Alternative differ between the North and South Frontage Roads Option and are described in the sections below.

North Frontage Road Option

The North Frontage Road Option would not require right of way from the informal rock-climbing area. No permanent impacts would occur to the access routes to the area, but access from the Scott Lancaster Memorial Trail may temporarily be impacted during reconstruction of the trail.

Noise modeling indicates that permanent noise levels would decrease because the I-70 westbound lanes would be constructed through the tunnel. Additionally, the tunnel, bench, and rock cuts on the north side of I-70 (as described in Section 2.4 of this document) would be visible from the informal rock-climbing area and the viewshed would change from a natural setting to one dominated by rock cuts and transportation facilities on the north side of I-70.

South Frontage Road Option

Construction of the frontage road and the associated rock cuts and MSE walls would permanently impact the informal rock-climbing area. The entire area would be incorporated into the new transportation facility (Exhibit 9). Tall MSE walls on the south side of the road would block all access up the hillside to the south (Appendix A, Figure A-6).

6.3.2.2. Planned Clear Creek Greenway Resources

Planned recreational resources in the Central Section of the Project include the trailhead at the US 6 interchange, Trail Rest Area between Sawmill Gulch and the US 6 interchange, and the Hidden Valley North Trail Segment (see Exhibit 8 and Exhibit 9). Construction of the Tunnel Alternative would not require additional right of way in these locations and would not interfere with future planning and construction of these resources.

However, with the South Frontage Road Option, the frontage road bridge over the creek and trail would be visible from the planned Trail Rest Area location. The rock cuts on the northern side of I-70 also would be visible. The viewshed would change, and transportation facilities would become a more dominant visual presence than they currently are. See the *I-70 Floyd Hill to Veterans Memorial Tunnels Visual Impact Assessment Technical Report* (CDOT, 2020c) for additional detail on visual impacts.

6.3.3. West Section

Project elements in the West Section include widening the interstate between the Hidden Valley/Central City interchange and the Veterans Memorial Tunnels for the addition of a third westbound travel lane, which then would be restriped through the tunnel and continue west to the next interchange at Idaho Springs/Colorado Boulevard (Exit 241).

To improve sight distance and safety on I-70, existing sharp curves would be realigned, which would require cutting into the rock wall on the north side of I-70. Additional rock cuts would be needed on the south side of the frontage road to accommodate the realignment of I-70 and Clear Creek on the east side of the Veterans Memorial Tunnels. CR 314 would be realigned to the south, and the on- and off-ramps for the Hidden Valley/Central City interchange would be reconstructed (Exhibit 14).

The following is a list of recreational resources located within the West Section of the Project area and a description of the Tunnel Alternative's potential direct and indirect impacts.

6.3.3.1. Scott Lancaster Memorial Trail

Between the Hidden Valley/Central City interchange and the Game Check Area Park, the Scott Lancaster Memorial Trail parallels the north side of the CR 314 alignment and is separated from CR 314 by a small landscape buffer. Because of the proposed south shift of the I-70 lanes in the West Section, and associated realignment of Clear Creek to the south, the Tunnel Alternative would reconstruct the Scott Lancaster Memorial Trail and CR 314 to the south (see Exhibit 14). The trail and roadway would be separated by curb and gutter and a 2-foot-wide vegetated area. When complete, the path would be approximately 10 feet wide with a concrete surface.

The roadway and trail would be constructed on an MSE wall. Guardrail would be installed on the north side of the trail, above the MSE wall, and rock cuts ranging from 70 to 100 feet tall would be required on the south side of the frontage road.

The Tunnel Alternative would not permanently impact access routes to the Scott Lancaster Memorial Trail, but temporary closures of the trail would occur for short durations during rock-blasting activities. Noise modeling in this location indicates permanent noise levels would increase by approximately 1 dBA to 2 dBA by 2045, which is defined in FHWA noise guidance as a barely perceptible change.

The existing landscape on the south side of Clear Creek is forested with evergreen trees. The realignment of the existing frontage road and trail, to accommodate the I-70 and Clear Creek realignment through this area, would result in the removal of trees south of the frontage road and construction of tall MSE walls, guardrails, and other roadway structures. Rock cuts north of I-70 also would be visible from the trail. The viewshed would change, and transportation facilities would become a more dominant visual presence than they currently are. As a result, there is potential for the Tunnel Alternative to negatively impact trail user experience between the Hidden Valley/Central City interchange and the Game Check Area Park. See the *I-70 Floyd Hill to Veterans Memorial Tunnels Visual Impact Assessment Technical Report* (CDOT, 2020c) for additional detail on visual impacts.

Farther west, between the Game Check Area Park and I-70 Exit 241 (Idaho Springs/Colorado Boulevard), minor restriping would occur on I-70 to align the additional westbound lane to the existing lanes. All work would occur inside the transportation right of way, and no additional impacts to the trail would occur.

6.3.3.2. Clear Creek Recreational Access Points

One of the four Clear Creek recreational access points located in the West Section would be directly impacted by the Project. Access Point #5 is an informal pull-off on CR 314 to the east of the Game Check Area Park and Trailhead (Exhibit 14). Construction in this location includes shifting Clear Creek and CR 314 to the south. For slope stability purposes, an MSE wall would be constructed on the north side of the trail, and roadway and a guardrail would be installed at the top of the wall for safety purposes. The informal pull-off area that is Access Point #5 would become part of the realigned Clear Creek channel and access to the creek would no longer be available in this area.

Additionally, rock wall blasting would occur to the east of the Veterans Memorial Tunnels on the south side of the frontage road. During blasting activities, recreational access to the banks of Clear Creek would be restricted and the creek may be closed periodically for safety reasons. No boating or fishing access would be allowed during this time. The impact of Clear Creek closures to recreational river

rafting is anticipated to be minimal because the closures are planned to occur outside of rafting season.

No impacts would occur to the three Clear Creek recreational access points on the west side of the Veterans Memorial Tunnels.

6.3.3.3. Game Check Area Park and Trailhead

County Road 314 crosses through the Game Check Area Park and is not identified by the Clear Creek County Assessor as a transportation right of way (Clear Creek County, 2020b). Construction activities within the Game Check Area Park include repaving a portion of CR 314 to tie into the newly reconstructed section of CR 314 to the east. All work within the Park would occur within the existing edge of pavement of CR 314 (see Exhibit 14).

Noise modeling in this location indicates that permanent noise levels would increase by approximately 2 dBA, a level defined in FHWA noise guidance as a barely perceptible change. Temporarily increased noise levels would occur during construction of CR 314 and the Scott Lancaster Memorial Trail at the east end of the park, which would include blasting rock wall on the southern side of the road.

The park and trailhead would remain open during construction, although—for safety purposes—temporary closures may occur. Project improvements would be visible but would not significantly alter the recreational experience associated with the park. Users would continue to see transportation infrastructure, as they do today.

6.3.3.4. Shelly/Quinn Fields Park

The Shelly/Quinn Fields Park is located more than a mile west of the Veterans Memorial Tunnels and no right of way is required from this area (Exhibit 14). As mentioned above, construction on the west side of the tunnels would include minor restriping on I-70 to align the additional westbound lane to the existing lanes and all work would occur inside the I-70 transportation right of way. No permanent impacts would occur to access routes, which would be maintained during construction. Noise levels would remain the same. Project improvements would not alter the recreational experience associated with the park. Users would continue to see transportation infrastructure, as they do today.

6.3.3.5. Hidden Valley Open Space

Between the Hidden Valley/Central City interchange and the western project limits, the Tunnel Alternative would directly impact approximately 5 acres of the Hidden Valley Open Space (see Exhibit 15). The existing sharp curves between the Hidden Valley/Central City interchange and the Veterans Memorial Tunnels would be realigned to improve safety and sight distance. This would require cutting into the northern and southern hillsides in three locations (see Exhibit 15).

The land on the north side of I-70 is inaccessible and too steep for recreation (Clear Creek County, 2020). Impacts on the south side also would occur in steep locations. One MSE wall would be constructed to the east of the Game Check Area Park. Recreationalists would be able to walk around the MSE wall to access the Hidden Valley Open Space lands. Therefore, construction activities would not impact the recreational value of the Hidden Valley Open Space in the West Section of the Project area.

The southern hillside is forested with evergreen trees that would be impacted by rock blasting and construction of the MSE wall. The viewshed would change, and transportation facilities would become a more dominant visual presence than they currently are. Construction would not permanently impact access routes in this section of the Project.

6.3.3.6. Planned Recreational Resources

Planned recreational resources in this West Section of the Project include a restroom on the north side of I-70 that would be constructed as part of the Greenway Trail (Exhibit 14). Construction of the Tunnel Alternative would not require additional right of way in this location, and it would not interfere with planning and future construction of this resource.

Exhibit 14. Recreational Resources and Elements of the Tunnel Alternative—West Section

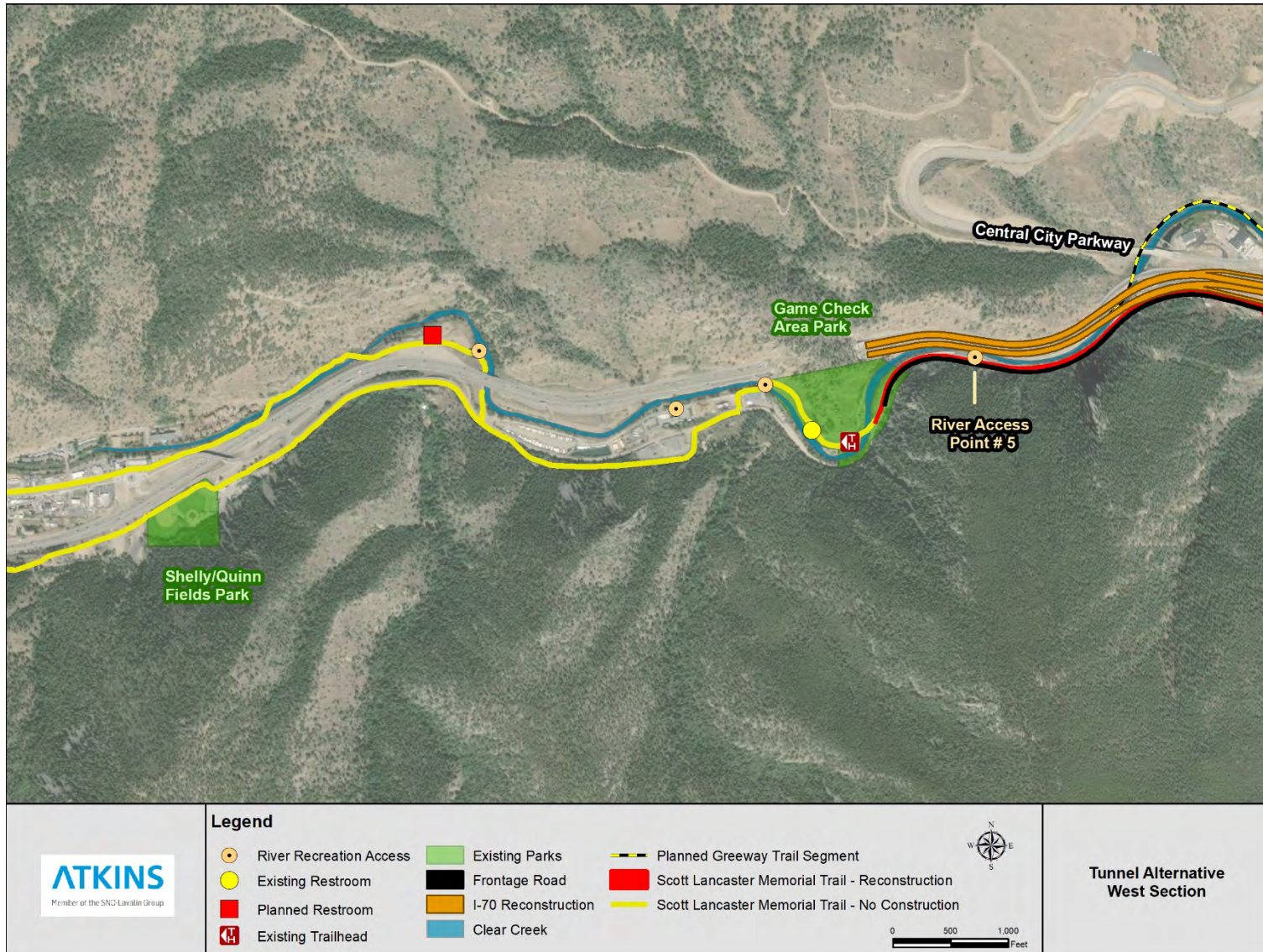
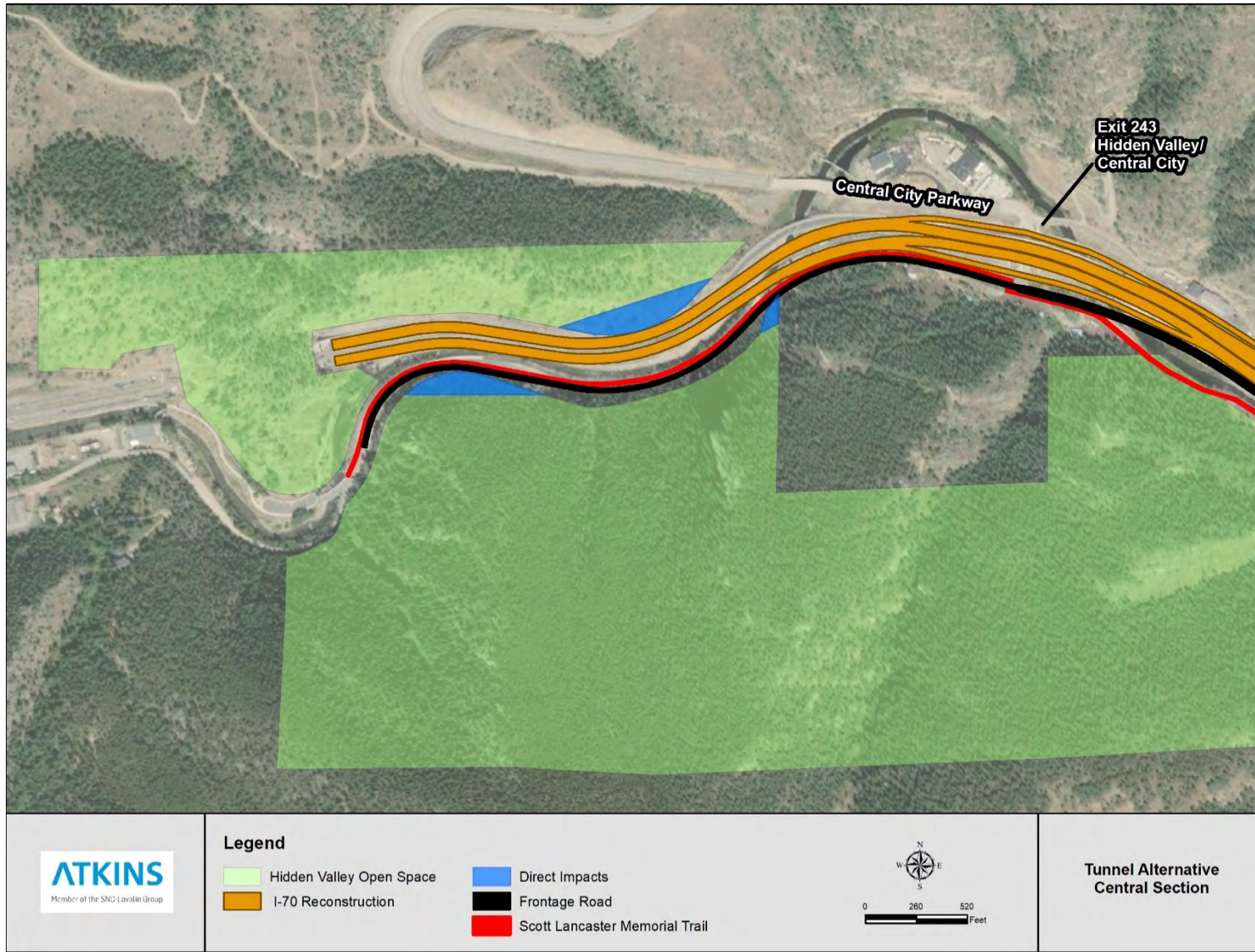


Exhibit 15. Tunnel Alternative—West Section—Hidden Valley Open Space



6.4. Canyon Viaduct Alternative Impacts

6.4.1. East Section

The Canyon Viaduct Alternative's proposed changes in the East Section of the Project area are the same as those described for the Tunnel Alternative. Therefore, impacts would be the same as those discussed for the Tunnel Alternative. See Section 6.3.1 of this document for more detail.

6.4.2. Central Section

In the Central Section of the Project area, the Canyon Viaduct Alternative would construct eastbound and westbound I-70 on viaducts that would cross Clear Creek approximately 60 feet above ground level. The existing westbound I-70 pavement would be repurposed for the frontage road. The eastbound I-70 lanes would be removed, and the area would be restored to natural conditions.

6.4.2.1. Scott Lancaster Memorial Trail

The Scott Lancaster Memorial Trail would be reconstructed in its current location south of Clear Creek. When complete, the path would be approximately 10 feet to 12 feet wide with a concrete surface and extend farther east under the I-70 westbound off-ramp at the US 6 interchange. Impacts at the US 6 interchange area would be similar to those described for the Tunnel Alternative, with the I-70 lanes elevated on a new structure in this area (see Exhibit 16).

Exhibit 16. Canyon Viaduct Alternative, Visual Simulation of I-70 Structures East of US 6 Interchange



In the Sawmill Gulch area, a second section of trail would be constructed north of Clear Creek that complies with ADA slope requirements. Trail users would be able to cross over to the north side of Clear Creek via two footbridges, one on the west side of Sawmill Gulch and one on the east side (see Appendix A, Figure A-7). The existing trail segment would remain in place, creating a loop around Clear Creek and providing options for trail users.

The new viaduct would cross over the Scott Lancaster Memorial Trail on the east and west sides of Sawmill Gulch (see Exhibit 17). Caissons would be placed around the trail, and the trail would be shaded in these two locations (Appendix A, Figure A-8). The new I-70 alignment crossing the hillside in the Sawmill Gulch area would not be visible from the trail below. See the *I-70 Floyd Hill to Veterans Memorial Tunnels Visual Impact Assessment Technical Report* (CDOT, 2020c) for additional detail on visual impacts.

Moving I-70 traffic onto a viaduct, removing the existing I-70 lanes, and restoring the area north of Clear Creek to natural conditions would completely change the view and recreational setting of the canyon floor. The setting would be less dominated by transportation facilities and more dominated by riparian vegetation and natural landscapes. This would improve wildlife, bird, and fish habitat and, therefore, would improve bird/wildlife watching and fishing opportunities along the trail. As such, the recreational experience of the Scott Lancaster Memorial Trail would greatly improve and there would be opportunities to create additional access routes and trailheads from the frontage road. Additionally, noise modeling along the trail indicates permanent noise levels would decrease by approximately 2 dBA to 3 dBA by 2045.

Construction activities would cause temporary increases in noise levels and access restrictions. Trail closures also would occur periodically for safety reasons, and winter maintenance activities on the viaduct—such as snow plowing and snow removal—could result in increased snow and ice accumulation on the trail.

6.4.2.2. Clear Creek Recreational Access Points

Potential impacts to Clear Creek recreational access points in the Central Section of the Project would be the same as those described for the Tunnel Alternative (see Section 6.3.2.2 of this document), except noise levels would be lower and visual impacts would be less severe. The MSE wall for I-70 eastbound traffic on the north side of I-70 would be barely visible from the trail behind the I-70 westbound bridge (see Exhibit 11 and Exhibit 16).

In addition, moving I-70 traffic onto the viaduct and restoring the existing I-70 lanes to natural conditions would provide opportunities to improve fish habitat and recreational access points to Clear Creek, which would ultimately improve recreational opportunities throughout the corridor.

6.4.2.3. Hidden Valley Open Space

In the Central Section of the Project, approximately 12 acres of right of way would be required from the Hidden Valley Open Space to accommodate the construction of the new I-70 alignment into the hillside near Sawmill Gulch (Exhibit 18). There are several old roads and social trails in the Sawmill Gulch area that provide informal hiking up to the ridgelines. No direct impacts would occur to these roads/trails and the vertical clearance under the viaduct would be high enough for people to travel underneath the structure. Noise level on the ridgelines likely would increase due to the proximity of the viaducts. The viewshed would be converted from natural lands to one dominated by transportation infrastructure. User experience and the recreational value of the informal trails may be impacted.

6.4.2.4. Informal Rock-Climbing Area

No right of way would be required from the informal rock-climbing area, but the viaduct structures would be constructed directly overhead of the rock-climbing area (Exhibit 17) and may make the area less attractive for informal rock-climbing activities. Noise modeling indicates noise levels in 2045 would be the same as those for the No Action Alternative in 2045. During construction, temporary closures of the area would occur for safety purposes.

6.4.2.5. Planned Clear Creek Greenway Resources

Planned recreational resources in the Central Section of the Project include the trailhead at the US 6 interchange, Trail Rest Area between Sawmill Gulch and the US 6 interchange, and the Hidden Valley North Trail Segment (see Exhibit 8). Construction of the Canyon Viaduct Alternative would not require additional right of way in these locations and would not interfere with future planning and construction of these resources.

6.4.3. West Section

The Canyon Viaduct Alternative's proposed changes in this section are the same as those described for the Tunnel Alternative. Therefore, impacts would be the same as those discussed for the Tunnel Alternative. See Section 6.3.3 of this document for more details.

Exhibit 17. Recreational Resources and Elements of the Canyon Viaduct Alternative—Central Section

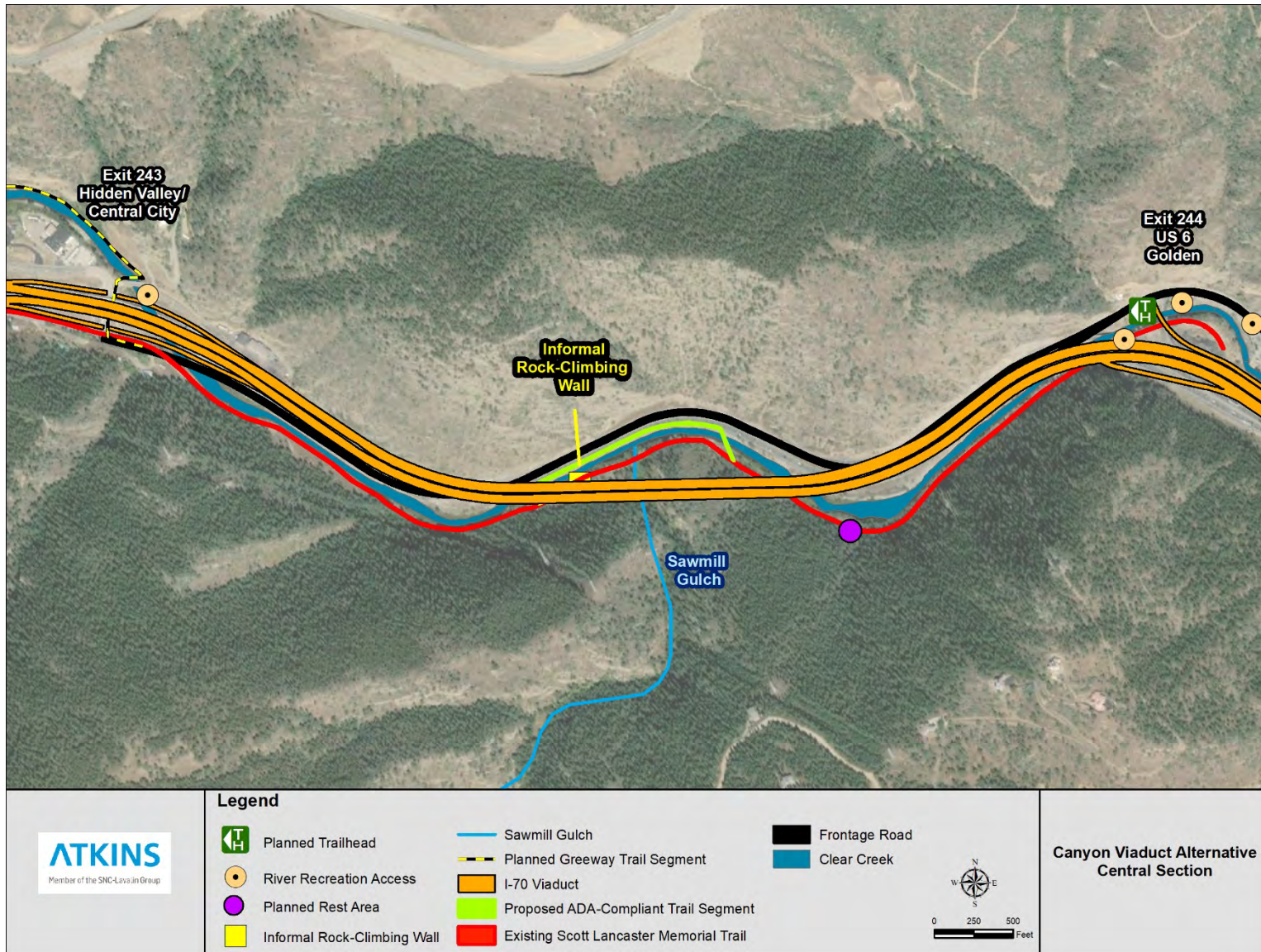
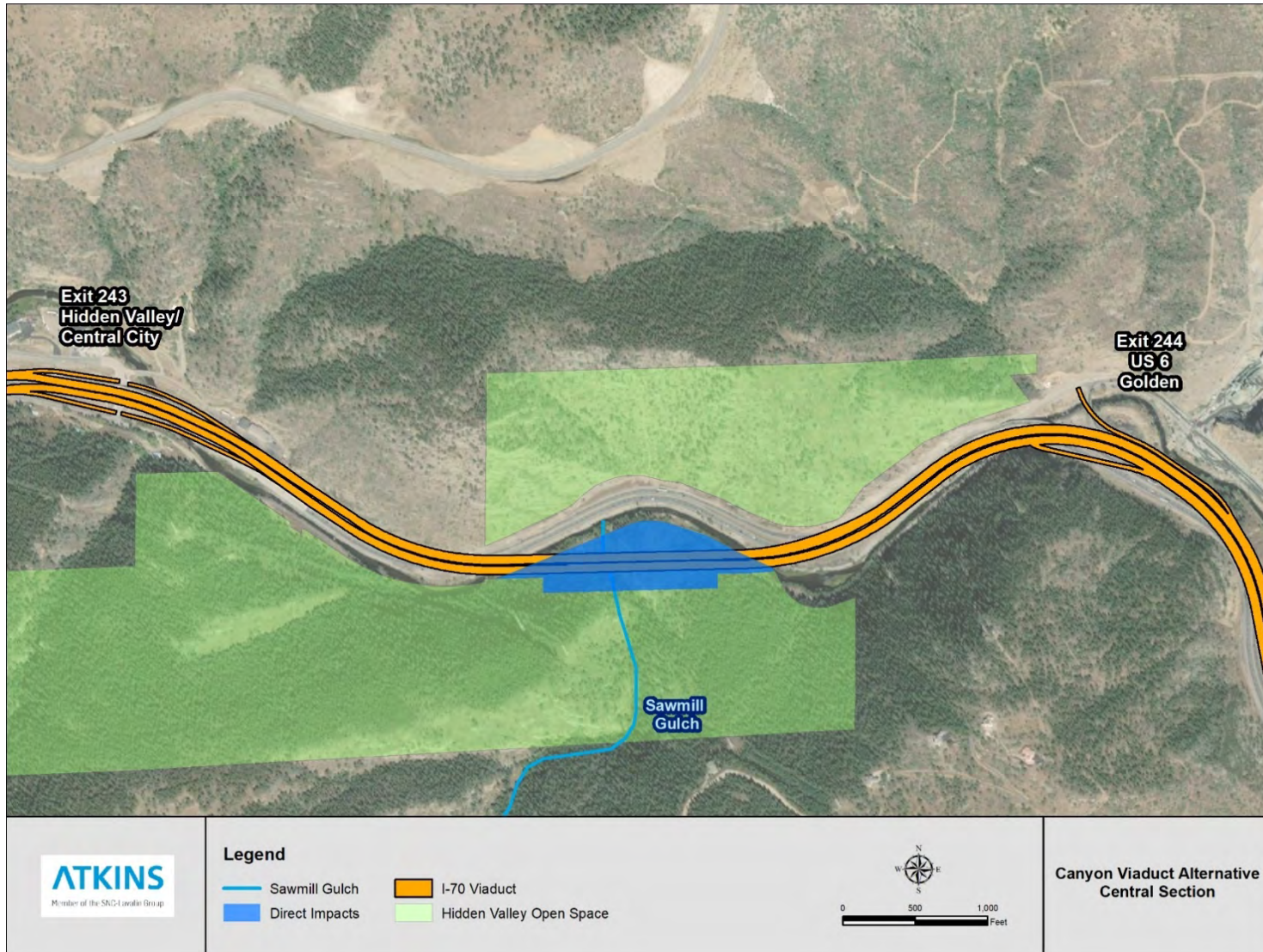


Exhibit 18. Canyon Viaduct Alternative—Hidden Valley Open Space, Right-of-Way Impacts



7. Mitigation

Mitigation measures are recommended to address permanent and temporary adverse impacts of the Project alternatives. Noise and visual impacts discussed in Section 6 of this document are addressed in the *I-70 Floyd Hill to Veterans Memorial Tunnels Noise Technical Report* (CDOT, 2020b) and the *I-70 Floyd Hill to Veterans Memorial Tunnels Visual Impact Assessment Technical Report* (CDOT, 2020c), respectively. Additional impacts identified in Section 6 are summarized in tabular format, by alternative, below to align with recommended mitigation.

7.1. Relevant Tier 2 Mitigation

The Tier 1 PEIS and ROD committed to adding specific mitigation measures to Tier 2 projects. The following recreation resource commitments from the PEIS and ROD are applicable to this Tier 2 Project:

- Avoid or reduce direct effects to recreation resources by replacing or enhancing the functions of parklands or trails.
- Use design efforts to minimize the area of impact and realign the affected trails.
- Maintain pedestrian and bicycle access during construction.
- Minimize construction lane closures during peak travel weekends and special events to accommodate the demand for recreation-oriented trips.
- Mitigate indirect impacts by using strategies outlined in the *Colorado Statewide Comprehensive Outdoor Recreation Plan* (plan referenced in PEIS is CSP, 2008; current plan is CPW, 2019b).

Mitigation strategies included in the Westbound Peak Period Shoulder Lane (CDOT, 2018), Eastbound Peak Period Shoulder Lane (CDOT, 2014), and Twin Tunnels (CDOT, 2012) Tier 2 NEPA documents that pertain to this Project include:

- CDOT/FHWA will continue discussions as appropriate through the Collaborative Effort regarding the cumulative impacts of transportation improvements causing increased recreational visitors (CDOT, 2018).
- Snowplow operating measures will identify areas where plows are directed to push rather than throw snow to avoid throwing snow on the Clear Creek Greenway (CDOT, 2012).
- Roadway and work zone conditions will be communicated to travelers using websites, pre-recorded messages, and other similar mechanisms (CDOT, 2018).
- Trail closures and detours will be clearly signed, and advanced notice of closures and detours will be given. Notices will include alerting bicycling groups so they can alert their members of access changes and road or lane closures (CDOT, 2014; CDOT, 2018).
- Construction areas near the banks of the river will be fenced off to prevent access by anglers or other pedestrians. Temporary signage will be placed along Clear Creek to warn recreationalists of construction activities and provide sources of information on the project and potential creek closures (CDOT, 2012).
- Activities affecting river access should be timed to occur before mid-June or after mid-August (outside of peak rafting season). Coordinate with rafting companies prior to construction to develop communication protocols in the event of unanticipated river closures during rafting season and on-river communication between spotters and rafters during construction. If river closures are necessary during rafting season, CDOT will communicate with rafting companies in accordance with previously agreed-upon protocols. Construction activities that present a safety

risk to boaters and rafters will be stopped temporarily until the rafters have passed through the construction area (CDOT, 2012; CDOT, 2014).

7.2. Tunnel Alternative: North Frontage Road Option

This section summarizes the impacts of the Tunnel Alternative, North Frontage Road Option on recreational resources and the proposed mitigations to be used to address each impact. Exhibit 19 and Exhibit 20 discuss the permanent and temporary impacts and mitigations, respectively.

Exhibit 19. Recommended Mitigation Measures for Permanent Impacts from the Tunnel Alternative, North Frontage Road Option

Location	Activity	Impact	Mitigation
West Section—CR 314 to east of the Veterans Memorial Tunnels	I-70 and Clear Creek realignment; construction of retaining walls; addition of guardrail; improvements to the Scott Lancaster Memorial Trail and frontage road	Elimination of the pull-off on the side of CR 314 that currently accommodates Clear Creek Access Point #5	Through participation in the Greenway ITF, CDOT will work with Clear Creek County to develop Clear Creek access improvements along the corridor.

Exhibit 20. Recommended Mitigation Measures for Temporary Impacts from the Tunnel Alternative, North Frontage Road Option

Location	Activity	Impact	Mitigation
Central Section—US 6 interchange	Tunnel blasting and construction	Temporary delays on the Colorado Bikeway along US 40 during construction and temporary delays to recreational creek activities, including rafting and fishing, due to periodic closures of Clear Creek.	<ul style="list-style-type: none"> Colorado Bikeway closures will be clearly signed, and advanced notice will be given. Notices will include alerting bicycling groups so they can alert their members of construction and temporary closures. CDOT will coordinate with rafting companies prior to construction to develop communication protocols in the event of unanticipated river closures during rafting season. Closures will be planned so that they occur outside of rafting season (June through August) to minimize effects to operations. Temporary signage will be placed along Clear Creek to warn recreationalists of rock blasting activities and

Location	Activity	Impact	Mitigation
			provide sources of information on the Project and potential creek closures. <ul style="list-style-type: none"> • A safety-critical zone will be established in the vicinity of rock blasting. Users will be evacuated from this zone before, during, and after rock blasting (approximately 30-minute durations).
In the Central Section—US 6 interchange	Tunnel blasting and construction	Safety risks to recreationalists along Clear Creek	<ul style="list-style-type: none"> • Construction areas near the banks of the creek will be fenced off to prevent access by anglers or other pedestrians.
Central and West Sections—US 6 interchange to Game Check Area Park	Resurfacing of the Scott Lancaster Memorial Trail	Temporary closures of the Scott Lancaster Memorial Trail	<ul style="list-style-type: none"> • Trail closures will be clearly signed, and advanced notice of closures will be provided. No trail closures will occur between 4:00 p.m. on Fridays and 8:00 a.m. on Mondays.
Central and West Sections—US 6 interchange to Game Check Area Park	Tunnel and rock blasting	Temporary closures of the Scott Lancaster Memorial Trail and the Game Check Area Park and Trailhead. Temporary delays to recreational creek activities, including rafting and fishing, due to periodic closures of Clear Creek	<ul style="list-style-type: none"> • Temporary signage will be placed along the trail, at the creek access points, and at the entrance to the park to warn recreationalists of rock-blasting activities and provide sources of information on the Project and potential trail closures. • A safety-critical zone will be established in the vicinity of rock blasting. Users will be evacuated from this zone before, during, and after rock blasting (approximately 30-minute durations). • Alert bicycle groups and rafting companies of rock blasting and trail closures.
West Section—between the Hidden Valley/Central City interchange and the Veterans Memorial Tunnels	Rock blasting, Clear Creek realignment	Temporary impediment to recreational creek activities, including rafting and fishing,	<ul style="list-style-type: none"> • Unless necessitated by safety concerns, creek closures due to rock blasting and creek

Location	Activity	Impact	Mitigation
		due to periodic closures of Clear Creek	realignment will not occur during rafting season. <ul style="list-style-type: none"> • CDOT will coordinate with rafting companies prior to construction to develop communication protocols in the event of unanticipated river closures during rafting season. • Temporary signage will be placed along Clear Creek to warn recreationalists of creek realignment and rock blasting activities and provide sources of information on the Project and potential creek closures. • A safety-critical zone will be established in the vicinity of rock blasting. Users will be evacuated from this zone before, during, and after rock blasting (approximately 30-minute durations).
In the West Section between Hidden Valley/Central City interchange and the Veterans Memorial Tunnels	Rock blasting, Clear Creek realignment	Safety risks to recreationalists along Clear Creek	Construction areas near the banks of the creek will be fenced off to prevent access by anglers or other pedestrians.

7.3. Tunnel Alternative: South Frontage Road Option

This section summarizes the impacts of the Tunnel Alternative, South Frontage Road Option on recreational resources and the proposed mitigations to be used to address each impact. Exhibit 21 and Exhibit 22 discuss the permanent and temporary impacts and mitigations, respectively.

Exhibit 21. Recommended Mitigation Measures for Permanent Impacts from the Tunnel Alternative, South Frontage Road Option

Location	Activity	Impact	Mitigation
West Section—CR 314 to east of the Veterans Memorial Tunnels	I-70 and Clear Creek realignment; construction of retaining walls; addition of guardrail; improvements to the Scott Lancaster Memorial Trail and frontage road	Elimination of the pull-off on the side of CR 314 that currently accommodates Clear Creek Access Point #5	Through participation in the Greenway ITF, CDOT will work with Clear Creek County to develop Clear Creek access improvements along the corridor.

Exhibit 22. Recommended Mitigation Measures for Temporary Impacts from the Tunnel Alternative, South Frontage Road Option

Location	Activity	Impact	Mitigation
Central Section—US 6 interchange	Tunnel blasting and construction	Temporary delays on the Colorado Bikeway along US 40 during construction and temporary delays to recreational creek activities, including rafting and fishing, due to periodic closures of Clear Creek.	<ul style="list-style-type: none"> • Colorado Bikeway closures will be clearly signed, and advanced notice will be given. Notices will include alerting bicycling groups so they can alert their members of construction and temporary closures. • CDOT will coordinate with rafting companies prior to construction to develop communication protocols in the event of unanticipated river closures during rafting season. Closures will be planned so that they occur outside of rafting season (June through August) to minimize effects to operations. • Temporary signage will be placed along Clear Creek to warn recreationalists of rock blasting activities and provide sources of information on the Project and potential creek closures. • A safety-critical zone will be established in the vicinity of rock blasting. Users will be evacuated from this zone before, during, and after rock

Location	Activity	Impact	Mitigation
			blasting (approximately 30-minute durations).
In the Central Section—US 6 interchange	Tunnel blasting and construction	Safety risks to recreationalists along Clear Creek	Construction areas near the banks of the creek will be fenced off to prevent access by anglers or other pedestrians.
Central and West Sections—US 6 interchange to Game Check Area Park	Resurfacing of the Scott Lancaster Memorial Trail	Temporary closures of the Scott Lancaster Memorial Trail	Trail closures will be clearly signed, and advanced notice of closures will be provided. No trail closures will occur between 4:00 p.m. on Fridays and 8:00 a.m. on Mondays.
Central and West Sections—US 6 interchange to Game Check Area Park	Tunnel and rock blasting	Temporary closures of the Scott Lancaster Memorial Trail and the Game Check Area Park and Trailhead. Temporary delays to recreational creek activities, including rafting and fishing, due to periodic closures of Clear Creek	<ul style="list-style-type: none"> • Temporary signage will be placed along the trail, at the creek access points, and at the entrance to the park to warn recreationalists of rock-blasting activities and provide sources of information on the Project and potential trail closures. • A safety-critical zone will be established in the vicinity of rock blasting. Users will be evacuated from this zone before, during, and after rock blasting (approximately 30-minute durations). • Alert bicycle groups and rafting companies of rock blasting and trail closures.
West Section—between the Hidden Valley/Central City interchange and the Veterans Memorial Tunnels	Rock blasting, Clear Creek realignment	Temporary impediment to recreational creek activities, including rafting and fishing, due to periodic closures of Clear Creek	<ul style="list-style-type: none"> • Unless necessitated by safety concerns, river closures due to rock blasting and creek realignment will not occur during rafting season. • CDOT will coordinate with rafting companies prior to construction to develop communication protocols in the event of unanticipated river closures during rafting season. • Temporary signage will be placed along Clear Creek to warn recreationalists of

Location	Activity	Impact	Mitigation
			<p>creek realignment and rock blasting activities and provide sources of information on the Project and potential creek closures.</p> <ul style="list-style-type: none"> • A safety-critical zone will be established in the vicinity of rock blasting. Users will be evacuated from this zone before, during, and after rock blasting (approximately 30-minute durations).
In the West Section between Hidden Valley/Central City interchange and the Veterans Memorial Tunnels	Rock blasting, Clear Creek realignment	Safety risks to recreationalists along Clear Creek	<ul style="list-style-type: none"> • Construction areas near the banks of the creek will be fenced off to prevent access by anglers or other pedestrians.

7.4. Canyon Viaduct Alternative

This section summarizes the impacts of the Canyon Viaduct Alternative on recreational resources and the proposed mitigations to be used to address each impact. Exhibit 23 and Exhibit 24 discuss the permanent and temporary impacts and mitigations, respectively.

Exhibit 23. Recommended Mitigation Measures for Permanent Impacts from the Canyon Viaduct Alternative

Location	Activity	Impact	Mitigation
Central Section—Between US 6 interchange and Hidden Valley/Central City interchange	Snow plowing on I-70 viaduct	Trucks pushing snow over the edge of the viaduct onto the Scott Lancaster Memorial Trail	The Project will be designed with barriers and fences where feasible to direct snow off the viaduct in locations that minimize impacts to the trail.
West Section—CR 314 to east of the Veterans Memorial Tunnels	I-70 and Clear Creek realignment; constructing retaining walls; adding guardrail; improvements to the Scott Lancaster Memorial Trail and frontage road	Elimination of the pull-off on the side of CR 314 that currently accommodates Clear Creek Access Point #5	Through participation in the Greenway ITF, CDOT will work with Clear Creek County to develop Clear Creek access improvements along the corridor.

Exhibit 24. Recommended Mitigation Measures for Temporary Impacts from the Canyon Viaduct Alternative

Location	Activity	Impact	Mitigation
Central Section	Constructing viaducts, rock blasting	Temporary closures to Clear Creek recreational access points	CDOT will coordinate with rafting companies prior to construction to develop communication protocols in the event of unanticipated river closures during rafting season. Closures will be planned so that they occur outside of rafting season (June through August) to minimize effects to operations.
In the Central Section near banks of Clear Creek	Constructing viaducts	Safety risks to recreationalists along Clear Creek	Construction areas near the banks of the creek will be fenced off to prevent access by anglers or other pedestrians.
In the Central Section	Constructing viaducts, rock blasting	Temporary closures to Scott Lancaster Memorial Trail, Clear Creek recreational access points, and informal rock-climbing area	Temporary signage will be placed along the trail and near the Clear Creek access points and rock-climbing area to warn recreationalists of viaduct construction and rock blasting activities and provide sources of information on the Project and potential trail closures.
In the Central Section	Rock blasting	Temporary closures to Scott Lancaster Memorial Trail, Clear Creek recreational access points, and informal rock-climbing area	A safety-critical zone will be established in the vicinity of rock blasting. Users will be evacuated from this zone before, during, and after rock blasting (approximately 30-minute durations).
Central and West Sections—US 6 interchange to Game Check Area Park	Resurfacing the Scott Lancaster Memorial Trail	Temporary closures of the Scott Lancaster Memorial Trail	Trail closures will be clearly signed, and advanced notice of closures will be provided. Trail closures will be avoided between 4:00 p.m. on Fridays and 8:00 a.m. on Mondays.
West Section—Between the Hidden Valley/Central City interchange and the Veterans Memorial Tunnels	Rock blasting, Clear Creek realignment	Temporary impediment to recreational creek activities, including rafting and fishing, due to periodic closures of Clear Creek	<ul style="list-style-type: none"> Unless necessitated by safety concerns, river closures due to rock blasting and creek realignment will not occur during rafting season (June – August).

Location	Activity	Impact	Mitigation
			<ul style="list-style-type: none"> • CDOT will coordinate with rafting companies prior to construction to develop communication protocols in the event of unanticipated river closures during rafting season (June – August). • Temporary signage will be placed along Clear Creek to warn recreationalists of creek realignment and rock blasting activities and provide sources of information on the Project and potential river closures. • A safety-critical zone will be established in the vicinity of rock blasting. Users will be evacuated from this zone before, during, and after rock blasting (approximately 30-minute durations).
In the West Section between Hidden Valley/Central City interchange and the Veterans Memorial Tunnels	Rock blasting, Clear Creek realignment	Safety risks to recreationalists along Clear Creek	Construction areas near the banks of the creek will be fenced off to prevent access by anglers or other pedestrians.

8. Agency Coordination

A GIS database of all recreational resources within the Project Area was obtained from Clear Creek County on September 20, 2018. Discussion of potential impacts to the Greenway, which includes the Scott Lancaster Memorial Trail and other recreational properties, and their recreational values were frequent topics at the Project Technical Team meetings, and a key CSS measure was "... supporting/enhancing quality recreation access and facilities by meeting local/regional standards/objectives." The Greenway also was the subject of several ITF meetings, with the Greenway ITF being a subcommittee of the Technical Team that included representatives from CDOT, Clear Creek County, and Trout Unlimited.

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Appendix A. Visualizations of Proposed Actions

Figure A-1. Proposed Rock cuts for ADA Slope Compliance, Scott Lancaster Memorial Trail, Tunnel Alternative, North Frontage Road Option



Figure A-2. Proposed ADA-Compliant Trail Segment, Scott Lancaster Memorial Trail, Tunnel Alternative, South Frontage Road Option

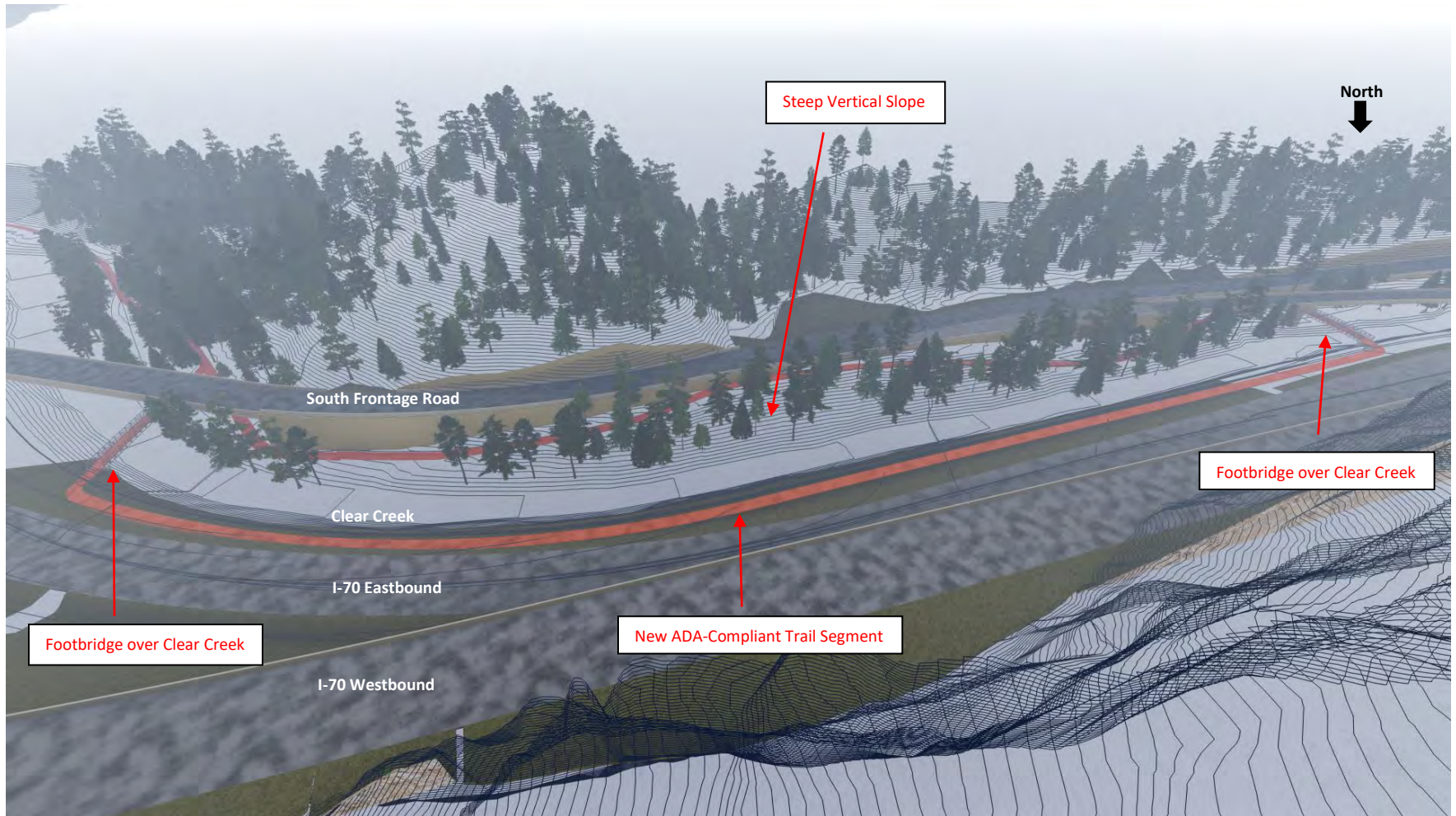


Figure A-3. Visual Simulation of Rock Cut on the north side of I-70 at MP 244, Tunnel Alternative, North and South Frontage Road Design Options*



*Red = North Frontage Road Rock Cut Area
*Blue = south Frontage Road Rock Cut Area

Figure A-4. Visual Simulation of Frontage Road Bridge Crossing Over Clear Creek and the Scott Lancaster Memorial Trail, Tunnel Alternative, South Frontage Road Design Option.

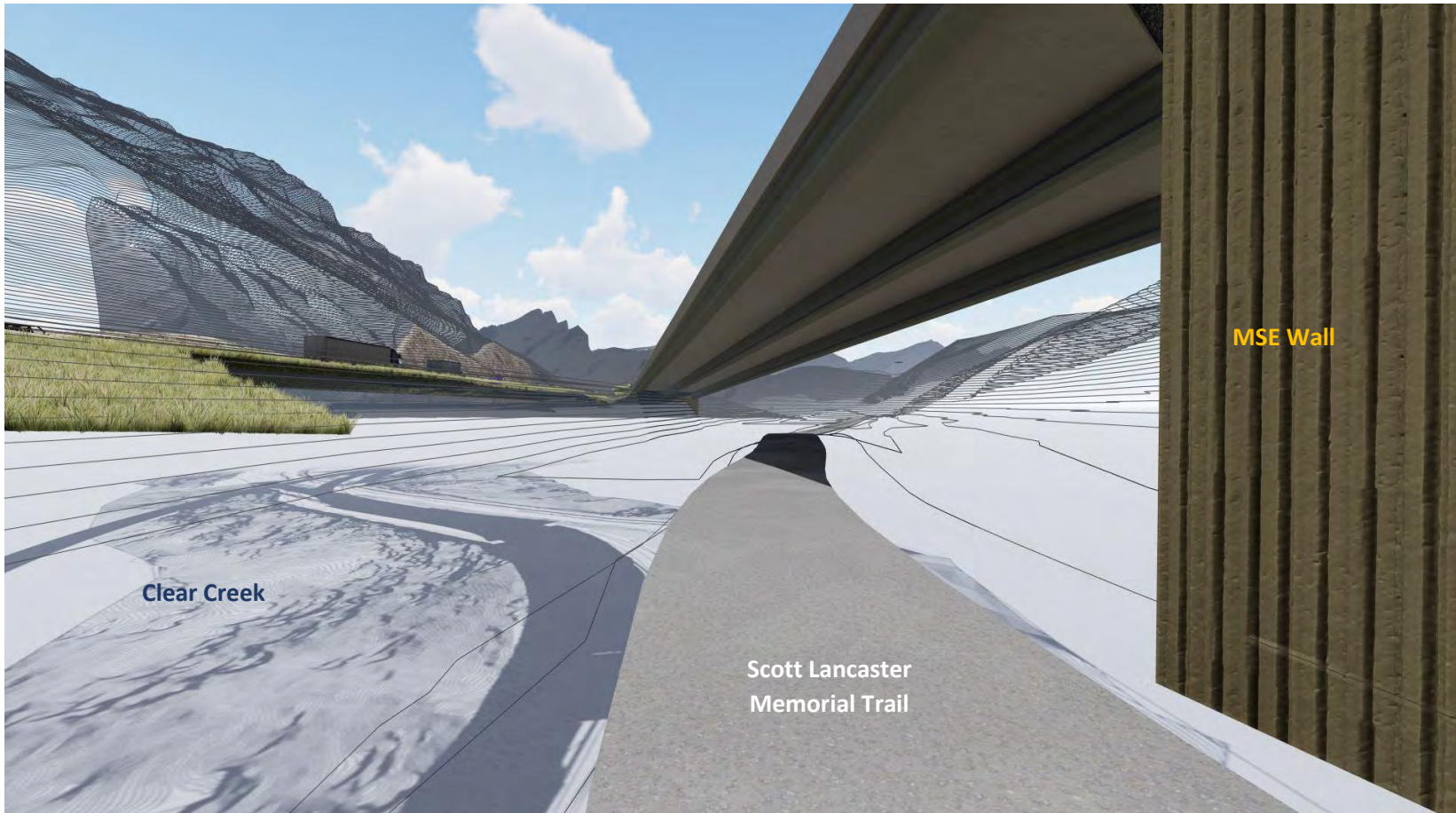


Figure A-5. Visual Simulation of Westbound US 6 Ramp to Westbound I-70, Tunnel Alternative, South Frontage Road Design Option



Figure A-6. Visual Simulation of Scott Lancaster Memorial Trail, Tunnel Alternative, South Frontage Road Design Option

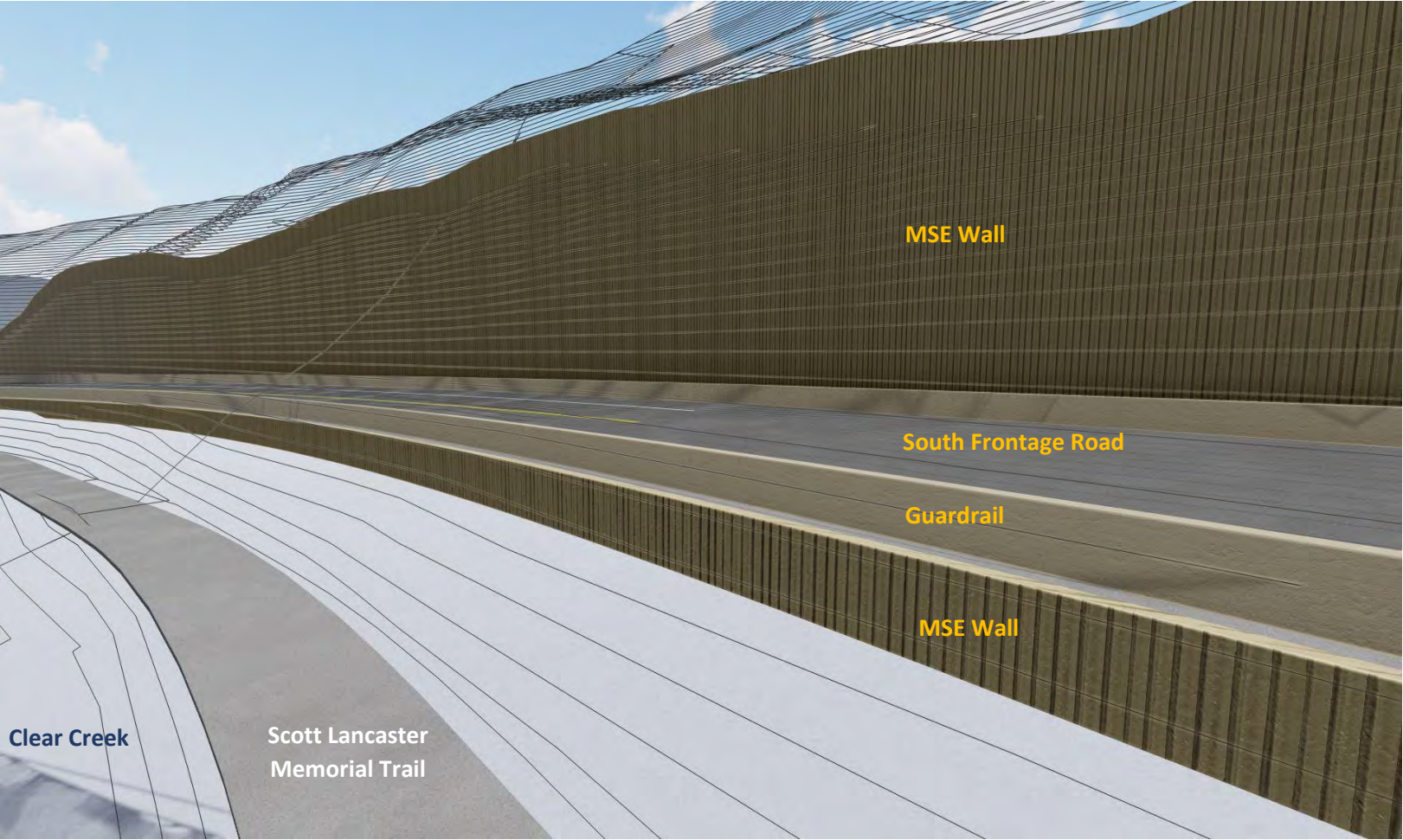


Figure A-7. Proposed ADA-Compliant Trail Segment, Scott Lancaster Memorial Trail, Canyon Viaduct Alternative

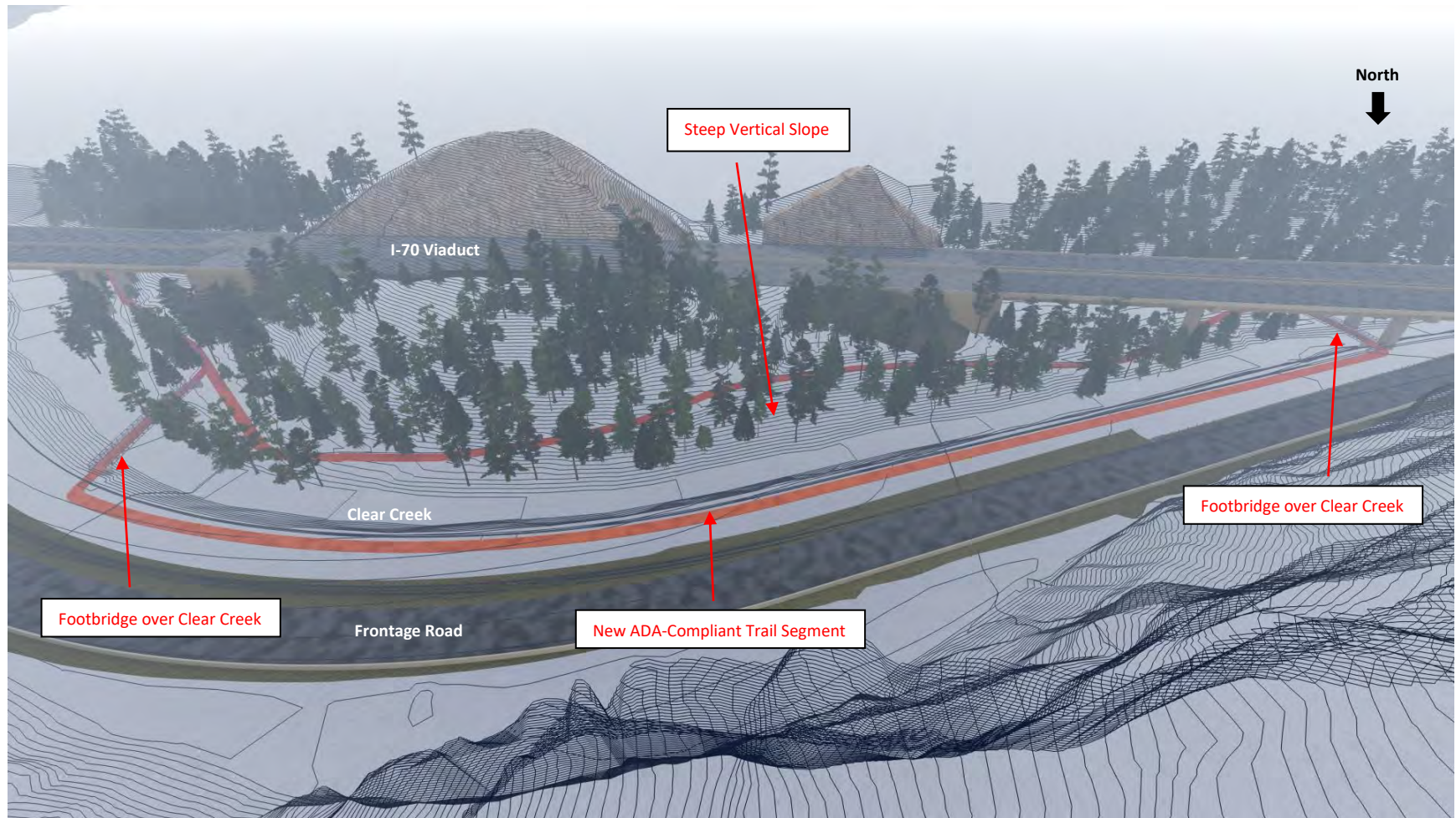


Figure A-8. Visual Simulation of the Canyon Viaduct Over Clear Creek and the Scott Lancaster Trail. Looking East Towards Sawmill Gulch Area

