Chapter 2. Proposed Action

2.1 What is the Proposed Action for the Twin Tunnels project?

The Proposed Action for the Twin Tunnels will add a third eastbound travel lane and consistent 10-foot outside shoulder along eastbound I-70 between the East Idaho Springs Interchange and the base of Floyd Hill, where the project will connect to an existing third travel lane. The eastbound bore of the Twin Tunnels will be expanded to accommodate the wider roadway section, and the existing tunnel portal face will be removed and replaced. The Proposed Action will also straighten the eastbound curve west of the Hidden Valley Interchange, where the highest number and most serious crashes in the project area occur. Other features of the Proposed Action, which are described in Chapter 2 of the attached Twin Tunnels EA, include a new bridge over Clear Creek at Hidden Valley, retaining walls, median barriers, sediment basins and water quality treatment features, spill containment structures, reconstruction of the truck chain-up station west of the tunnels, new wildlife fencing, and new signage. **Figure 2-1** illustrates features of the Proposed Action.

In developing the Proposed Action, CDOT and FHWA evaluated several variations, including a range of roadway widths, alignments widening toward Clear Creek or toward the median, and scenarios for operating the new travel lane as either a general purpose or "free" lane or a managed lane, where users would pay a fee to use the additional lane during peak periods. As described in the following sections, after fully evaluating and disclosing the impacts of the roadway and operating scenario variations in the EA, CDOT and FHWA have determined that the 50-foot roadway section is preferred and that the new lane will operate as a managed lane. CDOT and FHWA have also decided to adjust the alignment for a short distance east of Hidden Valley to widen toward the median rather than toward Clear Creek as described in the EA. This minor design modification does not introduce significant impacts; the minor changes in impacts resulting from the alignment shift are described in **Section 4.1.2** of this FONSI. The Proposed Action is the preferred alternative for Twin Tunnels improvements, and CDOT and FHWA have decided to implement it with the variations described here.

2.1.1 What roadway and tunnel widths does the Proposed Action include?

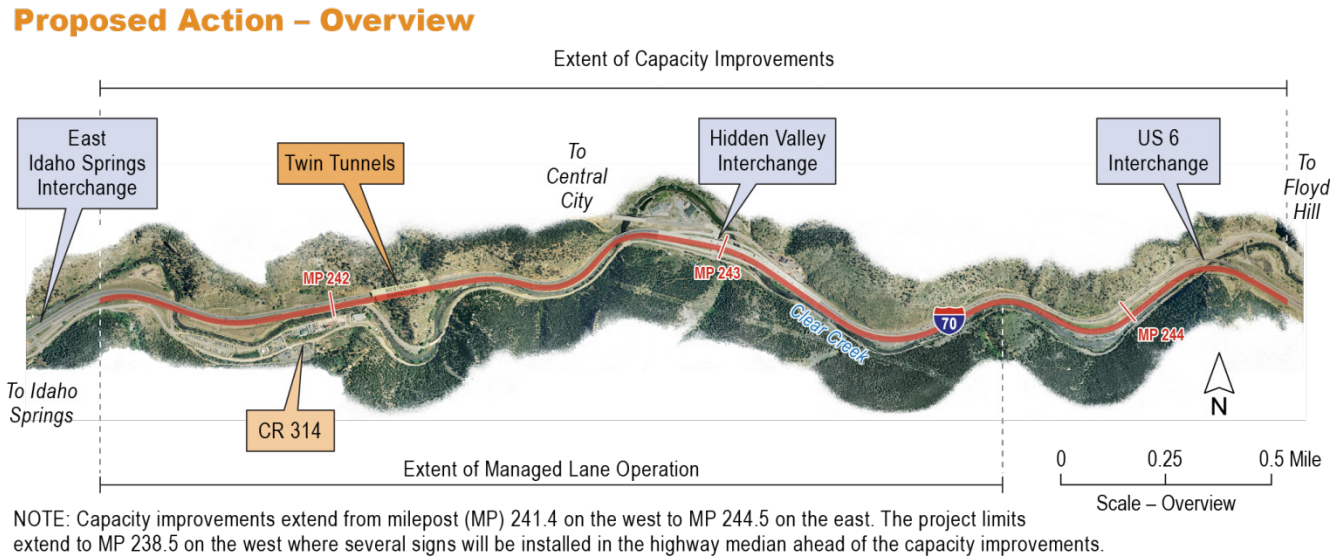
A consistent 50-foot roadway section will be constructed throughout the project limits. This section includes three 12-foot travel lanes, a 10-foot outside shoulder, and a 4-foot inside shoulder.[1] The tunnel will be slightly wider at 53 feet to allow for 1.5-foot barriers next to the shoulders to protect the tunnel walls and to allow vertical clearance for taller vehicles. **Figure 2-2** illustrates the selected roadway and tunnel sections.

CDOT and FHWA evaluated two roadway widths for the portion of the project west of Hidden Valley and presented this analysis in the EA. The roadway sections varied from 50 to 56 feet based on an inside shoulder width of between 4 and 10 feet. The 56-foot roadway section was considered in this area to allow consideration of a range of tunnel sections. This approach provided a full comparison of the benefits of a wider tunnel section with the environmental impacts, technical challenges, and costs.

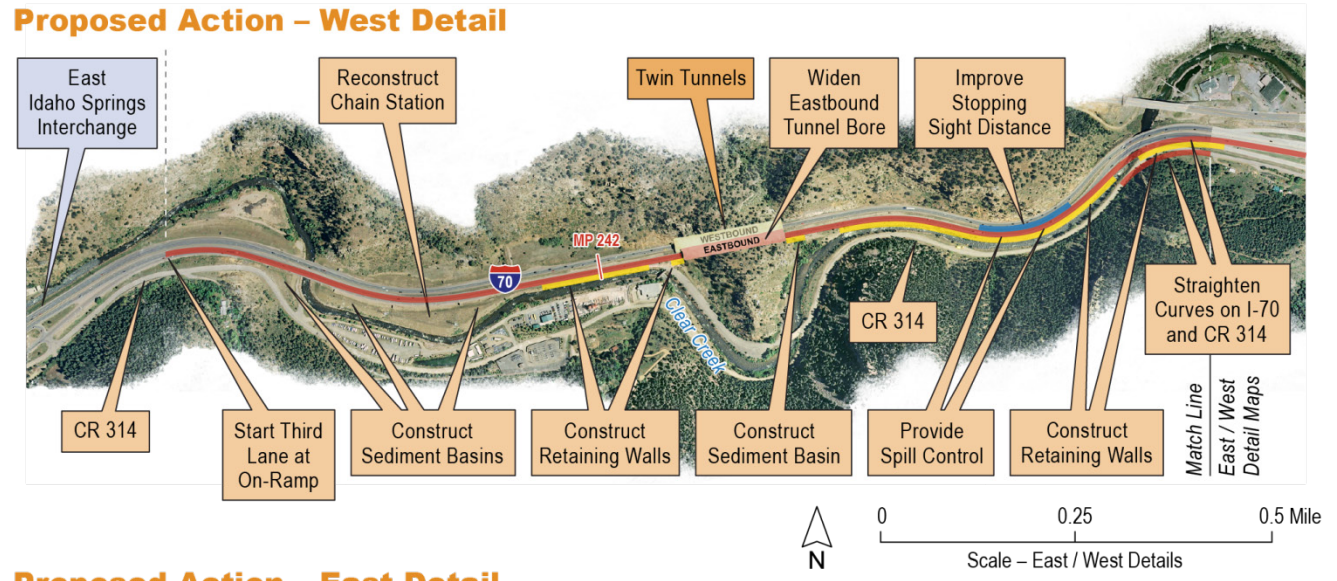
Widening the tunnel is the most costly feature of the Proposed Action. It is likely that the eastbound bore will only be widened once, and CDOT and FHWA wanted to consider a tunnel that provided a full standard roadway section for an interstate, which would be three 12-foot lanes, two 10-foot shoulders, and two 2.5-foot walkways for a total of 61 feet. This tunnel section is more than twice the width of the current 28-foot tunnel width. Because tunnels are so costly, it is common for them to be constructed at less than full roadway standards.

[1] At the Hidden Valley Interchange where the roadway is wider, the existing 10-foot inside shoulder will be maintained.

Figure 2-1. Twin Tunnels Proposed Action - Overview and Detail Maps



NOTE: Capacity improvements extend from milepost (MP) 241.4 on the west to MP 244.5 on the east. The project limits extend to MP 238.5 on the west where several signs will be installed in the highway median ahead of the capacity improvements.



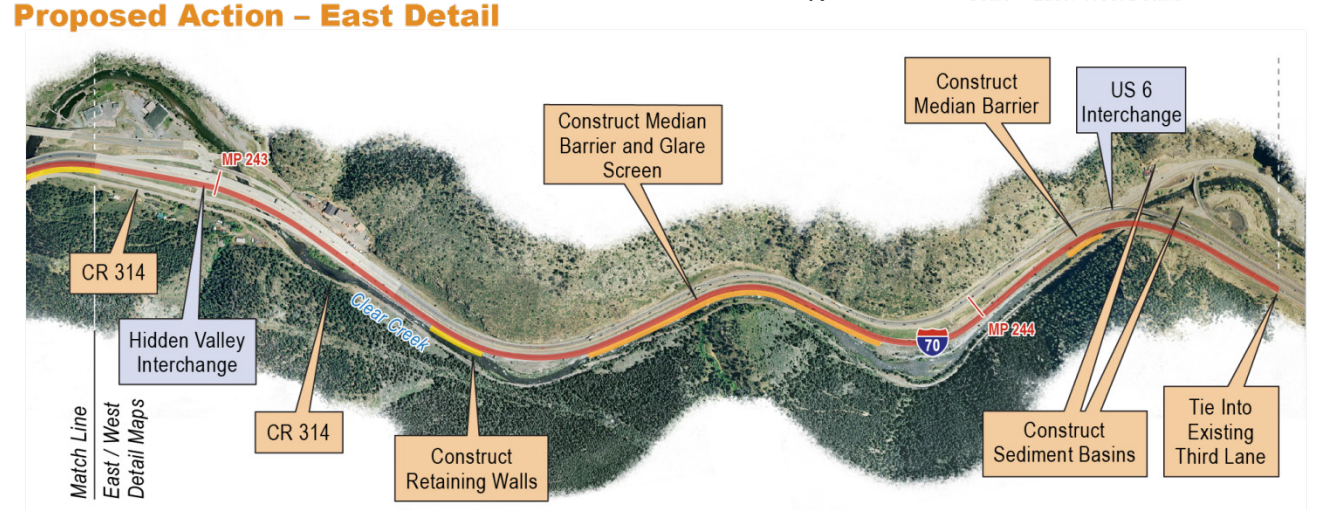
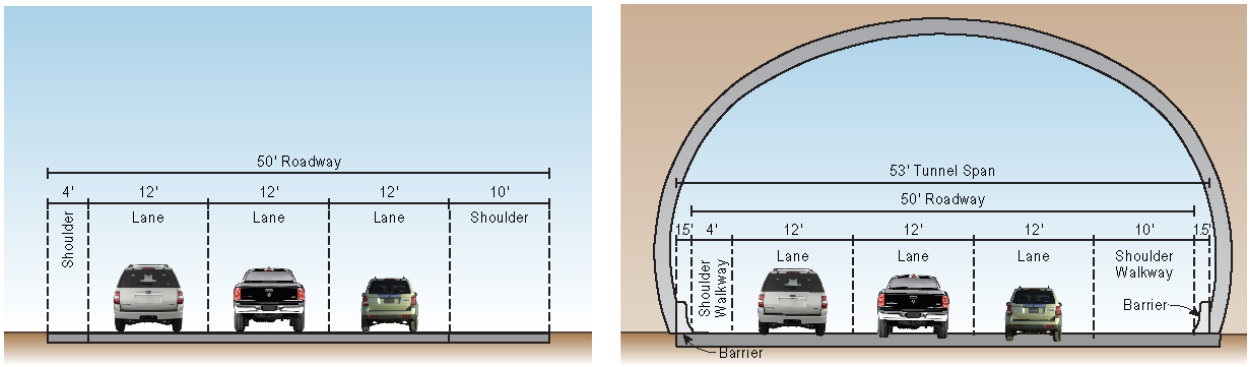


Figure 2-2. Roadway and Tunnel Sections



CDOT and FHWA ultimately decided to implement the 50-foot roadway section based on its ability to meet the project's safety and mobility needs with lesser environmental impacts, cost, and technical complications. The 50-foot roadway section disturbs less established vegetation, reduces habitat impacts, and represents less of a barrier to wildlife attempting to cross I-70. The narrower roadway width also results in less impervious surface, which reduces water quality treatment needs and long-term roadway maintenance requirements. Additionally, preliminary cost estimates suggest that enlarging the tunnel to accommodate the wider roadway section would be exponentially more expensive and present serious geotechnical challenges in maintaining the physical integrity of both the eastbound and westbound tunnel bores. Finally, the I-70 PEIS Preferred Alternative includes other transportation improvements in the Twin Tunnels area (as described in Section 2.8 of the EA), and less rework would be anticipated with the 50-foot eastbound roadway section.

2.1.2 How will CDOT operate the new travel lane?

CDOT will operate the new lane as a managed lane. The existing two travel lanes will continue to operate as general purpose lanes (that is, no fees would be charged for travel in the existing lanes). The managed lane is a concept that CDOT is implementing or considering for all new capacity projects in congested areas. Managed lanes impose a fee during congested periods to maintain travel flows and a reliable travel time in the managed lane. CDOT will impose a fee for use of the lane during peak periods of congestion, which currently occur on Sundays and holidays during the summer and winter seasons. When the managed lane is operating, all vehicles in the lane will pay a fee—likely between $1 and $3—and trucks will pay an additional fee (surcharge). The lane will operate as a general purpose lane at all other times.

The Twin Tunnels EA evaluated both managed lane and general purpose lane scenarios for the new lane. After consideration of the analysis presented in the EA, along with agency and public comments, CDOT has selected the managed lane scenario because it meets the mobility and safety needs of the project better than the general purpose lane option. It is also more consistent with environmental and societal realities of funding and implementing transportation improvements.

The biggest benefit of the managed lane is that it allows CDOT to maintain free-flowing traffic volumes in the managed lane, providing reliable and slightly shorter travel times for travelers in the managed lane, as well as greater flexibility for emergency responders to bypass backups and react to incidents during congested periods. The managed lane meets mobility needs better than the general purpose lane where travel time is less predictable. Improved traffic flows also decrease energy consumption and improve air quality.

The managed lane approach is also more responsive to the current climate for transportation improvements, with funding constraints limiting CDOT's ability to expand capacity, resulting in a need to change travel patterns to make current infrastructure operate more effectively. Managed lanes provide an incentive for users to change travel patterns and drive during less congested periods and/or increase vehicle occupancy or transit use to defray toll costs. The ability of managed lanes to change travel patterns is especially beneficial in the Mountain Corridor where peak period congestion is severe but only occurs 1 to 2 days a week in the summer and winter months and much of the time, the existing infrastructure is adequate to serve travel demand.

2.1.3 What is the alignment of the expanded roadway?

The Proposed Action widens the roadway to the south in most locations, as described in the Twin Tunnels EA. However, for about a half-mile distance between Hidden Valley and the US 6 exit at the bottom of Floyd Hill (between mileposts 243.3 and 243.9), CDOT decided to change the design to shift the alignment north toward the median. The change in the design is illustrated in **Figure 2-3**.

The alignment shift fills in a portion of the median, which is a variation from the I-70 Mountain Corridor design criteria, but removes the need to build approximately 2,900 feet of retaining walls next to Clear Creek. This design change reduces the visual impact to recreation users in the creek, reduces construction activities and potential temporary erosion impacts near Clear Creek, and reduces construction costs. It also makes sense for the future because other transportation projects are planned for the area. When westbound improvements, the AGS, or higher design speeds are implemented, eastbound I-70 may be realigned again, and the retaining walls in Clear Creek would no longer be needed. The median shift provides safety benefits because the new design replaces guardrail with walls and incorporates headlight glare protection; headlight glare is a problem in this area because the median is narrow, and eastbound and westbound lanes are in close proximity.

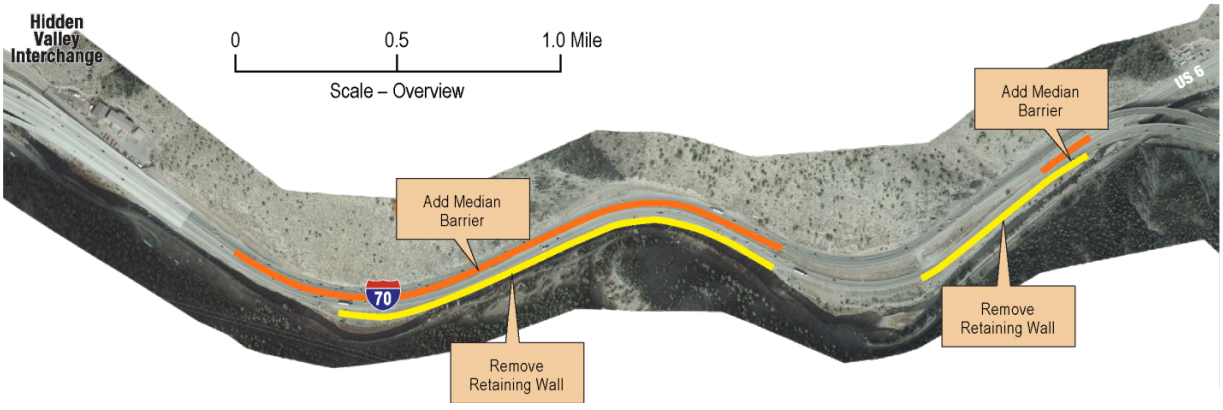
CDOT presented this design change at the public hearing, and comments, particularly from creek recreationalists, indicated support for the change. CDOT and FHWA also discussed the median shift at length with the Project Leadership Team and Technical Team. These teams went through a systematic process of evaluating the proposal and found the alignment shift in this specific location supportive of the core values and other evaluation criteria because it reduced visual and physical impacts to the creek, saved money, improved constructability, and maintained flexibility in implementing future projects. A variance for the I-70 Mountain Corridor Design Criteria was endorsed by consensus of the Project Leadership Team and Technical Team.

2.2 How will CDOT construct the Proposed Action?

Construction of the Proposed Action will begin in November 2012 and will be completed by the spring of 2014. Construction will occur with three sequential packages: preparation (Package 1), eastbound tunnel and I-70 construction (Package 2), and restoration (Package 3). Tunnel expansion is the most complicated construction activity and will occur from approximately March to October 2013. Tunnel work will require eastbound I-70 to be detoured around the tunnels (along a portion of old US 40 and County Road [CR] 314), as shown by the pink line in **Figure 2-4**. The detour is expected to be in place after the 2012-2013 ski season, with eastbound I-70 lanes reopening to traffic through the reconstructed eastbound tunnel by the 2013-2014 ski season. In addition to the detour route, a separate construction access road will be constructed between the two eastbound portals, as illustrated by the green line in **Figure 2-4**.

Between November 2012 and March 2013, CDOT will prepare the detour and construction access road, construct portions of retaining walls and the Hidden Valley bridge over Clear Creek, and prepare or construct other elements that do not require closure of I-70. When the detour is in place (between March and October 2013), eastbound I-70 will be closed between the Twin Tunnels and Hidden Valley, and CR 314 will carry interstate traffic and be closed to local through traffic. Bicycle and pedestrian access along the Scott Lancaster Memorial Trail will be maintained along a shared use path next to the detour route, and local residential and business access from CR 314 will be provided. In October 2013, the reconstructed

Figure 2-3. Alignment Shift and Wall Removal East of Hidden Valley



eastbound I-70 highway will open to traffic. Between November 2013 and March 2014, CDOT will restore the detour route and the construction access road, and CR 314 will reopen to local traffic.

As noted and illustrated in **Figure 2-4**, CDOT will implement a construction access road in concert with other elements of the Proposed Action. The Twin Tunnels EA was released with a Companion Report providing details about the construction access road (also referred to as the portal-to-portal access road). The Companion Report evaluated impacts of the construction access road and recommended mitigation measures to restore the access road and improve the impacted riparian area. Chapter 3 of this FONSI includes a summary of the impacts and mitigation for the access road. CDOT and FHWA intend to implement this element of the project as part of the Proposed Action and commit to the mitigation measures outlined in the Companion Report and integrated into the mitigation requirements for the Proposed Action as described in Chapter 3 (**Table 3-1**).

2.3 What is the status of funding for the Twin Tunnels project?

In October 2011, the Colorado Transportation Commission approved allocating $60 million for the Twin Tunnels project from federal and state sources. After refining the Proposed Action between November 2011 and June 2012, the revised cost estimate now totals just under $100 million. The Transportation Commission is in the process of allocating additional funds to the project.

In order to add the construction funding for the Twin Tunnels project to its long-range transportation plan, CDOT applied to amend the Denver Regional Council of Governments (DRCOG) 2035 Metro Vision Regional Transportation Plan (2035 MVRTP) in Cycle 1 of 2012 (during DRCOG's initial call for Policy amendments in calendar year 2012). DRCOG is the metropolitan planning organization for the nine-county Denver metropolitan area, including Clear Creek County and the Twin Tunnels area of I-70. The 2035 MVRTP Cycle 1 amendment was approved by the DRCOG Board of Directors on September 19, 2012.

Implementation of the project will begin immediately (November 2012). The reconstructed eastbound I-70 will be open to traffic in October 2013, and construction of all project elements, including restoration and mitigation, will be completed in the spring of 2014.

Figure 2-4. Detour Plan