

Meeting Notes



I-70 Floyd Hill to Veterans Memorial Tunnels

Date: May 23, 2018

Location: CDOT – Golden

Technical Team – Meeting #12

[Ctrl +Click HERE or paste link below into your browser for Shared Floyd Hill Project GDrive](#)

<https://drive.google.com/open?id=0B5g5iHKBVK6OR2tpb1J0OUNkNU0>

Introductions and Overview

Taber Ward, CDR Associates, welcomed the group and reviewed the agenda. Self-introductions followed. No changes were made to the agenda and the meeting proceeded.

Project Updates

Bridge Deck Repair at Soda Creek – Work on this project will begin June 8, 2018. CDOT Crews will be working nights and lanes will reopen in the morning.

WB I-70 PPSL – Neil Ogden, CDOT, noted this project is moving along and shooting for advertising in late 2018 or early 2019.

Geohazard Mitigation Program – The project is on summer shutdown and will begin again starting in November 2018.

CSS Process Flowchart and CSS Tracking Schedule

The group reviewed the flow chart and discussed whether they need to see the flowchart during each meeting. It was noted that the flowchart is a good reminder, but doesn't need to be upfront in the presentation every meeting.

TT AGREEMENT: The Project Team will remove the CSS Process Flowchart and Timeline slides from the beginning of the slideshow, but keep them in the back for reference if needed.

Outcomes from TT #11

The group reviewed Outcomes from TT #11:

- TT agreed to Balanced Rock Cut with South Frontage Road option for the West Section of the Floyd Hill project.

- The TT would like to look at modified Options for the frontage road connection at Hidden Valley. It was noted that the TT would review modified Option 1 and Option 3 during the meeting.

Meeting Report-outs

Rafting Meeting – Neil Ogden attended a rafting meeting to discuss Floyd Hill and the US 6 interchange. There was not a detailed conversation about creek realignment, so the CDOT will follow up on this discussion. In general, there is general approval among the rafting community about the Floyd Hill project.

ACTION: Neil Ogden will discuss creek realignment with the rafting community.

Traction Control / Maintenance / Water Quality Meeting – The project team met with maintenance supervisors who confirmed that they have not used sand east of the Veterans Memorial Tunnels for the past year. Magnesium Chloride and ice slicer (rock salt) is used in this area. Sand is still deposited in the area by tires of vehicles that have been through areas where sand is in use. In addition, there is natural erosion occurring. So, sand is still present in the project area, but sand is not being used for traction control in the project area.

This information will guide CDOT's decisions around water quality measures in this area.

Overall chloride levels are increasing in the creek, so this will need to be monitored.

TT Question: Was Black Hawk part of this discussion? Does this affect their water intake?

A: No, they were not part of this discussion

ACTION: Neil Ogden will discuss water quality with Black Hawk and connect with Lynnette Hailey.

Infrastructure Week – Infrastructure week went well. The conceptual plan and video were presented. Also, a coalition that is introducing a ballot initiative was announced. The initiative is currently circulating petitions that call for a .62% sales tax increase. This initiative is estimated to fund \$6.2 billion and generate \$100 million a year for bridges and asset management. Floyd Hill is on the list of projects to be funded through this.

TT Question: Does it include increase for maintenance? **A:** Other than asset management list, no.

TT Question: Where can I find video? **A:** The video is on the website, and we have been getting good feedback. <https://www.codot.gov/projects/i-70-floyd-hill-to-veterans-memorial-tunnels-improvements>

Floyd Hill PLT Meeting – The PLT meeting was held Monday, May 21. The group discussed the public meeting on June 12 and was presented with public meeting materials.

Gilpin County and Clear Creek County will be selecting representatives for the Project Delivery Selection Team. Part of the PLT's role is to participate in project delivery selection. The PLT also discussed the high-level project goals and will provide feedback on these goals to inform the Project Delivery Selection Matrix.

Hyperloop Meeting – Jo Ann Sorensen attended a phone meeting for the hyperloop project, where information on the potential hyperloop was presented. She noted it was largely a front range project because of the large radius needed to accomplish curves (40,000 feet at 500mph). She found it difficult to connect this to the mountain corridor, where there is no room for these types of curves. A section to Vail was briefly mentioned, but she does not see this as a potential for the mountains.

Discuss Proposed Solutions

The TT reviewed the West Section Roadway Option Recommendation:

- Balanced Rock Cut with South Frontage Road Option

Option Summary Statement:

Option B: Balanced Rock Cut with South Frontage Road recommended to be evaluated as part of the Proposed Action. This option provides the following benefits:

- *Much of the construction can be done outside of traffic limiting construction impacts to the traveling public*
- *Moving the alignment south minimizes rock cuts and visual impacts*
- *Reasonable infrastructure investment*
- *Does not require trucks to use alternate routes*

TT AGREEMENT: The TT ratified Option B.

Summary of CSS Process to date

The project process to-date was reviewed:

OCTOBER 2017 - PRESENT

4 PLT Meetings: Established Charter, context statement, core values, reviewed public outreach plan, reviewed major elements, reviewed public meeting materials, introduced draft project goals

11 TT Meetings: Worked through 6-Step decision making process. Started with context mapping of three sections. Used matrices to evaluate and recommend options.

Multiple ITFs

- Developed measures of success, CSS flow chart, evaluated option for interchanges and roadway design

- Held SWEEP, ALIVE and Section 106 ITFs

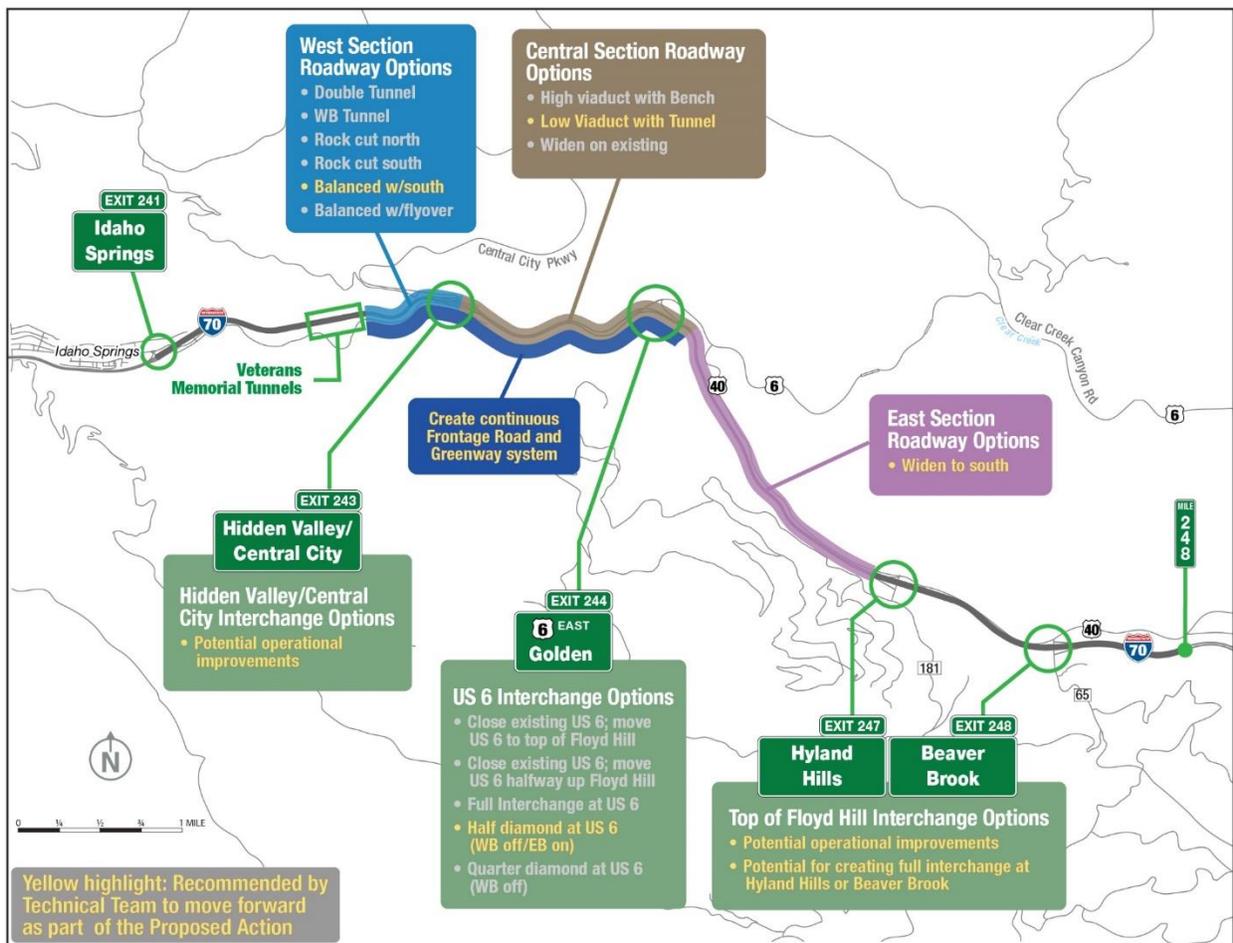
Purpose and Need

The Purpose and Need is located in the [GDrive](#).

The Floyd Hill Purpose and Need is the first step in NEPA process. It addressed travel time, safety, mobility and deficient infrastructure. The P&N respects the Core Values developed in the CSS process and is used to evaluate design options.

Major Elements of Proposed Action Map

The Major Elements of the Proposed Action were reviewed by the TT.



US6 Access Interchange – Recommendation is the half diamond at US6 (WB off/EB on)

East Section – Widen to south

Central Section – Low Viaduct with Tunnel

West Section – Balanced Rock Cut with South Frontage Road

The next steps will be to integrate East, Central, and West roadway sections with the recommended US 6 Interchange option.

Other Supportive elements

- Frontage Road
- Greenway
- Hidden Valley Interchange and Intersection Configuration
- Interchange and Intersection Configurations for Top Of Floyd Hill
- Eastbound Acceleration Lane East of US 6 Interchange
- Shared Corridor Vision Map with Responsibilities

Media Renderings

Tyler Larson, Atkins, reviewed the following road segment improvements.



In this photograph, I-70 WB is widened from 2 lanes to 3 lanes to accommodate more WB travelers. I-70 will be reconfigured to simplify curves, improve site distance and safety.

TT Question: How does this work with large animals? Is there any way to add large culvert on EB? **A:** ALIVE discussed widening bridges anywhere bridges are being replaced to allow benches for animals to cross. One of these locations is at the bottom of Floyd Hill where the Greenway goes underneath. An added bench for wildlife could be added so that the

animals have a separate place from humans to cross. The only other place animals are present in this section is higher up the hill, which was identified in ALIVE as a potential location for a crossing.

TT Question: What are next steps with ALIVE? **A:** ALIVE is currently working on field studies and additional ALIVE meetings will be held in the fall.

ACTION: John Muscatell will share bobcat pictures with the TT at the next meeting!

Clear Creek County Open Space noted they are buying a Sawmill parcel (currently shown as owned by Uphill Liability). This property is approximately 132 acres with some land north and south of interstate. This means that CDOT will be working with the County instead of a private land owner in this portion of the corridor.



At I-70 and US 6, the project will maintain the existing WB I-70 exit-ramp and add an EB I-70 on-ramp. US 6 will be extended to the west providing additional access to and from I-70 at the Hidden Valley interchange with Central City Parkway and will connect with CR 314. WB will be placed in tunnel. Greenway trail will be improved from US 6 to VMT.

TT Question: How much higher do you have to raise frontage road? **A:** Because the existing WB/EB ramps are already climbing, you can use the same profile to access the EB on ramp. EB lanes will be elevated above US 6 providing clearance for the higher profiles.

TT Question: Will this maintain both accesses to Two Bears? **A:** There is no earth work to frontage road at Two Bears, so the accesses will be maintained.

It was noted that in the architectural phase of the project, the group should consider making the entrance to the new tunnel look similar to the Veterans Memorial Tunnels.



This image is looking west at the Hidden Valley Interchange. This is the current concept for the frontage road connection between US 6 and Hidden Valley. There is a single lane WB flyover, and the EB frontage road would stay to the south of the highway but to north of creek. The existing greenway trail has proposed improvements. There are rock cuts, providing adequate site distance and safety considerations.

WB and EB curves are flattened to improve travel speeds and safety.

TT Question: If I'm driving on 314 (frontage road), would the road dead end to Greenway Trail? **A:** The existing frontage road will connect to the interchange where it does today. WB access to 314 will be from the I-70 WB exit lane and EB access from 314 will be on the I-70 EB entrance ramp



This image is looking west from just west of the Hidden Valley Interchange. CR 314 is shown on the left.

I-70 will be relocated south of existing roadway (left in the photo above) and the curves will be flattened to improve safety and travel speeds. Relocating I-70 will reduce the amount of rock cut along the northern edge (right in the photo above) of the roadway. To make room for I-70, CR 314 will be moved south and we will move a short portion of Clear Creek approximately 50 feet south as well. This will require some additional rock cuts along the south side of CR 314. One or both of the I-70 bridges over Clear Creek will be replaced. The existing interchange with Hidden Valley would keep the same configuration as today, although the team is looking at potential improvements at the ramp termini for operations.



This image looks west at the current Veterans Memorial Tunnels with 314.

The plan is to realign the creek approximately 50 feet to south. The Greenway would stay in its current location along CR 314 where it has buffer separation. The proposed plan is to extend the Greenway though intersection at Hidden Valley. The photo shows one of the rock cuts along CR 314.

TT Question: How are you going to connect the Greenway? **A:** The Project Team is still looking at connectivity options. It will likely be an at-grade crossing at the frontage road. The current proposal is to have at-grade crossing to connect to Greenway trail. The team will accommodate cyclists and pedestrians.

TT Question: Are we at the point of showing where drainage is? **A:** We aren't to that level of design.

TT Question: Are EB/WB at same elevation? **A:** Ranges from same elevation to 8 ft difference. Where it connects to tunnel we will keep that the same elevation. The team will evaluate opportunities to mitigate headlight glare using different centerline profiles for each direction of I-70.

TT Question: At the big Hidden Valley curve, trucks flip over. Has this been addressed? **A:** The design speed of this section has been increased -- all curves will be re-aligned to meet a 55mph design speed; currently those curves are posted at 45/40 mph. With this realignment, we are increasing design speed and flattening out curves to provide a safer driving environment for trucks.

TT Question: What is stream vegetation going to look like? **A:** Wherever this project impacts vegetation, CDOT will be responsible for revegetation. We have not developed any vegetation plans yet.

The TT recommended considering access for recreational purposes. While it isn't currently a high-value fishing area, anglers should be taken into consideration. This is the location where emergency access for rafters is also being considered.

Traffic Team Report

David Sprague, Atkins, reviewed traffic data to date.

Climbing Lane Analysis

The project will add a new EB I-70 entrance ramp from US 6. The project team evaluated 3 options for merging the ramp traffic onto I-70

Option 1: Use a 2000 ft acceleration lane.

Option 2: Create an auxiliary lane between the EB I-70 entrance ramp and the Homestead / CR 182 Exit.

Option 3: Create a climbing lane that extends over the top of the hill beyond the Homestead / CR 182 Exit and drops before CR 65.

The traffic analysis showed no significant difference in travel time between Options 1 and 2. The travel times between interchanges were 3-4 minutes and up to 8 minutes during peak hours

Option 3 resulted in travel times that were over 30 minutes longer; much longer than the other 2 options. The model showed that having a climbing lane for this long created a bottleneck at the top of the hill. Traffic spread out and used the climbing lane as a general purpose lane resulting in congestion when the lane was dropped. The Traffic Team is working to figure out if there is a way to model this better. It is possible that better driver information and signage might change Option 3.

Next Steps: The traffic team is also collecting peak EB traffic numbers in June. For EB, the numbers in the model were best guesses. Estimated a traffic mix of 15-20% trucks to model worst case conditions.

The TT noted that the climbing lane could be long enough that the widening could impact the wetland. This will be evaluated as the project development process moves forward.

TT Question: Did you use default lane utilization rates? **A:** Yes, just default.

Ultimately, the group noted that traffic depends on what your EB lanes are.

The TT will need the June EB traffic data to make a final recommendation on these Options.

Start of the Third Lane

Today, the 3 WB lanes of I-70 drop to two lanes under Homestead Road / CR 182. The new third lane will begin by simply extending this lane down the hill. All WB lanes will be shifted towards the median to eliminate the need for walls consistent with our concept for the east segment. The WB I-70 entrance ramp from Homestead Road / CR 182, will merge into the new lane.

This was an important element of the model as it showed the benefit of adding the new WB lane. Traffic that currently by-passes the top of Floyd Hill and uses I-40 to US 6, will now stay on I-70. This will reduce the amount of through traffic at both the CR 65 and Homestead Road / CR 182 interchanges.

It was noted that the third lane could be a General Purpose (GP) Lane or Managed Lane (ML). Because a GP would only have one Option, the TT reviewed the Options for MLs. Atkins is looking at both GP and ML models and scenarios.

The TT noted there is congestion in this area because of trucks and cars merging. The TT suggested keeping the trucks in the same lane so they do not have to merge. The proposed solution would extend the third lane that the trucks currently use.

The Project Team noted that the new lane would not be a PPSL, it would be a new full lane and shoulder and the lane would always be open. CDOT will need to determine how the new third lane would tie into / end at the WB PPSL. This will be a future TT discussion.

CR65

The traffic team looked at the peak hour volumes at both the CR 65 and the Homestead Road / CR 182 interchanges. The volumes were based on WB traffic counts taken during January of 2018.

As mentioned above, adding a new third lane WB greatly reduced the amount of traffic using US 40 and traveling through the interchange. The addition of the new EB I-70 entrance ramp from US 6 also contributed to reduced traffic volumes. Once the project is constructed, traffic volumes will be minimal at both interchanges in the split diamond. No improvements will be necessary and the interchange should function under existing configuration.

For example, the number of WB cars at the I-70 / I-40 intersection in the no action is over 800 vehicles. Once the new WB lane is added this volume reduces to 200. Similarly, the number of cars exit WB I-70 at CR 65 drops from 260 to 80.

TT Question: When in January was the data collected? **A:** January 13

Hidden Valley Frontage Road Connection

The traffic team brought back the TT recommendation of adding slip ramps in between US6 and Hidden Valley. With slip ramps, traffic improved. Though the options would work, the team would like to see if there is anything else to improve visual aesthetics of the area and make it more efficient. We are currently reviewing some additional options.

TT Question: Does this fail under existing traffic as well? **A:** Under existing conditions, the volumes are low. If we bring in US6, it gets really high

ACTION: The traffic team to collect June EB numbers and present updated data.

Shared Vision Map and Responsibilities Table

The TT reviewed the Shared Vision Map and Responsibilities table.

ACTION: Clarify “Others” in the Responsibilities table where possible. (For example, CCC, Central City, etc.)

ACTION: Indicate locations on map and on table with numbers to make cross-referencing easier.

ACTION: Update and send a revised Vision Map and Responsibilities Table to the TT.

ACTION: CDOT to make changes to this document and send out a revised version for comments. This living document will be in the Google Drive throughout the project.

Next Steps

Public Meeting at Clear Creek High School, June 12, 2018 – 5 to 7 pm

ACTION: CDR to send flyer to TT.

ACTION: TT to post flyers for public meeting.

Next TT Meeting June 27, 2018

- Wrap Up Conceptual Design
- Intersections Operations Analysis and Review
- Public Meeting Follow Up
- Environmental Analysis Methodologies
- Follow Up on Shared Vision Map and Responsibility Table
- Lane Type

The TT discussed taking a break the month of June or July.

TT Question: When is traffic going to be available? **A:** EB collections in early June, models will be up and running in July.

ACTION: CDOT to look internally at TT Meeting schedule.

Action Items and Agreements

TT AGREEMENT: The Project Team will remove the CSS Process Flowchart and Timeline slides from the beginning of the slideshow, but keep them in the back for reference if needed.

TT AGREEMENT: The TT ratified Option B - Balanced Rock Cut with South Frontage Road Option for the West Section

ACTION: Neil Ogden will discuss water quality with Black Hawk and connect with Lynnette Hailey.

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Attendees

JoAnn Sorenson, (Clear Creek County); John Muscatell (Community Reps from Floyd Hill); Sam Hoover (Central City); Stephen Stohminger (Gilpin County); Holly Hoyck (Clear Creek Watershed Foundation); Mitch Houston (CC School District); Lynette Hailey (I-70 Coalition, City of Black Hawk); Kelly Galardi (FHWA); Steve Cook (DRCOG); Patrick Holinda (Bridge Enterprise); Yelena Onnen (Jefferson County); Neil Ogden, Kevin Brown, Vanessa Henderson, Lauren Boyle, Stacia Sellers, Steve Harleson (CDOT); Anthony Pisano, Carrie Wallis, Tyler Larson, James Parkhill, David Sprague (Atkins); Gina McAfee (HDR Inc.); Kevin Shanks (THK Associates); Taber Ward, Melissa Rary (CDR Associates)

