



Floyd Hill Design - Technical Team

Meeting Summary

June 24, 2022, 9 AM to 12 PM

CDOT Golden Office – Lookout Mountain Conference Room and Virtual (Zoom)

1. Introductions, Meeting Purpose and Project Updates

CDR Associates opened the meeting and welcomed participants. The purpose of the meeting was to:

- Review Central and West Section Major Alignment Recommendations and Emergency Response ITF Input
- Introduce East End of Central Section Innovations

Project Updates:

- **Renaming Innovations:** The Project Team suggested renaming the proposed innovations, particularly the “Braided Bridges.”
 - **DECISION:** Going forward, the Project will refer to the Preferred Alternative as “PA21” (Preferred Alternative 2021) and the proposed new alignment as “RPA22” (Revised Preferred Alternative 2022).
- **CDOT Executive Site Visit:** TT members accompanied the CDOT executive team on a site visit of the Floyd Hill project area and said the site visit was successful, with the executive team enthusiastic about the project.
- **Grant Application:** The Grant Application for the remaining funding of the project was submitted. A response is not expected until around August 2022.
- **Resilience Meeting:** TT members thanked CDOT for setting up a meeting to explore resiliency related issues and opportunities. The meeting explored planning for emergency-only egress points and improving existing egress points for CR 65. The top of Floyd Hill resilience effort is examining ways to address fire access, in particular, given the recent fires in Colorado.
- **SWEEP ITF Update:** A small group convened to begin planning and the first meeting is anticipated for late July/early August. Issues under SWEEP’s purview include enhancement of Clear Creek, issues related to sediment, and other environmental considerations.



2. Review Central and West Section Major Alignment Recommendations and Emergency Response ITF Input

The facilitators reviewed the input provided by the Emergency Response ITF. The Emergency Response ITF identified no fatal flaws in the RPA22 proposed innovations (“Braided Bridges” and “North Option” innovations), confirming the innovations are acceptable to advance in design and further environmental evaluation. The group identified specific issues to be addressed as the design advances. Issues identified by section include:

Central Section

- Importance of access at/near Sawmill Gulch for wildfire response
- Terraced bridges of EB and WB lanes creates lane access challenges (mitigated by widened shoulders)
- Elevated height of roadway south of the creek adds to the fire risk (not a discriminator with PA)
- Greenway and trail system will need to be able accommodate emergency vehicles

West Section

- Request for creek access (may not require ladder access due to decrease in slope)
- Interest in identifying turnaround points
- Adding guardrails

Specific Safety-Related ITF Suggestions Included:

- *Canopy thinning to mitigate fire hazards near viaduct structure*
- *Identifying and adding turnaround areas throughout project area (specifically at base of Floyd Hill)*
- *Request for ladder access on new walls (may not require ladder access due to decrease in slope)*
- *Including access to Hwy 6 from EB rather than going through Hidden Valley*



TT Discussion

Participants of the Emergency Response ITF noted that there was some confusion regarding whether the PA21 (Preferred Alternative) allowed for emergency turnaround access on the viaduct structure. The ITF appeared to be under the impression that there would be turnaround points on the viaduct structure on the Preferred Alternative but not on the RPA22 (“Braided Bridges”) option. This is not the case because in both alignments there is a gap in the viaduct between EB and WB lanes. The TT suggested sending follow-up documentation to Emergency Response ITF members clarifying the misconception, summarizing ITF input, informing them of next steps and future participation in the project, and thanking them for their participation.

- **ACTION:** CDR to send follow-up documentation to Emergency Response ITF

The ITF members said there were lessons learned from Glenwood Canyon and suggested the Floyd Hill project look to that effort to inform future decisions related to emergency response. ITF members also said that Sawmill Gulch is an important location, not just as an access point, but because the Gulch provides a “fire break.” The ITF also discussed the importance of ensuring the greenway trail system and bridges be accessible by emergency response vehicles.

- **TT Question:** Which agencies attended the ITF?
 - **Response:**
 - Clear Creek County EMS
 - Town of Empire Police Department
 - Clear Creek County Fire
 - Evergreen Fire
 - Idaho Springs Police Department
 - Gilpin County Emergency Services
 - Clear Creek County Sheriff
 - FHWA

Maintenance ITF

The Maintenance ITF met earlier in June and the conversation focused on many of the same maintenance issues discussed by the TT, including snow removal and deicing on



the viaduct. CDOT Maintenance advocated for hauling snow off the viaduct as opposed to pushing it off the edge.

CDOT Maintenance voiced concerns that shadows would create ice patches. TT members requested data to better understand how the salinity of the deicing product impacts vegetation. CDOT said they do not have great data on this currently, but it is something they can try to ascertain.

3. Introduce East End of Central Section Innovations / “Hillside Area”

The design team introduced the East of the Central Section Innovations to the TT, referred to as the “Hillside Area.” They began by discussing the Preferred Alternative, at an area known as Johnson’s Gulch, where the Preferred Alternative exits the existing infrastructure and the viaduct/bridge starts (if heading WB).

The design team noted challenges with the existing Preferred Alternative. The hillside to the south of the highway is steep, creating potential construction challenges. Construction of the off ramp to US 6 would be particularly challenging given the location and size of the off ramp. TT members provided context on the size increase from the existing infrastructure to the Preferred Alternative, saying that currently from Two Bears Bar and Grill to the road is 30’, but this distance would be doubled to 60’ in the Preferred Alternative.

- **TT Question:** What is the tallest pillar of the viaduct in the Preferred Alternative?
 - **Design Team Response:** 140’

Preferred Alternative:





Preferred Alternative:



Preferred Alternative:



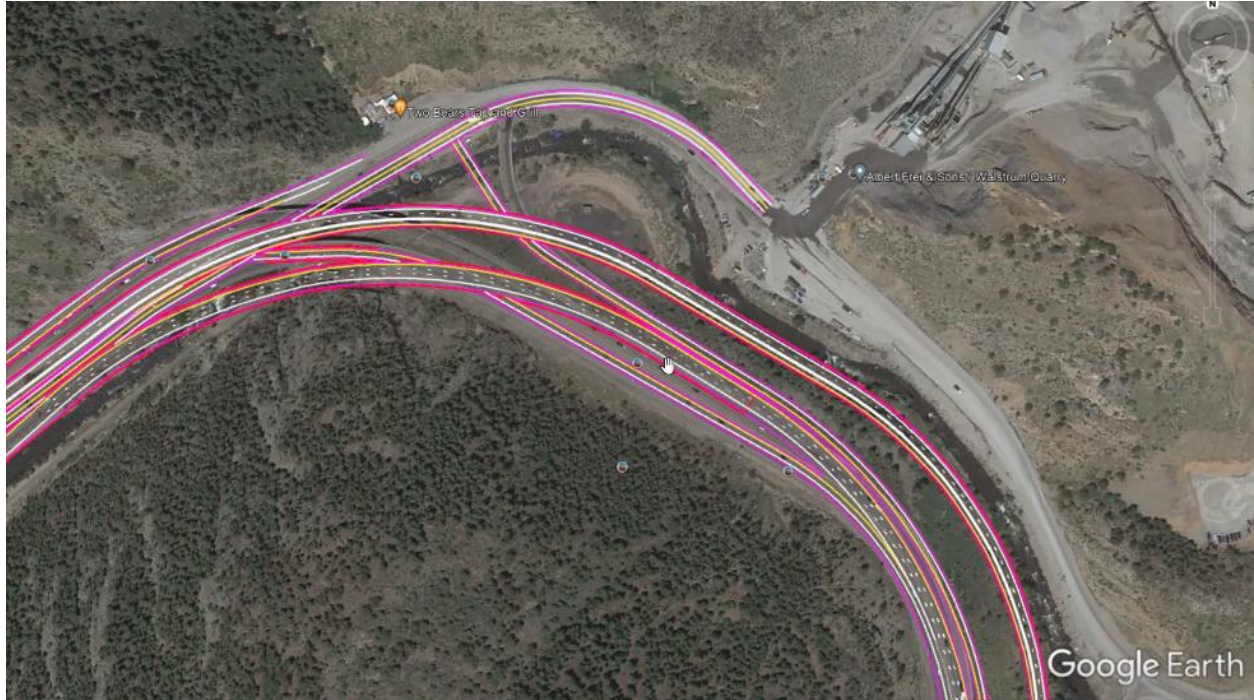
Hillside Innovation Proposal

The design team then moved to discussing the Hillside innovation. The innovation is designed to provide better access at the bottom of the hill for construction. To do this, the innovation shifts the ramp adjacent to I-70 underneath the viaduct and moves the alignment further to the north. In this option the frontage road moves to the south of WB I-70. An EB on ramp is a new feature in the suggested option.

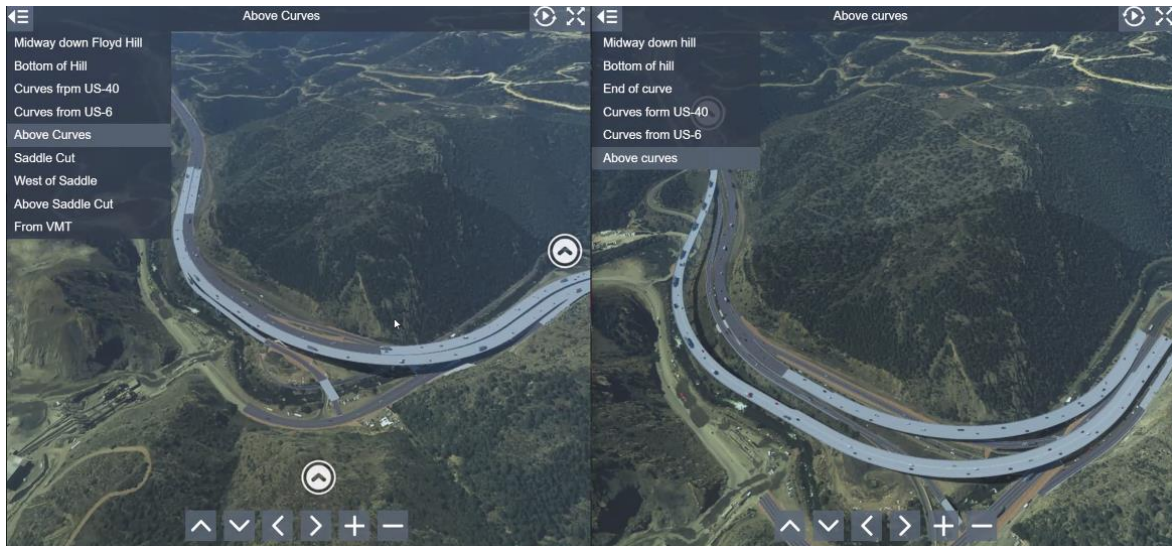


One benefit to the innovation is that it provides an opportunity for revegetation because the location and height of the viaduct would allow for sunlight to reach vegetation areas throughout the day.

Hillside Innovation



Preferred Alternative (left) vs. Innovation (right)



Preferred Alternative (left) vs. Innovation (right)



- **TT Question:** What is the landslide risk for this area?
 - **Design Team Response:** The Project has a team analyzing landslide risk. Moving the columns of the viaduct to the bottom of the hill decreases the risk. It was determined during the 20% Design Phase of the project that the landslide existing in the area is “off limits.”
- **TT Question:** Would there be a difference in noise impacts for residents between the alternatives?
 - **Response:** The innovation may decrease noise impacts due to the highway being further away from residential areas, but a full analysis should be conducted.
- **TT Question:** Are there significant differences in access to the creek between the alternatives?
 - **Response:** There are no significant differences.
- **TT Question:** Has there been traffic flow modeling showing differences between the alternatives?
 - **Response:** There are no significant differences.

Removal of US 6 WB On-Ramp at Hillside Location



The TT reviewed the potential innovation to remove the WB on-ramp at the US 6 interchange, directing WB traffic from US 6 to the HV interchange. He noted this is an exploratory idea that the Project Team wanted to review with the TT prior to further analysis. The benefits of removing the on-ramp is that it would reduce structure, providing more space with benefits to creek and Greenway access, as well as reducing cost. CDOT reminded the TT that FHWA needs to approve the interchange changes and that the traffic analysis must support the decision. These discussions are forthcoming.

- **TT Question:** How will this impact the two quarries (Frei Quarry and Young LLC) that will be operating in the area?
 - **Response:** The quarries will likely use US 6 primarily and it is unlikely many trucks will be entering I-70 WB, but the Project Team can work to ascertain data on this issue. Young Quarry will likely use the Hidden Valley interchange primarily.
 - **ACTION:** Project Team to seek data on how many trucks from area quarries are going east versus west.

TT Comment: Removing the WB on ramp would probably not fix the issue of backed up traffic at US 40/US6. The US 40 and US 6 intersection will still have traffic; moving the on ramp would likely only move the problem. Amy said the innovation is still worth exploring due to the other benefits listed.

TT Comment: Moving the off ramp at Two Bears west would benefit the rafting industry because rafters would have less conflict with truck traffic (staging and boat put out).

- **TT Agreement:** The TT agreed to schedule an ITF to evaluate the Hillside and WB On-Ramp Innovations.

4. Next Steps

The Design Team is developing a broader schedule that can be shared with the TT soon.

ACTION ITEMS

- **ACTION:** CDR to send follow-up documentation to Emergency Response ITF
- **ACTION:** Project Team to seek data on how many trucks from area quarries are going east versus west.

DECISIONS



- **DECISION:** The TT agreed to schedule an ITF to evaluate the Hillside and WB On-Ramp Innovations.
- **DECISION:** Going forward, the Project will refer to the Preferred Alternative as “PA21” and the proposed new alignment as “RPA22” (Revised Preferred Alternative 2022).

8. Attendees

Cindy Neely, Amy Saxton (Clear Creek County); Bill Coffin (Saddleback POA), Lisa Wolff (Floyd Hill POA); Wendy Koch (Town of Empire); Lynnette Hailey (City of Black Hawk); Jessica North (Clear Creek School District); Mike Raber (Clear Creek Bicycle User Group); Margaret Bowes (I-70 Coalition); John Curtis (Idaho Springs); Dale Drake (Clear Creek Rafting); Sam Hoover (Central City); Jonathan Cain (Idaho Springs); James Proctor (Bridge & Tunnel Enterprise); Steve Durian (Jefferson County); Tracy Sakaguchi (CMCA); Gary Frey (Trout Unlimited); Vanessa Halladay, Kurt Kionka, Tyler Brady, Jeff Hampton (CDOT); Anthony Pisano, Matt Aguirre, Alan Carter, (Atkins); Koichiro Shimomura, Brandon Simao, Austin Knapp, Tim Maloney, Matt Hogan (Kraemer); Tammy Hefron (HDR); Mandy Whorton (Peak Consulting Group); Kevin Shanks (THK Associates); Jonathan Bartsch, Daniel Estes, Cara Potter (CDR Associates)



Floyd Hill Design // CMGC

Technical Team

June 24, 2022

- 1. Introductions, Meeting Objectives, Project Updates**
- 2. Review Central and West Section Innovations and Emergency Response ITF Input**
- 3. Introduce Eastern End of Central Section Innovations**
- 4. Project Schedule and Next Steps**



Meeting Agenda

June 24, 2022



Emergency Response ITF Process

- TT made recommendation that the **Braided Bridges (Central Section)** and **North Option (West Section)** advance in design, contingent on ITF input
- The ITF's charge from the TT was to review the recommended options for **fatal flaws** while also identifying **issues and/or areas for improvements** to enhance safety as design advances
- Project Team members presented the recommended options compared to the Preferred Alternative; ITF provided input



Central Section TT Evaluation Factors: Braided Bridges/Over the Top

- Reduces rock cut, least risk to traffic impacts from excavation work; fewer total rock blasts
- Opportunity to create additional trailhead - parking and creek access point
- Best opportunity for creek enhancements, improved habitat and wildlife
- Best fits with geometry of the creek & canyon
- Similar construction duration as PA



West Section TT Evaluation Factors: “North Option”

- Avoids creek relocation, utility relocations, private right-of-way acquisition
- Improved opportunity to provide new trail and creek accesses and Greenway amenities
- Requires less rock excavation on CR 314 and more on I-70 compared to the Preferred Alternative
- Incident management and fire response maintained during construction (no closures of CR 314 required)
- Allows for creek and riparian areas restoration
- Improved sight distance for EB off ramp for HV/Central City Pkwy
- Less expensive than Preferred Alternative



ITF Safety Evaluation Questions

Compared to the Preferred Alternative, how well does the recommended option...

- Accommodate emergency access & egress response for I-70, local residents, and recreationalists?
- Address safety needs of non-vehicular traffic?
- Address safety of the traveling public and the community (Local and Regional)?
- Address safety of the traveling public and trucks?
- Reduce safety conflicts at interchanges?



Central & West Section: ER ITF Input

Central Section

- Importance of access near Sawmill Gulch for wildfire response
- Terraced bridges of EB and WB lanes creates access challenges (mitigated by widened shoulders)
- Elevated height of roadway adds to the fire risk (not a discriminator with PA)
- Greenway and trail system will need to accommodate emergency vehicles

West Section

- Request for creek access (may not require ladder access due to decrease in slope)
- Interest in identifying turnaround points
- Adding guardrails



ER ITF Outcomes

- ITF identified no “fatal flaws” in the Braided Bridges or North Option Innovations; specific issues to be addressed in design process
- ITF provided specific suggestions, including:
 - Canopy thinning to mitigate fire hazards near viaduct structure
 - Identifying and adding turnaround areas throughout project area (specifically at base of Floyd Hill)
 - Request for ladder access on new walls (may not require ladder access due to decrease in slope)
 - Including access to Hwy 6 from EB rather than going through Hidden Valley
- These issues will be addressed in later stages of design



East End of Central Section

- Project Team presents Innovation options
- Schedule ITF: Identify participants and timing



Project Schedule and Next Steps

- Review Project Schedule and Upcoming Milestones
- Next TT Agenda Topics



Thank You!

June 24, 2022