



Floyd Hill Design - Technical Team Meeting Summary

January 13, 2023, 9:00 AM to 12:00 PM

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

1. Introductions, Meeting Purpose and Project Updates

CDR Associates opened the meeting and reviewed the agenda.

The purpose of the meeting was to discuss:

- *Project Updates*
- *Introduce:* Bridge A at Johnson Gulch and Bridge B at US 6
- *Introduce:* I-70 Westbound Alignment Shift Sawmill Gulch to Hidden Valley
- *Introduce:* Hidden Valley Interchange – Intersection Options
- *Next TT Agenda & Next Steps*

The project team indicated that the focus of the meeting was to introduce design refinements for review and discussion.

TT members confirmed the meeting agenda with no changes.

2. Project Updates

- The project team highlighted that the FONSI was officially signed yesterday (1/12/2023). They commended the hard work of the TT to develop the Revised Preferred Alternative and thanked everyone for their time.
- **Early Projects:** The early projects in construction include the Genesee Wildlife Crossing and Homestead Roundabout. The team is expecting completion by March. The Pegasus Parking Lot will soon be underway and will ideally be completed by summer.
 - **TT Question:** Where will the Pegasus Parking Lot be located?
 - **Response:** Exit at Evergreen, on the North side of I-70.
- **TT Comment:** I commend the responsiveness of the project team to concerns about Homestead Roundabout construction.



- A survey for residents in Idaho Springs will be sent out next week regarding the proposed Sound Wall.
- Air Quality Monitors will be set up along the project area:
 - **TT Question:** Where will they be installed?
 - **Response:** One at top of Floyd Hill at Fire Station and another at Wellness Center in Idaho Springs
- A date has been set for the upcoming **Public Meeting: March 7th, 6-8pm, Location: Clear Creek High School.**
 - An email blast and flyers will be sent out to advertise the event
 - **TT Comment:** this will be very important to address raising concerns from local residents about increased traffic on US 40 (heard primarily through Next Door). Until then, it may be helpful to share the construction schedule with these community members. We have heard comments/concerns of disruption of mainline traffic for those who commute, potential schedule of lane closures will be important.
 - **Response:** The project team can speak to those concerns during the public meeting. We won't have specific dates for lane closures yet, but we will have a general idea of when lane closures will occur (i.e., not during peak traffic times, ideally lane closures at night).
- **Upcoming Meetings:** On Feb 10th, the PLT meeting will be held from 8:30-9:30a then the TT meeting will be held from 10:00a-12:00p.

3. Introduce: Bridge A at Johnson Gulch and Bridge B at US 6

The facilitators introduced the design topics for the meeting: Bridge A at Johnson Gulch and Bridge B at US 6; I-70 Westbound Alignment Shift Sawmill Gulch to Hidden Valley; and Intersection Options at the Hidden Valley Interchange.

The meeting followed a similar approach as previous meetings:

- Review Current Design
- Present Concept
- Discuss Rationale
- Potential Benefits and Drawbacks
- TT Input: thoughts, questions, concerns



HDR began walking through the first area, Bridge A at Johnson Gulch:

Bridge A is over 6,000 ft long so it will be discussed in sections. The bridge begins near Johnson Gulch (see below). HDR outlined key challenges of the current alignment: in order to reduce the steep slope of WB off ramp, the current design elongates the off ramp which creates a difficult skew as it crosses beneath WB I-70 bridge.



To address this skew, the design team proposes that, at the first pier location, there are two piers on either side of I-70 WB mainline, rather than one pier in the center (see below). These piers will have a slightly different shape but will be made of the same materials and be the same color as the following piers.

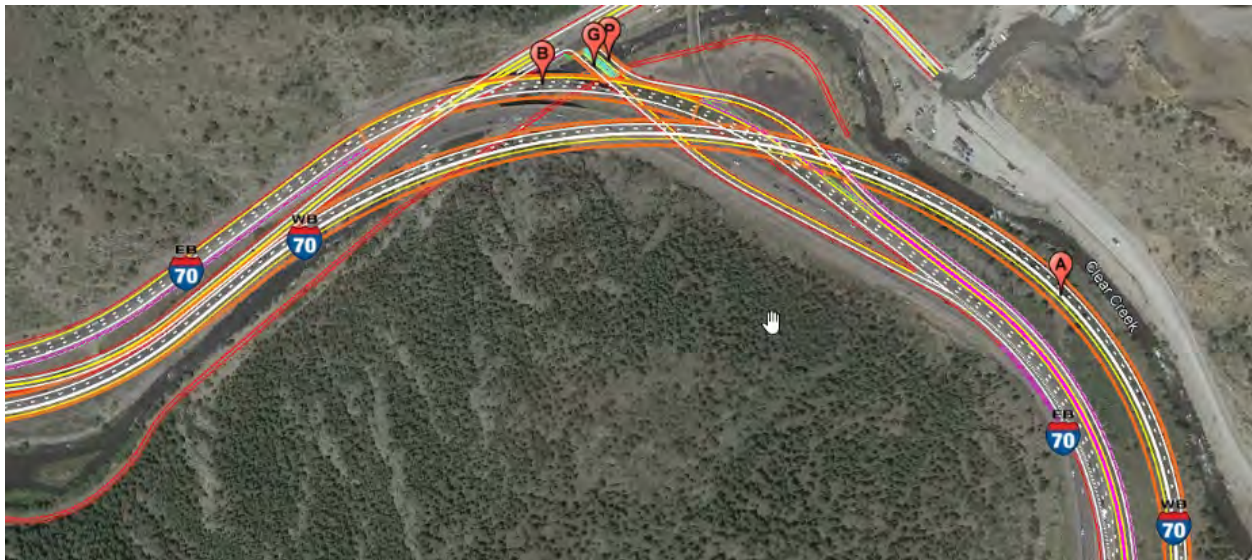


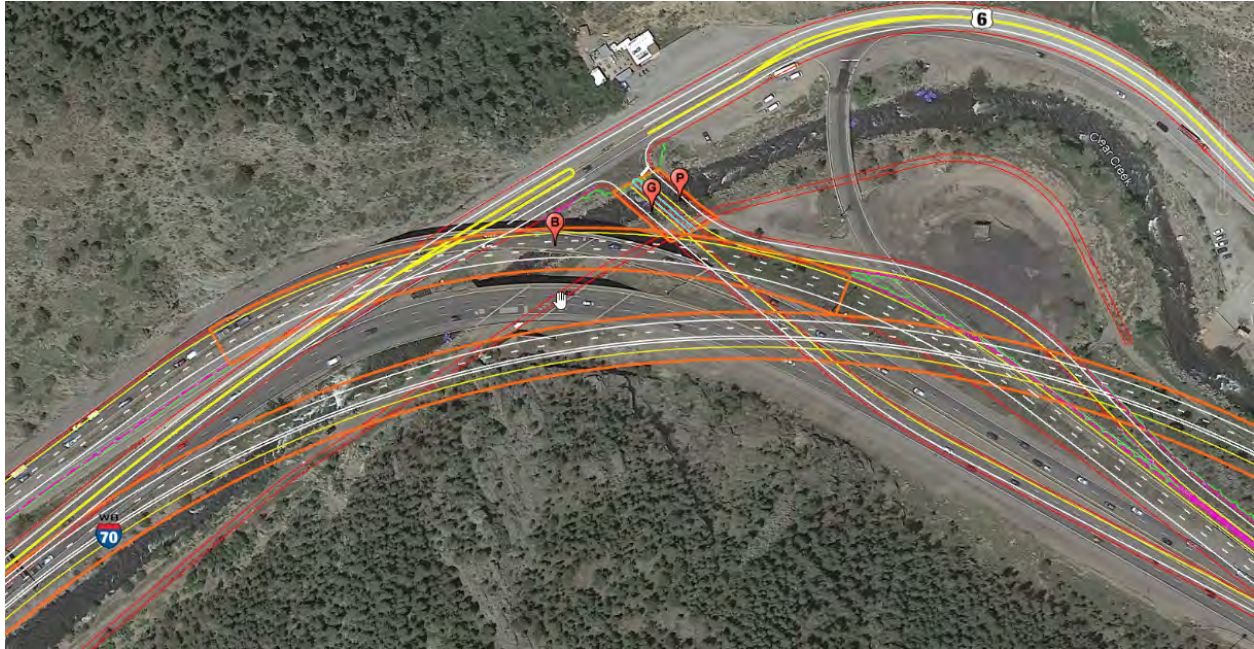
- **TT Question:** What is the plan for snow management on the off ramp, under the bridge? Will this area be icy?
- **Response:** Ideally, the underpass area will be protected from snow accumulation. Additionally, the slope of the roadway will guide snow off the right shoulder so it does not build up against the fixed barrier. Snow from WB mainline above will not be pushed onto the off-ramp. We will discuss snow removal at length when we discuss maintenance as we reach a recommendation.



- **TT Question:** What is the vertical clearance of the off ramp under the WB lane? Will this area remain shaded and accumulate ice?
- **Response:** The design team has been working on these details. So far, we have identified that the off ramp will have at least 16'6" clearance to meet FHWA requirements. We have not yet done a shade study so we cannot speak to where there will be shade.
- **TT Question:** Have you incorporated lighting into this planned area?
- **Response:** We have not yet discussed lighting, but an underpass like this would typically include underpass lighting.
- **TT Question:** What kind of deicing material will be used on the bridge? Will that contribute salinity to runoff?
- **Response:** We understand that ice management is a priority concern on this project so we are planning to bring a maintenance professional to join one of our upcoming TT meetings to discuss this issue in greater depth. Today we want to focus on the structural elements of these options; maintenance factors will be discussed in the future.

HDR then turned the discussion towards the next topic, **Bridge B**. Challenges for this design element include building over US-6, the greenway/creek, and the new on-ramp from US-6 to EB I-70.



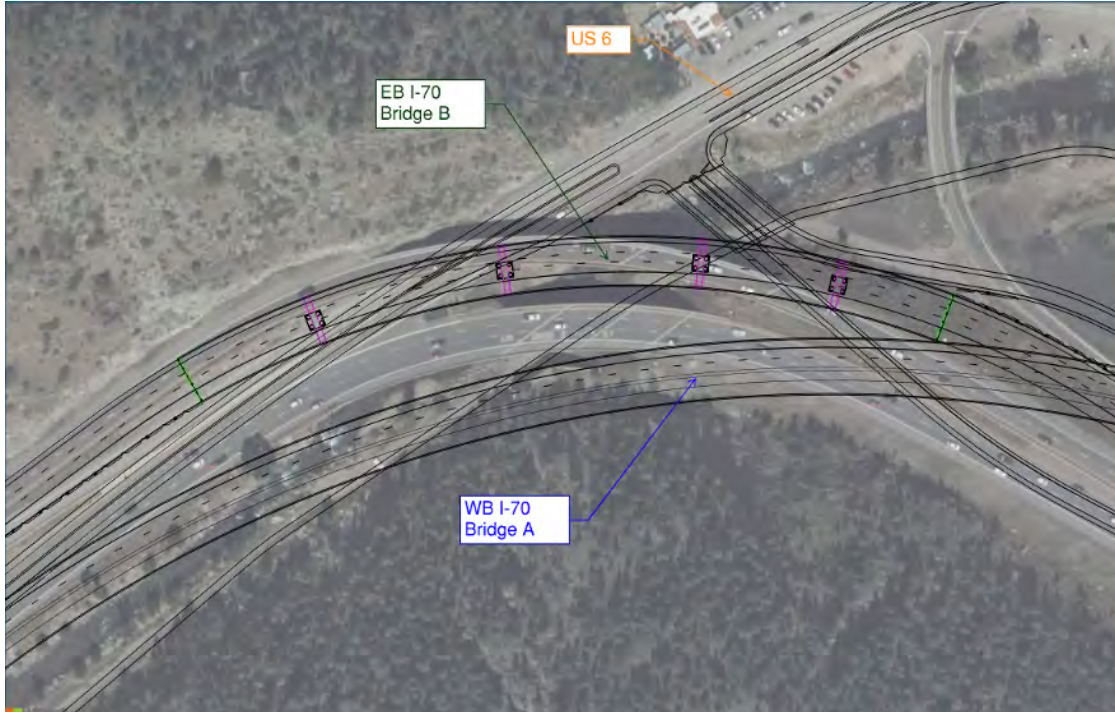


The Design team presented Two Options for Bridge B:

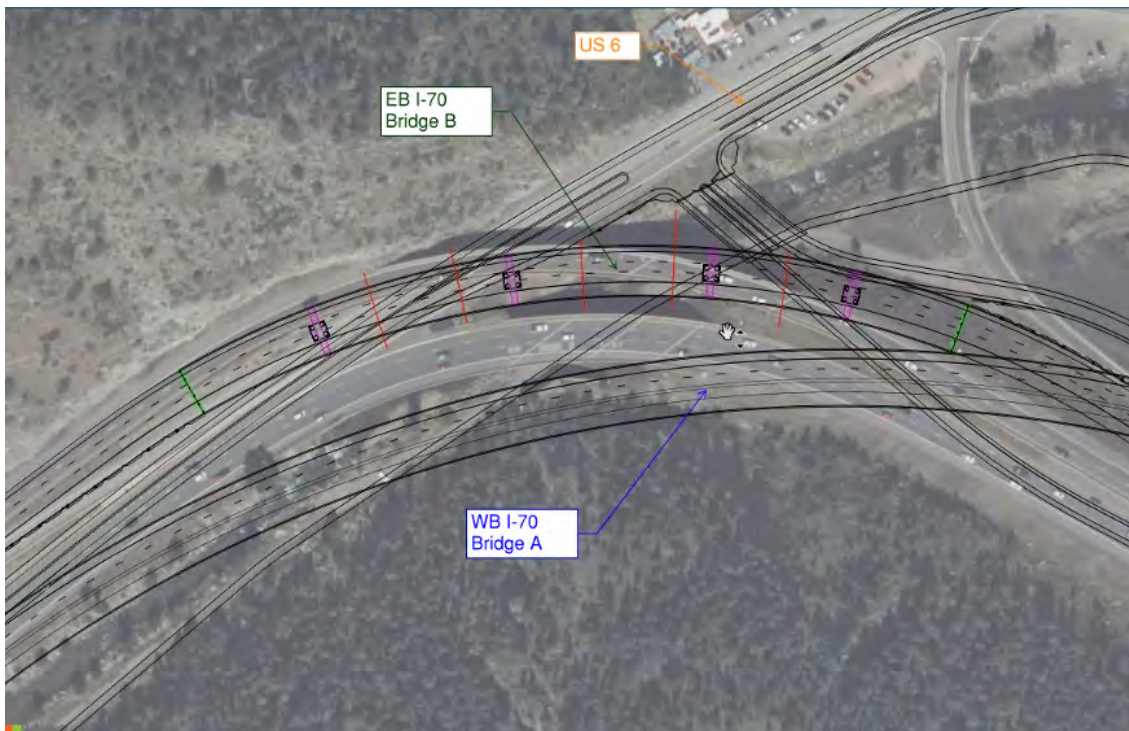
- The first is a 5 span structure, spanning the different obstacles. This is the longer span option. Because of the long spans, the construction team will have to use temporary supports during construction which will have to go over traffic and over the creek (see below).
 - Logistics of the temporary supports make this option slightly more complicated. There would be higher construction risk and longer construction time. The benefits include fewer permanent pier structures, which opens up visual space as well as reduces expansion devices which reduces maintenance over time.
- The second option is a 7 span structure of similar length, which means there are shorter spans. Due to having shorter spans, this option does not necessitate temporary supports. In order to accommodate the skew over US-6, this bridge will need a two column pier similar to the underpass of the WB Off-Ramp. Despite more pier structures, there is not a significant difference in cost and this option reduces construction risk of temporary supports and traffic control.



Bridge B, Option 1:

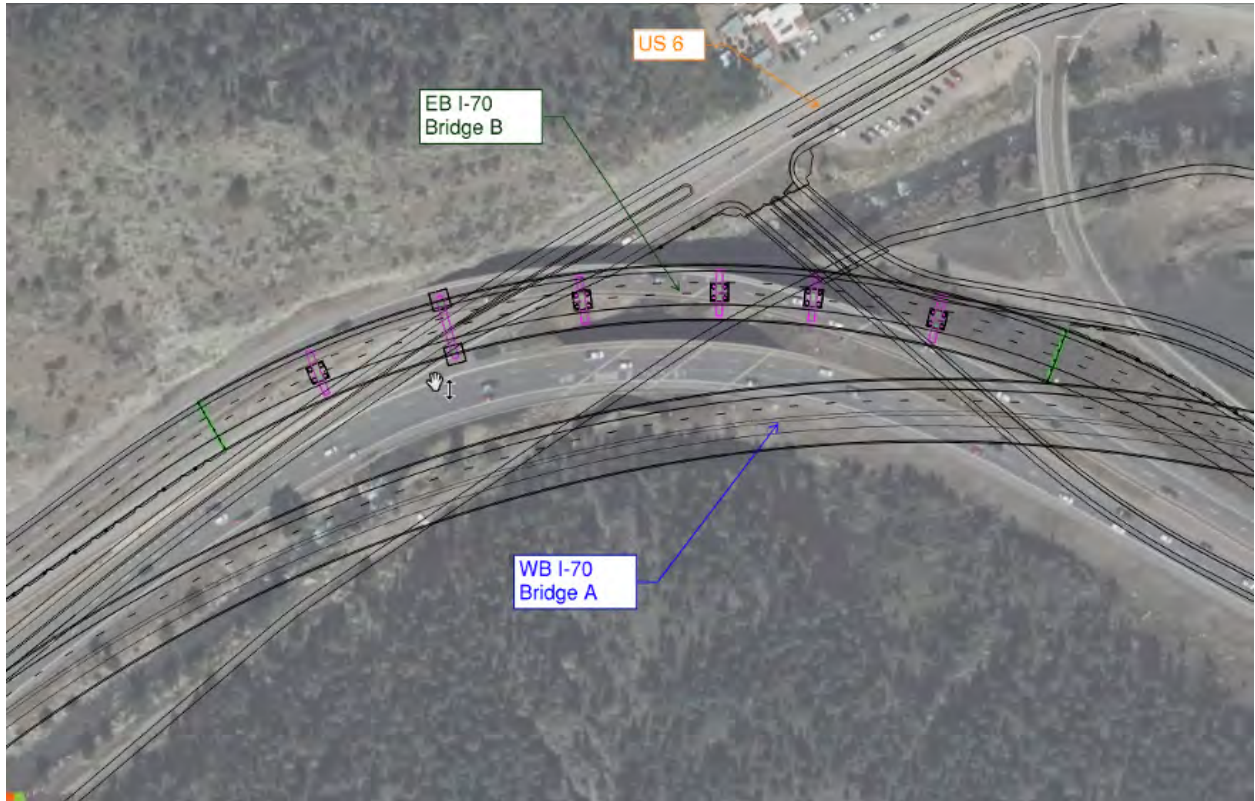


(Above: Purple lines indicate pier locations. Below: Red lines indicate temporary support structures)





Bridge B, Option 2:



Comparison of Option 1 and Option 2 for Bridge B:



For either Bridge B option, US-6 crosses under the bridge structure for ~125 feet.



- **TT Question:** Does either option impact the creek to a greater extent?
- **Response:** Option 2 has shorter spans and will not require temporary supports, which reduces impacts to the creek.

TT Agreements:

- Supportive of Bridge A two pier configuration to accommodate WB Off Ramp.
- Supportive of Bridge B Option 2 for further development by the project team.

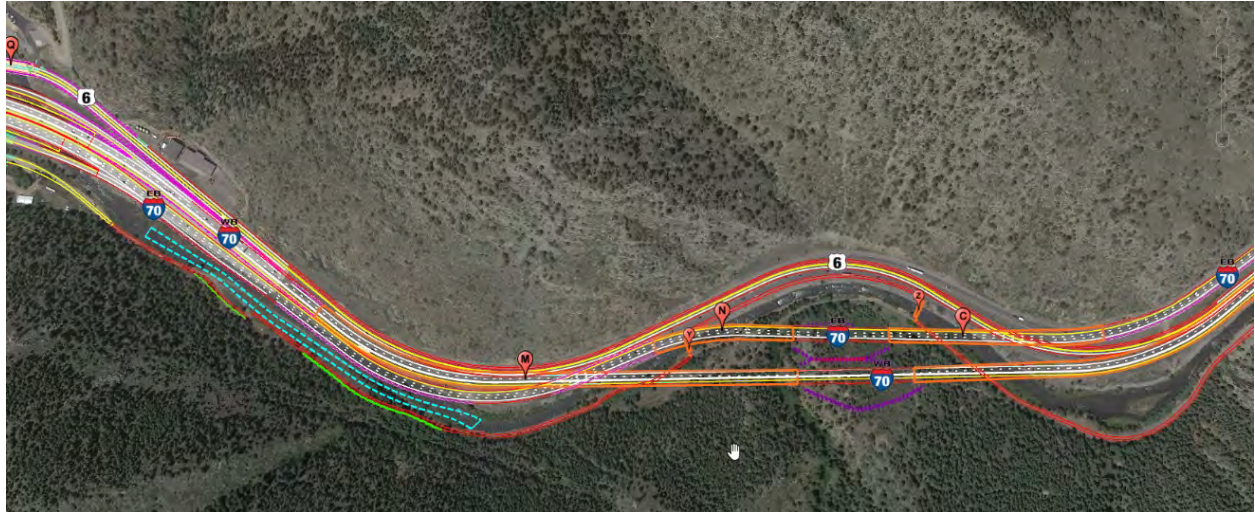
DECISION:

- Design Team to advance Option 2 for Bridge B.
 - Main benefits: less temporary impacts to river and traffic, shorter spans and less construction risk.

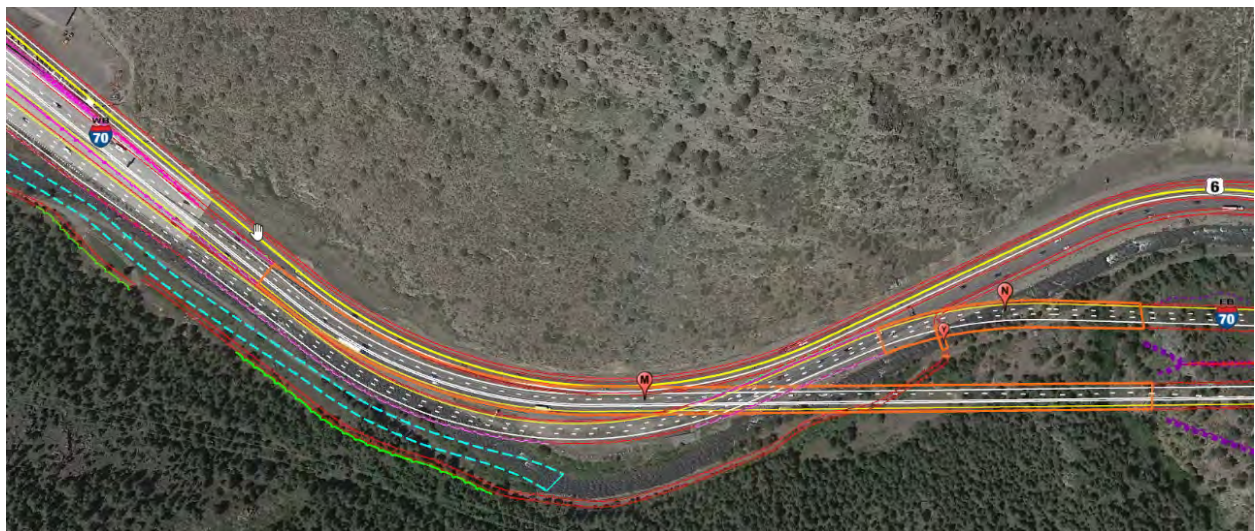


4. I-70 Westbound Alignment Shift Sawmill Gulch to Hidden Valley

The TT discussion of design refinements moved WB to the Saddle Cut area. The design team reviewed several design challenges and recent proposed improvements:



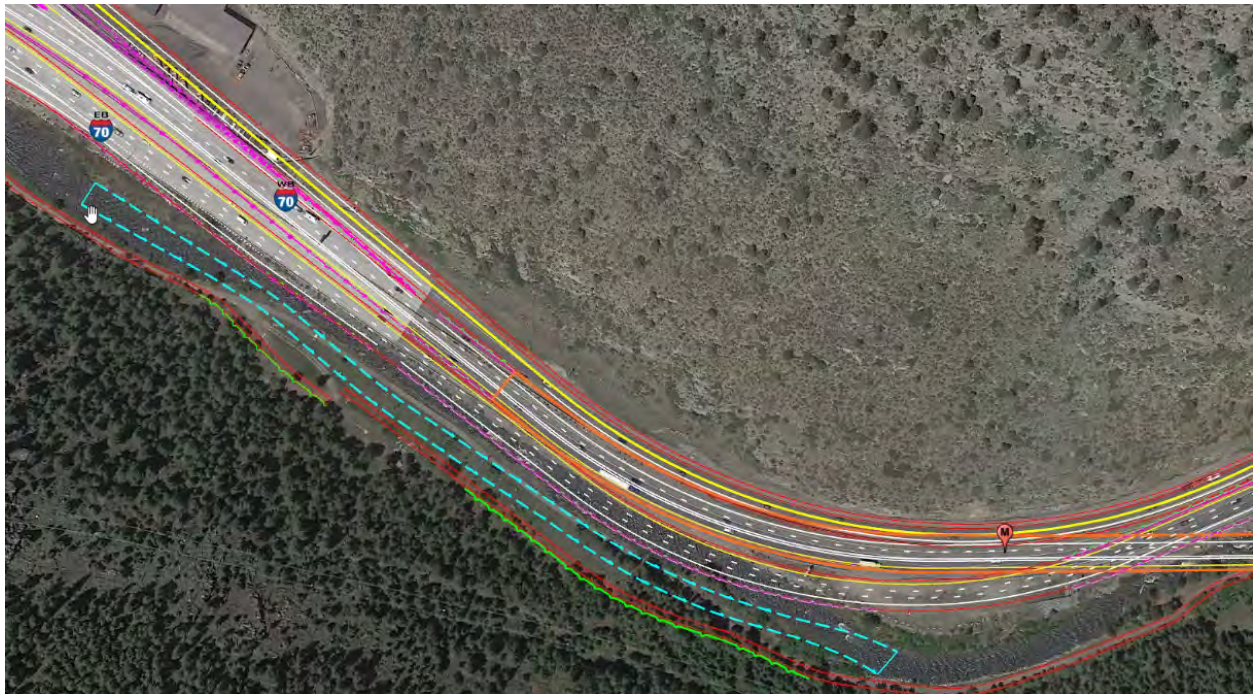
The current design (RPA '22) presents challenges in this narrow section of the canyon. Initially, the design aimed to avoid impacts to the rock face on the north side of the canyon. The design was contingent on this placement of the roadway, resulting in the channelization/relocation of a section of the creek (shown in the surrounding maps as blue-dotted rectangular area).





However, the design team has been fine tuning this area due to noted issues with the creek location:

- On either end of the potential creek relocation area, the project would negatively impact spawning habitat.
- If relocated, due to the tight canyon constraints, there is not sufficient space to maintain rafting and recreation in this area of the creek.
- The relocation of the creek would also require the relocation of utility lines, which adds risk to a tight timeline: there is only a specific window of time to relocate the creek (when the creek is dry in the winter). The coordination and timing of relocating the utilities would have to happen before creek relocation. If any delays occurred with the utilities relocation, that could potentially push creek relocation out until the following year.
- The current relocation design would include a 20 ft wall along the Greenway trail which would greatly impact the user experience.





(Above: A rendering of the retaining wall, necessary if creek is relocated)

The design team then presented a potential alignment revision:

After further examination, moving the roadway north into the canyon would require less rock cut than initially believed because much of this area qualifies as an “over excavation area.” As can be seen below, much of the north side of the canyon would require removal of dirt, vegetation, and rockfall before cutting into the rock face.



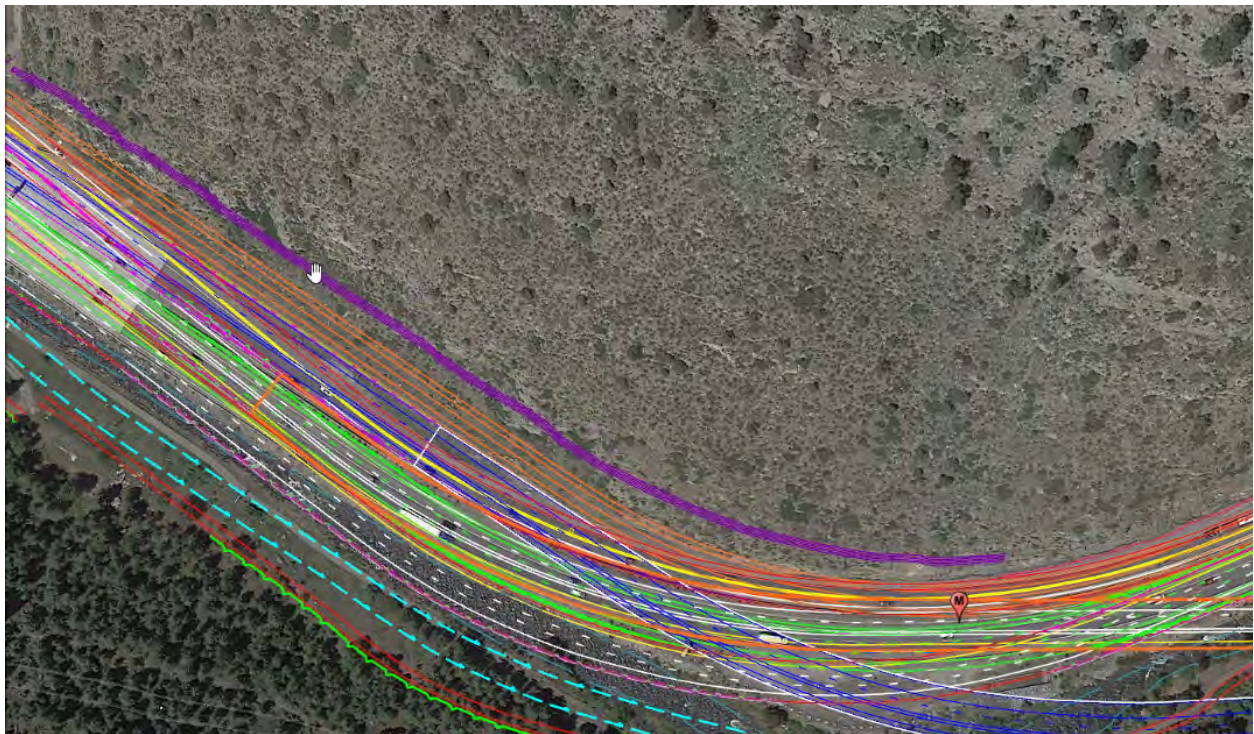


By moving the roadway north, this option would no longer require creek relocation, avoiding all the associated issues discussed above:

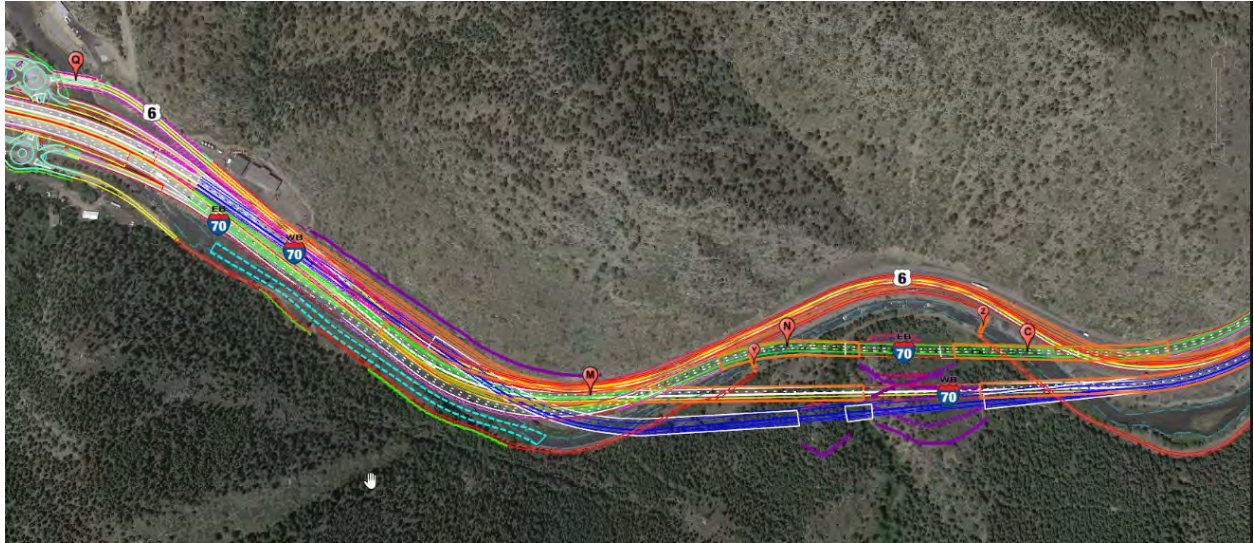
- Less impact to spawning areas
- Less impact to recreation
- Less schedule risk due to coordination with utilities
- No retaining wall required alongside the Greenway Trail
- Less rock cut than the original PA '21 had indicated.

Additionally, the team believes that, with the new design, there is room for certain enhancements of creek and greenway that were not possible with relocation.

Note: there is existing rock cut in this location today, excavation would be moving this further north, but is not a new disturbance to the area. Most of the area will only require excavation of gravel and talus that has fallen over time (see below).



(Above: Proposed area for excavation and rock cut outlined in purple along the N side of the canyon).



(Above: Zoom out of design including proposed excavation and rock cut area in purple.)



(Above: design including creek relocation. Below: design without creek relocation.)



Next Steps for I-70 Westbound Alignment Shift Sawmill Gulch to Hidden Valley:

The design team is hoping to move forward with this pending TT feedback. Are there any fatal flaws? The Design team welcomes feedback over the coming weeks to provide any additional comments if they arise.

TT Question: How does this impact the FONSI?

Response: If the design team moves forward with the realignment, it will require an environmental reevaluation to be incorporated into the FONSI. The team will need to develop the design further for this to occur.

TT Agreement: I-70 Westbound Alignment Shift seems like an improvement and the TT is supportive of the direction.

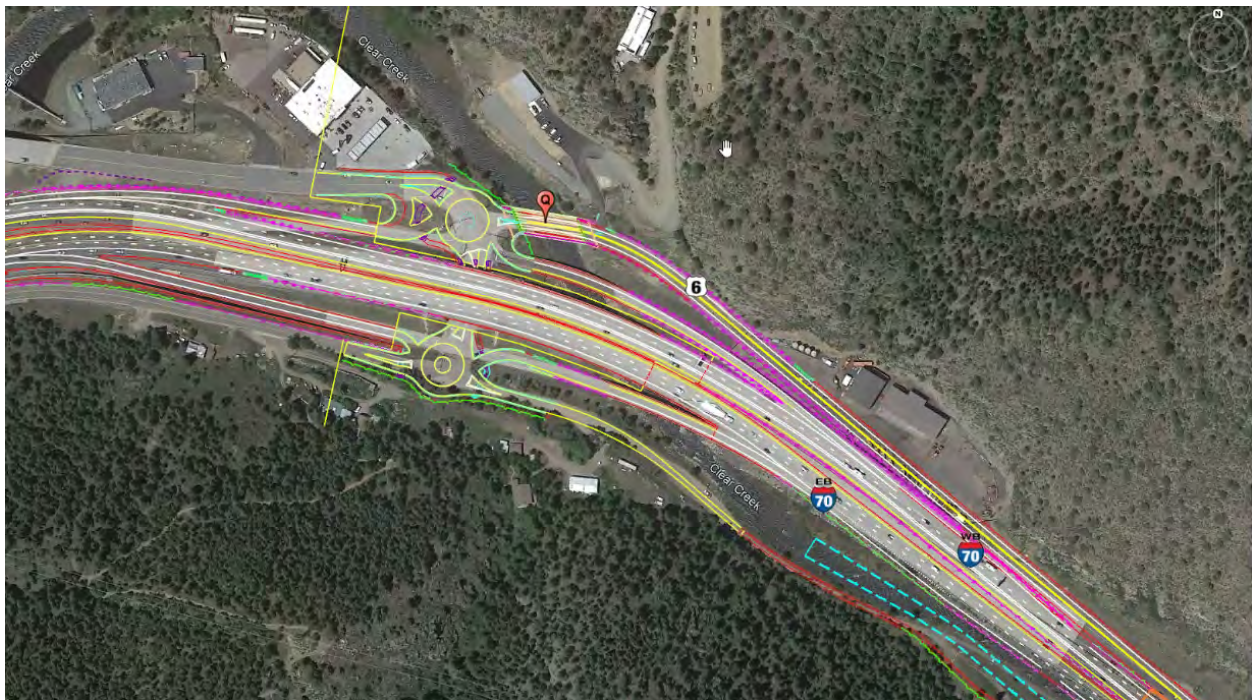
DECISION: The design team will continue to develop the realignment from Sawmill Gulch to Hidden Valley.



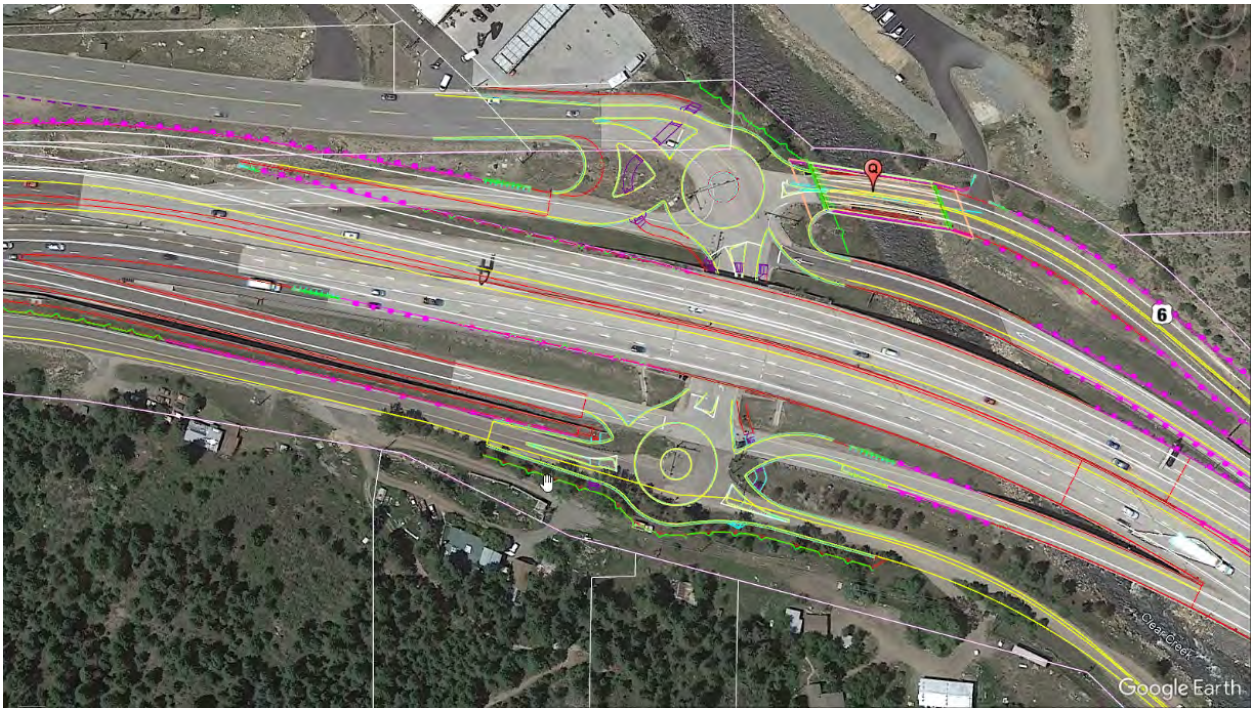
5. Hidden Valley Interchange – Intersection Options

The project team shared new findings from an updated traffic model for the Hidden Valley Interchange. The updated traffic model incorporated the addition of Express Lanes on I-70. This change reduced traffic on US 6 by nearly 50%. This impacted the anticipated wait time at the Hidden Valley Interchange: the wait time between a signal intersection and a roundabout was only about 20 seconds on average.

This finding indicated that a roundabout may not be necessary in this location. There are challenges in building a roundabout at this location. The roundabout construction would require significant amounts of walls and pavement within a 300 ft area, where at least 400 ft is typically desired. This also creates a tight corridor for the Greenway in this area.



(Above: designs incorporating roundabouts. Below: rendering of greenway with retaining wall.)



(Above: closer image of roundabout design. Below: Hidden Valley Interchange without roundabouts, maintaining signal intersections.)



- **TT Question:** Did the model you used project out to anticipate traffic volumes or is it based on current traffic volumes?
- **Response:** The model projected out and was based on 2045 traffic volumes.

- **TT Question:** Does the intersection option incorporate other improvements?
- **Response:** The alternative to constructing roundabouts would be no improvements beyond the existing signalized intersections. There would be improvements to the I-70 mainline, on ramps, and off ramps, as well as an improved bridge Q (as seen in the image above). However, all walls along the roadway and greenway trail would go away indicating fewer impacts to this area.



- **TT Question:** How would signaling work at both intersections with multiple lanes coming in (as seen in the image above)?
- **Response:** The signal can be adjusted to give priority to the higher volume intersection.
- **Comment:** Cyclists will likely go through that red light because signals cued by volume do not pick up on cyclists.
- **Response:** There are technologies we can incorporate to ensure cyclists have a way to cue the light.
- **Comment:** A consideration is consistency along this corridor: there are roundabouts before and after this intersection area. However, I do see the benefits of no constructing roundabouts at this interchange.

The TT identified another benefit of taking the roundabouts out of this area: the design would not encroach on private property right of way, but rather maintain the highway within CDOT right of way. Based on this and the other factors, there was a proposal to move away from the roundabout option towards a signalized intersection in this area.

- **TT Question:** Does this model take into account no WB On ramp at the US 6 Interchange?
- **Response:** Yes.



- **TT Comment:** One additional consideration is how the traffic volumes and use in this area vary from winter to summer. In the winter, most drivers are passing through whereas during the summer, recreationalists will get off and park in this area to access the creek. Could that impact the modeling?
- **Response:** We did not run the model based on seasonal differences, which could be something to look at to ensure there are not any large differences.

ACTION: Design Team to run model based on summer vs. winter traffic.

TT Agreement: Generally in agreement that roundabouts may not be necessary and avoid construction challenges/risk at the Hidden Valley interchange.

6. Next Steps

In summary, the TT gave the project/design team their support to move forward with the:

- Alterations discussed for Bridge A
- Option 2 for Bridge B
- Move forward with the design for the WB alignment shift
- Incorporate new considerations into the modeling for the roundabouts vs. signal intersections at Hidden Valley

The TT will provide any additional feedback on the WB alignment shift and Hidden Valley intersection over the coming weeks. The consultant team thanked all participants for joining and indicated a forthcoming agenda for the next meeting on 1/27/23.

Summary of Action Items, Agreements, & Decisions:

ACTION:

- Design Team to run the Hidden Valley Interchange traffic model based on summer vs. winter traffic volumes.

TT Agreements:

- Supportive of Bridge A two pier configuration to accommodate WB Off Ramp. The only concerns for this area are snow and ice management.
- Supportive of Bridge B Option 2 for further development by the project team.
- The WB Alignment shift from Sawmill Gulch to Hidden Valley does seem like an improvement and the TT is supportive of the direction.
- The Roundabouts may not be necessary and could avoid construction challenges/risk at the Hidden Valley interchange.



DECISIONS:

- Design team to move forward with Bridge A refinements
- Design team to move forward with Option 2 for Bridge B.
 - Main benefits: less temporary impacts to river and traffic, shorter spans and less construction risk.
- The design team will continue to develop the realignment from Sawmill Gulch to Hidden Valley.
- Pending additional considerations for the traffic model, the design team will move forward with removing the Roundabouts from the Hidden Valley Interchange.

6. Attendees

Cindy Neely, Amy Saxton (Clear Creek County); Mike Raber (Clear Creek Bicycle User Group); Dale Drake (Clear Creek Rafting); Sam Hoover (Central City); Margaret Bowes (I-70 Coalition); Brian Dabling, Liz Cramer (FHWA); John Curtis, Jo Ann Sorensen (Upper Clear Creek Watershed Association (SWEEP)); Ashley Giles (Trout Unlimited); Jonathan Cain (Idaho Springs); Lisa Wolff, Bill Coffin (Floyd Hill POA); Paul Winkle (CPW); James Proctor (Bridge Enterprise/AECOM); Tracy Sakaguchi (CMCA); Steve Cook (DRCOG); Kurt Kionka, Jeff Hampton, Tyler Brady, Badr Husini, Margo Mcinnis, Ryan Sullivan (CDOT, CTIO); Anthony Pisano, Matt Aguirre (Atkins); Matt Hogan, Koichiro Shimomura, Tim Maloney, Brandon Simano, Jay D Johnson (Kraemer); Joy Wasendorf (CIG); Mandy Whorton (PEAK Facilitation); Tammy Hefron (HDR); Kevin Shanks (THK Associates); Jonathan Bartsch, Daniel Estes, Cara Potter (CDR Associates)