



## Floyd Hill Design Technical Team

### Meeting Summary

April 7, 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*
- *Discuss/Confirm*: Structure Barrier Types & Greenway Trail Typical Section
- *Introduce*: Construction Impacts to the Greenway & Future TT Topics
- *Next TT Agenda & Next Steps*

TT members confirmed the meeting agenda with no changes.

### 2. Project Updates

- **Early Projects:**
  - Homestead Roundabout project: finishing up utility relocation, starting monday on CR 65 to relocate poles
  - Empire Wildlife Crossing: Planning on mid-july construction start, currently working through fencing details in Design
  - Floyd Hill:
    - 100% plans for the East section. CDOT received a conditional 1041 permit from Clear Creek County, Plan was approved by FHWA. Construction will begin in June.
    - 60% Plan for the West section. Final cost estimate is being developed before CAP with Kraemer.
- **1041 Permit:**
  - Clear Creek County granted conditional 1041 permit for the East section design
  - Established a tracking sheet for each section that reflects the conditions and would like to consider a system to align this sheet with the mitigation tracking



**ACTION:** Schedule a meeting to discuss an integrated system to track conditions and mitigation commitments (ITF).

- **Environmental:**

- Question: What does the mitigation sheet apply to?
  - Answer: East section, first package. There will be a sheet developed for each section.

### 3. Discuss/Confirm: Structure Barrier Types & Greenway Trail Typical Section

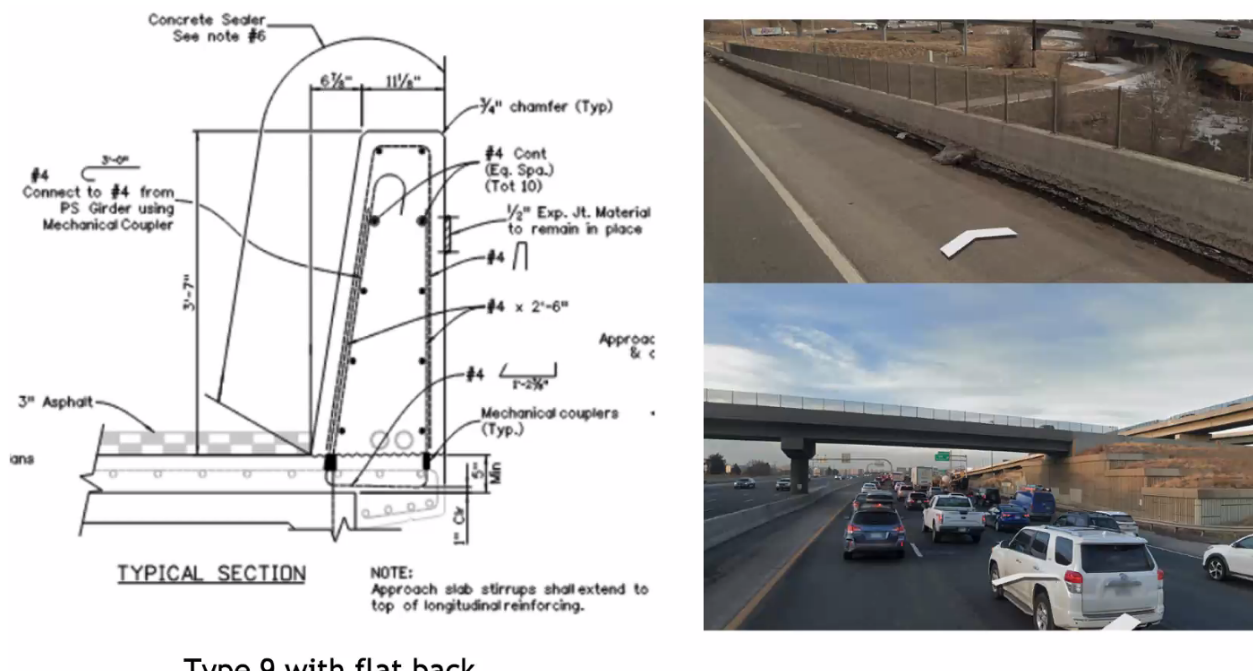
The Project Team provided an overview of structure barrier types throughout the project.

**Structure Barrier Types:**

There are two general types of solid barriers, both of which can accommodate nominal conduit.

**Type 9** (pictured below): crashed-tested, solid concrete, 3 ft 7 in height, can have a flat back, reinforced with rebar

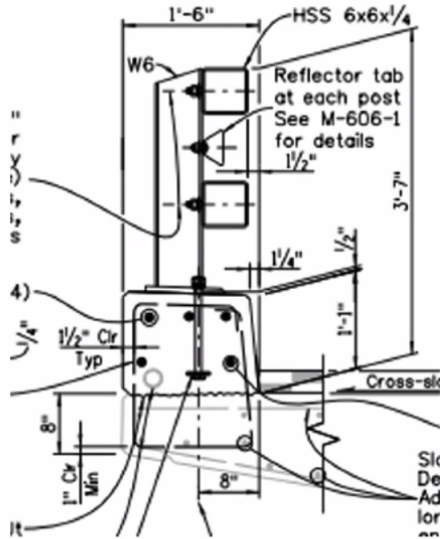
(Figure 1. Diagram and photo example of Type 9 Barrier with flat back)





**Type 10** (pictured below): crash tested, 1 ft tall concrete base with two steel open rails, 3 ft 7 in tall overall

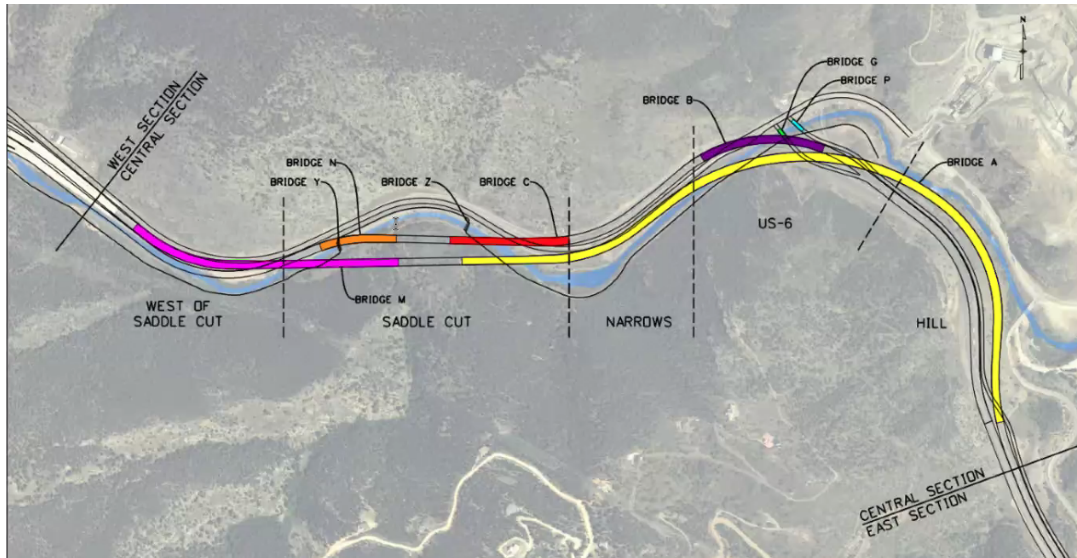
(Figure 2. Diagram and photo example of Type 10 Barrier with flat back)



Standard Type 10MASH

These will be constructed along the edges of **viaducts/bridges**

(Figure 3. Key Map of Bridges along Project Area)





**Discussion**

- **Q:** Are there any potential implications for weight differences between types?
  - **A:** The type 9, solid concrete weighs more, but it does not change the bridge structure type. The widths are the same for both types.
- **Q:** Will these barrier types ensure we won't have an issue like Glenwood Springs?
  - **A:** Those were built in the 1980s, and as cars have gotten larger over time the barrier requirements have changed, too. Glenwood Springs has a unique rail type so it takes more to maintain. Types 9 and 10 are more reliable and common and maintenance is easier.
- **Q:** What is the height difference between barriers in Glenwood and these types? Does that difference provide extra safety in large truck accidents?
  - **A:** Glenwood Springs are shorter under old requirements. The current MASH standard requires a height of 3' 7". The Glenwood plans show a height of 2' 10". A delta of 9" in height. Regarding prevention of trucks going over rails, the requirements are probability-based and FHWA and AASHTO have determined that the added height improves safety significantly.
- **Q:** Is the cost comparable?
  - **A:** Fairly sure.
- **Q:** Wouldn't the solid concrete of type 9 keep a truck from going over better?
  - **A:** Both type 9 and 10 have been crash tested for the same safety loading
- **Q:** What difference does this make to snow removal?
  - **A:** No real impact between options; for either type a snow fence will be placed on the backside wherever there is trail, creek, a cliffside, or a roadway underneath
    - Example of type 10 with snow fence in Vail (pictured below)







## Pros/Cons of Barrier Types

- **Type 9**
  - **PRO:** Type 9 is simpler to repair
  - **CON:** Type 9 rebar requirements are difficult
  - **CON:** Type 9 would keep snowmelt and other buildup on the bridge and in the drainage system
- **Type 10**
  - **PRO:** Type 10 open railing is better aesthetically
  - **PRO:** Type 10 easier to construct than type 9 curve back
  - **CON:** Type 10 steel cost they are coated galvanized steel and painted

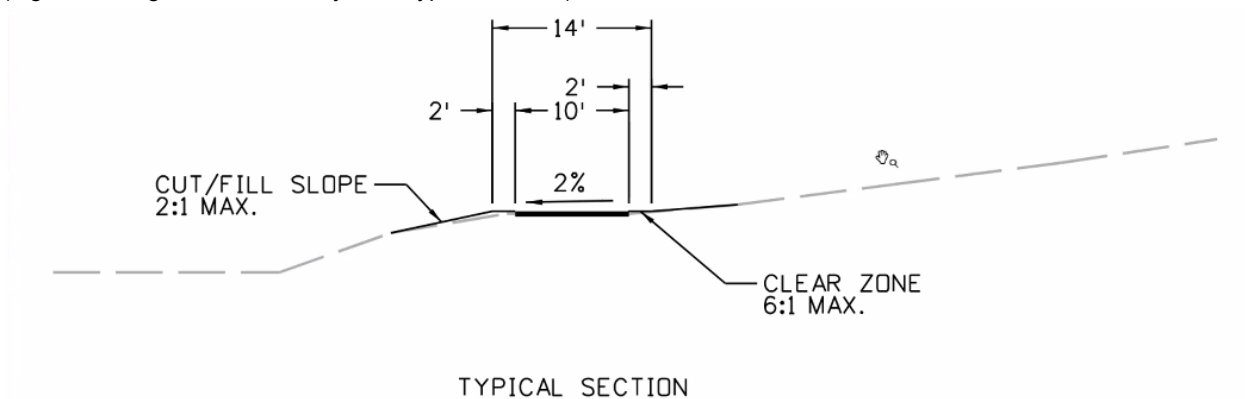
**ACTION:** Tammy Heffron to share historical and modern barrier type drawings to show how they compare

**ACTION:** Tammy Heffron to follow up with Tracy Sagaguchi and Lisa Wolff regarding bridge rails

## Greenway Trail Typical Section:

Typical Trail Width is 14 ft, but where constraints exist, it will be reduced to 10 ft wide. There is an existing constraint for about 700 ft of the greenway between riprap and existing walls. 10 ft will allow for two way bike and pedestrian use, but want to discuss any concerns regarding the reduced trail width.

(Figure 4. Diagram of Greenway Trail Typical Section)



- **Q:** What width is required for ambulance access?
  - **A:** A width of 10 ft should accommodate an ambulance
- **Q:** Will there be snow removal impacts? Can plows fit?
  - **A:** There are no plans to begin plowing the greenway or change from the snow removal plans in place

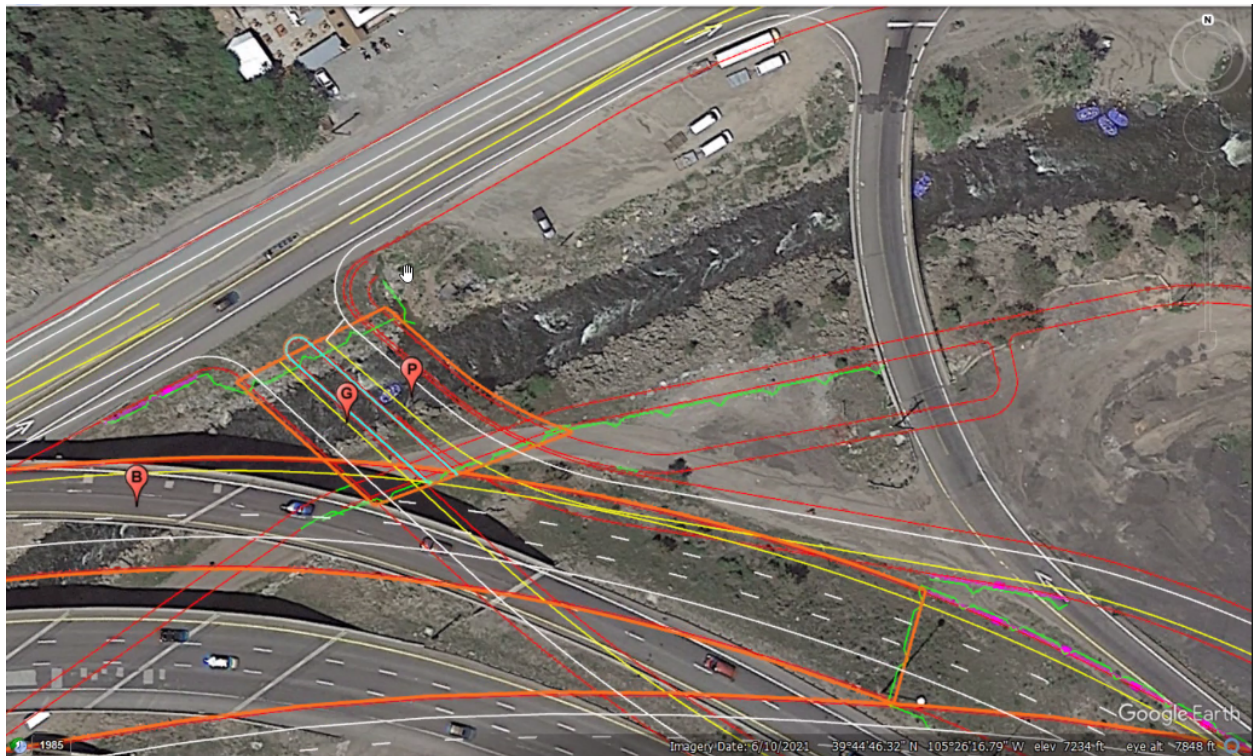
### 3. Introduce: Construction Impacts to the Greenway & Future TT Topics

The Project Team then moved a high-level introduction of construction impacts to the Greenway. Given the size and scope of the project, impacts will occur. The Team's goal for this discussion is to understand TT interests and begin a conversation about strategies and preferences related to Greenway closures and access during construction.

#### Construction Impacts to the Greenway

The greenway will be redirected from the existing off ramp bridge to bridge P (aerial map pictured below)

(Figure 5. Aerial map of Bridge P, area where Greenway Trail will be redirected during construction.)

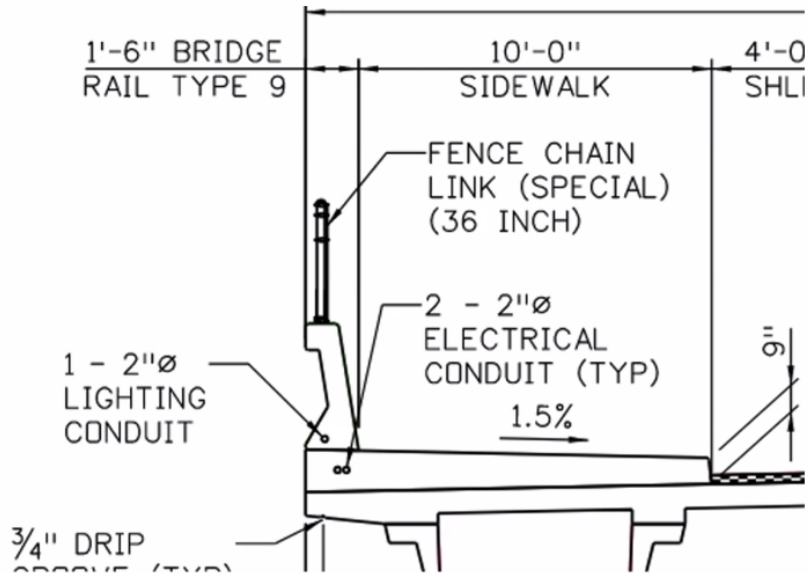


- The existing bridge is proposed to be removed. There was consideration to repurpose it for pedestrians, however when assessing cost and maintenance, it became apparent that pedestrian access on bridge P was less expensive in the short and long term. Additionally the bridge removal will reconnect the parking areas. The details of this are still in design.

- The path will be 10 ft wide with a fence on the outer edge. There will be no barrier between cars and the path, as regulation does not require one where speeds are 45 mph or under.

(Figure 6. Diagram of Bridge P, Proposed Trail Typical Section)

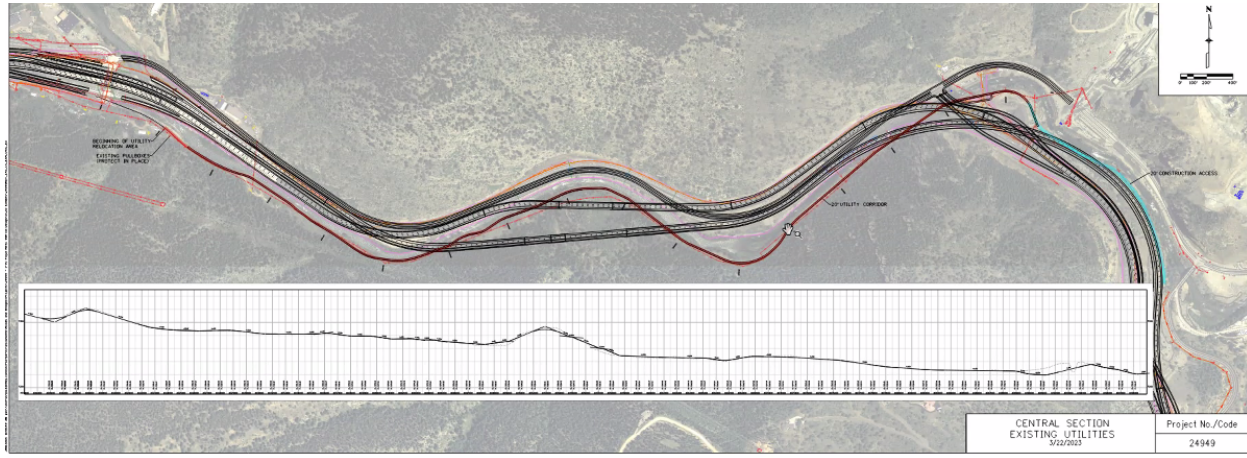
## Bridge P: Proposed Trail Typical Section



### Discussion

- **Q:** Will there be lighting on the bridge? Pedestrians might be fearful of higher speeds and visibility.
  - **A:** Drivers on bridge P will be coming to a stop so their speeds should be slow. We can consider lighting in future phases of design.
- Power and communications utilities that are along the greenway need to be relocated
  - Current design eliminates utility poles and buries utilities generally following the path of the Greenway.
  - Utility changes start at Hidden Valley Interchange and progress through the Saddle Cut to US-6 interchange. Then they will cross to the North side of US-6 and stay along US-6 from that point forward.

(Figure 7. Map of Utilities along Central Section of Project Area)

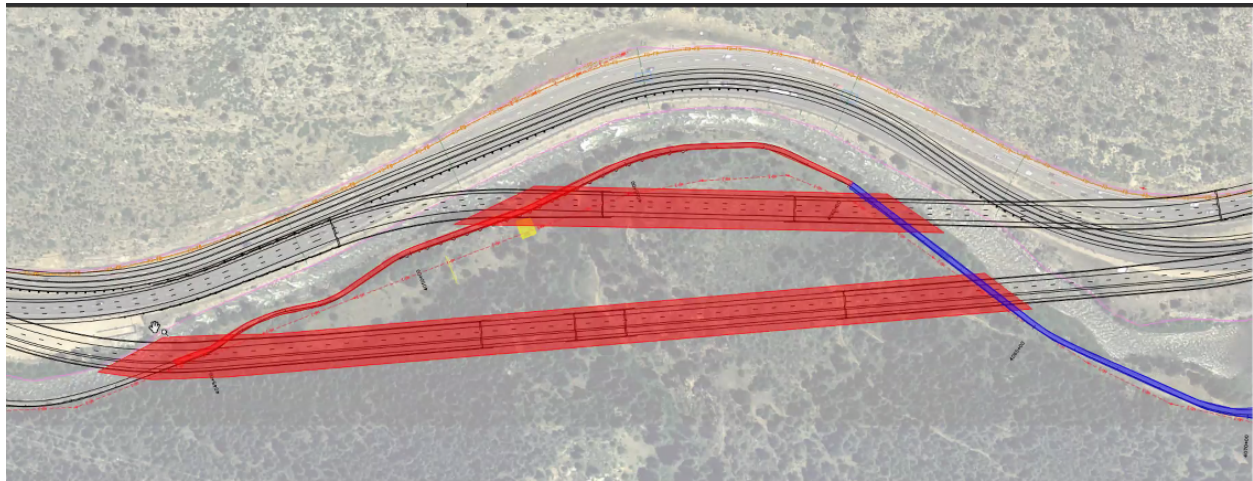


## Discussion

- **Q:** Will increased utility presence impede pedestrians and bike use?
  - **A:** Utility trucks use the greenway for access at present. The conditions of access for utility trucks is not expected to change.
- **Q:** What size of the equipment will be used? How much will you have to dig up?
  - **A:** Full-size excavators and support equipment will take up the current width of the path.
- **Q:** Will you re-pave the greenway to its current condition after utilities are buried?
  - **A:** Yes—the current asphalt condition will be restored before full resurfacing in later years.
- **Q:** Will the trail surface be cut up and re-paved repeatedly by the different utilities?
  - **A:** Haven't determined sequencing but the plan is to place all utilities in the same effort, but not necessarily side by side. However, the project team is unsure of their ability to direct the utilities on timeframe.
- **Q:** Do we need to consider emergency access for rafting?
  - **A:** Good point to bring up.
- Anything in red is a profile change for the greenway, and repaving where it is blue, yellow are historic areas for protection. The project team has more control over these areas.



(Figure 8. Aerial Map of Saddle Cut area, Greenway trail to be redesigned vs. repaved)



**Discussion of reasonable closures**

In the winter there is reduced bike and pedestrian traffic because of shadows and ice, people often use alternative routes along 6th Ave.

In particular, a longer term alternative route across the Hidden Valley interchange would be useful

**TT Agreement:** Greenway closure between November and April is acceptable and for any closures alternative routes, especially in Summer, should be accommodated and well-communicated.

- **Q:** Is asking cyclists to dismount for alternate routes acceptable?
  - **A:** Most of the time yes, but there is concern about cyclists with clip-ins.
- **Q:** Are fishermen a concern to accommodate?
  - **A:** There are a lot of alternative locations for fishermen closeby.

**TT Agreement:** Put together an outreach program to guide recreationalists to reroute, suggest other locations, provide advance information about parking closures.

- **Q:** What is the expectation of the construction timeline for cut-throughs?
  - **A:** Start February 2024
- **Q:** Will that also close the greenway?
  - **A:** We will have impacts–vehicles back and forth on the trail–starting February 2024

**Next Steps:** Another conversation on impacts to the greenway as design on central section advances



## Future TT Topics:

(Figure 9. List of Upcoming TT Topics & Schedule)



## Upcoming TT Topics & Schedule

### Central Section

- Follow up on construction access road
- Saddle Cut Area
  - Visualizations
  - Central Section impacts to the greenway
- Creek regrading for Bridge A near US 6
- Creek mitigation project wide
- Utility Relocations - Summer / Fall
- Follow up on trail - south alignment at saddle cut locations
- Walls & aesthetics
- Traffic sign renderings
- Traffic phasing through Central Section
- Follow up on US 6 interchange - trail connectivity over Bridge P
- Ramp reconfiguration at the east end of Hidden Valley interchange
- North section of Hidden Valley interchange
- Follow up on Central Section bridges aesthetics

### West Section

- Post DOR:
  - Traffic Sign renderings and Lane Closure VMS renderings
  - Traffic and ITS / MEXL related signs
  - Walls
  - Rock Cut
  - Water Quality
  - MOT
  - Barrier types
  - Greenway trail details - handrail, rock walls, narrow areas, any re-alignments
    - i. Interface with CR 314 during its construction

*Check-in: Are there other items the TT wants to discuss over the coming months?*

- Next meeting potential topics:
  - *Overview of West Section 60% Design*
  - *West Section signage*
  - *West Section Greenway trail details*
  - *Additional review of integrating Clear Creek 1041 conditions tracking with environmental tracking*
- 1041 Condition: Reconvene CCC BOCC to discuss transportation management, public communications, and emergency response plans before East section construction

**ACTION:** PLT meeting 19th of May to discuss 1041 condition plans before East section construction and following CAP meeting with Kraemer.

**TT Agreement:** Jeffco and Clear Creek are applying for the GOCO centennial grant and will need information regarding trail concepts and funding.



## 5. Next Steps

The consultant team thanked all participants for joining and indicated forthcoming information regarding Action Items and Agreements.

### **Summary of Action Items, Agreements, & Decisions:**

**TT Agreement:** Greenway closure between November and April is acceptable and for any closures alternative routes, especially in Summer, should be accommodated and well-communicated

**TT Agreement:** Put together an outreach program to guide recreationalists to reroute, suggest other locations, advanced information about parking closures

**TT Agreement:** Jeffco and Clear Creek are applying for the GOCO centennial grant and will need information regarding trail concepts and funding.

**ACTION:** Schedule a meeting to discuss an integrated system to track conditions and mitigation commitments (ITF) [Include: Cindy, Amy, Francesca, who else?]

**ACTION:** Tammy Heffron to follow up with Tracy Sagaguchi and Lisa Wolff regarding bridge rails

**ACTION:** Tammy to share historical and modern barrier type drawings to show how they compare

**ACTION:** PLT meeting 19th of May, following CAP meeting with Kraemer May 5th

## 6. Attendees

Cindy Neely, Amy Saxton (Clear Creek County); Bill Coffin (Saddleback POA); Jessica North (Clear Creek County School District); Mike Vanatta (Jefferson County); Mike Raber (Clear Creek Bicycle User Group); Margaret Bowes (I-70 Coalition); Liz Cramer (FHWA); Gary Frey (Trout Unlimited); Jonathan Cain (Idaho Springs); Lisa Wolff (Floyd)



**COLORADO**

**Department of Transportation**

Region 1

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425 A Corporate Circle  
Golden, CO 80401

Hill POA); James Proctor (Bridge Enterprise/AECOM); Tracy Sakaguchi (CMCA); Larry Quirk (Rocksol); Kurt Kionka, Tyler Brady, Ryan Sullivan, John Gregory, Francesca Tordonato, Joy Wasendorf (CDOT, CTIO); Matt Aguirre (Atkins); Koichiro Shimomura, (Kraemer); Tammy Heffron (HDR); Kevin Shanks (THK Associates); Daniel Estes, Laura Hickey (CDR Associates).