



MEETING NOTES

PROJECT:	23982-23929 I-70 West Vail Pass Safety and Operations Improvements
PURPOSE:	Technical Team (TT) Meeting #16
DATE HELD:	June 21, 2021
LOCATION:	Online Google Meet Meeting
ATTENDING:	John Kronholm, Project Manager, CDOT Region 3 Karen Berdoulay, Resident Engineer, CDOT Region 3 Matt Figgs, CDOT Region 3 Patrick Chavez, CDOT, I-70 Corridor Operations Mark Bunnell, CDOT Region 3 Traffic James Proctor, CDOT Bridge Enterprise Stephanie Gibson, FHWA Jeff Bellen, FHWA Ben Wilson, USACE Kristin Salamack, CDOT/USFWS Liaison Captain Jared Rapp, Colorado State Patrol Greg Hall, Town of Vail Chad Salli, Town of Vail Pete Wadden, Town of Vail Dick Cleveland, Town of Vail Kevin Sharkey, ECO Trails Robert Jacobs, Summit County Len Wright, PhD, ERWSD Larissa Read, ERWSD Siri Roman, ERWSD Shannon Anderson, Bicycle Colorado Mark Gutknecht, Kiewit Randal Lapsley, R S & H Jeb Sloan, R S & H Mary Jo Vobejda, Jacobs Loretta LaRiviere, Jacobs
COPIES:	Attendees

SUMMARY OF DISCUSSION:

1. Introductions & Meeting Purpose

- a. Karen introduced the attendees at today's meeting.
- b. Mary Jo reviewed the purpose for today's meeting was to review the completed work, work in progress and next steps.

2. Review of Work Completed Since the Last Technical Team (TT) Meeting

- a. An ALIVE site visit confirmed the wildlife crossing locations have been agreed upon as well as the general design. There are some tweaks being done to the grading and landscaping around the crossings. The memo about the approach used and conclusions and will be reviewed at the next ALIVE ITF meeting.
- b. The SWEEP ITF Meeting #4 held on May 24th discussed the following topics:



- Reviewed updated SCAP & Maintenance Manual outline which has changed the order of some of the topics
 - Reviewed Maintenance Questionnaire responses
 - Coordination with the recreational trail alignment, wildlife crossings and sediment control basins
 - Proposed two new Treatment Control Measures: coir logs and polishing wetlands. The type of measures used may be determined by the topography.
 - The ITF agreed there should be a site visit in September and then another next year for final design
 - The draft SCAP map book will be distributed for review in the fall
- c. The Aesthetic Guidelines are under review. The next 106/Aesthetics meeting will focus on the Aesthetic Guidelines sections. There will most likely be another meeting to respond to comments.

3. Westbound Bridge at 185.3

- a. Karen said as part of the INFRA grant we were planning to start the third eastbound lane around MM 185 which is about halfway up the pass. The third lane was going to start with the uppermost eastbound bridge at 185.3. We discussed this structure with you a few months ago. We talked a lot about how close to the creek the EA alignment was and heard your comments that this was not ideal. We found there were opportunities for an innovate alternative.
- b. The alternative is to build the sister bridge is F-12-AT, the westbound structure first which allows the eastbound structure to be built offline to the north. Both bridges were built when I-70 was built so they are getting older and are structurally deficient. We have noticed a lot of fatigue cracking in the steel in the girders.

The westbound bridge would be built in the EA proposed alignment. We have always planned on relocating potentially off alignment to fix some of the roadway geometry in this area.

Matt reviewed the three options presented to you a few months ago:

Option 1: Match the existing west abutment. What this would require is a big portion of the new bridge would have to be built on top of the existing bridge alignment. To do that you would have to widen the westbound bridge by 19' to be able to move traffic over there which would only allow for two 11' lanes and 2' shoulders in each direction. Next we would demo the existing eastbound bridge and build the new bridge in place. Since this option required narrow lanes and shoulders to be left over a winter this option was ruled out.

We asked ourselves what would it take to have a full width roadway platform during construction to be able to accommodate traffic in a safer winter condition. That would be 12' lanes and a 6' outside shoulder which would increase the widening to about 39'. The conclusion was it is very expensive to temporarily widen a structurally deficient bridge.

Option 2: The refined offline single-phase option which we originally presented to you as the team's preferred option. As we started to further evaluate this option we discovered there were design and constructability challenges. The existing wall is 30' high and leads to the west of the abutment of the existing bridge. The new



retaining walls for the proposed bridge would be offset 10'-15' in front of the existing wall. We concluded this had a lot of risk and challenges with the structural integrity of the existing wall. We want to make sure the walls would last through the life span of the new bridge which would be designed for a 100-year design life. We have to look at the structural integrity of that wall as well as design this intricate interaction between a new wall in front of it and the existing wall behind it.

Option 3: The two-phase bridge was considered which was a hybrid between Option 1 & 2. The bridge would be built mostly offline to correct the roadway geometry. We would build two lanes of the new bridge and move traffic to the new bridge and come back and rebuild the old bridge. We had ruled this option out initially because it led to a lot of non-standard bracing as well as challenges with setting a third girder when two girders are already set and loaded. on a curve with the superelevation, you have to set that third girder to deflect and hit the existing deck grades and then there would be closure pours. It's not impossible but it becomes very complicated

Option 4: Build westbound bridge first. This idea was defined in the Major Project Value Engineering Workshop. We can correct the geometry and replace it to the north of the existing alignment and then build eastbound in the place of the existing westbound bridge. This option reduces the eastbound bridge length from about 1200' to about 750'. The existing wall can stay in place and we have very minimal sections of wall that would need to be built.

Both of these #2 & #4 meet our eastbound design speed and roadway geometry but if we build westbound first we have an opportunity to correct the westbound geometry now. This new option is the least complex design and construction.

As Karen mentioned earlier, we take the distance of the eastbound structure to Black Gore Creek from 18' to 167' minimum. This is a huge improvement because the sand and mag chloride that would be cast off of the bridge would be further away from the creek and we felt that was a great benefit to looking at this potential option.

There are cost and maintenance benefits. The new eastbound alignment would be about 750' compared to 1200'. The retaining wall we would have to maintain drops from 57,767 sf to 40,500 sf. With Option #4 is we don't have to shore the existing wall. The cost to construct the westbound bridge is a marginal increase.

The benefit of replacing that bridge now versus the future is that this bridge was already covered in the EA so there isn't additional environmental work to do. In the long term it saves CDOT money so there is an add to the project now construction cost wise but because we can shorten the eastbound bridge and reduce the amount of walls , it saves at least \$8M in the long term program of this project. It's a smaller environmental footprint because of the smaller bridge and there is significantly less maintenance and life cycle costs.

Karen said we definitely heard your concerns with the creek being so close to the structure and that was a driver for finding another option. We are still going through the final approvals to see if there is support to add funds for design and construction of the westbound bridge, F-12-AT. The design team is working on it already to meet the same design and construction schedule.



1. Mary Jo asked if there will be any changes to the construction phasing for Option #4.

Matt said no, it is still anticipated we still start construction on the westbound bridge in summer 2022 and are planning on having both bridges completed by the end of 2024.

2. Greg said you guys did a great job on being innovative and trying to really think outside the box. Will the bike path need to be relocated sooner than you thought?

Matt said the section of trail that is on US 6 will need to be relocated and we do have that part as part of the scope for this replacement. There is a cut wall that the EA evaluated in that location so we would plan on doing that when relocating this small section of trail. We are just barely getting into the design to see what that would look like – how big the wall is, how much to we have to do for this versus future alignments of the roadway. We aren't going to build the entire thing because that wall is a lot bigger when the ultimate alignment of I-70 comes through but we're going to make sure we set ourselves up for success in the future.

3. Greg said the retaining wall that was in place that you tried to get away from, is there an opportunity over time to remove that wall or do you need some of the retainage down there to make the slope more natural as you finish eastbound.

Karen said we were a little worried because that wall is so large, it's about 30' tall. We're not sure if we can catch slope from the new road down to the creek. We think it makes sense to leave that wall and optimize use of the roadway platform for things like sediment control. Some could stay impervious some could go to sediment control features. We're still working on it and since it's already there we might want to optimize at least some of it. I don't want to create a steep slope there that ends up causing erosion issues right next to the creek. Like Matt said earlier, they did a bunch of wall repair work in recent years and evaluated the walls and this one is actually in decent shape.

4. Larissa commented that Option #4 is a big improvement in distance from the creek. Thanks, CDOT team!

Karen said the designers worked hard to get this this one to come together with the added benefits to save money and fix two bridges at once that are deficient. There are also less environmental impacts.

5. Dick said you did a great job moving the bridge away from the creek. I think that's a huge win for everybody.

Karen thanked Dick for his feedback the last time we presented this. It's always helpful to hear your comments. The comments do stick with us and if we don't always respond in the meeting, we still hear you and we continue to evaluate whether there are opportunities to address your comments. Sometimes we can do something, but not always. This was one of those where we could do something so it's pretty exciting.

6. Mary Jo confirmed Option #4 isn't an option anymore. This is the design that has been chosen.
4. Karen said we are starting construction on Package #1 in August so there will be construction on the pass from August until about November. Just a reminder this summer we are building the lower truck ramp at 182.5 and we are starting some work towards the top of the pass for the closure system but that will be finished up early next year.

5. Recreation Trail Update

- a. Karen said she knows there's been a desire for an update on the recreation trail alignment. We keep looking for opportunities to bring more information, but the interesting thing is that we keep looking at refinements to the alignment and we keep ending up with the same alignment which is a good thing. Where our EA alignment actually seems to minimize the wetland impacts pretty well. It seems to balance many things and I attribute that to taking the design a little further during the EA.

We are still refining the roadway alignment, where we are going to put cut walls and fill walls. There is a lot of earthwork involved in the recreation path and we looked to see if there was a way to balance the earthwork, but that led to more walls. The designers are trying to fine tune the bridge locations and shorten the length as much as possible.

Randal said they are looking for wall types that fit in best with the topography to minimize impacts and whether they will be cut walls or fill walls, walls above or below the trail and how those can be optimized so we minimize both the size and length of the wall and disturbances. We're also looking at alternatives with regard to structure types and how to best cross the creeks whether it is a steel arch truss bridge like we had before or some cast concrete.

1. Shannon said whenever you're next to a wall on your bike it feels much narrower than it really is, and it can really throw people off and it's the same as going over a bridge. If it is possible to make it so you can see through things as much as possible or widen it in those areas it would feel much safer. It's a psychological risk when you're heading into someone coming straight down the trail, especially with the number of people using the trail now

Karen said she thinks the bridges are pretty wide. We are trying to handle some pretty big vehicles for emergency service access.

Randal said they're looking 12' wide bridges so it would be like driving in a normal lane and we're also looking at a number of different areas where there are walls having what is called a shy distance which is having an area between the edge of the path and wall so you don't feel like you're going to scrape your elbow on the wall or your handle bar. We want to make sure the trail feels comfortable and actually is comfortable.

2. Greg said the bridges won't be widened more. Kind of the same shy distance when you're next to a railing there is a wall, but your railing should be 42" or more.

Karen asked Greg if his question was about rail height. Greg said no, if your elbow is above the wall I think on a bike rail you're pretty much especially high up where your elbow is probably not above it and it feels just like a wall. Will there be 12' of pavement approaching the bridge plus shoulders



and then when you hit the bridge it's just 12' of pavement but you have railings which narrows your effective pavement width.

Karen said this is pretty typical for pedestrian/recreation path bridges. It tends to match the pavement, and this is very similar to the recreation trail in the Edwards area. Every foot you add in width on these bridges can be challenging. We've talked a lot where we do have walls trying to integrate shy distance into the design to make it feel more comfortable.

6. Next Steps

a. Mary Jo noted the next steps are:

- Website update in June. The website will have information on design and the construction. You will also be able to go back to the work that was done for the EA.
- Design Exception review and analysis will continue. There are quite a few design exceptions that are being looked at as part of the design. We hope to be able to come to you with all of them at once. It might be phased depending on the number of exceptions. We plan to present the design exceptions to you prior to the September FIR (30%) design meeting.
- ALIVE field visit will be scheduled to focus on fencing locations and aesthetics. The results of the field visit will be shared at the next ITF meeting.
- The next Project Leadership Team Meeting has been postponed. The reason we are doing that so that after we present the design exceptions to you, we can move to the PLT and present your reactions and recommendations on the design exceptions to the PLT. Remember the PLT's role is to ensure that we have followed the Context Sensitive Solutions process. It is your role to agree that these design exceptions have been reviewed and analyzed.
- The next 106/Aesthetics ITF Meeting is also postponed. The Aesthetic Guidelines will be sent to that team for their review and we'll go through that with them then. We currently expect there will be another ITF meeting after July. In the original schedule we had said the next meeting would be the final one but we think we would want to go back after we had gathered their comments and hold another meeting based on response to comments and to button up everything on the Aesthetic Guidelines.
- There will be a virtual public update in August. The website comes first and when the website is ready to go, we'll send out an email blast that announces there's going to be a public update with the website address to go learn about it. The public update is a lot like a public meeting except there really isn't anything much to comment on. It is a presentation of the work that's being done, the construction plans going forward, what people can expect to see when we will be getting back to them again.



- A groundbreaking is being planned for August. At this point this will be in person.

Stephanie asked when we would know the date for the groundbreaking. She thinks John Cater would want to attend but FHWA requires special permission for any travel and it may take some time to get approval.

Karen said we should know within the next few weeks.

- A SWEEP field trip will be planned for September.
- Design Review Meeting in September. CDOT refers to these as FIRs/30% design on the entire INFRA grant projects and they will all be reviewed at one time.