



MEETING NOTES

PROJECT:	23982-23929 I-70 West Vail Pass Safety and Operations Improvements
PURPOSE:	Technical Team (TT) Meeting #19
DATE HELD:	August 23, 2021
LOCATION:	Online Google Meet Meeting
ATTENDING:	John Kronholm, Project Manager, CDOT Region 3 Karen Berdoulay, Resident Engineer, CDOT Region 3 Matt Figgs, Project Manager, CDOT Region 3 James Proctor, CDOT Bridge Enterprise Lisa Schoch, CDOT Historian Carol Huey, US Forest Service Taylor Elm, DNR Greg Hall, Town of Vail Dick Cleveland, Town of Vail Chad Salli, Town of Vail Kevin Sharkey, ECO Trails Siri Roman, ERWSD Len Wright, PhD, ERWSD Larissa Read, ERWSD Tracy Sakaguchi, Colorado Motor Carriers Shannon Anderson, Bicycle Colorado Brian Hearn, R S & H Jeb Sloan, R S & H Mary Jo Vobejda, Jacobs Jim Clarke, Jacobs Candice De, 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 said as always the goal of the meeting is to provide updates and gather feedback on the stakeholder process to ensure the project is successful.
- c. Mary Jo reviewed the agenda items for today's meeting. She said we are deviating from the normal agenda little bit because we are talking about the recreation trail alignments and design exceptions needed, therefore the Next Steps will be covered at the end to make the meeting run smoother. We're hoping that today you will agree on the slope and cut wall design exceptions that are expected for the recreation trail.

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

- a. A 106/Aesthetic ITF meeting was held on August 5th. We reviewed the Draft Aesthetic Guidance that were sent out a few weeks in advance.
- b. A PLT meeting held on August 6th. We presented to them all the design exceptions that had been requested to date.



1. Larissa asked in the chat box for a follow up on the PLT Design Exceptions.

Karen thanked Larissa for mentioning this. In the future, after we go to the PLT with Design Exceptions, we will let the TT know how the conversation went. We did bring the Design Exceptions recommended by the TT to the PLT and they did support them. Mary Jo said we will add this item to upcoming TT agendas.

- c. Karen noted that based on feedback we added a field visit for the PLT & TT which is scheduled for the morning of September 27th. We also received feedback to make sure the design exceptions didn't preclude the AGS, and we did send out the AGS drawing locations with the last set of PLT & TT meeting notes.
- d. The dates have been set dates for public event and groundbreaking.
- e. Construction Package #1 planning meetings for emergency response during construction has continued.

3. Construction Package 1 Update

- a. Matt said construction started on August 9th for the truck ramp and the closure system westbound at the 190 exit and things are going well so far. Activities have included, closing the lower truck ramp, setting initial erosion control measures as well as earthwork and some of our grading as well as getting rid of the arrestor bed material.
- b. There is a lot of signage and we have worked with Craig Hurst in the CDOT Freight Office to do geofencing of those areas to notify truckers the ramp is closed and where the two areas are to pull over and cool down their brakes if needed. Next we will start installing stormwater drainage, pipe and manholes and begin building the hazmat containment system for the arrestor bed. We are still anticipating that we will have the new truck ramp operational by the end of November of this year.
- c. Karen noted we are running into some challenges, as many other construction projects are, with delays in material availability and we continue to work through those. It is most important to us from a safety perspective to get the truck ramp functional by the winter.

The shotcrete wall we spent a lot of time talking about and designing will be installed but the aesthetic treatment of shotcrete with staining and finish work to add undulations may not be completed until the spring. We're still going to try finish the aesthetic treatments this year, but it will depend on what kind of fall weather we have.

1. Mary Jo said she received an email was announcing a possibility of a lane closure in the project area.

Matt said we are using the email blast list from the EA phase of the project. If you are not receiving the emails, please email cdot_wvailpassauxlanes@state.co.us to be added to the list. We will be sending regular updates from that email address to announce traffic impacts and provide updates on construction activities. There will mostly be shoulder closures but there will be some nighttime lane closures to set barriers.

4. Work in Progress

a. Public Outreach

- The website update has been completed:
www.codot.gov/projects/i70westvailauxiliarylanes
- Email blast announcing construction start date sent August 11th
- Virtual public engagement started in August and a flyer with more information was mailed the week of 8/16

b. Groundbreaking event is August 25th at noon

Karen said we invited everyone on the TT & PLT. We would love if everyone can make it because we appreciate and want to celebrate all feedback all of our stakeholders have given us to get to this point. Because parking is limited, please let us know if you are planning to come so that we can make sure we are accommodating parking accordingly. If you can consolidate cars with people in your own company or organization would be ideal.

Karen said Dick Cleveland was interviewed by the Vail Daily last week for an article about our and other projects happening in the valley. We also had a very cool article in the Washington Post that really shows the need for this project.

<https://www.washingtonpost.com/transportation/interactive/2021/bridges-roads-rail-infrastructure/?itid=hp-top-table-main>

*Note: The Washington Post is subscription only access, so we are including a PDF of the Vail portion of the article with the meeting notes.

- c. The design for the 30% (FIR) meeting is progressing. The meeting date has been set for September 28th.
- d. Mary Jo noted we have stayed on schedule with the ITFs so far. We have moved some of our ITF meeting around a little, but they are getting completed by the end of the year just as planned except for SWEEP. The SCAP Sections 2-6 are underway and when finished the draft will be sent to the SWEEP ITF for review.

Karen said the SWEEP IFT is a little behind because of the nature of some of the deliverables. We will talk to the group. The portion of the SCAP update from MP 180 to MP 185 at the bottom of the Pass the drainage is going to follow the existing drainage. The section from MP 185 to MP 190 where we are actively designing parts of it in different stages it is a little trickier to lay out the proposed sediment control features. We want to do it early enough that we accommodate for it with our roadway and recreation trail alignment, but we want to make sure it makes sense with our drainage that is still being designed so that is the section that is falling behind. This makes sense because we want to make sure lay out conceptual sediment control features in the right locations. We are meeting with the group in September, and we will talk more about the schedule.

- e. The ALIVE Wildlife Crossing Memo has been completed and has been sent to the IFT for review prior to our next meeting on September 13th.

5. Schedule

- a. The construction packages and the FIR are staying on schedule.

6. Recreation Trail Alignment and Wall Designs

Mary Jo said Candice will be talking us through the refinements to the recreation trail alignment. We also have typical sections, some strategies around walls and ultimately we do want to discuss the Design Exceptions.

- a. Candice said we recently had a really good site walk and we looked at the trees and topography and made some good notes about things we will continue to refine. The recreation trail alignments we have made are
 - i. At MP 185.7 we are tying in around the knob north of MP 185.7 where it is separated from I-70, a little bit east of the bridge undercrossing. That recreation trail bridge will be incorporated with the bridge replacement phase of the project. South of this area there is a large fill wall. The creek is very close to the highway and the highway will be widened in this area, so it is kind of a pinch point, but it is very close to what the EA was showing

1. Shannon asked if the first wooden bridge that goes under I-70 be a little wider than the existing bridge or will it be completely changed?

Karen said our project starts after that bridge, so it is not impacted by this project. Brian is designing the recreation trail bridge as part of the I-70 bridge replacement. We do not have the funding to replace but it is on CDOT's radar and we are looking to see if we can do anything for that bridge outside of this project.

2. Shannon said when you come under the bridge, I'm not clear what is going to happen with that wall.

Karen said that is the section that Brian is designing as part of the bridge package which is in a later construction package than what Candice is designing. The existing grades in this area are anywhere from 11-13% and we are trying to keep it to a maximum of 10-10 ½% by smoothing out the radius and flattening the grade a little bit. There will be more sight distance coming around that curve.

- ii. South of MP 186, we are moving further to the east (it's more to the south because the recreation trail doesn't run east-west). We now have a better idea of the topography and environmental constraints so we're still refining the trail alignment and the roadway design. This is the bridge location where the trail crosses the creek, and the trail goes down the hill and across to the other side. It is generally in the same location as shown in the EA.
- iii. MP 186.2 is the section across the creek. You will see a little bit of variation in our proposed design from the EA alignment because there is friendlier topography so there is a little more room to move to try to avoid some trees and improve some of the side slopes. There is one cut wall on the opposite side of the creek, which is the only wall on that side.



- iv. At Bridge #2 there is a little bit of refinement across the creek where we follow the existing contours and have a little more flexibility to maneuver. We tweaked the second bridge crossing to come back on the I-70 side of the creek a little bit to improve the bridge alignment based on the existing topography. This section where the approach climbs back up the grade, there are some walls similar to what was shown in the EA.
- v. At MP 186.5 we continue to make refinements to follow the topography a little more. to optimize the contours and minimize the impacts to the existing ground and vegetation. The EA showed walls in similar locations to what we are showing. We did maneuver the trail a little further downhill to improve some of those profile grades that were getting a little steep but generally following the EA.
- vi. At MP 186.7 the existing grade varies but roughly at 2:1 and those are our maximum slopes, so we have walls just to catch the existing because of the trail that we are adding in there. But we are separated from I-70 down the hill a little bit so that should improve the user experience. We are very excited about the trail being separated from I-70 a little bit.
- vii. We shifted the tie-in point a couple hundred feet down or further east because we were getting some really steep grades where the EA tie-in was, so to improve the grades we extended the length of the reconstruction a little bit.

3. Greg asked if there is a wildlife crossing in this section?

Candice said there is one towards the beginning of the alignment right before the fill wall, just east of MP 185.7

4. Greg asked if the wildlife crossing crosses the bike trail or ties in underneath?

Brian confirmed the wildlife crossing is underneath the bike trail and crosses to the downhill side.

5. Taylor asked if the bike trail will be within the wildlife fencing?

John said in general, the bike trail will be outside of the wildlife fence.

6. Greg said where the CAP 2 trail ties in, the EA alignment was further away from I-70 at the west end, will that be the design here?.

Brian said it will be further away than the existing. Our design matches very close to the EA design but is a little tighter. We are also a little further downhill because we need to use the extra length to catch the grade instead of catching up where it is called out as the CAP 2 tie in. To make that tie in work we are back to the 12-13% grades so swinging out around the knob and going down the hill a little bit helps smooth out that grading tie in and keep the bike trail further away from the widened eastbound lanes.



7. Greg said you will probably waste 100' feet of new trail in order to tie in at a more optimum location.

Brian said it won't be a waste because it is just a temporary tie in connection that we also need for phasing.

8. Greg said in the section to do the westbound three lanes where you are putting your three-lane eastbound are you doing more with fill walls than cut walls through the section for future westbound?

Brian said it is a little bit of a cut and a close match into the existing. To get that third lane in we aren't doing anything in this phase for the westbound lanes. The design right now has us getting a little bit into the forest impacts, but we are holding the inside edge of pavement on both east and westbound through this section.

9. Greg asked whether it's easier to fill on a disturbed slope than to cut into a natural slope.

Brian said this one is about not trying to replace the existing eastbound median wall in this phase and wait for the westbound traffic. So that really sets the eastbound and westbound I-70 alignments through here.

10. Larissa asked what type of surface will be used for the new recreation trail and how the old recreation trail will be removed, thinking about runoff to the creek because there are sections where obviously there is a new alignment and sections that are going to be overlaid over the old surface.

Candice said the proposed material for the bike trail is 4" of asphalt over 6" of aggregate which is typical for trails. A lot of this section of the alignment is native surface and we are not going over the existing. There are a handful of places which is a good thing because it keeps the bike trail open during construction. There are a few areas that might require a temporary detour to allow the bike trail to stay open. In general, in this section, we are building new on existing ground. There may be some other sections in Brian's area closer to the bridge where they overlap a little bit more.

11. Larissa asked what the timing is for the removal compared to the construction of the new trail.

Matt said the removal will take place after the construction of the new trail and users have been moved over. It does have to get removed before we start building the eastbound auxiliary lane that starts in 2023. It may be in conjunction with that work.

12. Shannon asked how much of the trail will be closed. I know you say you are going to try to not close the bike trail at all, but I think it will be impossible to not have it closed a little bit.



Matt said the biggest concerns are for closures during the overhead work when we build the bridges because it's not safe to have users in that area during that time. These closures were identified in the EA. It's really the tie in points that are the critical aspect as well as getting construction vehicles and material deliveries in and out. It's going to be a lot more common that we use flaggers to hold traffic rather than do full closures of the trail.

13. Shannon said we would ask that we could have some sort of notice ahead of time that we could put in the paper or a public notice to get out for when the bike trail will be more impacted to let riders and other users know.

Matt said he appreciates you mentioning this. Our public information efforts will include any impacts to trail users. We have been coordinating with the Forest Service to not impact their large events and so they can let the guides know if we have any closures, as well as posting our public information blasts the word goes out as much as possible to the community for those critical closure times.

14. Dick suggested that your community relations people work jointly with the Town of Vail who can notify the business owners who operate up there regularly. That would help expand that notice.

Matt said we have the same public information firm that did Vail Underpass so we have all our contact points and can also work with Suzanne as she did the Vail Underpass project.

15. Greg stated that with regard to putting together the schedule for critical work items, it would definitely be appreciated to do the most impactful things, even if they are a little out of sequence in the off season to keep the trail open on most of the weekends and to try to avoid the eight weeks between mid-June and mid-August when schools are out.

Matt said for construction we have the bike trail in 2022 and the eastbound lane is in the 2023 schedule. We can definitely take your suggestions into consideration as we refine the schedule. The other challenge is our work window. It's hard with weather to fit everything in. Again, as far as closures, we won't be impacting any of the larger events on the weekends and I don't think there will be a lot of total closures other than CAP 3 critical work and maybe an instance here and there at the trail tie-ins.

b. Recreation Trail Refinements

- i. Candice said as we reviewed the EA and advanced the design we considered the following:
 - Proximity of the trail to I-70. Obviously the user experience is better when it is further away from I-70.
 - Maximize buffer between I-70 while limiting impacts to vegetation and retaining walls. There is a fine balance between giving the user the best experience and



the expense. We want to save the vegetation as much as we can but also minimize the amount of retaining walls.

- In those locations where the trail is close to I-70 we want to try to maintain vertical separation, so it doesn't feel like it does today where the trail users are right next to the oncoming cars. We are looking at both vertical and horizontal separation from I-70 while balancing some of the environmental factors.
- We are striving to reduce any of the grades that are over 10%. Some of the existing trail is up to 13%, particularly after you come under the bridge and come up that very steep hill. is the trail definitely does not meeting ADA requirements, we are trying to maintain that user experience while keeping a balance with the impacts the environment.
- The EA did a great job of identifying and minimizing impacts. As we continue to refine our design we are working to minimize our impacts to the forested areas and wetlands while trying to minimize earthwork and retaining walls. There are a lot of factors and some of them play against each other.
- We are favoring cut walls over fill walls. There's some cost savings because the earthwork required for fill walls is a little bit more. Fill walls also require a railing for user safety. In general cutting into the slope is preferable to the fill wall but having a bit of a balance particularly in that one large fill wall where we are close to I-70 allows us some flexibility to optimize the design.

c. Typical Sections

- i. Candice said for Cut/Fill Typical Sections we generally have 6' in each direction and a 2' vegetated shoulder on each side. On the fill slope side there will be a little bit wider bench because of the steep slope. If we just did 2' shoulders there the guidance recommends a railing. We have steep slopes in a lot of locations, and we don't want railing because sometimes that introduces another obstruction. We are working to balance the environmental impacts with user safety and comfort.
- ii. Candice reviewed the Recreation Trail Slope Decision Principles:
 - Flatter slopes are preferred over steep slopes, while minimizing overall impacts
 - Reduce retaining walls as feasible
 - Create benches to reduce tunnel effects
 - Round slopes to blend in with existing topography
 - We're trying to keep the visual quality of the trail as beautiful as the existing trail and maybe a little bit better by moving the trail off of I-70. We have some areas where we are down lower than the existing trail so we're trying to balance the horizontal alignment so we're not in a cut on both sides, and still maintaining a user experience that is matching expectations.



Karen said everyone has put in a lot of work to get us to this point of the right balance for the recreation trail. John was very instrumental in encouraging us to go out there and see everything in person. We had the alignment staked and it was really helpful for the design team to walk the staked trail to see where it makes sense to shift or blend the alignment to avoid those really critical environmental resources. We are going to do some additional surveys to pick up more information so we can blend it as well as possible.

d. Recreation Trail Typical Sections Cut Wall

- i. Candice said where we have cut walls, we will maintain a 12' paved area and 2' shoulders which meet the design requirements of a 2' offset to any obstruction. We are weighing some options to see if a 2' buffer is appropriate in all locations. We may have a 3' buffer in some locations because of the poor sight distance and the long grades. A 2' offset is plenty if the grades are favorable and you have plenty of sight distance, but we may have a 3' buffer in areas where you come under the bridge, you're right next to that retaining wall, and it feels very close.

Karen said the design team spent some time on this and after several iterations decided it was desirable to have more of a buffer in the steeper areas where you are going down fast or climbing up the trail next to a wall. We are also working to minimize our environmental impacts in some of these areas.

1. Shannon asked on that section, how are you going to reduce the grade, especially at the corner at the bottom. You're on the sharp curve to the right, there is no mirror and no way to know that anyone is coming. People who aren't familiar with the trail can easily get into the other head-on lane. So that to me is one of the huge and dangerous pinch points. On the Triple Bypass I actually saw someone crash into the hay bales at the bottom.

Karen said all of us who have ridden the trail know this area is the most uncomfortable area. One thing we've talked a lot about is this is not your average bike trail that gets you from your little residential town to the ballfields. This is a mountainous recreation trail, and it has the certain characteristic of being steeper and having curves. It is more of an intermediate to advanced recreation trail.

As Brian said, we are swinging the trail out to make a bigger radius so that it comes out further from the bridge so there will be better sight distance under the bridge. The more trail length we can get in the same area, the grade can be less. It's around 11-13% now and Brian is able to lay it out to get to 10%. This is something we can bring back to you for feedback on the alignment to make sure we all feel comfortable that we are balancing everything.

Karen said in this section the existing trail is anywhere from 8'-10' wide. Near the top of the Pass, it feels like closer to 10' and at the bridge section it feels like it is close to 8'. We are putting in a 12' wide trail with 2' shoulders so it is going to feel quite different than what is there today.



2. Greg asked what kind of drainage features will you have on the sides, just gravel shoulders? When you have a bike trail that is 6%-10%, the water is flowing with the trail not across the trail at 2%. Collecting that water and making sure your shoulders don't ravel is very important. Is it better to collect it against the wall with perhaps curb and gutter in those tight sections so you have a hard surface and whatever goes off the shoulder is minimal compared to all of it going off the shoulder and potentially raveling the shoulders? And once you collect it, how do you treat it?

Karen said we're just at 30% design so we're just getting into drainage. We do not plan to treat water from the recreation trail. We are not putting sand or mag on it. It's good feedback about the steepness. We were trying to minimize infrastructure along the recreation trail.

Candice agreed we are early in the design and will have more answers later. As we are laying out the horizontal and vertical, we are trying to factor drainage ahead of retaining walls and where we have steep slopes to make sure we have the capacity. The good part is that a lot of the I-70 drainage will be captured with improvements, so we really have to consider the slope between I-70 and the trail which will have a lot less drainage than what it sees today.

- e. Recreation Trail Typical Sections: Fill Walls supporting I-70
 - i. Generally, where the fill walls are also supporting I-70 we're trying to maintain the historic context. The largest fill wall is where the creek is very close at the bottom of the slope. This is where we are going to try to capture some drainage in between I-70 and the trail and then just have the fill walls on the creek side of the trail.
- f. Recreation Trail Typical Sections - Bridges
 - i. We have the 12' paved section approaching the bridge and we have added a 1' clearance to the bridge rail so as we introduce that horizontal or lateral obstruction we provide an additional 1' before the bridge rail so the trail across the bridges will be 16' wide.

Mary Jo said there is definitely a difference between guidance for walls that support the highway and the design criteria and walls that are used around the recreation trail. The Aesthetic Guidance state:

Existing flat panel walls next to I-70 are associated with supporting the highway and considered to be Contributing Features to the eligible historic district. The new fill wall type for supporting the highway will match the existing flat panel walls.

New recreational trail retaining walls will be designed based on the wall location, construction methods, pedestrian and cyclist safety, user experience and existing geotechnical conditions. If the wall is to support the recreation trail they may not this flat panel look.

New retaining walls that retain earth specifically for the purpose of creating a platform for the Vail Pass Recreational Trail should reflect the context of the local surroundings.

These wall types can be:

- Dry stacked or mortared rock walls
- Concrete shotcrete faced walls with simulated rock texture
- Concrete wall with form-lined rock textures

For retaining walls only supporting Recreation Trail:

- Wall heights greater than 15' to be tiered where possible. Karen noted this is not correct. This was in the draft Aesthetic Guidance and we are still working through that. We are tiering our scallop walls that we are putting on the Pass. The flat panel walls that are out there are not tiered at this time. We are trying to minimize our footprint in this more environmentally sensitive area where we are taking the recreation trail, so we are not looking to tier those walls.
- Low wall (approx. 4' height max.) preferred for location next to recreation trail
- Materials to be (or mimic) native natural materials

1. Greg asked if the requirement for 12' maximum height walls above a roadway grade, does not apply to the recreation trail walls?

Mary Jo said that is correct. The Design Criteria are all about walls that would be above the roadway and recreational trail walls or walls that are not associated with the road do not have that design criteria guidelines, but they do have Aesthetic Guidance. There is no requirement about wall height or being tiered. And Karen is correct, one of the things we are finding out is, as you try to tier the walls along the recreation trail there will be a greater footprint impact.

2. Greg said on the plan you had large cut wall where the trail crosses the creek. Do you have any idea how large this wall will be?

Candice said we are still doing design refinements and it could change. She said it will be they are trying to keep the cut walls as short as possible, generally 15' or less. This wall will greater than 10' but less than 15' tall. The one wall that we know is going to be over 15' is the large fill wall. That one is closer to 20' or maybe a little higher. But it is on the fill wall side and not visible to the passengers or the road users, so it has a little bit different context.

3. Greg asked if the FIR set will have maximum wall heights for the walls on the trail relocation?

Candice said the FIR set will have wall heights based on the 30% design. When we were in the field in the last week we found ways that we think we can optimize the alignment.



4. Shannon asked if there would be any fill walls other than under the bridge?

Brian said there will be another fill wall north of the knob on the outside, just south of where the existing detention basin is. Because eastbound is widening out, that pushes the trail out a little further. To catch the slopes, we have a fill wall on the outside of the trail.

5. Dick said your goal to limit the footprint of the trail and the impact on the environment in his opinion is the correct goal.
6. Mary Jo asked is there more than one wall that is above the trail.

Candice said through this section there are cut walls that will be above the trail on the I-70 side of the trail that will not be visible from the trail.

Karen said there is not any other way to do this. This is a 2.1 to 2.5:1 existing slope and we are trying to figure out where we put this bench and to avoid having a rail because then users might feel uncomfortable riding next to the rail. We are trying to fit this into the topography.

7. Greg said he's assuming you are designing the trail bridges to be large enough so heavy snow removal equipment can get on them to clear and also emergency service vehicles if they need to get down there to do a rescue they will be able to cross those bridges.

Candice confirmed that is correct.

See Design Exception Meeting notes for the Next Steps which concluded this meeting.