

Design Exception #3

Reducing the Buffer Area at MP 188 to 190

Design Exception Statement

At MP 188 to 190 widen to the south, pushing the truck parking toward Black Lake No. 1 and the forested buffer. This reduces the buffer between the parking and the lake.

Process

A presentation was made to the Design Exception Issue Task Force on August 2, 2021.

The Design Exception process was reviewed by the Project Leadership Team on August 6, 2021. Meeting notes document their agreement that the CSS process was followed.

This Design Exception is the result of refinements to the EA alignment to minimize or eliminate design exceptions and meet the Aesthetic Guidelines. Further, the alignment refinements worked to minimize the cut walls in favor of fill walls. With all this work there remained median reduction design exceptions along the roadway alignment.

Reasoning for this Design Exception included:

- Improve safety by increasing curve radius and maintaining design speed consistency
- During construction this design keeps I70 open to traffic

The Design Exception Team agreed to forward their recommendation to the Project Leadership Team supporting the alignment refinement.

At the Project Leadership Team #9 held on August 6, 2021, the TT recommendation was presented, the PLT reviewed the process used and agreed that the CSS guidance had been followed.

Documentation for Design Exception #3

Design Exception ITF Meeting #3 presentation

Design Exception ITF #3 Meeting Notes

Project Leadership Team Meeting #9 presentation

Project Leadership Team Meeting #9 Notes

No concerns were expressed after the design exception was discussed.



COLORADO
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**I-70 West Vail Pass Safety and
Operations Improvements**



DESIGN EXCEPTION MEETING
AUGUST 2, 2021

DESIGN EXCEPTION FROM MP 188.0 TO 190.1 EB AND WB

Changes to the EA:

Extending the limits of the design exception to accommodate the aux lane from truck parking to MP190

What does this design exception achieve?

Matching the existing outside edge of pavement and widening 14' into the median is consistent with the roadway geometry.

This alignment allows the existing truck parking to remain in place.

What options were analyzed?

Widening to the south

DESIGN EXCEPTION FROM MP 188.0 TO 190.1

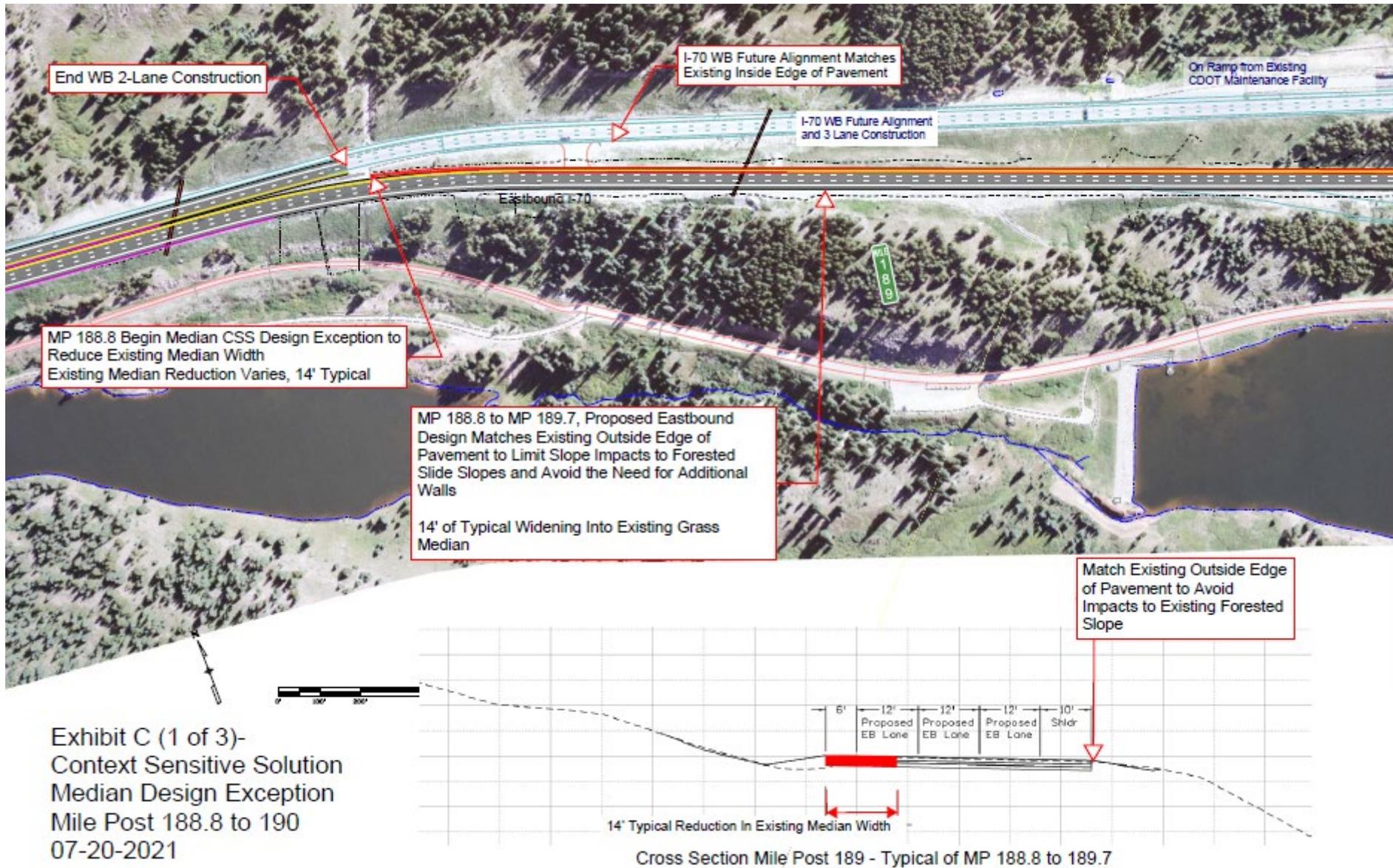


Exhibit C (1 of 3)-
Context Sensitive Solution
Median Design Exception
Mile Post 188.8 to 190
07-20-2021

DESIGN EXCEPTION FROM MP 188.0 TO 190.1

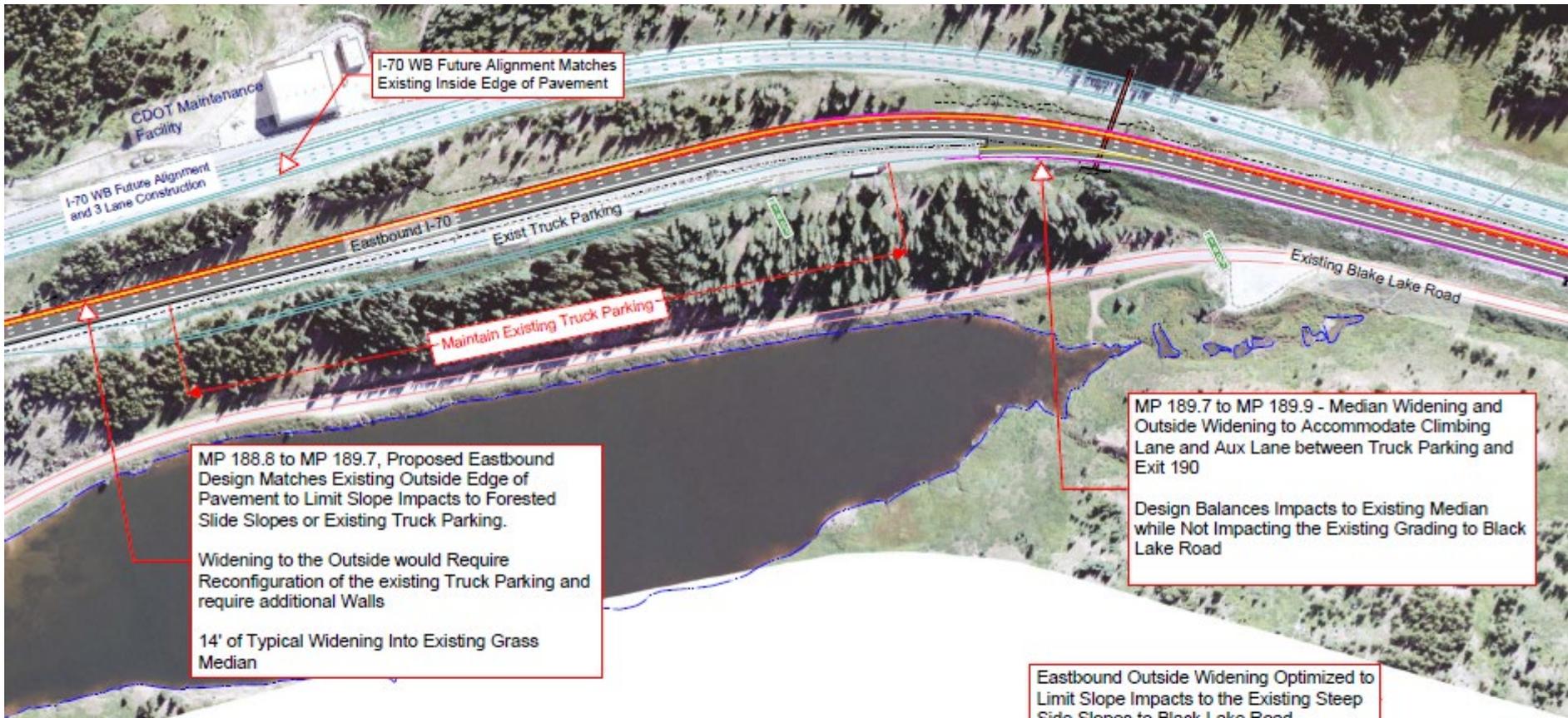


Exhibit C (2 of 3)-
Context Sensitive Solution
Median Design Exception
Mile Post 188.8 to 190.1
07-20-2021



DESIGN EXCEPTION FROM MP 188.0 TO 190.1

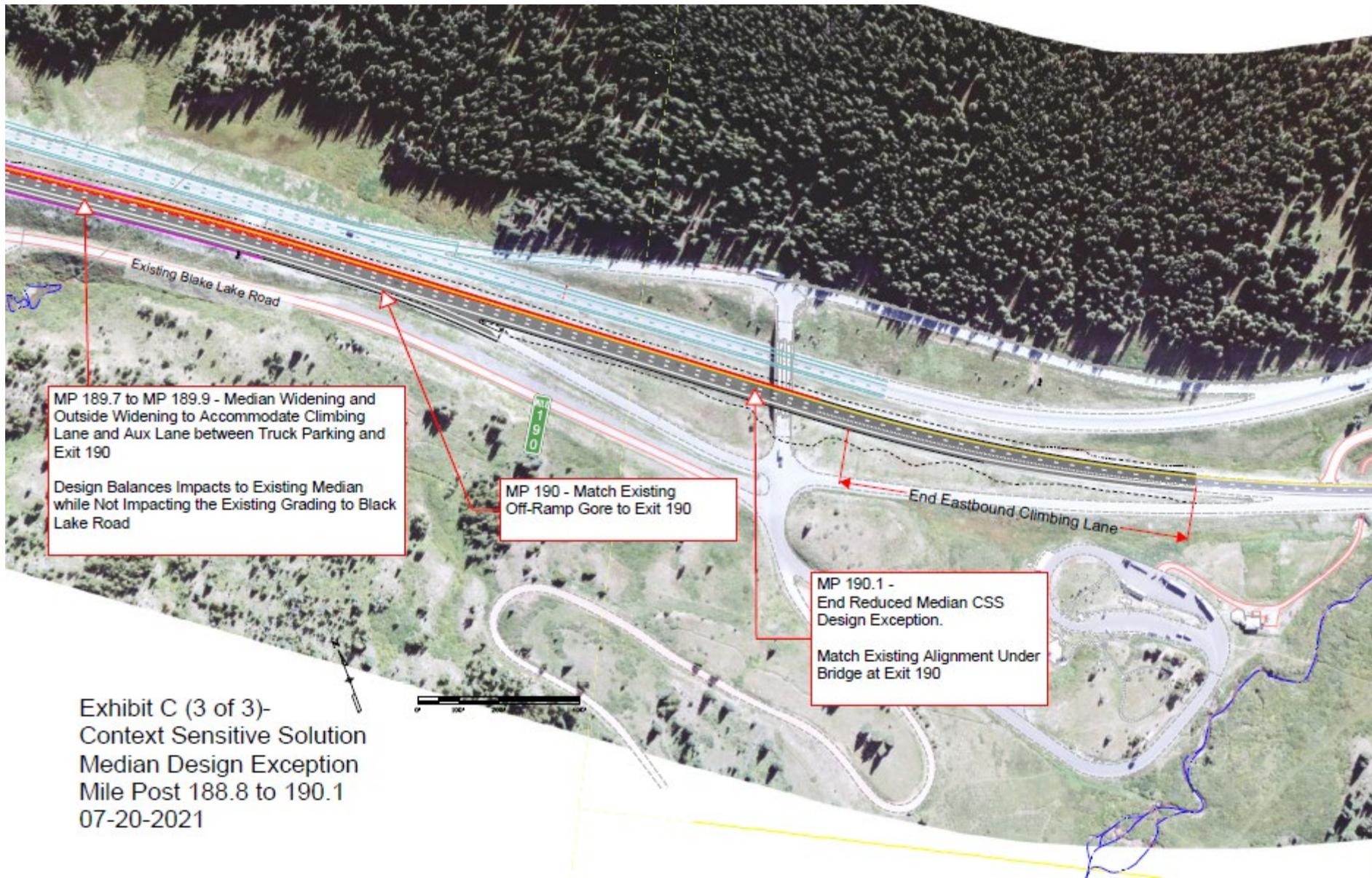


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DESIGN EXCEPTION FROM MP 188.0 TO 190.1 EB AND WB

Widening to the south would push the truck parking toward Black Lake No. 1 and the forested buffer between the parking and lake would be reduced.

This change does not preclude the AGS alignment.



MEETING NOTES

PROJECT:	23982-23929 I-70 West Vail Pass Safety and Operations Improvements
PURPOSE:	Design Exception IFT Meeting #3
DATE HELD:	August 2, 2021
LOCATION:	Online Google Meet Meeting
ATTENDING:	John Kronholm, Project Manager, CDOT Region 3 Rob Beck, Program Engineer, CDOT Region 3 Karen Berdoulay, Resident Engineer, CDOT Region 3 Matt Figgs, Project Manager, CDOT Region 3 Lisa Schoch, CDOT Historian Michelle Cowardin, DNR Greg Hall, Town of Vail Pete Wadden, Town of Vail Dick Cleveland, Town of Vail Kevin Sharkey, ECO Trails Len Wright, PhD, ERWSD Larissa Read, ERWSD Tracy Sakaguchi, Colorado Motor Carriers Shannon Anderson, Bicycle Colorado Jon Stavney, NW COG Mark Gutknecht, Kiewit Randal Lapsley, R S & H Brian Hearn, R S & H Jeb Sloan, R S & H Mary Jo Vobejda, Jacobs Loretta LaRiviere, Jacobs
COPIES:	Attendees

SUMMARY OF DISCUSSION:

1. Design Exception from MP 188.0 to 190.1 EB and WB

- a. This design exception is to extend the limits of the EA design to accommodate the aux lane from the truck parking to MP 190. The EA showed just a rough exhibit of where the climbing lane terminated. When we went through a more refined design what started to stand out is that it made sense to have a continuous aux lane between the truck parking on-ramp and the Exit 190 off ramp which extends the median widening all the way up to Exit 190. We are still able to maintain the existing grass slope and not have a lot of additional concrete barrier in this section so it should have the same relative feel but just widens to the median.
- b. We are matching the existing outside edge of pavement and widening 14' into the median is consistent with the roadway geometry. This alignment allows the existing truck parking to remain in place. The outside of the eastbound slope chases a steep hillside and forested slope so through here the optimal design is to widen to the inside to try to minimize our impacts into the trees. The truck parking on-ramp existing slope from the eastbound to the existing Black Lake Road has a pretty steep slope down to a sensitive resource so we are trying to minimize the impacts.

- c. This is all about minimizing the impacts to Black Gore Road and the forested impacts on the west side of the truck parking. This does not preclude the AGS alignment.
 - d. The balance here is we have the truck parking on the outside and if we were starting to widen at all to the outside that starts to trigger into some significant walls and we would either need to build the final existing truck parking walls which are up to 30' high or we end up having some throw away walls.
 - e. The median design exception extends closer to Exit 190 as we are trying to add additional lanes that weren't shown during the EA. Between the truck parking and Exit 190 we have the two general purpose lanes, the climbing lane and the aux lane so we were trying to fit four lanes where there is generally two or three existing lanes while balancing that fill slope to the outside which pushes us into the median a little bit. We are matching the Exit 190 off-ramp and terminating the climbing lane between the Exit 190 gorse. Between the 190 off-ramp and 190 on-ramp the climbing lane will end, and we will be back to a two-lane section.
1. Mary Jo asked back where the truck parking is, since you are widening now maintains that, does it also offer an opportunity in the future to where the new planned truck parking may not have as high of walls?

Brian said this is very close to the EA alignment and truck parking.

2. Greg said in that area going uphill, you're able to do all the widening going into the hillside and there will be no cut walls?

Brian said they are trying to coordinate that with drainage to make sure we have our cut fit section done correctly and it provides adequate drainage. Since this is at the high point of the pass the ditch doesn't require a ton of capacity. It will really be about maintaining a clear zone ditch as much as it is about capacity of the ditch. Right now, with the survey we have it looks like we will be able to make this work with just grading and a barrier but no actual cut walls.

3. Greg said he thought with this project we would be expanding the eastbound truck parking. Is there an opportunity to go after other funding while you are doing this to take care of this? If you're doing all this construction over the next three years, it would be great to knock one of these out because you are mobilized. Maybe you go could after some freight dollars.

Karen said the EA does include truck parking expansion there. The EA also includes chain station expansion at MP 182.5. There are quite a few more freight and truck improvements that we would like to add on the Pass, and we will continue to look for funding for those as they are a top priority for us to build in future phases.



Karen said we do have freight dollars already but not for additional improvements. She said that it would be a challenge to add anything else as our contractor and design team, they are maxed out right now trying to hit our grant timeline as well as designing everything while trying to balance all the impacts

Brian said truck parking exit ramps existing condition doesn't meet criteria for the accel distance. We have extended the truck parking exit ramp as an aux lane to Exit 190 which will at least be providing safety just by providing more distance to get the accel speed up. Also, we are not ending the third lane until between the 190 exits so there is significant more lane for trucks to accelerate from the stop condition before they need to merge over into the general-purpose lanes.

4. Michelle said she didn't see any of the wildlife crossings identified at 188.7, 189 or 189.6.

Brian said they are there, they just aren't called out because he was trying to highlight the roadway.

Karen said Michelle made a good point and these design exceptions will make the crossings shorter which is better.

5. Greg said when you talk about not precluding the AGS, it's just not laying the out alignment, it's also understanding how you are going to construct it and have enough room to stage without overly burdening it with additional costs. The Collaborative Effort will probably ask for their alignment on some of these drawings.



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**I-70 West Vail Pass Safety and
Operations Improvements**



PROJECT LEADERSHIP TEAM MEETING # 9
AUGUST 6, 2021



DESIGN EXCEPTION

... Design exceptions may assist a designer in finding a transportation solution that balances impacts to scenic, historic, and culturally or environmentally sensitive area while still providing for safety and mobility...

1. **Complementing surrounding physical characteristics**
2. Enhancing safety
3. Increasing capacity
4. Reducing costs
5. **Protecting the environment**
6. Preserving historic and scenic elements
7. Interfacing with multiple modes of transportation
8. Utilizing new technology or innovative approaches
9. Doing the right thing





DESIGN EXCEPTION FROM MP 188.0 TO 190.1

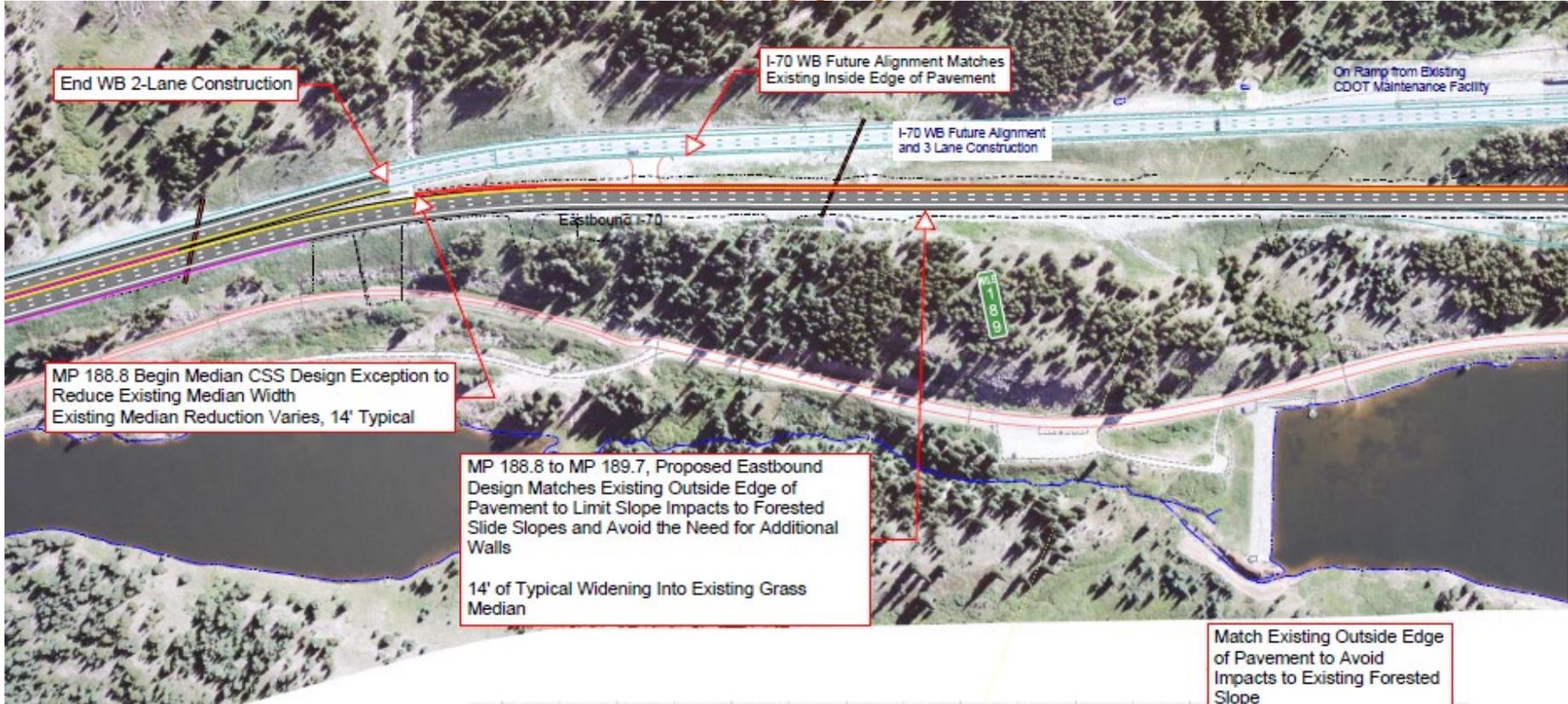
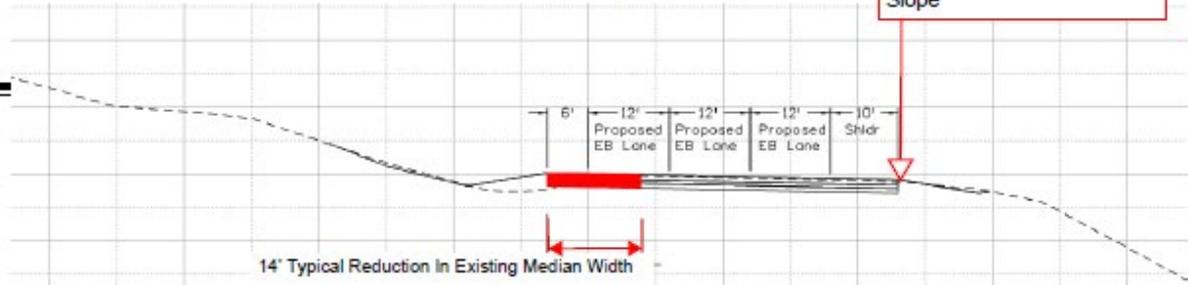


Exhibit C (1 of 3)-
Context Sensitive Solution
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Mile Post 188.8 to 190
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Cross Section Mile Post 189 - Typical of MP 188.8 to 189.7



DESIGN EXCEPTION FROM MP 188.0 TO 190.1

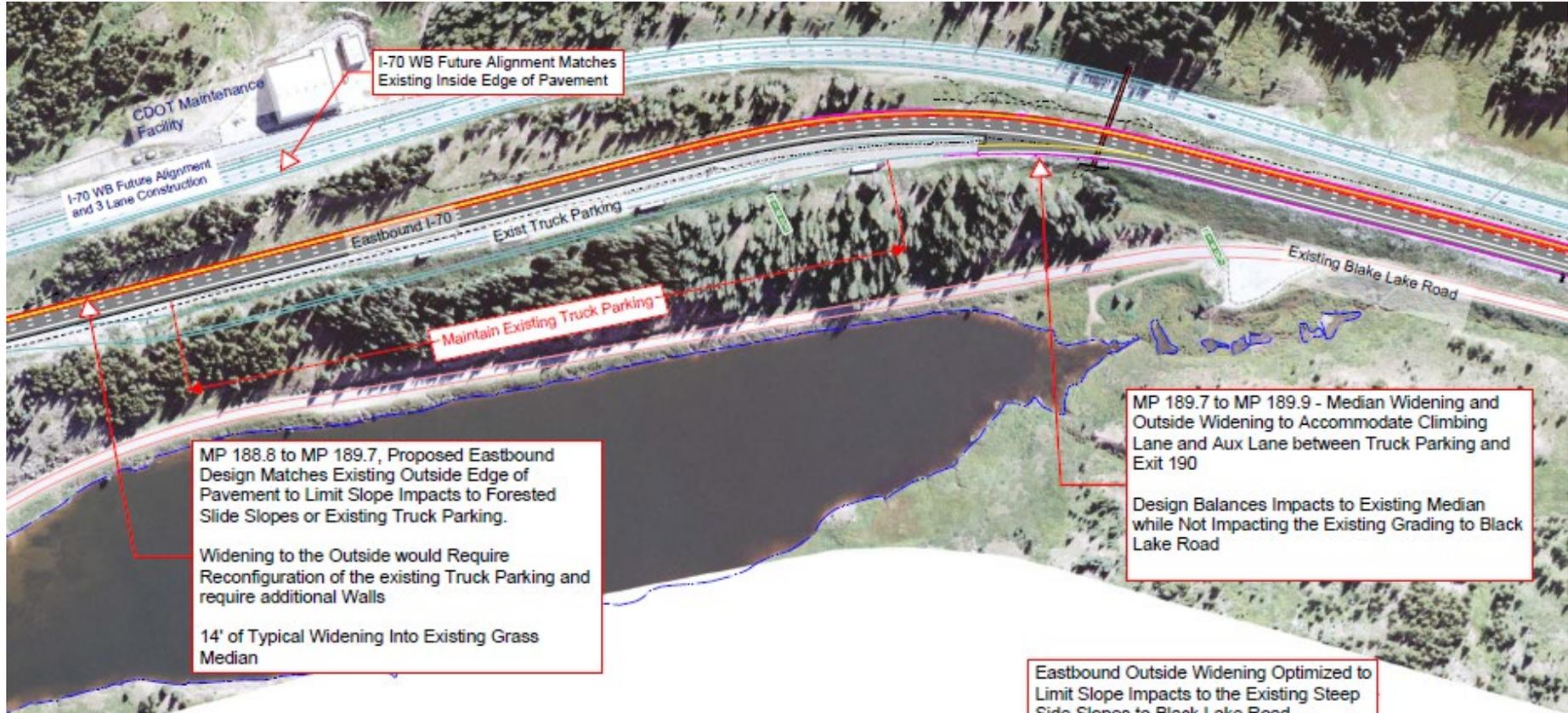
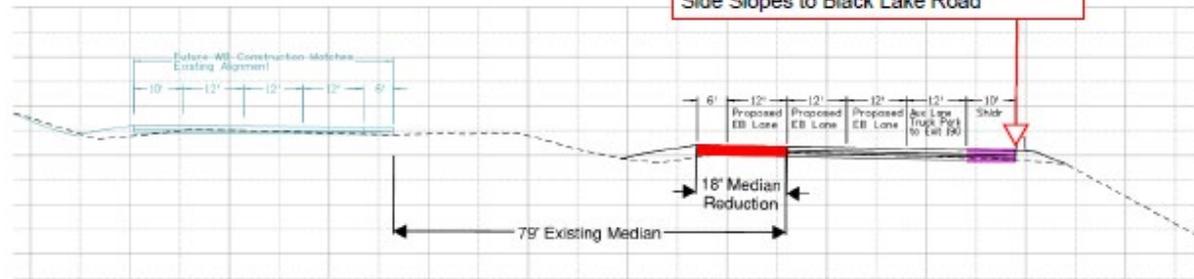


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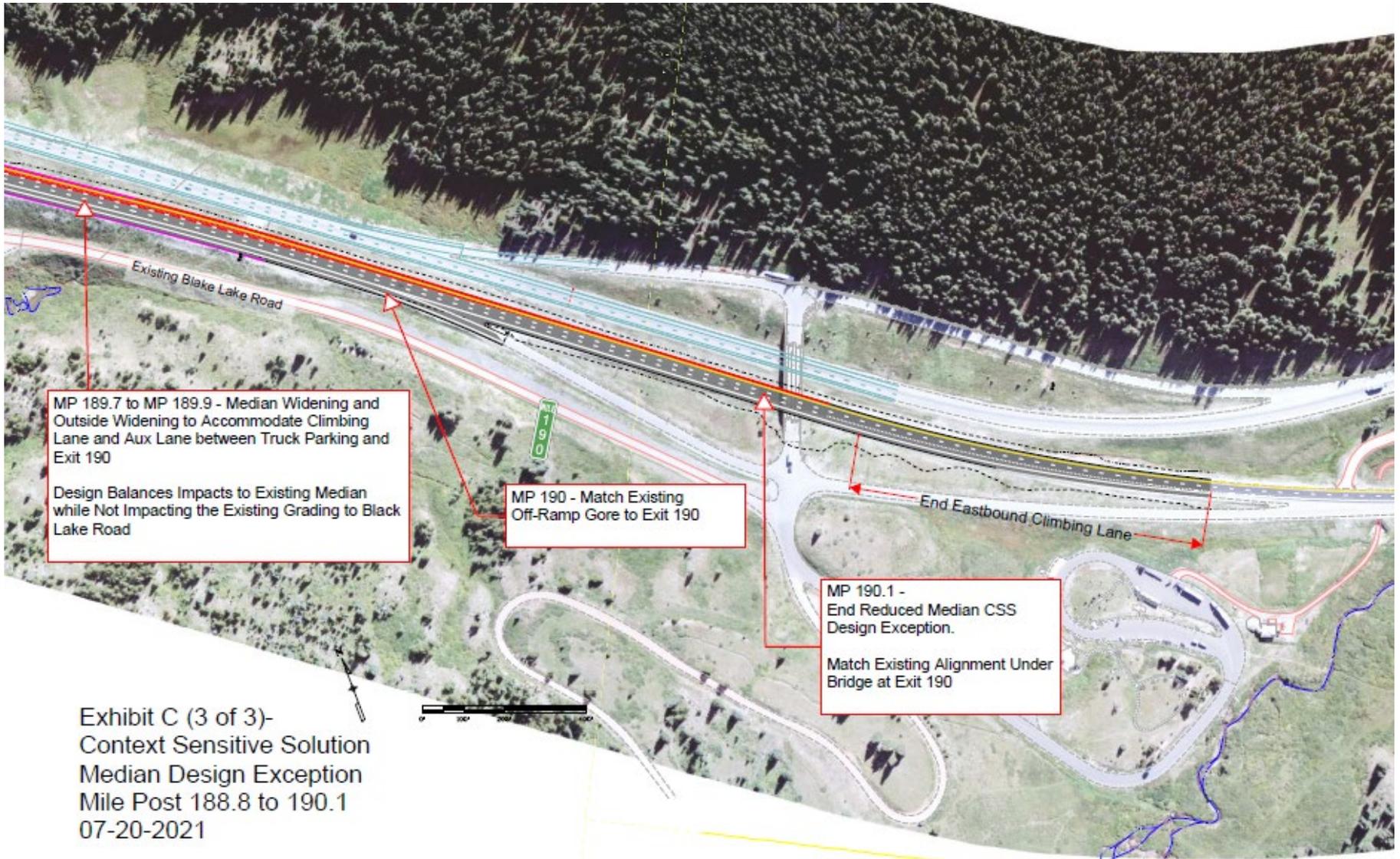


Exhibit C (3 of 3)-
Context Sensitive Solution
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Design Exception Recommendations

Roadway Median Width Reduction

Reduce the median width from MP 188.9 to 190.1 to improve safety, to reduce wall area, to lessen impacts to the trail, forested areas, Black Gore Creek, Black Lake No. 1, **to maintain effective wildlife crossing lengths**, and to minimize disturbance areas.



MEETING NOTES

PROJECT:	23982-23929 I-70 West Vail Pass Safety and Operations Improvements
PURPOSE:	Project Leadership Team (PLT) Meeting #9
DATE HELD:	August 6, 2021
LOCATION:	Online Google Meet Meeting
ATTENDING:	John Kronholm, Project Manager, CDOT Region 3 Karen Berdoulay, Resident Engineer, CDOT Region 3 David Cesark, CDOT Region 3 Environmental Manager Zane Znamenacek, CDOT Region 3 Traffic Program Engineer Matt Figgs, CDOT Region 3 Greg Hall, Town of Vail Pete Wadden, Town of Vail Dick Cleveland, Town of Vail Ben Gerdes, Eagle County Robert Jacobs, Summit County Tracy Sakaguchi, Colorado Motor Carriers Randal Lapsley, R S & H Jim Clarke, Jacobs Mary Jo Vobejda, Jacobs Loretta LaRiviere, Jacobs
COPIES:	Attendees

SUMMARY OF DISCUSSION:

1. Design Exception Review of CAP 1 Design Refinement Process

a. The Design Exception meeting was earlier this week and we asked for support for median reductions. The design criteria state you cannot reduce the width of the median. When we looked at trying to balance of all of the issues such as disturbance area, impacts to wetlands and impacts to the trail, we found that narrowing the median in certain locations is really the optimal option for the roadway design.

i. This design exception is from MP 188.0 to MP 190.1. In this area we are holding the southern edge of pavement and widening into the median. It protects the slope, and the forested areas and we didn't want to get any closer to Black Lake. John said it will leave room for water quality features on the south side in those areas where we are still refining and designing right now. There is also another wildlife crossing that is in the area.

As we move farther long, if we push the roadway further south it generates larger and larger walls for the future truck parking expansion and push it farther into the forested area. Widening into the median helps to reduce that. John said they met with the Forest Service extensively throughout this process and they don't want us to encroach onto Black Lakes Road because that's currently where they have all their winter recreation parking. They park there for the summer as well, but it doesn't fill up as much. They wanted us to stay away from there for snow storage and to make sure they don't lose any parking.

2. Design Exception Recommendations

- a. The ITF recommended and agreed to (with the amended orange text) for the Roadway Median Width Reductions.

Reduce the median width from MP 184.8 to 185.3, MP 186.9 to 187.4, and MP 188.9 to 190.1 to improve safety, to reduce wall area, to lessen impacts to the trail, forested areas, Black Gore Creek, Black Lake No. 1, to maintain effective wildlife crossing lengths, and to minimize disturbance areas.

We looked at the existing conditions and the environment. We balanced all the pieces of it so there were options and we planned for the future by seeing what the future widening would look like and brought that into consideration along with all the pieces of the design and everything that represents a core value and came up with this as the best balance possible.

1. Greg said we have followed the process and we've balanced all of the issues. I'll probably go offline on the bridge portion to understand why it is not feasible and maybe I was not explaining myself.
2. Greg said he thinks the other bigger issue is if you just add up the median reductions using the mileposts, that's 2.3 miles which is 23% of 10 miles. It's a $\frac{1}{4}$ mile here and a $\frac{1}{2}$ mile there and now we will have 7 miles of continuous median and that starts to take away from the Pass. There is a reason why this design criteria was put in. I think the design team has done a great job of really balancing but just be cautious this is just the uphill eastbound only design and we have a lot of design to go over the years. I think when there is widened medians, we have the ability to go 10' but when we're going down and reducing any kind of green space and extending the barrier that is already there we have to be cautious.

Mary Jo said she agrees, that is one of the real challenges of this Corridor and many other designs. It is easy to say, oh well, this is just a little bit here and there and then in the end you have a cumulative impact. I have watched this design team and they have balanced all the issues. They have also considered the future so that when the additional widening of east or westbound happens, there won't be additional design exceptions. That's already been considered into these exceptions and I really applaud them for that.