



**Floyd Hill - Early Projects**  
**ALIVE ITF Meeting**  
July 12, 2021, 1:00 PM to 3:00 PM  
Virtual - Google Meet

**Welcome and Introduction**

Vanessa Henderson, CDOT, welcomed the group and reviewed the agenda. Self-introductions followed. Attendees are listed at the end of the notes. Meeting materials are also attached.

**Project Status and Updates**

Vanessa provided an overview of project status. The I-70 Floyd Hill to Veterans Memorial Tunnels Environmental Assessment (EA) is complete and routing for signature. The EA evaluates two action alternatives, the Canyon Viaduct Alternative and the Tunnel Alternative, as well as the No Action Alternative. The Canyon Viaduct Alternative is identified as the preferred alternative. CDOT is planning a phased implementation approach for the Project, which includes the breakout of several project elements as Early Projects. The Early Projects include two wildlife crossings in Genesee and Empire, roundabouts on US 40 at the top of Floyd Hill (County Road 65 and Homestead Road), and micro-mobility improvements. The main Project is planned in two primary packages, which generally include westbound I-70, interchanges, and bridge replacements as the first phase, and eastbound I-70 and frontage road improvements in the second phase. CDOT has identified funding for the Early Projects and the first phase of the Project and is continuing to look for funding for the second phase; however, CDOT is confident that the full project will be funded and approved in the NEPA decision document in Spring 2022.

Vanessa noted that this meeting focuses on the wildlife crossing Early Projects.

**Meeting Objectives**

Julia Kintsch, Eco-Resolutions, reviewed the meeting objective to review the wildlife crossings and obtain ALIVE input on the preliminary designs.

**Background**

As part of the Floyd Hill EA, the ALIVE ITF reviewed wildlife crossings for the two Linkage Interference Zones (LIZs) in the Floyd Hill Project limits: the Beaver Brook LIZ and the Clear Creek LIZ. A wildlife overpass was recommended initially for the Floyd Hill area, near the elk meadows and Clear Creek High School. In 2020, the ALIVE ITF reviewed the planned overpass in more detail and determined that due to challenges at that location relative to the benefits to wildlife, alternate mitigation might be appropriate. The ALIVE ITF identified and reviewed several other crossing locations on I-70 within CDOT Region 1 (east of the Eisenhower-Johnson Memorial Tunnels) where crossings might have greater wildlife connectivity benefits and greater potential to reduce wildlife-vehicle collisions (WVC). CDOT committed to invest a commensurate amount of funding for the new crossing(s) of approximately \$17 million.



Ultimately, the ALIVE ITF identified six potential locations for alternative mitigation outside the Project area, prioritized the crossing locations, and determined that an underpass in Genesee (under I-70) and an overpass in Empire (over US 40 near the US 40/I-70 Empire Junction interchange) presented the greatest benefits. CDOT also committed to wildlife fencing in the Beaver Brook LIZ and maintaining and improving wildlife movement in the Clear Creek LIZ.

### Genesee Underpass

Julia reviewed the Genesee location. Pictures and renderings are available in the attached presentation.

This location is within the Mt. Vernon LIZ and it has the highest rate of WVC within the I-70 Mountain Corridor in Region 1. CPW has identified this location as an important wildlife crossing zone, and CDOT has identified it as a WVC hot spot that could benefit from safety improvements. Camera monitoring conducted by Singer et al. (2011) documented elk, mule deer, and other species here.

The crossing considered for this location is a bridge underpass, offset to the west side of the existing Mt Vernon Creek drainage culvert to shorten the structure length; it could potentially be constructed entirely within CDOT right of way. Land use is favorable for a crossing., The land on the south side is designated and maintained as open space by the Homeowner Association (HOA). On the north side, there is a vacant parcel that is for-sale-by-owner; CDOT would include the purchase of this parcel with the cost of the crossing for habitat protection to ensure its long-term viability and usability for wildlife.

Julia reviewed the design considerations for the crossing. The design is based on the wildlife underpasses used for the I-25 South Gap project (between Monument and Castle Rock). The crossing would be above and to the west of the creek. The preliminary concept specifies two 80-foot-wide and 138-foot-long bridges (from the animal's perspective). The existing median would be maintained. Approximately 2.5 miles of fencing would be included from the adjacent interchanges (Genesee Exit at MP 253.5 and Lookout Mountain Exit at MP 256).

**Question:** What about the median space? Would it create issues with lighting or shadows that may inhibit wildlife use?

**Answer:** In this situation where we have span bridges with large openings, the median opening does not create a light barrier as it would in the middle of a long, dark culvert. To minimize the impacts of traffic noise and headlights through the median opening, concrete walls (e.g., jersey barriers) will be placed around all four sides of the median opening.



**Question:** Is there PMJM habitat that needs to be considered? Or is it outside the elevation range?

**Answer:** It's about 7,300-7,400 feet in elevation, so is within the higher end of the elevation range. Francesca Tordonato, CDOT, noted that the drainage on the north side is quite degraded with little shrub cover. Also, the work will be above the drainage so habitat, if it were present, would not be affected. However, fencing associated with the underpass may cross other drainages and there has been little trapping in the area, so it will be important to review the potential habitat in more detail.

### Empire Overpass

Julia reviewed the Empire location. Pictures and renderings are available in the attached presentation.

This location is not on I-70 but is connected to the I-70 / US 40 Empire Junction interchange and part of the Empire Junction LIZ. This location primarily targets the Georgetown bighorn sheep population, which is the largest herd in the state. This herd ranges along the north side of I-70 from the Eisenhower-Johnson Memorial Tunnels to Clear Creek Canyon. This location has long been identified by CPW as the most important place for bighorn along the I-70 Mountain Corridor because of its value for long-term genetic connectivity between multiple sub-herds. In addition to bighorn sheep, elk and other wildlife are present in the area, a wildlife crossing would be designed to provide a safe passage for all of these species. It is also a location with a high incidence of vehicle/wildlife collisions.

The updated concept considered for this location is a bridge overpass connecting the steep slopes north of US 40 to the riparian drainage along the West Fork of Clear Creek. The parcel adjacent to the crossing location to the south was previously proposed (and rejected) for a quarry and the landowner has expressed interest in a conservation easement for the property; recently, CPW received a grant through CPW's Habitat Stamp Program to purchase a 123-acre conservation easement for this parcel, which will expand the Georgetown State Wildlife Area. CPW noted that other landowners on both the south and north sides of the proposed overpass may also be interested in putting easements on their properties. The Mountain Area Land Trust (MALT) is also pursuing an easement on 13 acres east of the CPW easement. (Refer to maps included in the presentation for more detail.)

The current design concept includes an 80-foot-wide and 100-foot-long bridge overpass. The dimensions are, in part, informed by the desert bighorn sheep overpasses in Arizona. However, the Empire overpass is being designed as a multi-species crossing to also provide passage for mule deer, elk, and other wildlife. Fencing is complicated in this area due to the desire to fence east and west of the crossing on US 40 and extend south along CR 257. In addition to fence extents, the



design needs to consider whether placing the fencing along the roadway at the base of the cliffs, both of which present logistical challenges.

**Question:** Will the fencing be rockfall fencing, and how will it be maintained?

**Answer:** Yes, the fencing on the northwest side of the overpass is likely to be rockfall fencing so that it is more durable and easier to maintain along this cliffy stretch. The fence would still be 8' high but would be different than traditional wildlife fencing. Guardrail will also likely be required through this section. There must be room behind the fencing for CDOT maintenance to access and remove rocks. Elsewhere, the fencing will be standard wildlife fence with wood posts.

**Question:** Would the location or design be affected by the future reconfiguration of the Empire Junction interchange and ramps?

**Answer:** We looked at the likely footprint of Empire Junction and think the crossing would be outside of the future construction area. CDOT also looked at the AGS alignment and stations and think those will fit as well.

**Question:** Will the crossing encourage sheep use and potentially create issues with WVCs on I-70?

**Answer:** The purpose of this crossing structure is to provide east-west connectivity across US-40, along the north side of I-70. Movements to the south are more about accessing roadway salts on I-70 than accessing habitat on the other side. This project may not fully address the WVC concern on I-70 and specifically, the CR 257/I-70 on ramp.

**Question:** Are there any issues with escape ramps and how often do they occur on the east side of the crossing (the pink area on the map)?

**Answer:** The general guideline is 4 ramps per mile, which works out to about every 0.5 miles alternating between the two sides of the roadway. We have not gotten into the details of placing of ramps but those will be a consideration after the fencing is set/worked out.

**Question:** Is there a concern with the area that looks like an avalanche chute northeast of Empire?

**Answer:** This would be good to discuss with CDOT maintenance to determine whether there are any avalanche concerns in this area.



**Question:** On the KMZ, it looks like the proposed fencing stops short of CR 255. Are there two fencing options in this area?

**Answer:** This is a mistake in the KMZ; fencing is intended to continue to CR 255.

The group noted that it would be important to follow up with the Town of Empire since Wendy missed the meeting (although she had confirmed that she would attend). Vanessa said she will contact her and update her on the meeting.

### **Education, Outreach, and General Discussion**

Julia said that the team would engage CPW and the Transportation Alliance to tell the story of the crossings. She said press releases would be timed during construction and completion to publicize the crossings, as was done successfully for the I-25 South Gap.

Amy Saxton noted that the Transportation Alliance includes a new education component and suggested Heather Hubbard be engaged. Heather is already starting to work with select schools in Clear Creek County.

**Question:** Would electronic signage be included at the fence ends?

**Answer:** The design has not progressed to that level of detail but it is typical for signage to be included warning drivers where wildlife fence ends. Typically, static signage is sufficient for these purposes.

**Question:** are there other educational opportunities for travelers to learn about the design, purpose, and effectiveness of the overpass? People may want to stop to view sheep or the crossing so there may be an opportunity for some sort of educational signage or kiosk.

**Answer:** Yes, this may be a good opportunity since people are likely to stop in the existing parking pull off area anyway. It might also provide an opportunity to discourage people from using the crossing and disturbing sheep or other wildlife.

### **Next Steps and Summary**

Julia encouraged participants to reach out with additional comments or questions if any came up after digesting the materials. She said that a site visit with ALIVE ITF would be planned in August before finalizing the 30 percent design plans about October 2021. She said construction of the crossings could begin in summer 2022. Mandy clarified that CDOT intended to use a traditional design-bid-build construction delivery approach so there would be additional ALIVE input needed through final design between the end of 2021 and spring/summer 2022.



Julia summarized action items from the meeting:

**ACTION:** Set up ALIVE field meeting; send Doodle poll to identify the best date.

**ACTION:** Follow up with Empire to discuss the Empire crossing, particularly fencing and visual impacts.

**ACTION:** Set up meeting and field review with CDOT Maintenance to discuss fencing, particularly at Empire.

**ACTION:** Discuss Genesee crossing and fencing extents with CPW and Denver Mountain Parks.

#### Attendees

Vanessa Henderson, Erik Schmude, Francesca Tordonato, Kevin Brown, Matthew Smith, Tamara Burke, Tyler Brady (CDOT); Aurelia DeNasha, Scott Haas (US Forest Service); Kristin Salamak (USFWS); Chelsea Beebe (Jefferson County); Stephanie Gibson (FHWA); Joe Walter, Tim Woodward (CPW); Amy Saxton (Clear Creek County); Julia Kintsch ECO-resolutions); Anthony Pisano, Keith Hidalgo (Atkins); Mandy Whorton (Peak Consulting Group).



# I-70 Floyd Hill to Veterans Memorial Tunnels

**ATKINS**  
Member of the SNC-Lavalin Group

## ALIVE Meeting #7

July 12, 2021



# Introductions

---

- Name
- Position
- Agency/Company



# Project Update

---

## ➤ Alternatives evaluated in the Environmental Assessment (EA)

- No Action Alternative
- Tunnel Alternative
- Canyon Viaduct Alternative (*Preferred Alternative*)



## ➤ Project Status

- Preliminary design complete (20% Level)
- EA anticipated to be complete in Summer 2021
- Project total cost estimated at \$700 million
- Strong stakeholder and public support
- Phased implementation delivery strategy

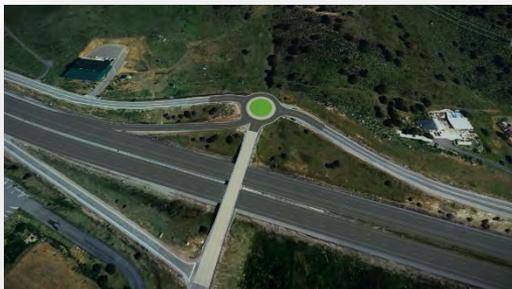




# Project Update

- Early Projects (approximately \$20 million):
  - Two wildlife crossings (Genesee and Empire)
  - Roundabouts on US 40 at CR 65 and Homestead
  - Micro-mobility improvements
- \$700 million total project cost - broken into two primary packages
  - \$450 million (includes early projects' cost) - Package 1 - Westbound I-70, Interchanges, Bridge Replacements
  - \$250 million - Package 2 - Eastbound I-70 and Frontage Road

Roundabout at US  
40/Homestead



Roundabout and micro-  
mobility area at US 40/CR  
65



## Meeting Objectives

---

- Review wildlife crossing early projects for the I-70 Floyd Hill to Veterans Memorial Tunnels project and obtain ALIVE input for 30% design



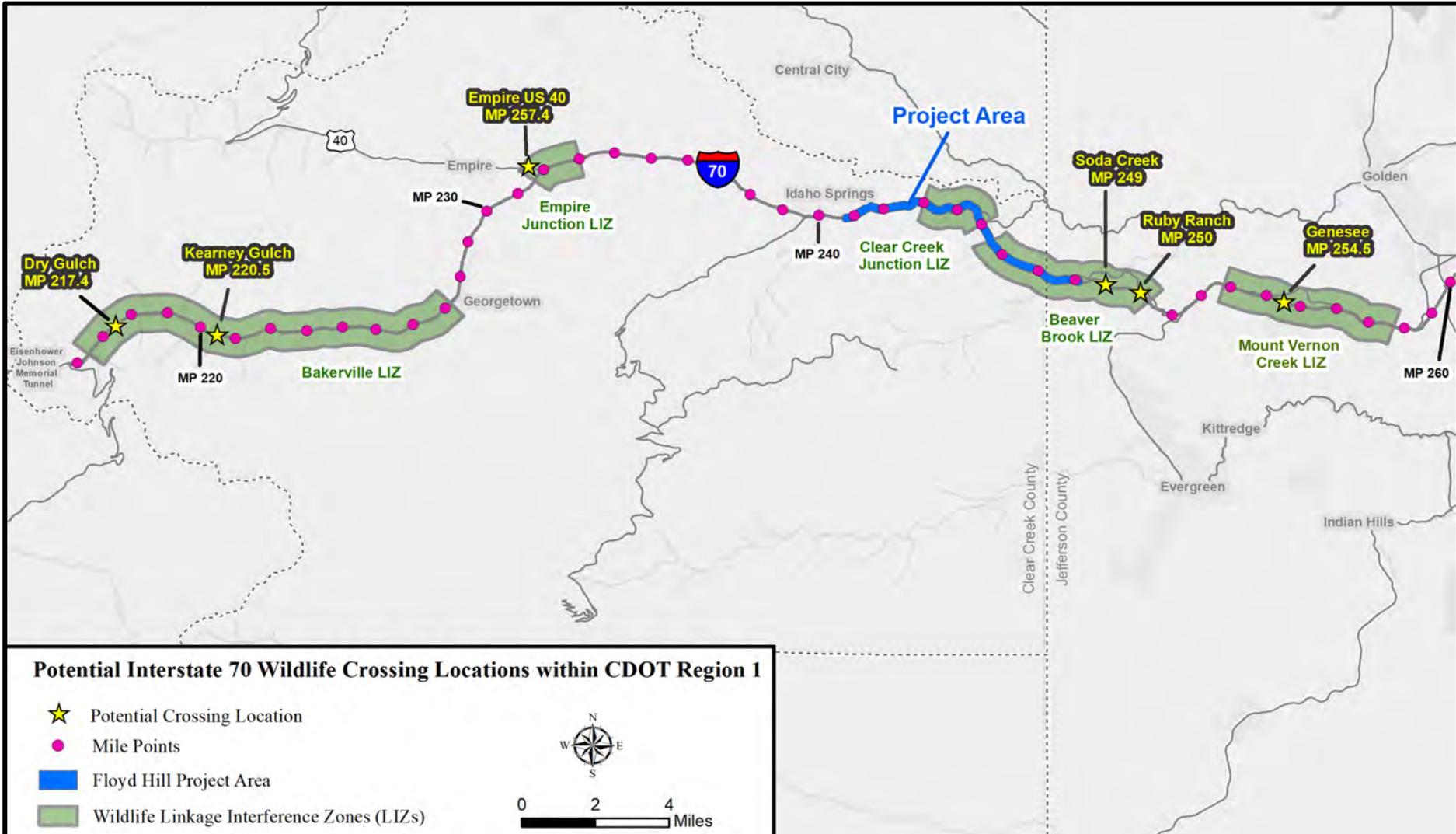
## EA Process Background

---

- In 2020, the ALIVE ITF (Meetings 5 & 6) determined that as a result of the challenges associated with a wildlife overpass at Floyd Hill, this budget would instead be used to construct wildlife crossings at other locations on I-70 in Region 1 where these investments would have a greater benefit for wildlife connectivity and reducing wildlife-vehicle collisions (WVC)
  - Estimated \$17M for overpass and partial acquisition of property adjacent to overpass
  - The ALIVE ITF identified and ranked alternative mitigation projects on the I-70 Mountain Corridor in Region 1
  - Project mitigation would still be required to reduce WVC in the Beaver Brook LIZ and to maintain wildlife connectivity in the Clear Creek LIZ
- For additional information, please reference the Wildlife Crossings Mitigation Technical Report



## Alternative Mitigation Outside of Project Area





# Review of Wildlife Mitigation Components

---

- Within project limits:
  - Wildlife fencing from the top of Floyd Hill to east of Soda Creek Road to mitigate WVC within the Beaver Brook LIZ
  - Wildlife benches/pathways under bridges over Clear Creek in the Clear Creek LIZ
- Ranked alternative mitigation projects outside of project limits:
  1. Genesee underpass
  2. US 40 Empire overpass



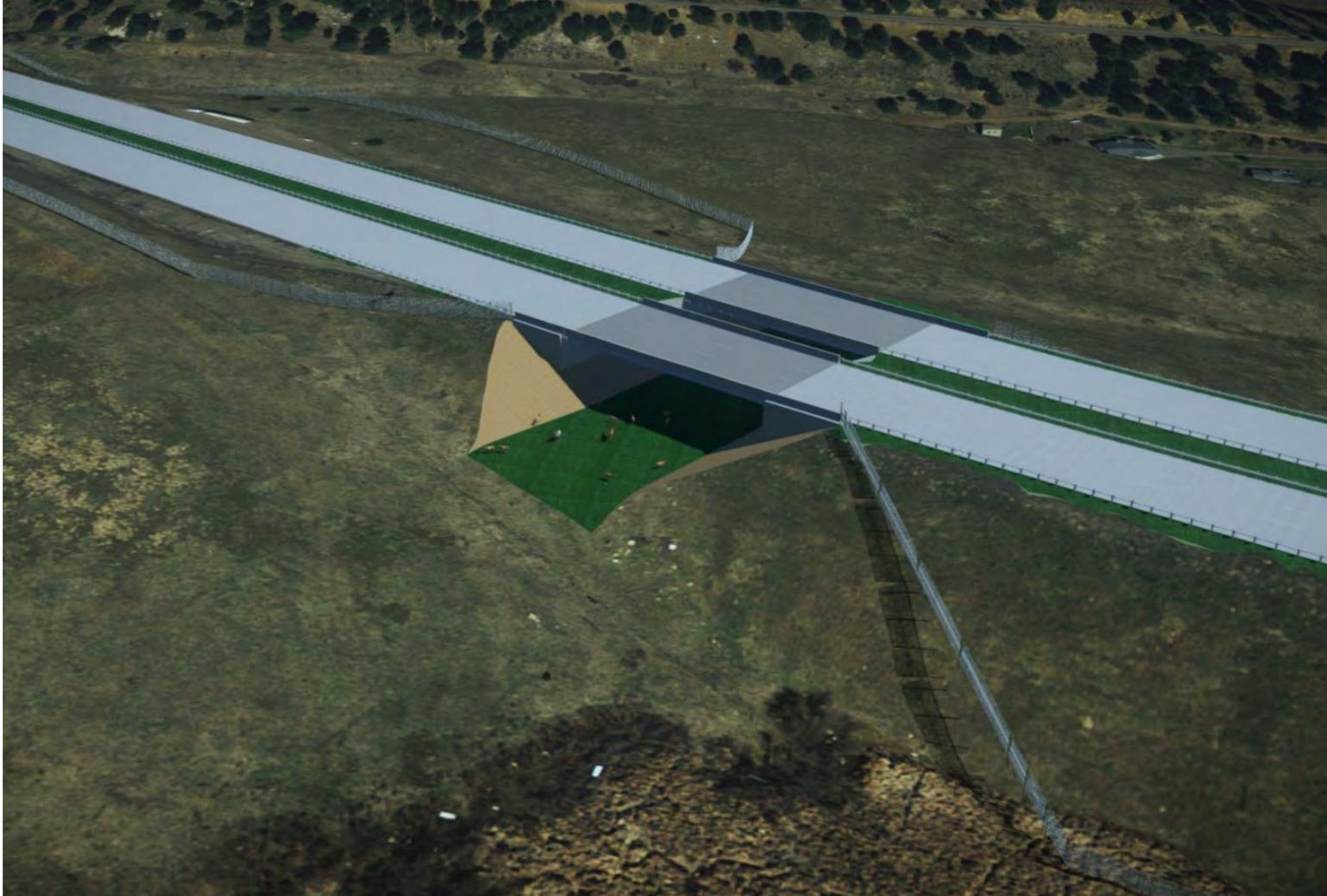
# MP 254.5 – Genesee Wildlife Underpass

← 1 mile to Genesee Exit





# MP 254.5 – Genesee: Wildlife Underpass





# I-70 Genesee Design Considerations

---

- Preliminary specifications:
  - Two 80' wide x 16' high x 138' long bridges
    - 3:1 side slopes with 2' bench; 50' width at toe of slopes  
Length includes 32' open median between bridges
  - Design based on I-25 South Gap Project
    - Narrower bridge width (80' vs. 104')
- Fencing
  - From Genesee Exit (MP 253.5) to Lookout Mountain Exit (MP 256)
  - Coordinate west fence end with Denver Mountain Parks and CPW

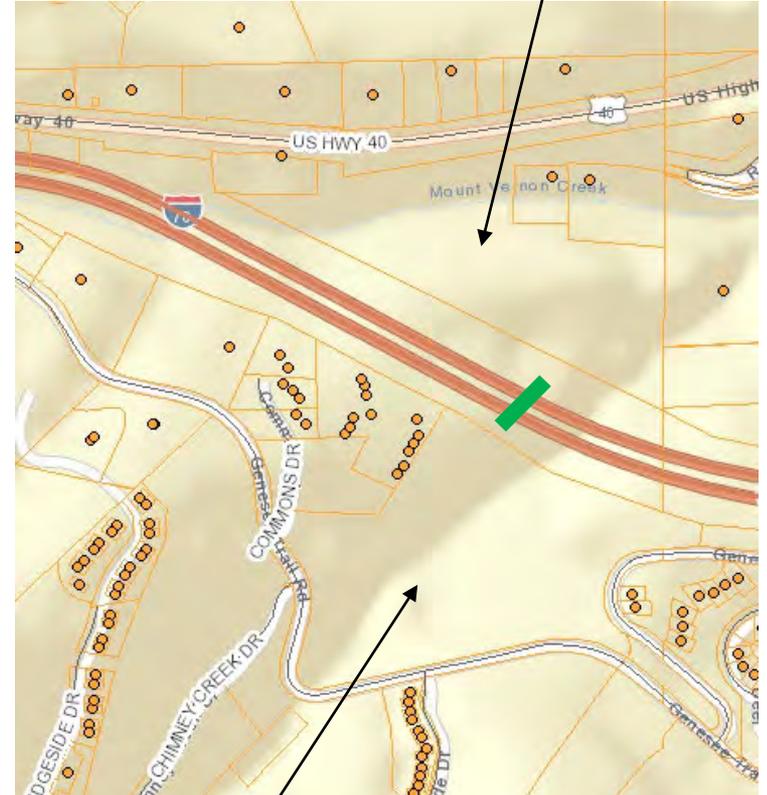


# MP 254.5 – Genesee: Habitat Protection

← 1 mile to Genesee Exit



Vacant land for sale \$800,000



HOA open space



# I-70 Mountain Corridor CSS Guidance

- Use open span bridges to improve visibility for wildlife
- Coordinate roadway and bridge design with natural occurring landforms and associated wildlife movement patterns
- Wildlife fences will blend into the environment and use the same design throughout the corridor

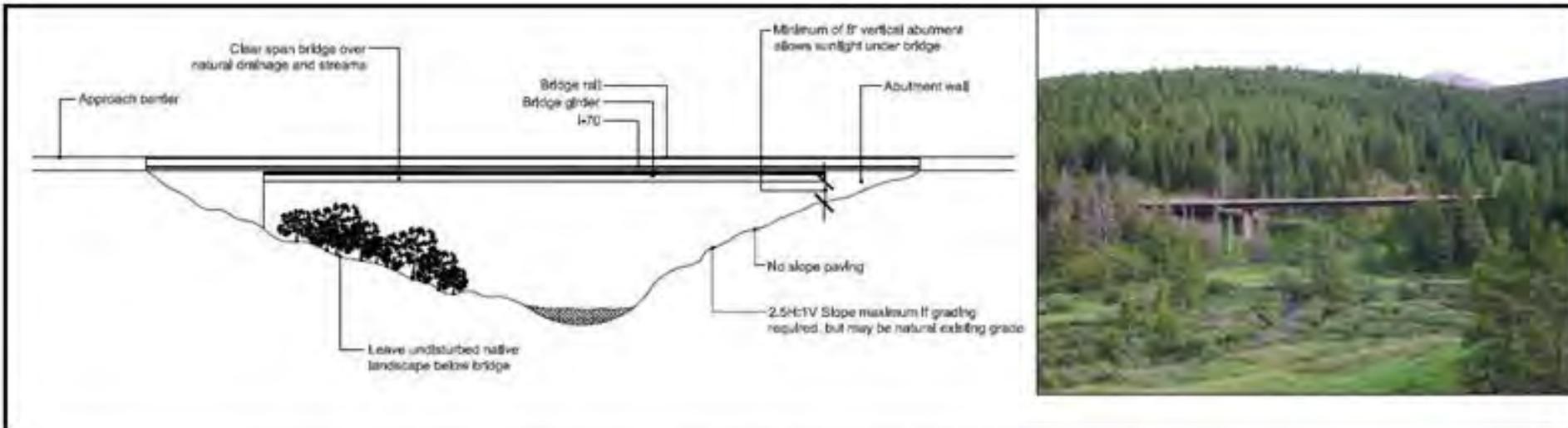


ILLUSTRATION 4: DESIGN CRITERIA FOR I-70 BRIDGE  
OVER NATURAL FEATURES OR OTHER ROADWAYS



## US 40, MP 257.4 – Empire: Wildlife Overpass



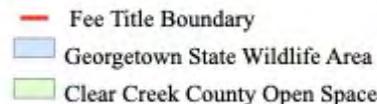


# US 40 Empire: Habitat Protection

DOUGLAS MOUNTAIN RANCH AND PRESERVE PROPERTY MAP



- CPW successful in acquiring grant for 123-acre expansion of the Georgetown State Wildlife Area
- MALT will investigate pursuing an easement on 13 acres of Placer property





# US 40, MP 257.4 – Empire: Wildlife Overpass



From southwest



From east



# US 40 Empire Design Considerations

---

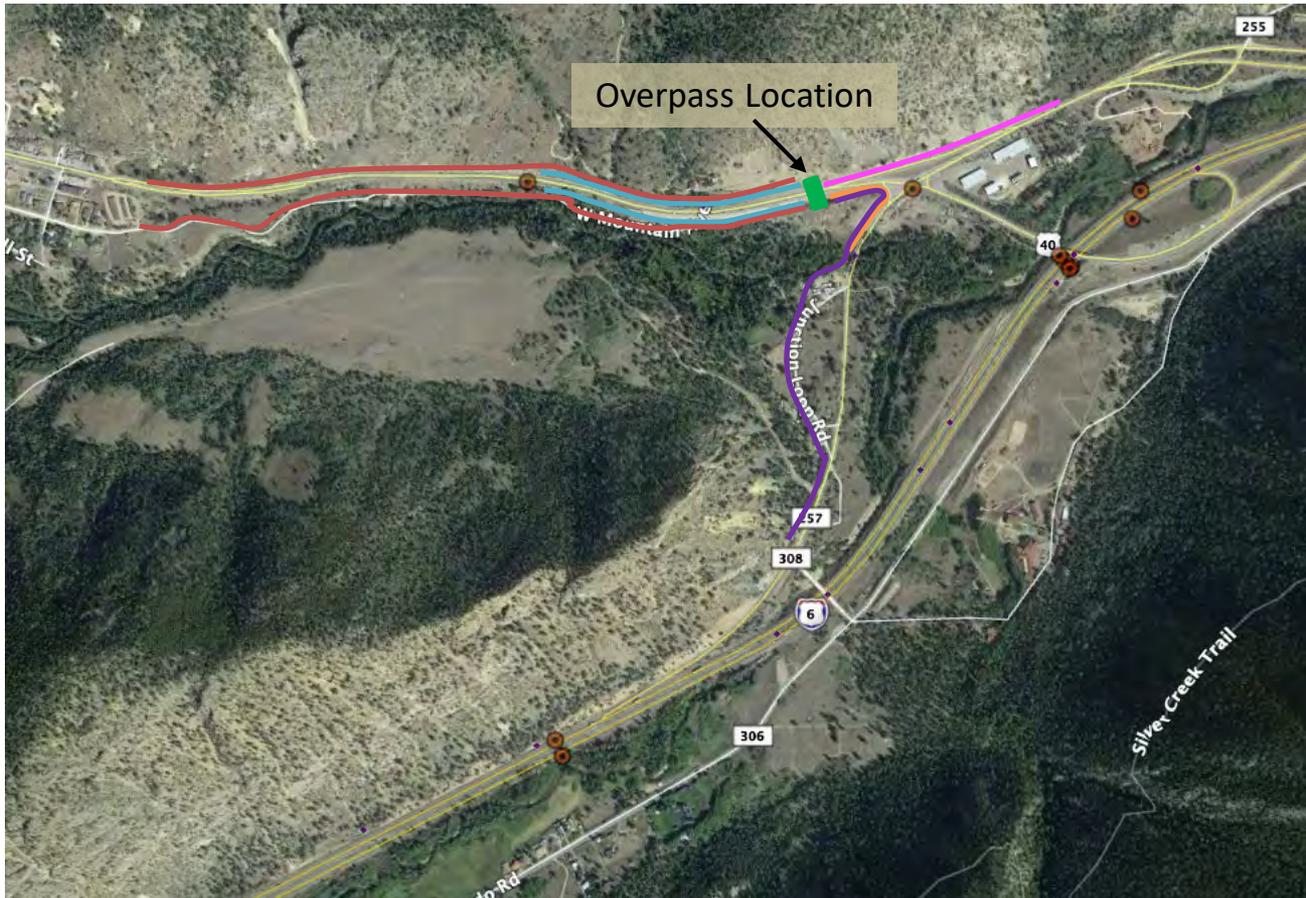
- Preliminary specifications:
  - 80' wide x 100' long
  - 4% slope
  - 3:1 approach slope on south side to connect to the existing terrain; north end of overpass connects directly into slope face (~1.5:1)
  - Overpass width based on road footprint and research on desert bighorn sheep overpasses in Arizona
- Fencing
  - Fence along base of cliffs or on cliffs?
    - Use rockfall fencing (must be out of clear zone or requires guard rail)
  - Fence extents?



# US 40 Empire: Fencing

West on US 40:  
— End at MP 257?

— Or fence to town limit (off CDOT ROW)



East on US 40:  
— How far?

South on CR 257:  
— End at creek?

— Tie into cliffs?



## Education and Outreach

---

- Engage the Colorado Wildlife and Transportation Alliance in telling the story of these crossings
- Press release during construction and at project completion



## Next Steps

---

- ALIVE ITF Site Visit – August
- Complete 30% design and NEPA – October
- Construction could potentially begin in summer 2022