



Floyd Hill - ALIVE ITF Meeting #6 Notes
May 19, 2020, 9 AM to 12 PM
Zoom Meeting

Welcome and Introductions

This meeting was held as an online, virtual meeting due to restrictions related to COVID-19. The meeting began with Julia Kintsch, ECO-resolutions, welcoming the group, which was followed by roundtable self-introductions. Kristin Salamack provided a longer introduction as the newest member of the ALIVE Committee, replacing Alison Deans Michael as the Colorado Department of Transportation (CDOT)/US Fish and Wildlife Service (USFWS) Liaison. A complete list of attendees is provided at the end of these notes.

Review of Decisions to Date and Follow-up on Action Items from February 2020 ALIVE meeting

At the February 2020 ALIVE meeting, the Committee determined that Mitigation Option B (alternative mitigation on the I-70 Mountain Corridor in Region 1) offered greater potential benefits in terms of wildlife connectivity and reducing wildlife-vehicle collisions (WVCs) than Mitigation Option A (an overpass at Floyd Hill). It was noted that Mitigation Option B also included wildlife fencing from the top of Floyd Hill to east of Soda Creek to reduce incidence of WVCs in this segment of the Beaver Brook Linkage Interference Zone (LIZ).

Action items from the February 2020 ALIVE meeting were discussed as part of the meeting and are included in these notes.

Beaver Brook LIZ Mitigation: Evaluation of Mitigation Alternatives in the I-70 Mountain Corridor Region 1

Julia provided an overview of the updated mitigation matrix, presented in three categories, each of which is discussed below: 1) Mitigation Option A, for comparison purposes; 2) Mitigation Option B, within project area mitigation; and 3) Mitigation Option B, outside of project area mitigation.

Kristin asked for background on the 2003 LIZ rankings. Julia provided a brief history of the origins of the ALIVE Committee and the initial identification of LIZs in 2003, and the subsequent refinement of LIZ segments as a part of the 2011 I-70 EcoLogical Study. **Follow-up: After the meeting, Julia sent Kristin the I-70 EcoLogical Report and the FHWA EcoLogical guidance document.**

1) Mitigation Option A, Floyd Hill Overpass (for comparison purposes):

The cost of the Floyd Hill overpass and associated partial acquisition of properties immediately adjacent to the overpass is estimated between \$15-20 million. The Floyd Hill project design and cost estimate is still evolving but this is the amount (\$15-20M) that is anticipated to be available for alternative wildlife mitigation.

Julia noted that while high level cost estimates were being presented for context for each of the mitigation sites, the ranking of mitigation options should be based on biological and safety values rather than cost.

2) Mitigation Option B: Mitigation Within Project Area

Mitigation locations within the project area include habitat protection of the meadow-wetland complex at the top of Floyd Hill on the south side of I-70, and a wildlife underpass at Soda Creek.

- a) MP 247: Floyd Hill Habitat Protection. The meadow-wetland complex is comprised of four privately owned parcels, which, for discussion purposes, have been labeled parcels 1, 2, 3 and 4.
- b) MP 249: Soda Creek Wildlife Underpass. There are existing eastbound and westbound bridges at this location for Soda Creek Road, a low volume dirt road used for local, residential access. This mitigation option would construct a new, dedicated wildlife underpass east of the roadway bridge, spanning the Soda Creek drainage. Joe Walter, Colorado Parks and Wildlife (CPW), noted that CPW had a trail camera at the roadway crossing from February through April 2018, which documented mostly deer and some fox using the road bridge to cross under I-70. Joe has also observed turkeys and elk tracks beneath the bridge.

As a follow-up from the February 2020 meeting **regarding the potential for Preble's Meadow Jumping Mouse (PMJM) habitat** along Soda Creek, Francesca Tordonato, CDOT, reviewed habitat maps and reported that the Soda Creek drainage is not contiguous with the occupied range. She noted that no trapping has occurred in the Soda Creek drainage and determining the presence of PMJM (USFWS threatened, Tier 1, Species of Greatest Conservation Need) in this area would require further investigation.

Question: Chelsea Beebe, Jefferson County, asked whether there are opportunities to improve the Soda Creek Road bridge to enhance its functionality as a multi-use wildlife crossing?

Answer: Julia replied that large and medium-sized mammals in this area are generalist species (e.g., mule deer, elk, black bear, coyote, bobcat, fox). Existing conditions at the Soda Creek bridge are adequate for these species to use the road bridge as a crossing under I-70, and the frequency of use is expected to increase with the installation of wildlife fencing along this segment, which will help to guide animals to this location. Conditions at the road bridge could be enhanced for small mammal passage with the addition of woody debris along the sides of the roadway at the base of the riprap slopes to provide cover for smaller prey species. Such an action would require coordination with the Jefferson County Roads Department.

Question: Is directing animals to use a roadway crossing under I-70 a good idea? Would it increase WVCs, especially if traffic volumes increase on Soda Creek Road?

Answer: Soda Creek Road is a very low volume road with low traffic speeds, particularly around the intersection immediately north of the roadway bridge. Given local land use and zoning, it is highly unlikely that traffic volumes or traffic speeds will increase in the future. Joe stated that he was not aware of any WVCs on Soda Creek Road (although this segment of I-70 is a WVC hotspot).

3) Mitigation Option B: Mitigation Outside of Project Area

Design concepts and high-level cost estimates were presented for five locations in CDOT Region 1 of the I-70 Mountain Corridor:

- a) MP 254.5: Genesee Wildlife Underpass and Habitat Protection. The concept for this location is two bridge underpasses beneath the opposing traffic lanes with an open median. **The dimensions of the crossing from the perspective of wildlife passing beneath is 16' high by 100' wide by 130' long.** The estimated cost for this underpass is between \$4.5-5.5 million. The property adjacent to the crossing structure on the south side of I-70 is owned by Genesee Village Homeowner's Association (HOA) and is managed as open space. **On the north side of I-70** there is a 17-acre vacant land parcel that is currently for sale. Julia recommended protecting this parcel be considered in conjunction with a wildlife underpass at this location.

- b) MP 250: Ruby Ranch Wildlife Underpass and Habitat Protection. This proposed wildlife crossing is located in a large fill slope west of the I-70 El Rancho (Evergreen) eastbound exit. The concept, dimensions, and cost estimate for this location are the same as the Genesee location. This location is also surrounded by private lands. Julia identified three partial parcels adjacent to the wildlife crossing (excluding the portions of each parcel with a residence) that could be considered for acquisition in conjunction with the construction of a wildlife underpass. None of the parcels are currently for sale and the **landowners' willingness to sell is unknown**. Julia noted that while land acquisition could be considered, due to the land use and zoning in this area and the width of the CDOT right-of-way, that acquisition of these partial parcels is not essential either for the long-term functionality of the wildlife crossing or to construct the crossing, which could be built entirely within the right-of-way.

Question: Vanessa Henderson, CDOT, asked whether the steep embankments would limit wildlife access to the underpass, particularly on the north side of the underpass?

Answer: Julia said that wildlife learn where crossings are located, and game trails could be constructed on the slope to help direct animals to the crossing. Stephanie Gibson, Federal Highway Administration (FHWA), noted that the North Underpass on State Highway 9 in Grand County also has a steep approach and poor visibility from the west entrance. Julia commented that despite this feature, deer, elk and a number of other species have regularly crossed through the underpass.

Question: Chelsea asked whether traffic on US 40 to the north of this location would present a conflict?

Answer: Joe commented that traffic volumes are very low on this section of US 40, and Amy Saxton, Clear Creek County, confirmed that traffic along this segment is primarily for residential access into this area, which is characterized by low density development. Julia said that if a wildlife crossing was constructed on I-70 at this location, complementary mitigation could be implemented on US 40, such as roadside vegetation clearing to improve driver visibility and targeted signage to alert drivers.

- c) US 40, MP 257.4: Empire Wildlife Overpass. The concept for this location is an arch overpass spanning US 40. The width of the overpass for wildlife crossing is 100 feet. The estimated cost for this overpass is between \$3-4 million. While the target species for the overpass is bighorn sheep, elk and other wildlife are also present in the area, and the overpass would be designed as a multi-species crossing. The parcel immediately south of this location that was previously proposed (and rejected) for a quarry. The Mountain Areas Land Trust (MALT) is now in conversations with the landowner regarding putting a conservation easement on the property. Francesca and Joe, who had a phone meeting with MALT representatives in the last week, reported that landowner is supportive, and MALT has applied **for a grant to CPW's Habitat Stamp Program** to purchase the conservation easement. Joe reported that other landowners on both the south and north sides of US 40 around the proposed overpass may also be interested in putting easements on their properties.
- d) MP 220.5 and MP 217.4: Kearney Gulch Wildlife Overpass and Dry Gulch Wildlife Overpass. These two potential crossing locations were discussed together. The primary target species for both of these crossing locations is Canada lynx. At the February meeting, the group had noted that future improvements in this segment are likely but, as of yet, undetermined. Consequently, wildlife mitigation at either of these locations could result in throw-away costs. In addition, a future transportation project in this area would require additional wildlife mitigation. Joe commented that when wildlife mitigation is pursued in this area, that the Kearney Gulch location should be prioritized over Dry Gulch because it is less impacted by

recreation activities and it is farther from the land bridge over the Eisenhower-Johnson Memorial Tunnels.

Question: Kristin asked if there have been any recent Canada lynx studies?

Answer: Joe replied that CPW has not conducted any lynx studies since 2016.

Question: Kristin asked if there are any projects that would come later in this segment?

Answer: Vanessa replied that both the Maximum Program and Advanced Guideway System (AGS) are planned in this area but the timing of these projects is unknown. If either is implemented, wildlife mitigation would be included with those projects in accordance with the ALIVE MOU.

Discussion and Prioritization of Mitigation Options

Mandy Whorton, Peak Consulting Group, conducted a Zoom poll to get an initial assessment of the **group's preferences and to kick off the discussion about ranking each of** the locations. Each meeting participant was asked to select their top 3 locations. The poll results were as follows:

- 70% identified Genesee and 30% identified Empire as their top location;
- 60% identified Empire, 30% identified Genesee, and 10% identified Ruby Ranch as their second location;
- 50% identified Ruby Ranch, 40% identified Soda Creek, and 10% identified Empire as their third location.

The group then discussed their rankings and that factors that influenced their initial prioritizations. These notes, along with previous discussion points about each of the locations, are captured in the ranking table below.

Julia noted that this ranking will guide decision-making for determining equivalent Floyd Hill project mitigation and may also be used to help inform future mitigation projects in the Mountain Corridor in Region 1.

I-70 Mountain Corridor - Mitigation Locations Ranking

General Notes

- All crossings would include fencing (about 1 mile in each direction)

Mitigation Option	Ranking Notes	RANK
Genesee	<ul style="list-style-type: none"> Confirmed that south parcel is HOA-owned open space (won't be developed) Wouldn't want to pursue habitat parcel alone (without the crossing) but if a crossing were developed, the "for sale" parcel could be a good opportunity to improve the long-term success of the crossing, and we know the landowner is willing since it is for sale <ul style="list-style-type: none"> The acquisition of parcel or other long-term conservation agreement is important and recommended in addition to the crossing; agreement that it should be a package component since the opportunity is there now. One of the highest WVC areas on the corridor Locations is on I-70 with high recorded WVCs Supplementary mitigation funding may be available through CODT Traffic and Safety, which has identified this segment as a WVC problem area (could potentially leverage safety funding) 	1
US 40 Empire	<ul style="list-style-type: none"> Long-time priority for CPW (genetic connectivity of herds) and herd protection (high mortality in winter/early Spring) Landowner of property adjacent to crossing location on south side has applied for a CPW grant for a conservation easement and other adjacent property owners may also be interested in potential conservation easements, so there is excellent potential for habitat protection around crossing High biological value for Georgetown bighorn sheep herd Not on I-70 but within the LIZ and would improve connectivity within the Mountain Corridor Does not address project impacts; nor does it target elk or deer (target species in the Beaver Brook LIZ), although the crossing would be designed for multi-species use High species diversity of anticipated use 	2
Ruby Ranch	<ul style="list-style-type: none"> Habitat protection: would not recommend full acquisition of parcels but just the undeveloped portions without any buildings (parcels are 5-6 acres); Current zoning would not allow additional development so land acquisition may have less value 	3

	<ul style="list-style-type: none"> ○ Land acquisition is not recommended because the land is already unlikely/unable to be further developed; may want to discuss with land owners but habitat is likely to be maintained anyway (without acquisition) ○ Landowner of large parcel on north side of US 40 could be subdivided, but there are currently no plans for development; if developed, it would be very low density. ● Site considerations may make this location potentially less effective and/or require additional considerations: <ul style="list-style-type: none"> ○ Steep north embankment. Would it be hard for animals to find the crossing? Deer, which are the target species in this area, are adaptable and would quickly learn to use the crossing. Elk and other species are expected to learn to use it over time. ○ US 40 conflicts. In this location, US 40 has very low traffic volumes (most traffic is on I-70 in this location) so generally not an issue; may need signage to alert US 40 drivers if crossing is implemented. ● Ruby Ranch is a higher priority than Soda Creek because it would be a new crossing location since Soda Creek already has a crossing opportunity at the roadway bridge 	
Soda Creek	<ul style="list-style-type: none"> ● Area of high WVCs. Fencing already included in the Project mitigation is expected to be effective in reducing WVCs and directing wildlife to the roadway bridge <ul style="list-style-type: none"> ○ Soda Creek is already planned to be fenced; a separate structure in addition to the road underpass is less of a priority since a crossing opportunity already exists in this location ○ Species potentially using this crossing are generalist species that will likely use the low-volume road crossing without additional enhancements ○ Some cover might be beneficial to smaller species ○ Because this is a dry crossing (not associated with a drainage) with a dirt/gravel surface, benches or other enhancements are not needed ○ CDOT Bridge may be sensitive to embankment or slope changes to retrofit for wildlife use ● A dedicated wildlife crossing would provide more value than current road crossing <ul style="list-style-type: none"> ○ Could potentially be something that elk herd at Beaver Brook might find and use once fencing is constructed from Floyd Hill to Soda Creek ○ Providing a new crossing designed for wildlife is a better solution than funneling animals to use a road crossing (although the road is low volume) ○ Residences close to Soda Creek may complicate land use around a new crossing at the creek ● Some wildlife activity observed by CPW under the roadway bridge <ul style="list-style-type: none"> ○ Animals are using the crossing now, and the fencing will help direct them to it ○ Trail camera under the bridge 2018 captured mostly deer, who used the middle of the road; some foxes on camera and evidence of elk (tracks) and observation of turkeys 	<p>New crossing is a lower “next” priority</p> <p>Including cover for small fauna at the existing roadway is a priority</p>

	<ul style="list-style-type: none"> • PMJM potential <ul style="list-style-type: none"> ○ Habitat does not appear to be contiguous or high value based on data and map review ○ Field investigation would be needed to definitively determine presence of PMJM 	
Floyd Hill (habitat protection)	<ul style="list-style-type: none"> • Four parcels identified with habitat value and are currently home to a large elk herd. <ul style="list-style-type: none"> ○ Parcels may or may not be able to be acquired; unknown if land owners would be interested in selling ○ Some parcels may be protected by land owners (Frei's purchase of parcel 1) or development restrictions (wetlands on parcel 3) ○ May want to discuss conservation opportunities for parcel 1 since it seems the Freis may be interested in protection ○ Parcel 4 is slated for high-density development and remains a concern for habitat protection ○ Of the parcels under consideration, priorities, if land acquisition were pursued, would be 2 and 4 because those are most at risk; parcel 3 may be more available due to the presence of wetlands and lack of development potential ○ Could develop partnerships with land owners or land trusts/NGOs to pursue land conservation for these parcels • Habitat protection is valuable but not as valuable without a crossing, and the other locations represent new crossings and more appropriate for connectivity mitigation across I-70 in line with ALIVE MOU 	<p>Lower "next" priority</p> <p>Pursuing partnership (e.g., Mountain Areas Land Trust) discussions is a priority</p>
Kearney Gulch	<ul style="list-style-type: none"> • High biological value • Could be included in future project but timing is unknown • High cost structures that could be throw-away • Compared to Dry Gulch, this may be a better location given the high recreation use at Dry Gulch and location farther from EJMT, which already provides some crossing opportunity 	<p>Lower priority for Project mitigation than Floyd Hill and Soda Creek</p>
Dry Gulch	<ul style="list-style-type: none"> • High biological value • Could be included in future project but timing is unknown • High cost structures that could be throw-away 	<p>Lowest priority for Project mitigation</p>

Next Steps

- Document ALIVE agreements in the Wildlife Mitigation Technical Report, which will be included as an appendix to the Environmental Report for the Environmental Assessment (EA).
- Incorporate wildlife mitigation commitments into the EA mitigation.
- Reconvene the ALIVE Committee during final design of the wildlife crossings once construction funding is identified.

Attendees

Amy Saxton (Clear Creek County); Stephanie Gibson and Melinda Urban (FHWA); Vanessa Henderson, Neil Ogden and Francesca Tordonato (CDOT); Kristin Salamack (USFWS); Aurelia DeNasha (USFS); Joe Walter (CPW); Chelsea Beebe (Jefferson County); Anthony Pisano and Carol Coates (Atkins); Julia Kintsch (ECO-resolutions); Mandy Whorton (Peak Consulting Group).

Agenda



I-70 Floyd Hill to Veterans Memorial Tunnels

Project: I-70 Floyd Hill to VMT
Meeting: ALIVE Meeting #6
Date: May 19, 2020, 9:00am-12:00pm
Location: Zoom meeting
<https://zoom.us/j/93456111310?pwd=RnZVWDRHMEYzR3dwRFY2cFRXTFBHZz09>
Meeting ID: 934 5611 1310
Password: 471960

Meeting Objective:

- Obtain ALIVE Committee recommendation on which combination of mitigation options in the mitigation matrix to pursue as mitigation for the Floyd Hill project

Agenda:

- 1) Welcome / Introductions
- 2) Follow-up on Action Items from February ALIVE Meeting
- 3) Beaver Brook LIZ: I-70 Mountain Corridor Region 1 Evaluation of Mitigation Options
 - a) Mitigation Option A: Floyd Hill overpass (for comparison purposes)
 - b) Mitigation Option B:
 - i) Mitigation within project area
 - ii) Mitigation outside of project area
 - c) Discussion and prioritization of mitigation options
 - i) Short list of mitigation options for Beaver Brook LIZ mitigation
- 4) Next Steps / Action Items

Milepost	Location Name	LIZ Name	Crossing Type or Habitat Protection	Biological Value & Considerations	2003 LIZ Rank*	WVC Crashes†	WVC Carcasses	Landownership & Land Use Considerations	Feasibility	High Level Cost Estimate††	ALIVE Rank
MITIGATION OPTION A (FOR COMPARISON PURPOSES ONLY)											
247.2	Floyd Hill	Beaver Brook	Overpass (storage units location) + partial acquisition of property adjacent to overpass	<ul style="list-style-type: none"> • Primary target species: Elk and mule deer. Resident elk commonly use the meadow on the south side of I-70 • Location addresses connectivity within the Beaver Brook LIZ and the Floyd Hill project area • Overpass construction impacts to wetlands 	Low	• High (2.9 WVC/mile/year)	• WVC Carcass: High (2.3 WVC/mile/year)	<ul style="list-style-type: none"> • Extensive dispersed residential development and a proposed 400 unit development immediately on south side. Concern that wildlife use of the overpass will become restricted by potential future development and recreation north and south of I-70 • Open space and undeveloped parcels to north • Human use possible 	<ul style="list-style-type: none"> • Very complex human landscape renders this area unfavorable for a large investment in wildlife crossings infrastructure • Wildlife crossings with fencing are the most effective mitigation method for reducing WVC • Construction is complicated by multiple factors: Bridge over eastbound and westbound I-70 and US 40; Bridge must be 'oversized' to maintain flexibility for future operations; and will likely require short-term closures on I-70 & US 40 	\$15-20M	n/a
MITIGATION OPTION B: WITHIN PROJECT AREA											
247	Floyd Hill - Parcel 1	Floyd Hill	Conservation purchase or easement	<ul style="list-style-type: none"> • Potential to permanently protect high quality wetlands and meadow habitat important for residential elk herd 	-	-	-	<ul style="list-style-type: none"> • Parcel recently purchased by owner of gravel mine at bottom of Floyd Hill, purportedly for conservation purposes • 17 acres 	<ul style="list-style-type: none"> • Property may not be available for purchase or easement 	\$3M	
247	Floyd Hill - Parcel 2	Floyd Hill	Conservation purchase or easement	<ul style="list-style-type: none"> • Potential to permanently protect high quality wetlands and meadow habitat important for residential elk herd 	-	-	-	<ul style="list-style-type: none"> • Upland parcel - owned by Frei (mine) family • 21 acres 	<ul style="list-style-type: none"> • Property may not be available for purchase or easement 	\$900,000	
247.1	Floyd Hill - Parcel 3	Floyd Hill	Conservation purchase or easement	<ul style="list-style-type: none"> • Potential to permanently protect high quality wetlands and meadow habitat important for residential elk herd 	-	-	-	<ul style="list-style-type: none"> • Show home at eastern end of property would need to be split out. • Parcel dominated by wetlands, which are not developable • 16 acres 	<ul style="list-style-type: none"> • Property may not be available for purchase or easement 	\$1M	
247.2	Floyd Hill - Parcel 4	Floyd Hill	Conservation purchase or easement	<ul style="list-style-type: none"> • Potential to permanently protect high quality wetlands and meadow habitat important for residential elk herd 	-	-	-	<ul style="list-style-type: none"> • Parcel slated for 400 unit development • 6 acres 	<ul style="list-style-type: none"> • Property may not be available for purchase or easement 	\$400,000	
249	Soda Creek	Beaver Brook	Underpass at creek drainage	<ul style="list-style-type: none"> • Primary target species: Mule deer • Secondary target species: Elk, black bear, mountain lion, fox, coyote, bobcat. 	Low	• High (2.8 WVC/mile/year)	• WVC Carcass: High (2.3 WVC/mile/year)	<ul style="list-style-type: none"> • Private ownership with dispersed residential development 	<ul style="list-style-type: none"> • Creek is nearly 300' from the existing bridge • Location is within the current project boundaries 	\$4.5-\$5.5M (bridge underpass)	

Milepost	Location Name	LIZ Name	Crossing Type or Habitat Protection	Biological Value & Considerations	2003 LIZ Rank*	WVC Crashes†	WVC Carcasses	Landownership & Land Use Considerations	Feasibility	High Level Cost Estimate††	ALIVE Rank
MITIGATION OPTION B: OUTSIDE OF PROJECT AREA											
254.5	Genesee	Mt. Vernon	Underpass at fill slope	<ul style="list-style-type: none"> • Primary target species: Elk and mule deer. CPW identified highway crossing zone. • Secondary target species: Black bear, mountain lion, fox, coyote, bobcat. • Monitored location for the I-70 EcoLogical Study (2009-2010) detected elk, mule deer, coyote, fox, skunk. 	Low	<ul style="list-style-type: none"> • Very High (3.4 WVC/mile/year) • Location identified by CDOT Traffic & Safety as a WVC hotspot. 	<ul style="list-style-type: none"> • WVC Carcass: Very High (3.4 WVC/mile/year) 	<ul style="list-style-type: none"> • Private ownership. Properties immediately adjacent to proposed structure location are undeveloped, but residential development around the greater area. 	<ul style="list-style-type: none"> • Location does not require a crossing over/under US 40, which runs farther north of this location. • Offset structure to west side of drainage to shorten structure length. • Possible Traffic & Safety funding. • Future project is unlikely as I-70 is already 3 lanes in both directions through this segment. 	\$4.5-\$5.5M (bridge underpass)	
254.5	Genesee	Mt. Vernon	Conservation purchase or easement	<ul style="list-style-type: none"> • Potential to permanently protect habitat adjacent to proposed Genesee underpass 	-	-	-	<ul style="list-style-type: none"> • Zoned Residential; recommended 1 dwelling/10 acres • 17 acres 	<ul style="list-style-type: none"> • Property currently for sale • This action should only be pursued in conjunction with a wildlife underpass at MP 254.5 	\$800,000	
250	Ruby Ranch Road	Beaver Brook	Underpass at fill slope	<ul style="list-style-type: none"> • Primary target species: Mule deer & elk. CPW identified highway crossing zone. • Secondary target species: Black bear, mountain lion, fox, coyote, bobcat. 	Low	<ul style="list-style-type: none"> • High (2.8 WVC/mile/year) 	<ul style="list-style-type: none"> • WVC Carcass: High (2.6 WVC/mile/year) 	<ul style="list-style-type: none"> • Private ownership with dispersed residential development • Zoned Residential; recommended 1 dwelling/10 acres 	<ul style="list-style-type: none"> • Location is within the Beaver Brook LIZ. • Location does not require a crossing over/under US 40, which runs farther north of this location. • Steep fill on north side, but structure doesn't need to be at deepest part of fill. Consider how to grade north side approach or build trails into the slope leading to the structure. • 30'-wide median between I-70 EB and WB lanes - could narrow median width to reduce structure length. • Future project is unlikely as I-70 is already 3 lanes in both directions through this segment. 	\$4.5-\$5.5M (bridge underpass)	
250	Ruby Ranch Road - Parcel 1	Beaver Brook	Conservation purchase or easement	<ul style="list-style-type: none"> • Potential to permanently protect habitat adjacent to proposed Ruby Ranch underpass 	-	-	-	<ul style="list-style-type: none"> • 5-cabin Bed & Breakfast • Area of interest is ~2.5 acres 	<ul style="list-style-type: none"> • This action should only be pursued in conjunction with a wildlife underpass at MP 250 	\$300,000 (partial acquisition)	
250	Ruby Ranch Road - Parcel 2	Beaver Brook	Conservation purchase or easement	<ul style="list-style-type: none"> • Potential to permanently protect habitat adjacent to proposed Ruby Ranch underpass 	-	-	-	<ul style="list-style-type: none"> • Zoned Residential; recommended 1 dwelling/10 acres • Area of interest is ~2.5 acres 	<ul style="list-style-type: none"> • This action should only be pursued in conjunction with a wildlife underpass at MP 250 	\$250,00 (partial acquisition)	

I-70 Mountain Corridor Region 1 Evaluation of Wildlife Mitigation Option

Revised May 11, 2020

Milepost	Location Name	LIZ Name	Crossing Type or Habitat Protection	Biological Value & Considerations	2003 LIZ Rank*	WVC Crashes†	WVC Carcasses	Landownership & Land Use Considerations	Feasibility	High Level Cost Estimate††	ALIVE Rank
250	Ruby Ranch Road - Parcel 3	Beaver Brook	Conservation purchase or easement	<ul style="list-style-type: none"> Potential to permanently protect habitat adjacent to proposed Ruby Ranch underpass 	-	-	-	<ul style="list-style-type: none"> Zoned Residential; recommended 1 dwelling/10 acres Area of interest is ~3 acres 	<ul style="list-style-type: none"> This action should only be pursued in conjunction with a wildlife underpass at MP 250 	\$300,000 (partial acquisition)	
US 40 MP 257.4	Empire	Empire Junction	Overpass just west of interchange spanning cliffs on N side to small cut slope on S side.	<ul style="list-style-type: none"> Primary target species: Bighorn sheep. Georgetown herd is the largest herd in CO. Location is important for genetic connectivity between 2 subpopulations. On US 40 (not I-70), but within the Empire Junction interchange area. This is the most important crossing site for bighorn along the corridor. Secondary target species: Canada lynx, black bear, mountain lion, mule deer, elk, moose, fox, coyote, bobcat. 	Medium	<ul style="list-style-type: none"> Low (0.4 WVC/mile/year) 	<ul style="list-style-type: none"> WVC Carcass: Low Very high for bighorn sheep (Huer 2015). 	<ul style="list-style-type: none"> Private. There is a willing landowner for a conservation easement on the south side (as of 2014). Nearby residences S & N sides of US 40 	<ul style="list-style-type: none"> A crossing structure at this location would need to accommodate future improvements around Empire Junction. US 40 has a narrower road footprint requiring a smaller crossing structure. Would require blasting/rock cut. 	\$3-4M (overpass)	
220.5	Kearney Gulch	Bakerville	Overpass (Traffic and Revenue Study recommends MP 220.5-220.7; east of rock cut, but then the creek is much closer to I-70; consider west of rock cut ~MP 220.3-4)	<ul style="list-style-type: none"> Primary target species: Canada lynx. Ivan (2012) notes that 39% of lynx I-70 crossings occurred between the EJMT and Bakerville; segment identified as high probability of lynx highway crossing by Squires et al. (2013). Linkage has lower intensity lynx movements primarily used for summer dispersal movement; there are no breeding pairs in this area. Secondary target species: bighorn sheep, black bear, mountain lion, mule deer, elk, moose, fox, coyote, bobcat, and boreal toad. Monitored location for the I-70 EcoLogical Study (2009-2010) at MP 221.8 detected bighorn sheep, elk, mule deer. 	High (Herman Gulch)	<ul style="list-style-type: none"> Low (0.5 WVC/mile/year) 	<ul style="list-style-type: none"> WVC Carcass: Moderate (1.1 WVC/mile/year) Two lynx WVCs have been recorded in this segment around MP 217.3 & MP 221 in 2000 & 2005. Moderate for bighorn sheep (Huer 2015). Increasing moose conflict. 	<ul style="list-style-type: none"> Arapahoe National Forest on both sides of I-70; Managed as USFS lynx linkage area Bike path adjacent to creek on south side. 	<ul style="list-style-type: none"> Good location between chain-up stations (i.e., smaller road footprint and less affected by lights and activity) Feasibility challenged by uneven grades north and south of I-70. Creek parallel on south side, but with enough room for overpass wildlife approach ramp. Sensitive wetlands along Clear Creek. Future projects in this segment are planned but details are unknown. Preferred alternative includes 6 lanes, WB auxiliary lane, and AGS. 	\$13.5-14.5M (overpass)	

Milepost	Location Name	LIZ Name	Crossing Type or Habitat Protection	Biological Value & Considerations	2003 LIZ Rank*	WVC Crashes†	WVC Carcasses	Landownership & Land Use Considerations	Feasibility	High Level Cost Estimate††	ALIVE Rank
217.4	Dry Gulch	Bakerville	Overpass recommended. An underpass would be very long and less preferable for bighorn sheep and elk.	<ul style="list-style-type: none"> • Primary target species: Canada lynx. Ivan (2012) notes that 39% of lynx I-70 crossings occurred between the EJMT and Bakerville; segment identified as high probability of lynx highway crossing by Squires et al. (2013). Linkage has lower intensity lynx movements primarily used for summer dispersal movement; there are no breeding pairs in this area. • Secondary target species: bighorn sheep, black bear, mountain lion, mule deer, elk, moose, fox, coyote, bobcat, and boreal toad (breeding site on north side of I-70). • Monitored location for the I-70 EcoLogical Study (2009-2010) at MP 217.2 detected elk, mule deer, coyote, fox. • Bike path/recreation impacts on lynx/wildlife movement (year-round but low winter intensity) 	High (Herman Gulch)	• Low (0.3 WVC/mile/year)	<ul style="list-style-type: none"> • WVC Carcass: Moderate (1.1 WVC/mile/year) • Two lynx WVCs have been recorded in this segment around MP 217 & MP 221 in 2000 & 2005. • Moderately low for bighorn sheep (Huer 2015). • Increasing moose conflict. 	<ul style="list-style-type: none"> • Arapahoe National Forest on both sides of I-70; Managed as lynx linkage area. • Bike path adjacent to creek on south side. 	<ul style="list-style-type: none"> • Feasibility challenged by road grade (~4%); uneven grades north and south of I-70; and proximity to creek on south side. • Sensitive wetlands along Clear Creek. • Future projects in this segment are unknown. Preferred alternative includes 6 lanes with WB auxiliary lane and AGS. 	\$13.5-14.5M (overpass)	

NOTES

*2003 LIZ rankings based on potential and existing wildlife value at time of assessment (i.e., present and past utilization as a movement corridor, adjacency to suitable habitat and potential improvement value).

†WVC crash rate calculations based on data from 2014-2018.

††High level cost estimates have not been formally reviewed and are subject to change.

ACRONYMS

- AGS = Advanced Guideway System
- CDOT = Colorado Department of Transportation
- CPW = Colorado Parks and Wildlife
- LIZ = linkage interference zone
- MP = milepost
- USFS = United States Forest Service
- WVC = wildlife-vehicle collisions



I-70 Floyd Hill to Veterans Memorial Tunnels

ATKINS
Member of the SNC-Lavalin Group

ALIVE Meeting #6

May 19, 2020



Zoom Meeting Format

- Keep meeting handouts handy
- Will take pauses throughout today's meeting to ask for questions, comments
- Please remain on mute unless you have a question or comment
- We will also monitor the chat box for your questions & comments
- Poll feature (example)



Introductions

- Name
- Position
- Agency/Company



Meeting Objectives

- Obtain ALIVE Committee recommendation on which combination of mitigation options in the mitigation matrix to pursue as mitigation for the Floyd Hill project



Review of Decisions to Date

- At the February 2020 ALIVE meeting, the ALIVE Committee determined that Mitigation Option B (alternative mitigation on the I-70 Mountain Corridor in Region 1) offered greater potential benefits than Mitigation Option A (Floyd Hill overpass)
 - Mitigation Option B also includes wildlife fencing from the top of Floyd Hill to Soda Creek



Follow-up on Action Items from February ALIVE meeting

- ✓ Refine plans for Genesee, Ruby Ranch Road, Soda Creek and Empire crossings
- ✓ Refine cost estimates to determine equivalent mitigation to the Option A crossing at the top of Floyd Hill
- ✓ Follow up with Jefferson County on land use and development plans for lands surrounding proposed crossings
- ✓ Update the mitigation matrix to support the ALIVE Committee's ranking of how to allocate mitigation funds.
 - Include the Floyd Hill crossing for comparison purposes
 - Include parcels that are of interest for habitat protection:
 - Meadow-wetland complex at the top of Floyd Hill
 - Parcels adjacent to potential crossing structure locations



Mitigation Option A – Floyd Hill Overpass

For comparison purposes:



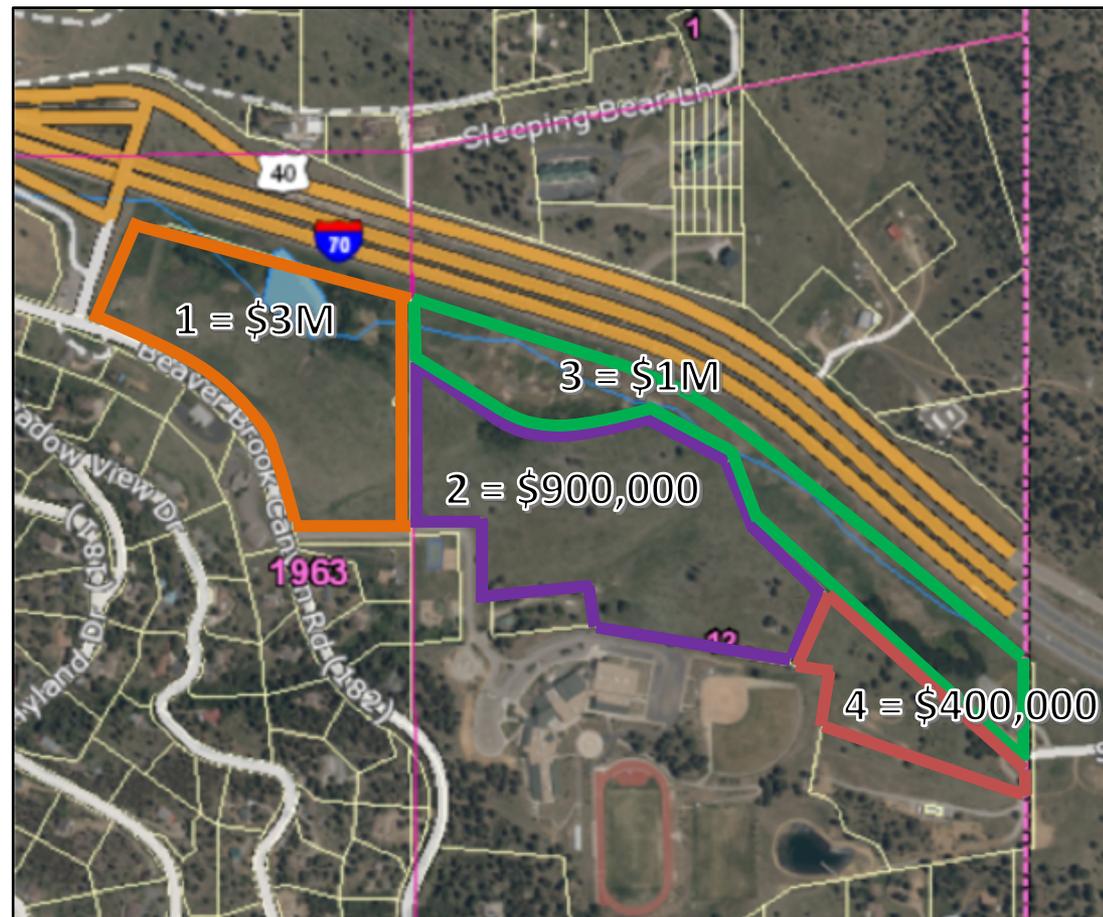
Estimated Cost:
\$15-20 million
For overpass and
partial acquisition of
property adjacent to
overpass



Mitigation Option B: Within Project Area

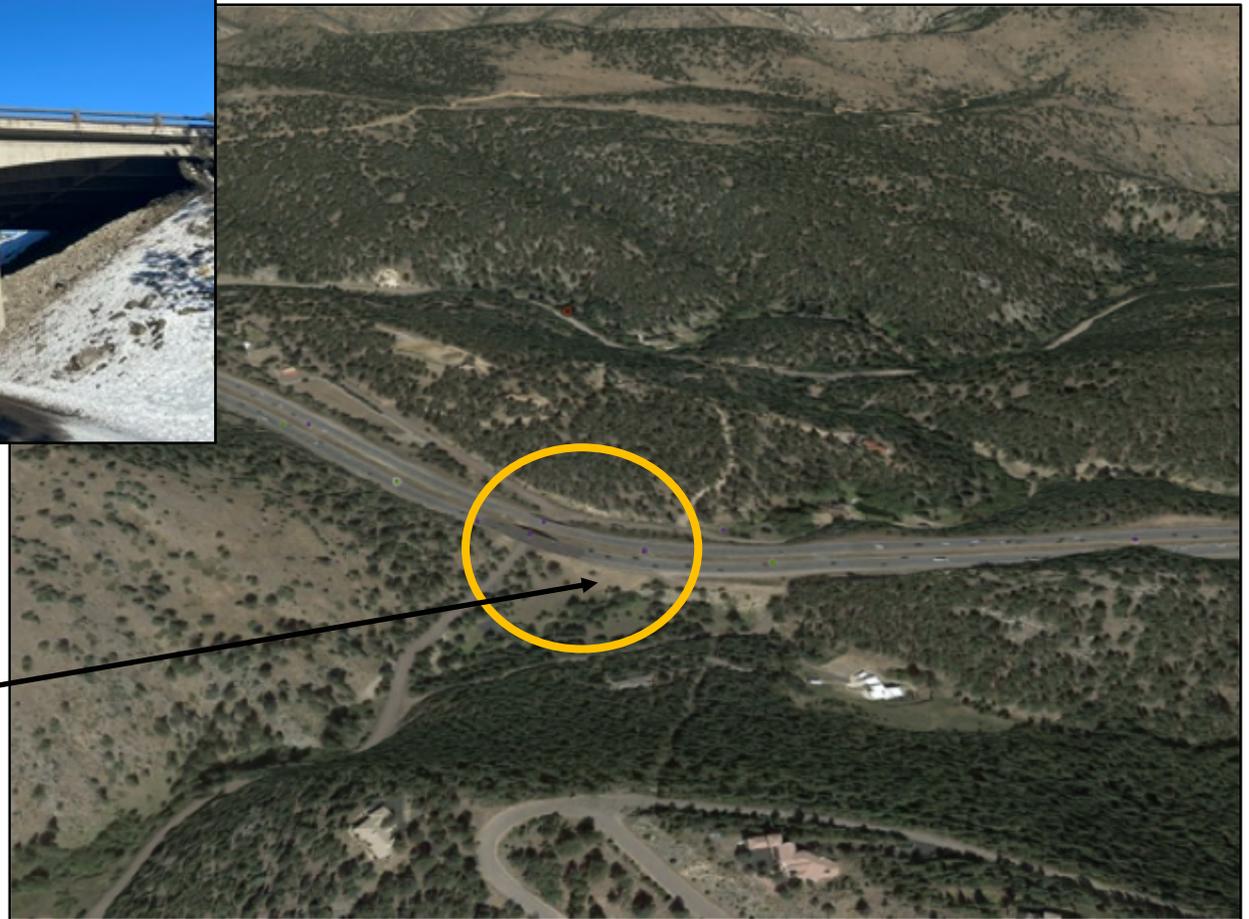
MP 247 Floyd Hill: Habitat Protection

- Meadow-wetland complex
 - 4 parcels





MP 249 – Soda Creek: Wildlife Underpass

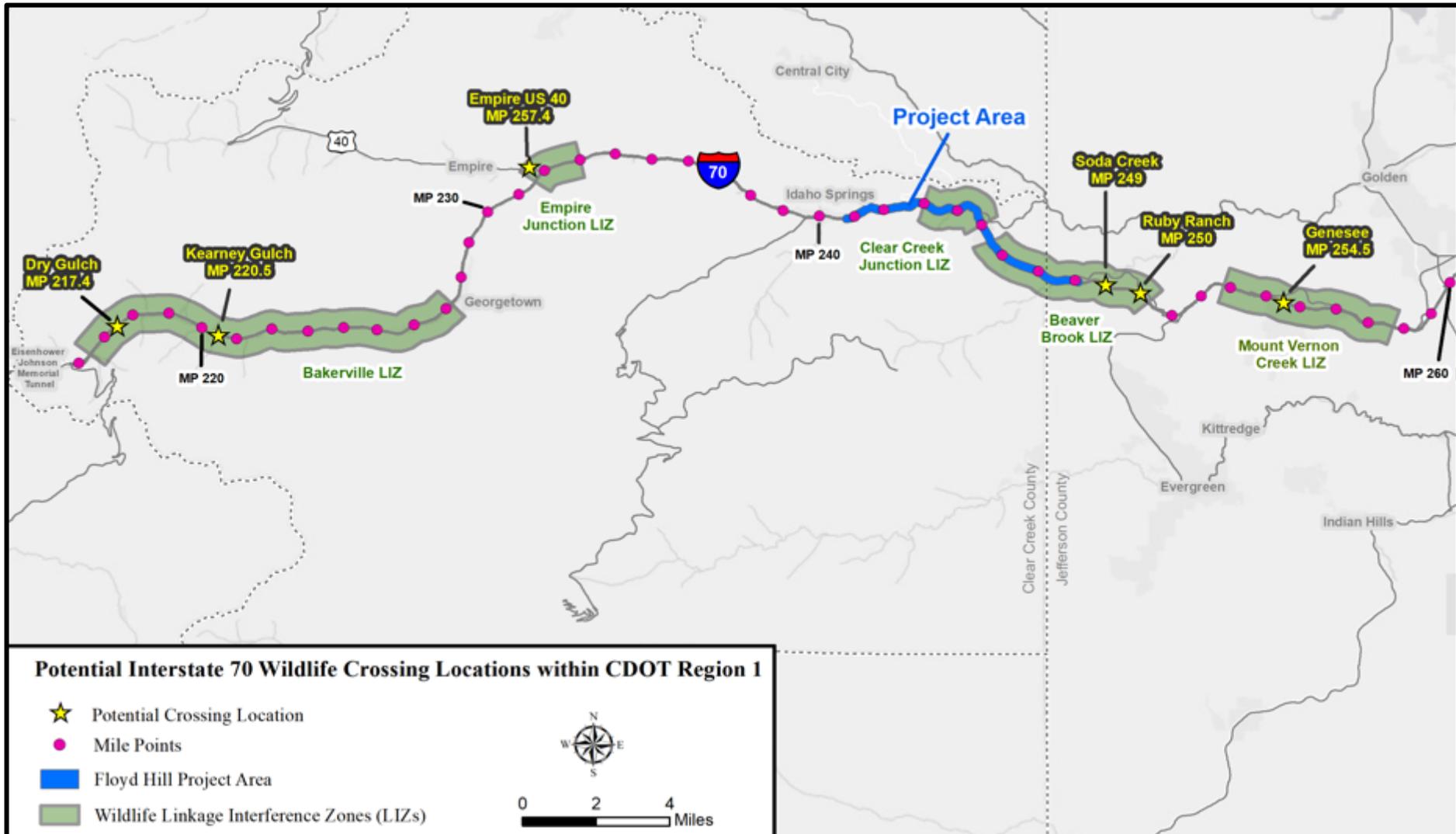


Estimated Cost:
\$4.5 – 5.5M

Construct new
wildlife underpass
at creek drainage



Mitigation Option B: Outside of Project Area





MP 254.5 – Genesee Wildlife Underpass

← 1 mile to Genesee Exit





MP 254.5 – Genesee: Wildlife Underpass



Estimated Cost:
\$4.5 – 5.5M

Bridge underpass
16'H x 100'W x 130' L
with open median (dimensions
are from wildlife perspective)

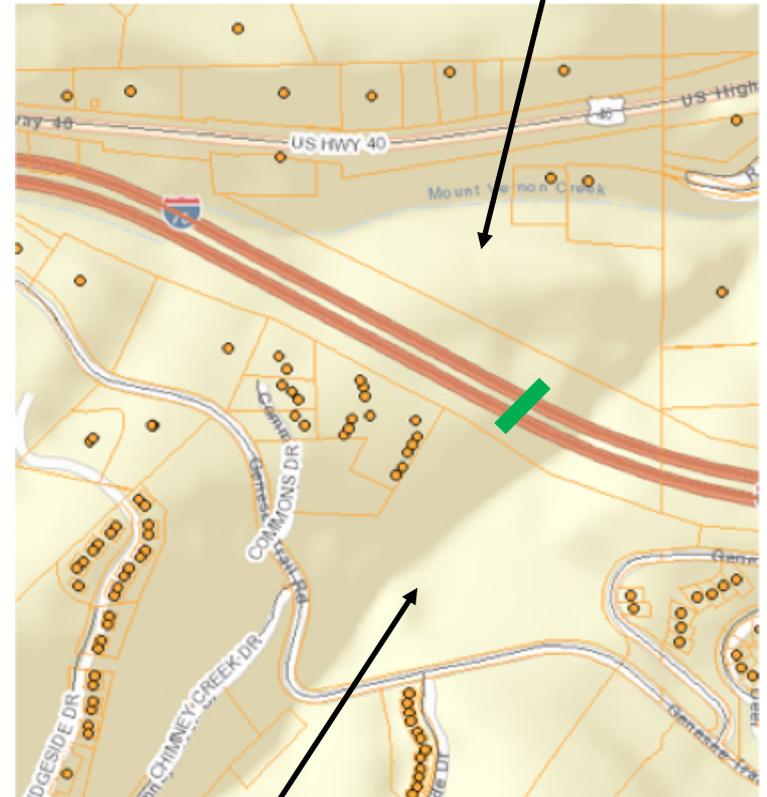




MP 254.5 – Genesee: Habitat Protection

← 1 mile to Genesee Exit

Vacant land for sale \$800,000



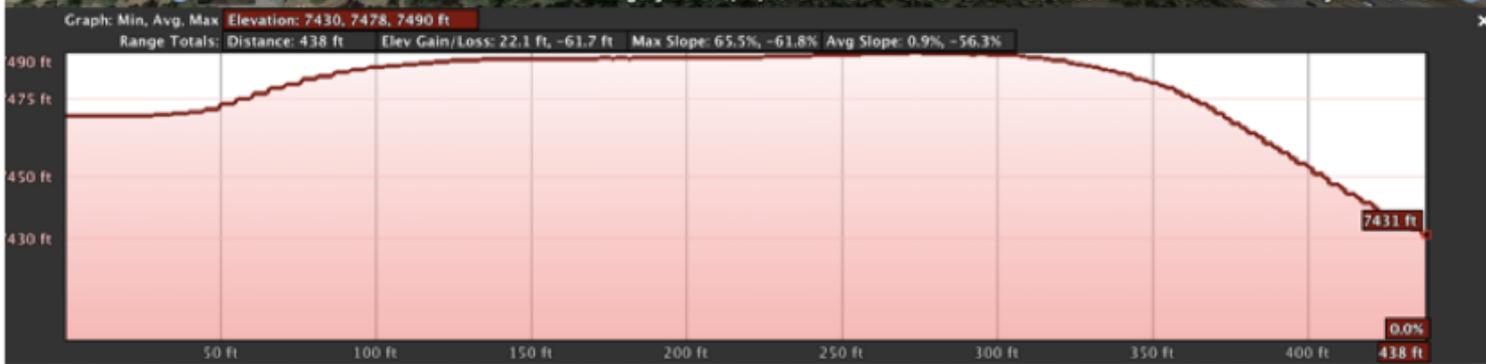
HOA (presumed open space)



MP 250 – Ruby Ranch Road: Wildlife Underpass

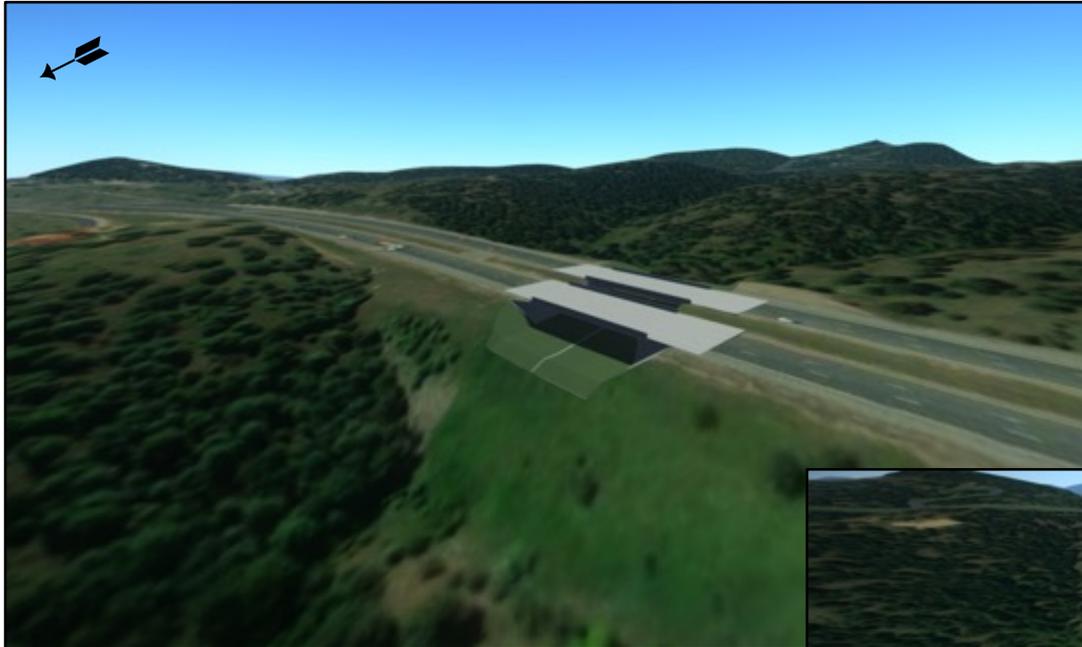


→
½ mile to
El Rancho Exit





MP 250 – Ruby Ranch Road: **Wildlife Underpass**



Estimated Cost:
\$4.5 – 5.5M

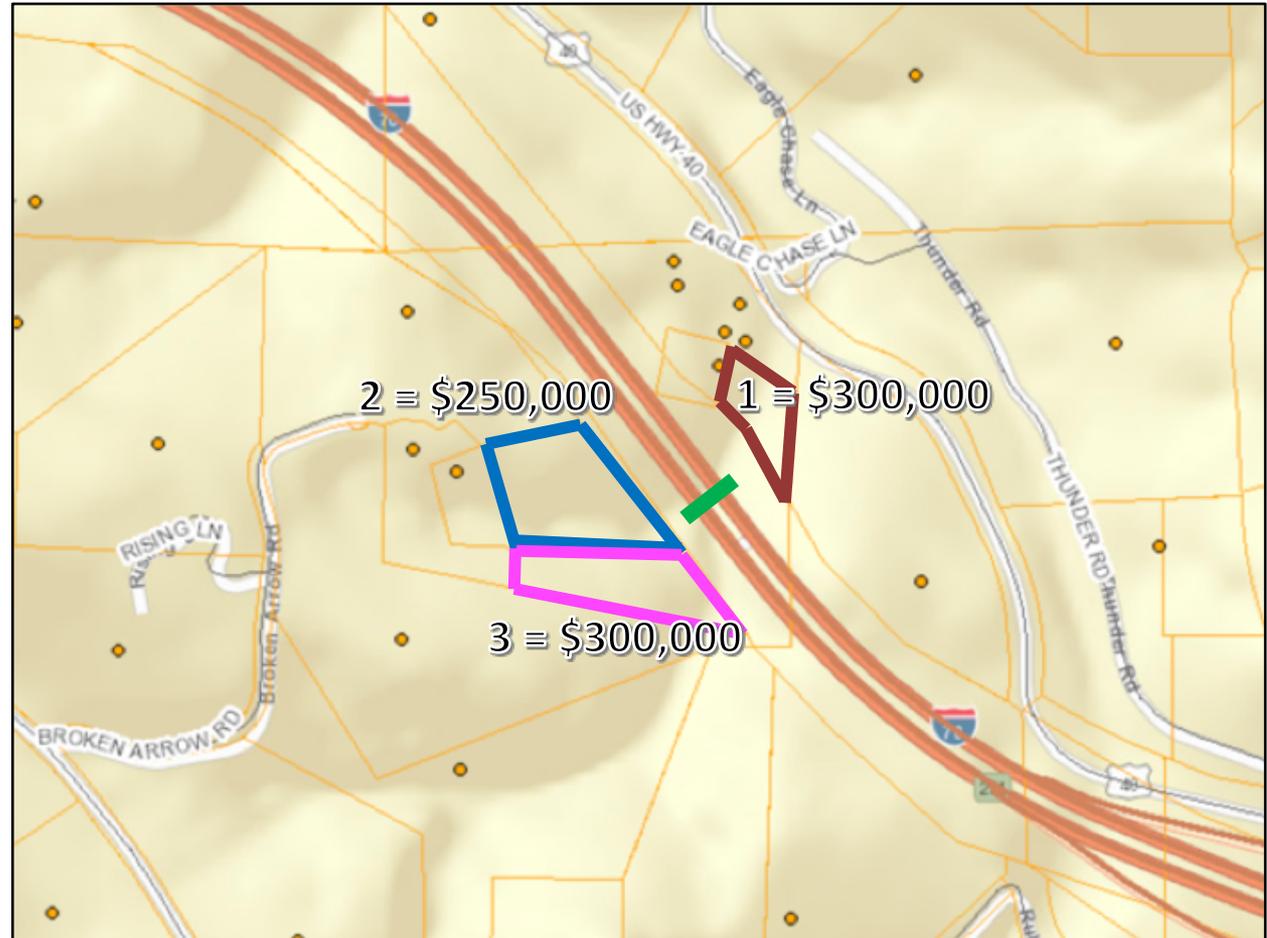
Bridge underpass
16'H x 100'W x 130' L
with open median (dimensions
are from wildlife perspective)





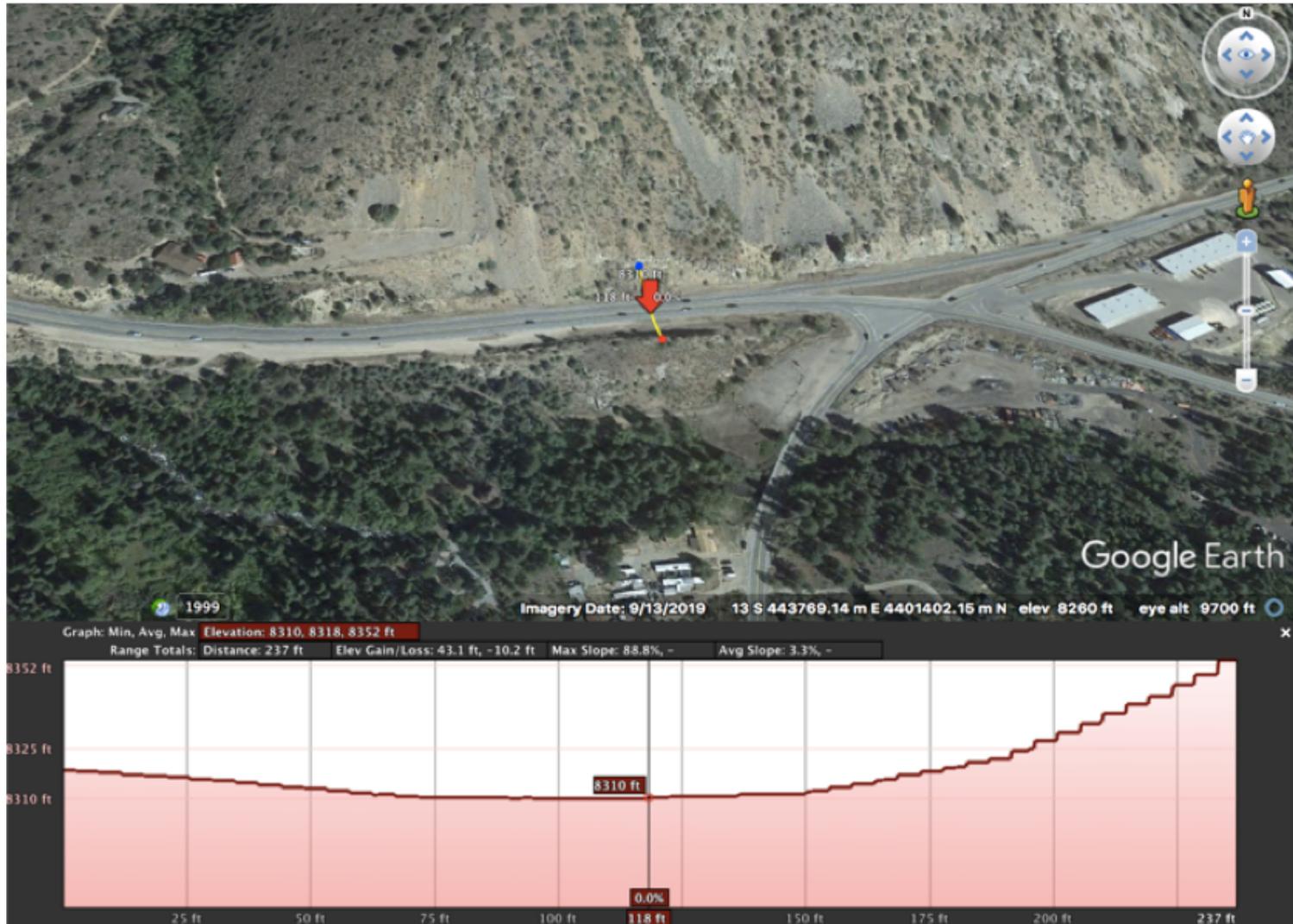
MP 250 – Ruby Ranch Road: Habitat Protection

3 partial parcels
around proposed
wildlife underpass





US 40, MP 257.4 – Empire: Wildlife Overpass





US 40, MP 257.4 – Empire: Wildlife Overpass





US 40, MP 257.4 – Empire: Wildlife Overpass

DOUGLAS MOUNTAIN RANCH AND PRESERVE PROPERTY MAP



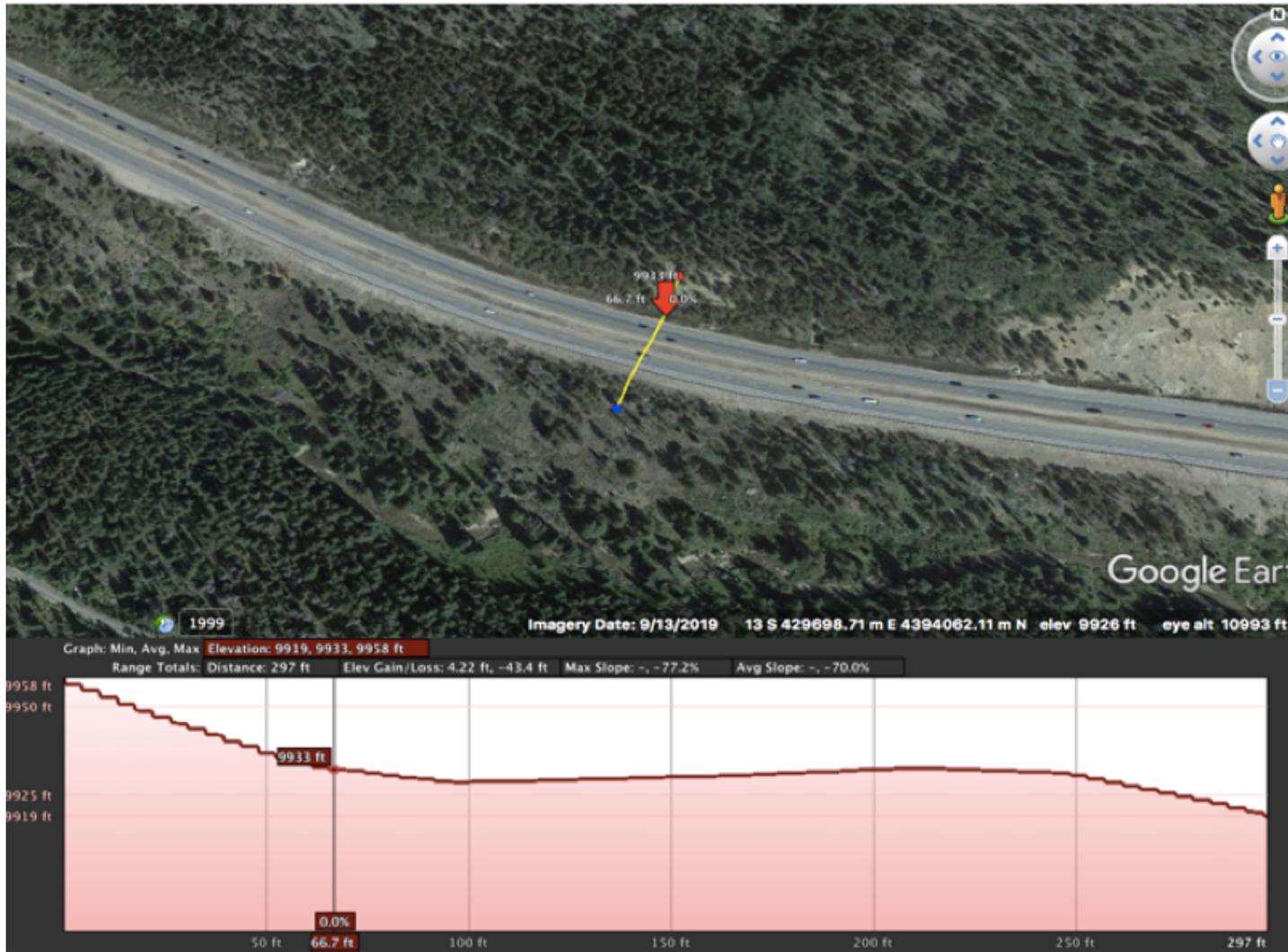
Proposed Overpass Location



- Fee Title Boundary
- Georgetown State Wildlife Area
- Clear Creek County Open Space



MP 220.5 – Kearney Gulch



½ mile to
Bakerville Exit



MP 220.5 – Kearney Gulch: Wildlife Overpass



Estimated Cost:
\$13.5-14.5

Wildlife Overpass
200' wide



MP 217.4 – Dry Gulch



Herman Gulch →

EJMT ←



MP 217.4 – Dry Gulch: Wildlife Overpass



Estimated Cost:
\$13.5-14.5

Wildlife Overpass
200' wide



Mitigation Options Ranking

Mitigation Option	Ranking Notes	RANK
Floyd Hill (habitat protection)		
Soda Creek		
Genesee		
Ruby Ranch		
US 40 Empire		
Kearney Gulch		
Dry Gulch		



Next Steps

- Document ALIVE agreements
- Incorporate mitigation commitments into EA mitigation
- Reconvene ALIVE Committee during final design of wildlife crossings once construction funding is identified