
Subject: ALIVE Meeting #1

Client: CDOT Region 1

Project: I-70 Peak Period Shoulder Lane

Project No: 215164

Meeting Date: September 24, 2013

Meeting Location: CDOT Golden

Notes by: Gina McAfee/Sandy Beazley

ATTENDEES: See attached sign-in sheet.

DISTRIBUTION: Attendees, ALIVE members, Project File

SUMMARY OF DISCUSSION:

(Action items are in **bold**.)

Introductions

Gina McAfee opened the meeting. Self introductions followed.

PPSL Project Overview

1. Gina gave an overview of the PPSL project. The plan is to add some minimal pavement just in the eastbound direction of I-70 between Empire Junction and Idaho Springs. The additional pavement would be used just during peak periods—approximately 3.5 percent of the time, eastbound direction, Sunday afternoons and also holiday afternoons—as a third lane going eastbound, instead of the two lanes that are presently operating. The third lane would be tolled—open to people willing to pay a toll to use the lane. The rest of the time, that pavement will be used as it is now—a shoulder.
2. Retaining walls will be required, although the extent is not known. Widening at some accel/decel lanes are anticipated, this includes up to 6 feet of widening in isolated instances. Improvements at SH 103 may include a bridge replacement. It is unlikely that other bridges/structures will be widened. Noise walls may be added, these details are unknown as well. Water quality features are included, as are emergency pull-outs.
3. The alternative overview handout shows the anticipated widening. Approximately ~1/2 of the corridor will require widening and this widening, outside of the accel lanes, is anywhere from 0 foot to 3.5 feet of additional pavement.
4. Preliminary design will be done in late November, final design in spring 2014, construction in summer 2014, and open to traffic summer 2015.
5. Two LIZs are located in the project corridor.
 - a. Clear Creek Junction: Clear Creek Junction improvements are being implemented as part of the Twin Tunnels project. The PPSL project will only have signage improvements in this area. Improvements associated with the Twin Tunnels project include fencing work, culvert

- improvements (installation of a natural substrate) and increasing the bench beneath the bridge to facilitate wildlife movement.
- b. Empire Junction: At Empire Junction there is a large amount of infrastructure converging, the ultimate goal at this location would be to consolidate these barriers when the interchange is reconstructed. The PPSL project would need to not preclude any future LIZ related improvements in this area.
6. David described the completion of recent studies that focused on wildlife and aquatic species and noted how these identified the new LIZs that are described above.
 7. Culvert extensions are a possibility. Culvert replacements are unlikely since no infrastructure replacement is anticipated. The culvert discussion focused on CR 271 (Spring Gulch) and changes that could be made to the box culvert that allows residents access to the north side of the highway. The purpose of these improvements would be to enhance wildlife usage of this culvert.
 8. A site visit would be beneficial to visit hotspots for AVCs and other areas of concern.
 9. Critical sites include:
 - a. Empire Junction
 - b. The bridge at Dumont (MP 235)
 - c. The undercrossing at CR 271/Spring Gulch (MP 236.2)
 - d. Large box culverts located at
 - i) Fall River Road (MP 237.5)
 - ii) Spring Gulch (MP 236.2)
 - iii) Mill Creek (MP 234.8)
 - iv) Clear Creek (MP 232.3) (Empire Junction)
 10. What does the group think about the barrier effect of the project?
 - a. Retaining walls include a barrier on top, which adds 3 feet of additional height. The Type 10 barrier used on Berthoud Pass has shown to be a barrier as deer are reticent to jump it. The narrow shoulders associated with the PPSL means that during peak periods, animals may be standing in a travel lane if they are reticent to jump a barrier.
 - b. Loss of median reduces potential refuge area as an animal crosses the highway. There is a tradeoff in that encroaching into the median means fewer walls, so the question is - which will inhibit wildlife the most. Encroachment into the median ranges from 2 feet to 6 feet (out of a median width of 20 feet to 22 feet). CDOT and CPW have coordinated in the past on barrier types in the median to help facilitate wildlife movement.
 - c. Inclusion of revegetation along retaining walls could provide cover to wildlife, but also serve as an attractant.
 - d. The additional pavement is of little concern as it is fairly minimal, so the team should focus on the barrier and median reduction concerns. The real question is—for each specific location where we might include a wall, is that a location that is used by wildlife?

- e. West of Empire, where it is only signage improvements, these signs will likely be off to the side, not requiring overhead gantries. It is unlikely these signs would be lit, which is of benefit to lynx. Most lighting changes would occur at the interchanges and these areas are already lit. Brock asked if the lights could be motion triggered, so they are not on all the time
 - f. Flashing lights will be used in the corridor, but these would be in use only when the PPSL is open. These lights could occur every 1/2 mile. Animal crossings during peak periods are unlikely.
11. Lynx would be the primary T&E concern, as noted by Jeff Peterson, although since lynx are only above 8,000 feet, this may not be a concern. Francesca will follow up with Alison to identify her concerns. Downstream species will be covered by SPWRAP.
 12. The project has the potential to reduce frontage road traffic, estimated at a 2 percent reduction, which will be an advantage to wildlife.
 13. West of SH 103 the metal crib wall adjacent to Clear Creek will be replaced. This will involve work in Clear Creek. Per CPW, this work could be completed in the winter to minimize impacts to aquatic species.
 14. Kelly and David are coordinating to determine if the fish passage model was used in deriving the ALIVE recommendations.
 15. Kevin noted Gary Frey's request for additional regarding biomass in Clear Creek in the project area. The project team is coordinating with Paul Winkle (CPW) to determine what studies have been done. Revegetation along the creek would increase biomass and provide shade across the creek, although vegetation in the creek is counter to the desires of the rafting community.
 16. The next ALIVE meeting should occur in late November or early December, once more design details (including where we might want to do some culvert enhancements and where we might want to add riparian vegetation) are known.

Next Steps and Action Items:

1. **David to provide the project team with the 9-page document describing the enhancement of terrestrial wildlife movement.**
2. **Sirena to setup a meeting or conference call with Jeff Peterson and other biologists (plus engineering staff) to discuss enhancements for wildlife in the study corridor.**
3. **Sirena to setup a field trip once locations of concern have been identified.**
4. **Sandy and Francesca to coordinate with Alison regarding T&E species.**

AGENDA

ALIVE ISSUES TASK FORCE MEETING

September 24, 2013

1:00 p.m. to 4:00 p.m.

CDOT Homestead Conference Room 425C Corporate Circle, Golden

1. Introductions

2. PPSL Project Overview

- a. Project background/purpose and need
- b. Current design and operating assumptions
- c. Schedule

3. ALIVE MOU Review

- a. MOU development and commitments
- b. LIZ locations within the project and recommended mitigations
 - Empire Junction (MP 231.6 to 232.9)
 - Clear Creek Junction (MP 243.0 to 244.9) – signage improvements only in this area

4. Current Information and Updates

- a. Clear Creek SCAP
- b. Twin Tunnels
- c. *A Regional Ecosystem Framework for Terrestrial and Aquatic Wildlife along the I-70 Mountain Corridor in Colorado*
- d. *Guidelines for Improving Connectivity for Terrestrial and Aquatic Wildlife on the I-70 Mountain Corridor*

5. Role of ALIVE on the PPSL Project

- a. Identify ALIVE-related issues in this project segment
- b. Develop recommendations through the ALIVE implementation process

6. Implementation Process

- a. Initial list of issues
- b. Identification of information and data needs
- c. Initial recommendations

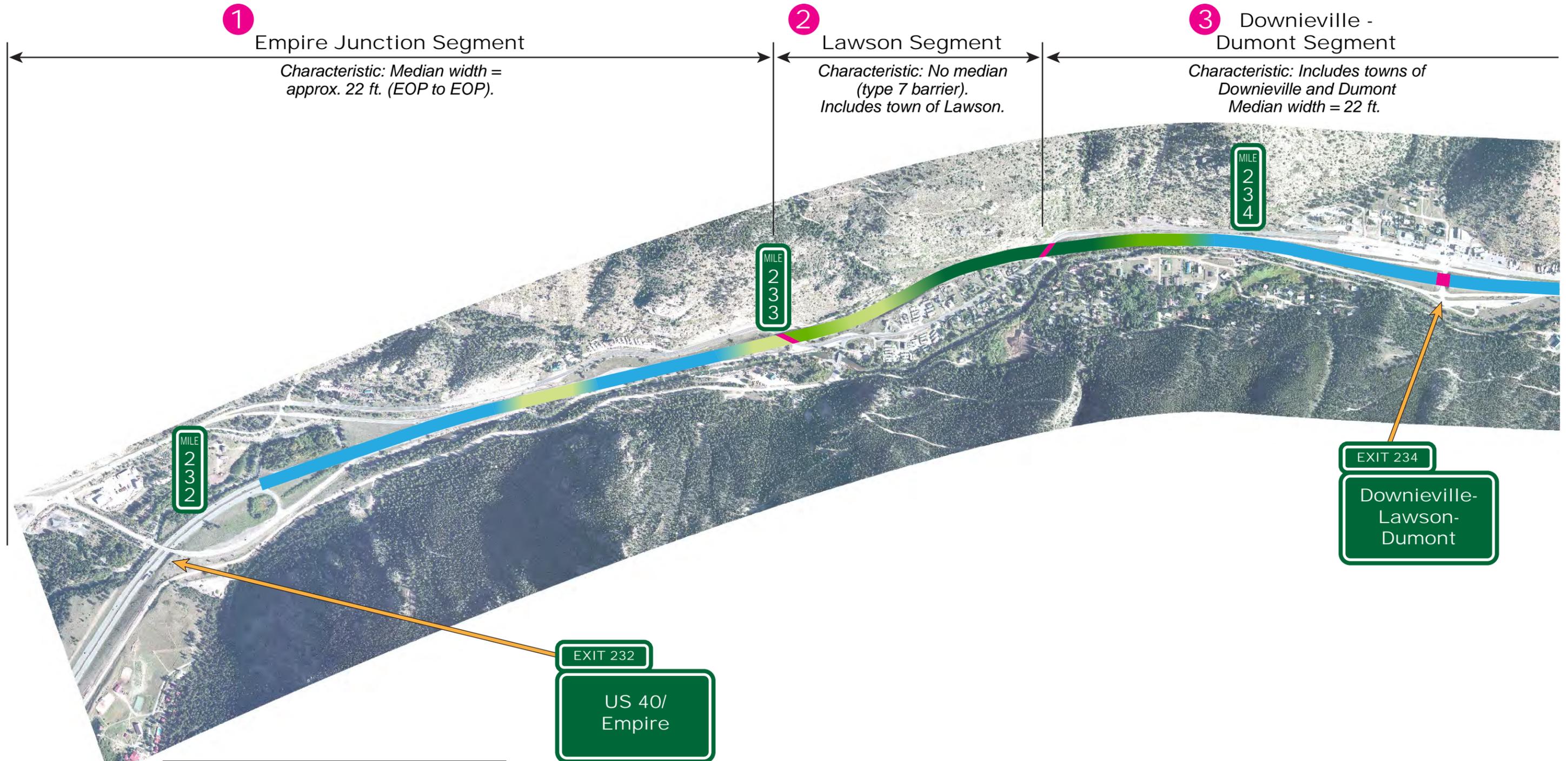
7. Next Steps

- a. Assignments for next meeting
- b. Need for an additional meeting

LIKELY COMPONENTS OF THE PPSL PROJECT (as of 9/11/13)

-  A hybrid cross-section that utilizes the existing pavement width in as many places as possible in the corridor (with an estimate of up to half of the length of the corridor). This may reduce the need for retaining walls, but some retaining walls will still be needed to avoid private property or encroachment into Clear Creek.
-  Minimal widening at either two or three of the eight interchange off-ramp deceleration lanes in the project corridor.
-  Minimal widening at interchange acceleration lanes to include sliver widening at on-ramp tapers.
-  Investigation of modifying the SH 103 bridge rather than replacing it. Also looking to see if we can design something that can be easily expanded in the future for unknown corridor improvements.
-  Trying to minimize the need to widen other bridges.
-  Minimize new signs—maximizing opportunities to use existing bridges for signs.
-  Minimize the inclusion of new emergency refuge areas. The concept is to investigate use of already existing flat areas adjacent to the existing highway and at interchanges.
-  Consider noise walls at locations both north and south of I-70 where residential uses are closest to the travel lanes.
-  Water quality and air quality best management practices where feasible.

Draft: Eastbound PPSL Hybrid Alternative Overview (1 of 4)



Legend:

- █ = Potentially No Widening Required
- █ = Widening Requirements Unknown

Widening Anticipated:

- █ = 0 - 1 foot
- █ = 1 - 2 feet
- █ = 2 - 3.5 feet

Draft: Eastbound PPSL Hybrid Alternative Overview (2 of 4)

3 Downieville - Dumont Segment

Characteristic: Includes towns of Downieville and Dumont
Median width = 22 ft.

4 Fall River Segment

Characteristic: Median width = 21 ft.
Includes Fall River Rd exit.



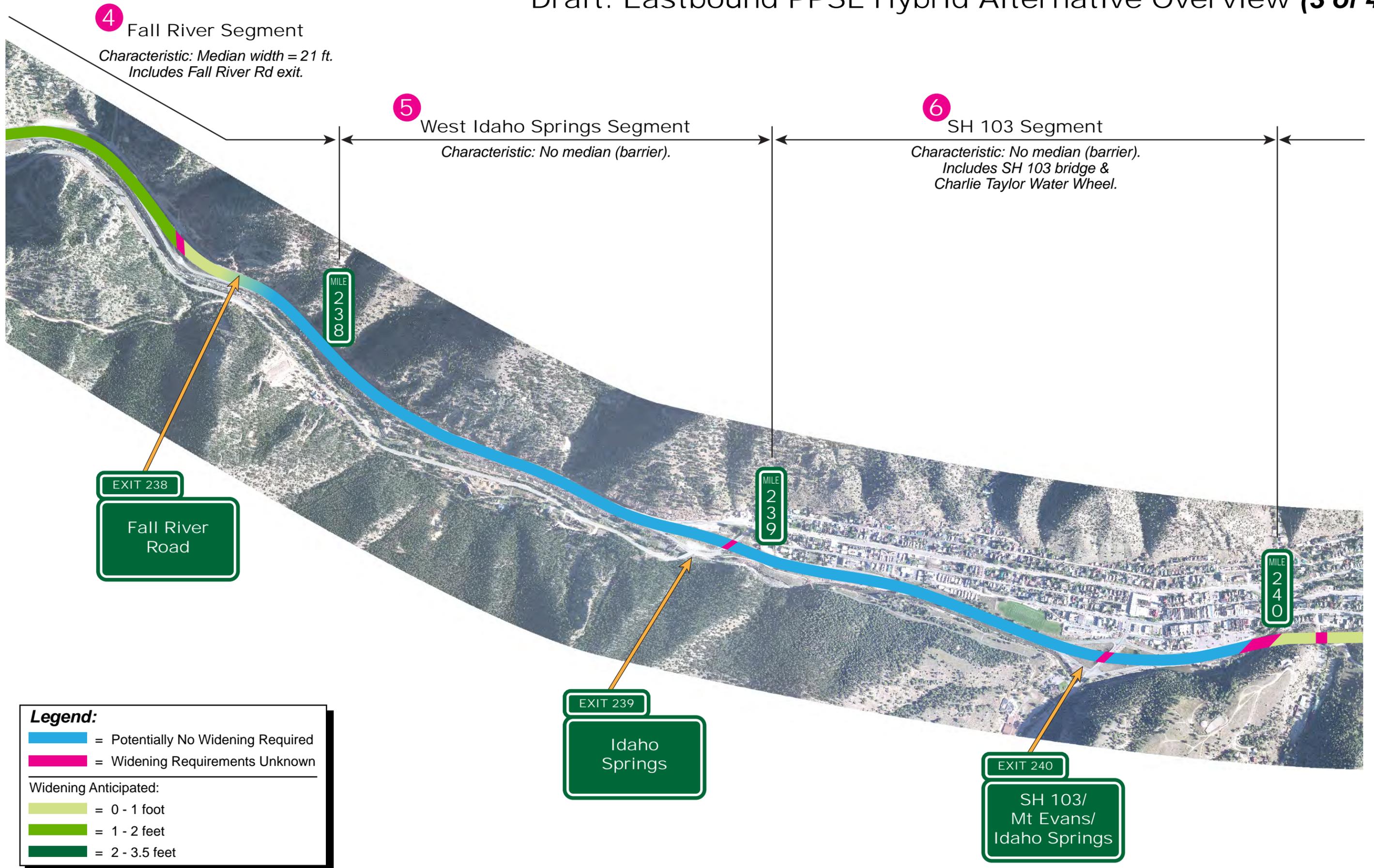
Legend:

- Blue = Potentially No Widening Required
- Pink = Widening Requirements Unknown

Widening Anticipated:

- Light Green = 0 - 1 foot
- Medium Green = 1 - 2 feet
- Dark Green = 2 - 3.5 feet

Draft: Eastbound PPSL Hybrid Alternative Overview (3 of 4)



Draft: Eastbound PPSL Hybrid Alternative Overview (4 of 4)

7 East Idaho Springs Segment

Characteristic: No median (barrier).
End at Twin tunnels widening.

8 Twin Tunnels Segment

Characteristic: Twin Tunnels widened area.
Signage improvements only,
no roadway improvements anticipated.



Legend:

- Blue line = Potentially No Widening Required
- Pink line = Widening Requirements Unknown

Widening Anticipated:

- Light green line = 0 - 1 foot
- Medium green line = 1 - 2 feet
- Dark green line = 2 - 3.5 feet

LIZ N: Empire Junction

LIZ N: Empire Junction

Mileposts: 231.6 – 232.9

Early Enhancement Opportunities in LIZ? No

LIZ Length: 1.4 miles

| <i>Target Species</i> | <i>Species Movement Guilds</i> |
|-----------------------|--------------------------------|
| Canada Lynx | Adaptive High Mobility Fauna |

Secondary Target Species

| | |
|-----------------------|------------|
| Bighorn Sheep* | Black Bear |
| Elk | Mule Deer |
| Northern Leopard Frog | |

*East-west movement across Highway 40 is more important for Bighorn sheep than connectivity across I-70.

Animal-Vehicle Collisions: High

Status of Adjacent Lands: Mostly private, some county

Site Discussion: Confluence of two large drainages (Clear Creek and the West Fork) and junction with Highway 40. Likely these two drainages provided historical movement pathways for many species. Interchange and other infrastructure create a large barrier at this confluence. Clear Creek has forced meanders around highway infrastructure, reinforced by riprap banks throughout this segment

Connectivity Recommendations

Coordinate visioning and planning for this segment with visioning and planning for Highway 40. Preferred alternative is to construct an extensive span bridge and raised interchange through this section to accommodate terrestrial and aquatic passage between the two drainages and restore the flow of Clear Creek and its riparian banks to a more natural condition. Alternatively, construct new crossing structures at mileposts 231.2 (JP064 - just beyond west end of LIZ) and 231.6-231.9. Investigate using jersey barriers or other barrier structures to keep sheep away from I-70 road edge on north side (2004 LIZ recommendation).

| Site-Specific Recommendations | | | | |
|--------------------------------------|-----------|--|---|-------------|
| Loc. # | MP | Site Description | Recommendations | EEO* |
| JP064 | 231.2 | Clear Creek concrete box culvert. Outside of LIZ, but possible location for a larger crossing structure. | Replace with a bridge structure and restore riparian banks. Bridge should have a wide enough span to include dry pathways for terrestrial species on both sides of the creek. Install limited guide fencing to direct animals towards structure and investigate use of scent lures to attract lynx towards structure. | No |

| | | | | |
|-------|-------------|---|--|----|
| JP066 | 232.3 | Clear Creek concrete box culvert. Structure goes under traffic lanes and eastbound on-ramp. | None. See preferred alternative. | No |
| n/a | 231.6-231.9 | No existing structure | Identify a location to install a new large arch culvert in this segment suitable for lynx, elk, deer and bear. Install limited guide fencing to direct animals towards structure and investigate use of scent lures to attract lynx towards structure. | No |
| n/a | Hwy 40 | No existing structure | Identify a location and construct an overpass for bighorn sheep over Hwy 40 (2004 LIZ recommendation) | No |

*Early Enhancement Opportunity

†Indicates wildlife monitoring conducted at site

LIZ O: Clear Creek Junction

Mileposts: 243.0 – 244.9
LIZ Length: 2 miles

Early Enhancement Opportunities in LIZ? No

| <i>Target Species</i> | <i>Species Movement Guilds</i> |
|-----------------------|--------------------------------|
| Elk | Very High Openness Fauna |
| Mule Deer | Adaptive Ungulates |

| <i>Secondary Target Species</i> | |
|---------------------------------|------------------------|
| Bighorn Sheep | Canada Lynx |
| Mountain Lion | Preble's Jumping Mouse |

Animal-Vehicle Collisions: Low to Moderately-Low

Status of Adjacent Lands: Private

Site Discussion: Highway 6/Clear Creek Canyon Interchange. Western Portion of LIZ parallels Clear Creek; eastern portion ascends Floyd Hill.

Connectivity Recommendations

Land bridge over Twin Tunnels just beyond LIZ to the west. Existing bridges over Clear Creek provide little opportunity for terrestrial passage. There is a proposal in the Final PEIS to tunnel eastbound lanes from milepost 243.5 to 245.0 to remove the sharp curve at the bottom of Floyd Hill; Westbound lanes would continue on the current alignment. This tunneling option may offer the opportunity to minimize the roadway footprint through this segment.

| Site-Specific Recommendations | | | | |
|--------------------------------------|-----------|---|---|-------------|
| Loc. # | MP | Site Description | Recommendations | EEO* |
| JP131 | 243.0 | Divided bridge at Central City exit with additional bridges to north (exit ramp and local road). Extensive riprap under all bridges. Dirt path with 2m clearance under hwy bridges. | Open up terrestrial pathway under highway bridges (particularly on west side of creek) and restore natural stream banks. Re-design exit ramp to provide greater clearance under bridge. Facilitate at-grade crossing over local road until that bridge can also be replaced with a larger structure encompassing riparian banks and providing dry terrestrial pathways. | No |
| JP017 | 244.2 | Divided bridge with concrete support walls at Hwy 6 junction. Spans Clear Creek and bike path. | Open up north side of eastbound structure by replacing walls with pillar supports. Open up and restore riparian banks on both sides of the creek (including low cover for Preble's jumping mouse). Cliffs act as natural funnel towards structure. | No |

| | | | | |
|--------|-------|--|---|----|
| JP043† | 244.9 | Fill slope; Hwy 40 frontage road parallel and below interstate to north/east | Construct bridge wildlife crossing - possibly also under Hwy 40. Relocate dirt pull-out to reduce roadway footprint at this location and to discourage human activity. Install limited guide fencing. | No |
|--------|-------|--|---|----|

*Early Enhancement Opportunity

†Indicates wildlife monitoring conducted at site

ALIVE IMPLEMENTATION MATRIX

WILDLIFE CONNECTIVITY AND HABITAT

Objective: To increase the permeability of the I-70 Corridor to terrestrial and aquatic species, including the development of management strategies that will result in the long-term protection and restoration of wildlife linkage areas that intersect the I-70 Corridor, improve habitat connectivity, and preserve essential ecosystem components. (MOU Purpose and Intent).

| Corridor Planning | Project Development | Project Design | Project Construction | Operations, Maintenance, and Monitoring |
|--|--|---|---|--|
| Inputs <ul style="list-style-type: none"> Wildlife data Land use information (incl. local use, USFS management plans, BLM, etc.) Existing LIZ and Ecological information and recommendations | Inputs <ul style="list-style-type: none"> Target species movements and habitats Wildlife guidelines and BMPs (I-70 Guidelines for Enhancing Wildlife Permeability) Avoidance and mitigation strategies (I-70 Connectivity Recommendations) Existing recovery efforts (USFWS/CDOW) Coordination with CDOW, USFWS, USFS, BLM, local governments, other stakeholders) | Inputs <ul style="list-style-type: none"> Species specific needs and compatible project designs Terms and conditions from Biological Opinion, if applicable | Inputs <ul style="list-style-type: none"> Terms and conditions from Biological Opinion, if applicable New species & habitat data since PS&E relative to all target species (or new target species) – NEPA reevaluation | Inputs <ul style="list-style-type: none"> Implementation and Monitoring Plan Terms and conditions from Biological Opinion, if applicable |
| Considerations <ul style="list-style-type: none"> What opportunities exist to improve, protect or restore permeability and habitat components? How have wildlife habitat and populations changed since the original or last updated analyses? | Considerations <ul style="list-style-type: none"> Are these permeability concerns outside of identified LIZs? Where are there existing barriers to wildlife movement? What opportunities exist to improve, protect or restore permeability and habitat components? | Considerations <ul style="list-style-type: none"> Will project designs improve or restore habitat and permeability? Will project designs minimize impacts to habitat and permeability during construction? | Considerations <ul style="list-style-type: none"> Are there unforeseen issues affecting habitat & permeability during construction? Are there changes to the construction timeline that could affect habitat & permeability? | Considerations <ul style="list-style-type: none"> Are the mitigations successful relative to the permeability goals set during corridor planning and project development? <ul style="list-style-type: none"> What could be done differently? |

ALIVE IMPLEMENTATION MATRIX

WILDLIFE CONNECTIVITY AND HABITAT

Objective: To increase the permeability of the I-70 Corridor to terrestrial and aquatic species, including the development of management strategies that will result in the long-term protection and restoration of wildlife linkage areas that intersect the I-70 Corridor, improve habitat connectivity, and preserve essential ecosystem components. (MOU Purpose and Intent).

| Corridor Planning | Project Development | Project Design | Project Construction | Operations, Maintenance, and Monitoring |
|--|--|---|----------------------|--|
| <p>Considerations (cont'd)</p> <ul style="list-style-type: none"> • What types of changes in wildlife habitat, populations or movements might occur in the reasonably foreseeable future? | <p>Considerations (cont'd)</p> <ul style="list-style-type: none"> • How have wildlife habitat and populations changed since the original or last updated analyses? • What types of changes in wildlife habitat, populations or movements might occur in the reasonably foreseeable future? • Do opportunities exist to enhance recovery efforts (e.g., approved Recovery Plans for ESA-listed species and State analog)? • Does the target species list include ESA-listed T&E species, species of state economic importance, USFS and BLM sensitive species, USFS MIS, & state spp. of concern? • Are there potentially conflicting mitigation/BMPs actions (crosswalk proposed mitigations) | <p>Considerations (cont'd)</p> <ul style="list-style-type: none"> • Will project designs minimize impacts to habitat and permeability during operations and maintenance? • Are there potentially conflicting mitigation/BMPs actions (crosswalk proposed mitigations) | | <p>Considerations (cont'd)</p> <ul style="list-style-type: none"> – How could a structure be built better, cheaper next time? |

ALIVE IMPLEMENTATION MATRIX

WILDLIFE CONNECTIVITY AND HABITAT

Objective: To increase the permeability of the I-70 Corridor to terrestrial and aquatic species, including the development of management strategies that will result in the long-term protection and restoration of wildlife linkage areas that intersect the I-70 Corridor, improve habitat connectivity, and preserve essential ecosystem components. (MOU Purpose and Intent).

| Corridor Planning | Project Development | Project Design | Project Construction | Operations, Maintenance, and Monitoring |
|--|--|---|---|--|
| Outcomes and Products <ul style="list-style-type: none"> Identify measurable permeability goals for the corridor Avoidance strategies Mitigation strategies (I-70 Connectivity Recommendations) Revised or refined LIZ information for that corridor segment (LIZs-2011) Identify partnership and acquisition or easement opportunities (permanent protection opportunities for adjacent habitat) | Outcomes and Products <ul style="list-style-type: none"> Biological Evaluation (USFS sensitive spp.), Biological Assessment (USFS), Biological Opinion (USFWS), Biological Report (USFS) <ul style="list-style-type: none"> Identify project-specific mitigation strategies relative to all target species Establish commitment to monitoring | Outcomes and Products <ul style="list-style-type: none"> Final Plan Specifications and Estimates (i.e., final designs) including specific mitigation measures Monitoring plan, estimates and identified funding for monitoring & ongoing maintenance | Outcomes and Products <ul style="list-style-type: none"> Mitigation modifications | Outcomes and Products <ul style="list-style-type: none"> Monitoring results Lessons learned |

INFORMATION NEEDS AND UPDATES

Objective: Identify and acquire information needed to inform decision-making and outcomes at each life cycle phase.

| | | | | |
|--|---|---|---|---|
| <ul style="list-style-type: none"> Changing and shifting habitats and wildlife populations Ongoing LIZ revisions | <ul style="list-style-type: none"> General and species-specific BMPs | <ul style="list-style-type: none"> Species-specific and site-specific monitoring needs- what protocols should be implemented to evaluate the functionality of mitigation measures? | <ul style="list-style-type: none"> Surveys prior to implementation | <ul style="list-style-type: none"> Are there new or improved monitoring techniques which could provide greater efficiency and effectiveness in monitoring? |
|--|---|---|---|---|



Twin Tunnels EA and Frontage Road Project ALIVE Issues Work Plan

| Wildlife Connectivity and Habitat | | | |
|--|--|-----------------------------------|------------------|
| <i>Issue</i> | <i>How it will be addressed/ Recommendation</i> | <i>Information and data needs</i> | <i>CDOT Lead</i> |
| Barrier separation along Clear Creek Greenway | Identify location for breaks and consider various designs and types | Drainage locations | David Singer |
| Need to provide pathway for deer and elk under Hidden Valley bridge over Clear Creek | Will include deer passage under bridge and improve bench in project design | | |
| Sheep get stuck in the fence along north side of I-70 at the west portal of the westbound tunnel | Minimal fencing. If needed, must meet CPW guidelines | Identify existing fence ownership | Jim Eussen |
| Fencing needed on south side of the tunnel during I-70 construction to redirect wildlife downstream away from the detour | Temporary fencing will be installed on the north side of old US 40 from the west portal to the doghouse bridge. Temporary lighting will be used during detour. | | |

| Wildlife Connectivity and Habitat | | | |
|---|--|---|--------------------------|
| <i>Issue</i> | <i>How it will be addressed/ Recommendation</i> | <i>Information and data needs</i> | <i>CDOT Lead</i> |
| Consider opportunities to accommodate wildlife in culvert west of the Twin Tunnels near Clear Creek Rafting | Maintain access on the south end to allow animals to move up and down Clear Creek. Improve drop from outlet. | Set cameras to inventory use. | Jim Eussen |
| Aquatic and fish permeability and passage | Develop design with CPW and USACE for permitting. | CPW to conduct fish survey in the fall of 2012 as baseline. | Jim Eussen |
| Limit lighting on the frontage road and at wildlife crossings | Directional light at Hidden Valley bridge. No permanent lighting on the frontage road. | Confirm frontage road lighting. | David Singer |
| Coordinate between the two projects to enhance connectivity | Ongoing | | David Singer |
| Information Needs and Updates | | | |
| <i>Issue</i> | <i>How it will be addressed</i> | <i>Information and data needs</i> | <i>CDOT Lead</i> |
| Need project specific and small species data not included in the recent I-70 inventory | Add to CSS inventory on website | <ul style="list-style-type: none"> - CPW aquatic survey - Camera inventory in culvert - Landowner observation documentation - Migratory bird survey | Janet Gerak/David Singer |