

# Twin Tunnels Environmental Assessment



Purpose:	<b>Project Leadership Team and Technical Team Combined Meeting</b>		
Day:	<b>Wednesday</b>	Date:	<b>February 8, 2012</b>
Location:	<b>CDOT Traffic Operations Center, Golden, Trail Ridge Conference Room</b>		

## Participants:

### Project Leadership Team

Attendee	Representing	
Ben Acimovic	CDOT R 1	Y
Chuck Attardo	CDOT R 1	N
Jim Bemelen	CDOT R 1	Y
Allan Brown	Atkins	Y
Tony DeVito	CDOT	N
Angie Drumm	CDOT Local Affairs	Y
Janet Gerak	CDOT R 1	N
Vanessa Henderson	CDOT EPB	Y
David Singer	CDOT R1	Y

Attendee	Representing	
Randy Jensen	FHWA	Y
Gina McAfee	Jacobs	Y
Tim Mauck	Clear Creek Co.	Y
Jack Morgan	Idaho Springs	Y
Pat Noyes	Pat Noyes	Y
Melinda Urban	FHWA	N
Mary Jo Vobedja	CH2M HILL	Y
Mandy Whorton	CH2M HILL	Y

### Technical Team

Attendee	Representing	
Ben Acimovic	CDOT R 1	Y
Chuck Attardo	CDOT R 1	N
Phyllis Adams	Upper CC Watershed Assn.	N
Carol Anderson	EPA	N
Rick Beck	Clear Creek Co Public Works	Y
Jim Bemelen	CDOT R 1	Y
Rena Brand	USACE	N
Tom Breslin	Clear Creek Co.	Y
Allan Brown	Atkins	Y
Steve Cook	DRCOG	Y

Attendee	Representing	
Carol Kruse	USFS	Y
Gina McAfee	Jacobs	Y
Bill Macy	Idaho Springs	N
Alison Michael	USFWS	Y
Cindy Neely	Clear Creek Co.	Y
Ty Petersburg	Colorado Parks & Wildlife	N
Amy Pallante	SHPO	N
Bob Quinlan	Jacobs	Y
Colleen Roberts	CH2M HILL	Y
Martha Rudolph	CDPHE	N

Attendee	Representing	
Maria D'Andrea	Jefferson Co.	Y
Jim DiLeo	CDPHE	Y
Gary Frey	Colorado Trout Unlimited	Y
Janet Gerak	CDOT R 1	N
Stephanie Gibson	FHWA	N
Dan Gibbs	Summit County	Y
Dave Hattan	FHU	Y
Vanessa Henderson	CDOT EPB	Y
Nicolena Johnson	Clear Creek EMS	N

Attendee	Representing	
Steve Rudy	DRCOG	N
Tom Schilling	Intermountain Corporate Affairs	Y
David Singer	CDOT	Y
Jo Ann Sorensen	Clear Creek Co.	Y
Mary Jo Vobejda	CH2M HILL	Y
Mandy Whorton	CH2M HILL	Y

## Discussion Items

### Welcome and Introductions

Jim Bemelen reviewed the agenda. Participants introduced themselves.

### Other Corridor Project Schedules and Updates

#### Inter-Regional Connectivity Study

CH2M HILL was selected for this study. Contract approval will be completed in about a month.

#### AGS Study

Typsa was selected for this study. Contract approval will be completed in about a month.

David Krutsinger has been hired as the project manager for these two studies by the Division of Transit and Rail.

#### Frontage Road

The PLT and TT are working on aesthetics of the wall treatments and retaining walls. The project is schedule to advertise in April, 2012.

### Twin Tunnel Updates

#### Schedule

A mitigated schedule is being prepared as recommended by the VE Study held in January.

Interviews for the Twin Tunnels design firm will be held on Friday, February 10<sup>th</sup> and the general contractor interviews are being held on Monday, February 13<sup>th</sup>. Selections will be within the week and both firms will be on board in late March. Both selected firms will begin participating in the PLT starting in April.

#### Decision Making Framework Paper

The draft Decision Making Framework was sent out after the last meeting with the comments received. Comments were received from DRCOG and have been incorporated into the current

version of the document, which is attached. This document is considered final for the project records.

## Construction Considerations

Allan Brown presented a PowerPoint discussing construction assumptions to be used in the EA resource analysis.

In order to meet the aggressive schedule for completion of the construction of the Twin Tunnels, it is anticipated there will be at least three construction packages. The number of packages and what's included in each package is subject to change once the contractor is on board.

The Project Leadership Team will remain intact throughout the design and construction of the project. The EA team is presently using conceptual design, which is approximately 10%, to develop the resource impacts analyses. As part of the next phase with the CM/GC, the PLT will give input on the 30% Field Investigation Review (FIR) plan submittal and the 90% Final Office Review (FOR) plan submittal.

### Construction Package One

This will be issued after the decision document has been signed in early November 2012. This will include work to prepare the detour and get ready for construction. The detour includes constructing transitions at the west end from the old US 40 exit to the doghouse rail bridge and on the east end near the Hidden Valley interchange. Between the doghouse rail bridge and Hidden Valley transition, the detour would use CR 314, which would be closed to local traffic for the duration of the detour. The permanent retaining wall on the south side of CR 314 at the Hidden Valley curve would be constructed during this package; the retaining wall would accommodate Phase 2 frontage road improvements.

Notice to proceed for this work is anticipated in December 2012 and expected to be complete in March 2013. **Clear Creek County would like to see the plans for this package as soon as possible.** A number of agreements with the County regarding the frontage road, trail connections, bridge inspections, etc. need to be worked out before this package is issued.

### Construction Package 2

This package will be the majority of the project construction including the tunnel widening, highway widening, retaining walls, and remainder of the work on the Hidden Valley bridge. The work is anticipated to start after the ski season ends (targeting late March 2013). During this phase, I-70 traffic would be detoured around the tunnel on the detour route constructed in Package 1. Construction is expected to be completed in October 2013.

Blasting work on the tunnel will be done from both ends by two different crews consisting of 12-15 people working 24/7. The width of the tunnel will determine the cycle of blasting. The 53' tunnel would be on a 36 hour cycle from March through September 2013. The 61' tunnel would be on a 48 hour cycle from March through October 2013. Each crew will be on a different cycle and there would be several blasts during each cycle. At the beginning of construction the blasting will be done at the portals. As the work progresses, the blasting will be inside of the

tunnel. It is anticipated noise from the blasting inside the tunnel would be largely muffled by the mountain. Each blast will be relatively small; removing only six feet of rock at a time.

### **Construction Package 3**

This package is the wrap-up work: removing the detour, Phase 1 improvements on CR 314, and reclaiming US 40 and the trailhead. The chain station reconstruction is included in this package, but it may be put into an earlier package if right-of-way is available earlier. The work on this package will start in November 2013 and finish up in the spring of 2014.

### **Long Lead Time Procurements**

Because of the need to have the materials ready for construction there will be long lead time procurement for this project. Contracts may be issued as early as summer or fall of 2012 to purchase items such as bridge girders and precast bridges & walls. This will be at the state's risk because the items will be purchased before the decision document is signed, and a decision may be made not to proceed with construction.

### **Questions and confirmation about construction details**

Allan confirmed that detour traffic would exit at Hidden Valley by first transitioning from CR 314 onto I-70 and then exiting at Hidden Valley. The grade difference between I-70 and the frontage road prevents detour traffic from continuing along the frontage road to Hidden Valley. Pedestrians and bicyclists would remain on the frontage road to Hidden Valley while the detour is in place.

During the detour, CDOT will close CR 314 at the wastewater treatment plant and would provide advance signage so that people have room to turn around.

### **Potential Construction Impacts**

Mandy facilitated a discussion with the group to identify impacts and concerns that the PLT/TT members would like to see in the EA analysis.

### **General**

The group requested a combined Twin Tunnels and Frontage Road construction project schedule to assess the cumulative impacts of both projects' construction activities.

It was agreed that the PLT and TT Meetings will include updates on the progress of environmental resource analyses and the ALIVE, SWEEP and Section 106 Issue Task Force recommendations.

There needs to be a list of the items that need agreement and mitigation before the design of Construction Package 1 starts. (Right-of-Way, restoration of disturbed areas, plan for the Clear Creek trail under the bridge, plan for the Greenway at the game check area, water quality mitigations, tunnel portal design).

The appearance of the retaining walls should be coordinated with the frontage road and will be a detail that Clear Creek County will want to review before construction packages are let.

Jack Morgan said Idaho Springs owns approximately 10 acres west of the tunnel that could be used for construction worker parking or staging.

Rick Beck requested an inspection of the doghouse rail bridge both before and after the detour operation.

### **Traffic**

Traffic on the eastbound detour and I-70 westbound will be stopped during blasting periods. Using a pace car may be an option to avoid a total stoppage for westbound traffic. Blasting will not be done during peak periods. Need to clearly define traffic impacts during blasting.

The EA needs to specifically discuss whether or not the chain station will be available during the winter and what contingencies would be required if an early or late snow storm occurred.

Tim Mauck asked what weekday traffic backups will look like during construction. Jim noted that there are no backups now when they have one-lane closures there on weekdays, and CDOT doesn't expect substantial congestion on weekdays. Construction traffic modeling will provide more information.

### **Air Quality**

Jim DiLeo – consider contract stipulation requiring the contractor to set up vanpools or buses to transport construction workers to the site, so not everybody drives and parks, as air quality mitigation. (Note from Gina – this could be done from the park-n-Ride lots at I-70 and Morrison Road).

JoAnn Sorenson – Evaluate air quality impacts to pedestrians and bicyclists during construction and post construction, especially along the detour route where they will be close to congested traffic. Dave Hattan noted that traffic on the detour should be free-flowing, as the bottleneck and congestion would occur upstream of the detour.

Jim DiLeo requested PM10 monitoring before and after tunnel blasting, rather than during tunnel blasting only. The group agreed that it would be a good idea to have monitoring done throughout the entire construction period. Monitoring information could be applied to future projects along the I-70 Mountain Corridor.

JoAnn Sorenson asked if other air pollutants should be measured in addition to PM10. Jim DiLeo noted that PM10 is the biggest concern from construction emissions. Other pollutants are not a concern on construction projects.

Jim DiLeo asked if traffic on the dirt section of CR 314 would increase dust emissions. The team noted that no traffic will travel on the dirt section of CR 314 during the detour.

### **Wildlife**

Cindy Neely requested that the EA consider the impacts of blasting and vibration on wildlife, and whether it would have permanent effects on wildlife movement.

### **Aquatic species**

Gary Frey - The EA should identify spawning areas and analyze whether construction will disturb any of them. Three trout species are present in Clear Creek and each has a different spawning period. The EA should identify specific measures to minimize effect to spawning areas during construction. Construction impacts to these areas could be permanent.

Tim Mauck suggested that Colorado Parks and Wildlife (CPW) do fish shocking in Clear Creek before and after construction to determine whether construction caused any loss of biomass. He noted the contractor should be held liable if loss occurs, as this affects both wildlife and economics in the project area.

Gary Frey asked what coordination has occurred with USFWS on the greenback cutthroat trout. Alison Michaels noted that the greenback cutthroat trout in this area are hybrid and not protected by the Endangered Species Act. CDOT will formalize USFWS consultations now that design and construction information is available, and the natural resources team will discuss with Alison what formal documentation is needed.

### **Vegetation**

Cindy Neely requested that CDOT commit to revegetation at the base of the new walls along Clear Creek. The PEIS committed to mitigating damage caused by the original highway construction. Cindy feels that restoring vegetation on the creek banks will improve both wildlife habitat and visual quality.

### **Wetlands**

No comments

### **Floodplains**

Construction and operations would not affect the 100-year floodplain.

CDOT has contacted the Clear Creek County floodplain administrator. LOMR and CLOMR letters will be sent by the Twin Tunnels and Frontage Road to both Clear Creek County and the City of Idaho Springs.

### **Water Quality**

Gary Frey asked what specific measures will be taken to control sedimentation during construction of the retaining walls.

Gary asked if CDOT will identify sediment loads in the stream. David Singer stated that is part of the Sediment Control Action Plan (SCAP) activities. Mandy and Allan noted that the Proposed Action includes sediment basins, sediment control inlets, and spill control areas. Allan noted that Clear Creek Consultants also has a monitoring station near the east portal of the tunnel.

Request to consider the Colorado Department of Public Health and the Environment (CDPHE) cleanup activities on Clear Creek upstream of the project area.

### **Geology**

No comments

### **Hazardous Waste/Materials**

Jack Morgan expressed concern about tunnel blasting effects on the raw sewage ponds at the sewage treatment plant. They hold about 250,000 gallons of sewage, and if blasting were to fracture them, they could run into Clear Creek. Jack requested an intergovernmental agreement relieving Idaho Springs of any liability if this were to occur. Jim noted that the contractor will probably put monitors in. (Gina noted this may need to be addressed in the socioeconomic section, as well as hazardous materials, to evaluate the effect to community services.) Mandy noted that this can be discussed in the vibration and settlement analysis too.

Gary Frey asked where CDOT will dispose of waste rock, and whether it is hazardous. Mandy noted that the tunnel rock and water samples taken thus far have come back clean.

Mandy noted the project will include a materials management plan.

### **Land Use and Right of Way**

Cindy Neely noted CDOT needs to consider the ROW concerns at the Bell property. Ben said that CDOT is working with the Bells currently.

### **Socioeconomics**

The Frontage Road Team has contacted and interviewed all of the rafting companies that run trips through the project area. CDOT is setting up a meeting with all of the companies in the near future.

CDOT should talk to the Frei property owners (gravel pit at I-70/US 6) soon to discuss the impacts of construction staging in this area on their truck operations.

### **Environmental Justice**

No comments

### **Noise**

Rick Beck noted that after the third lane is added, highway traffic will be closer to the Scott Lancaster Bridge. He asked if sound walls would be installed to protect trail users from noise impacts. Mandy noted this will be considered in the noise analysis.

### **Visual**

Cindy Neely noted that contractor access road on the west side of the tunnel would add more pavement to the game check area and would affect its look.

Cindy Neely stated that the retaining wall and portal aesthetics still need to be determined. Mandy noted the latter will occur through the Section 106 Memorandum of Understanding.

## **Recreation**

The team needs to confirm whether the project can accommodate a future pedestrian/bicycle trail under the new Hidden Valley Bridge.

- CDOT has committed to providing wildlife passage under the bridge, and accommodating both wildlife and the trail is cost prohibitive for an interim bridge.
- JoAnn Sorenson requested a meeting with the ALIVE group to discuss accommodating both wildlife passage and a pedestrian/bicycle trail under the new Hidden Valley bridge. David Singer noted this can be done with the ALIVE group during the CMGC phase, and Ben Acimovic noted this can be discussed with the contractor as early as April. JoAnn will check with others at the county on acceptability of that timing.

Tim Mauck asked if the permanent retaining wall on the south side of CR 314 at the Hidden Valley curve would accommodate a future separated shared use path along CR 314 all the way east to Hidden Valley. Allan confirmed that it would. Tim noted that the county would like to apply for GoCo grants for the trail within the next five years.

Rick Beck expressed concerns about damage to the Scott Lancaster bridge during the detour since the overhang is so close to traffic. Keith noted that during the detour, the overhang would be 7 feet from the back of the concrete barrier that separates the bridge from detour traffic, and traffic would be separated from the barrier by a 4-foot shoulder. The barrier would be anchored so that it would not move if hit by a vehicle. This will be addressed in the EA, and CDOT will talk with the contractor about whether they would encroach on that 7-foot buffer while preparing the detour route. Rick requested more detailed design and mitigation information explaining how the bridge would be protected from impacts.

## **Historic Resources**

Cindy Neely noted that the group needs to resolve the ultimate treatment of the Old Game Check area.

Cindy Neely requested that CDOT request that the contractor not damage or destroy local historic features along Clear Creek. Rafters see these features, such as mine head walls along the creek, and it provides historical context for the area. Jim stated the PLT/TT could help identify these features with the contractor in the field, and CDOT will request that the contractor avoid them if possible.

Cindy Neely noted the tunnel portal design must be determined. This will be agreed upon through the Section 106 Memorandum of Agreement.

## **Cumulative Impacts**

JoAnn noted she is sending any active projects to Ben, Jim, David, and Janet as they receive applications or other information at the county.

Mandy requested that the PLT/TT let CDOT know if they think of any cumulative impacts of concern to them.

## **Public Education & Outreach**

Tim Mauck recommended that CDOT talk to the Chamber of Commerce and promotion committees. Tim is presenting to them in April and CDOT can send a representative to that meeting. Advance information will allow them to plan ahead and market around the construction.

JoAnn requested that the EA consider the effects of construction and road closures during blasting on commuters to the gaming areas. Many Idaho Springs residents work in the gaming towns. Cindy Neely suggested that CDOT contact the casinos and provide them with information and flyers to distribute to their employees.

Tim Mauck requested that CDOT hold several public meetings before construction starts to explain upcoming activities. Ben noted that CDOT will have a dedicated website.

Cindy suggested that CDOT provide alerts and Tweets through CoTrip, as local residents use it extensively.

Cindy requested poster-sized information from CDOT regarding the construction impacts for use in public locations such as the Georgetown Visitors Center.

Suggestion to engage the I-70 Coalition.

JoAnn requested that the EA evaluate the possibility of traffic rerouting onto other local roads, such as through Virginia Canyon on Oh My God Road.

Jim noted that portable VMS signs will be put up on I-70 in advance of the construction zone.

Mandy stated that these suggestions will be added to a list of mitigation options for the contractor.

The next Twin Tunnels combined PLT & TT Meeting is Thursday, March 15<sup>th</sup>.

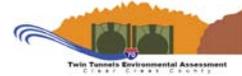


## *I-70 Twin Tunnels Environmental Assessment Combined Project Leadership and Technical Team Meeting*

Wednesday, February 8, 2011  
Golden Residency  
9:00 am - 12:00 pm

1. Welcome and Introductions (Bemelen)
  
2. Other Corridor Project Schedules and Updates (Bemelen)  
  
Frontage Road (Acimovic)
  
3. Twin Tunnel Updates (Bemelen)  
  
Schedule  
Decision Framework Paper
  
4. Construction Considerations (Brown)
  
5. Discussion of Potential Impacts (Whorton)
  
6. Next Combined PLT/Tech Team March 15, 2012 (Bemelen)  
  
Future PLT and Technical Team structure and meetings

Date	Group	Purpose
Feb. 8	PLT and Tech Team	Construction Assumptions and Plan
Feb. 16	Section 106 ITF	
Mar 15	PLT and Tech Team	Traffic and Managed Lane Analysis Value Assessment Results
Apr 12	PLT and Tech Team	Schedule and Project Status Discuss Impacts and Mitigation
May 10	PLT or Tech Team	Agenda To Be Determined
June	PLT	CMGC and Design Process Public Hearing
July 17	<b>Public Hearing</b>	



TWIN TUNNELS DECISION-MAKING  
FRAMEWORK  
(presented to PLT/Technical Team 01-12-2012;  
revised 02-09-2012)

The Twin Tunnels EA decision-making process has incorporated the six-step I-70 Mountain Corridor CSS process. These have included:

1. **Define Desired Outcomes and Actions**, which included forming a Project Leadership Team (PLT), reviewing previous work, developing a work plan, and completing NEPA scoping. This was accomplished in August and September 2011. In reviewing previous work, the project team consulted the recommendations of the PEIS and the Tunnel Visioning Workshop held in February 2011 and agreed to move forward with the Tunnel Visioning Workshop recommendation (Concept Package 2) as the Proposed Action. In defining issues, CDOT and other stakeholders such as DRCOG requested consideration of tolling options, which was an issue not considered during Tunnel Visioning.
2. **Endorse the Process**, which included discussing issues of importance, forming a Technical Team and Issue Task Forces to address and track issues of concern through the process, and developing a Context Statement and Core Values together with the PLT and Technical Team. All participants endorsed moving ahead with refining the Tunnel Visioning recommendation as the Proposed Action and continuing the consideration of tolling options. The project team also clarified roles and responsibilities of the agencies, consultants, and stakeholder project teams.
3. **Establish Criteria**. Criteria support decision-making and ensure that alternatives support desired outcomes and actions, as well as the Core Values. For this project, the project team with the PLT and the Technical Team endorsed moving forward with one Proposed Action, and evaluation criteria are not needed. The project team reviewed the Core Values with the PLT and the Technical Team to ensure that each was reflected in the NEPA evaluation. To address operational variations that were not considered during Tunnel Visioning but were raised by stakeholders in **Step #1** of this process, the project team reviewed tolling options. Criteria were established to support decision-making regarding tolling. In addition, a range of roadway width options at the western end of the corridor is being fully evaluated in the EA. Information developed during the NEPA process will inform the ultimate decision to be made regarding this design variation.
4. **Develop Alternatives or Options**. The Twin Tunnels EA did not develop alternatives to the Proposed Action because the Proposed Action was developed and endorsed by the recommendations of the PEIS and Tunnel Visioning workshop. The project team reviewed the full range of tolling options, evaluated

them based on the criteria developed in **Step #3**, and carried forward two options for evaluation in the EA.

5. **Evaluate, Select and Refine Alternatives or Options.** The PEIS and Tunnel Visioning each used a screening process to recommend the Proposed Action. The PEIS screening process identified a Preferred Alternative for the entire I-70 Mountain Corridor. The Tunnel Visioning screening process refined the PEIS Preferred Alternative to recommend a Proposed Action for the Twin Tunnels, which has been further refined in the Twin Tunnels EA process. Consistent with the PEIS, the Proposed Action design (road section) includes a range of widths to provide flexibility in the decision-making and allow full evaluation of impacts. The EA also includes a full evaluation of the impacts and benefits of operating the new lane as a managed lane or general purpose lane.
6. **Finalize Documentation and Evaluate Process.** The Twin Tunnels EA and associated decision document will document the decision-making process, define the conceptual design, detail effects of the Proposed Action, and finalize mitigation commitments. As the first project proposed in the I-70 Mountain Corridor since the signing of the PEIS ROD and completion of the CSS guidance, CDOT is committed to evaluating “lessons learned” for application on future projects. Other lessons learned to be discussed and documented including working with the PLT, Technical Team and implementation of the CSS guidance.

This paper focuses on the evaluation of alternatives, history of decision-making to identify the Proposed Action, refinement of the Proposed Action through the Twin Tunnels EA, and factors the NEPA process will evaluate, analyze, and document to support the decision on a Proposed Action and appropriate mitigation. This information was developed as a part of the CSS process to discuss with the PLT and Technical Team and also to support the EA documentation.

## Criteria, Alternatives Development, and Alternatives Refinement in the Tunnel Visioning Workshop (Steps 3, 4, 5)

The Twin Tunnels Visioning Workshop followed the 6-step CSS process. **Steps #1 and #2** occurred on the first day of the Workshop. In **Step #3**, Critical Success Factors were identified. These Critical Success Factors are also reflected in the Core Values for the Twin Tunnels EA. The Critical Success Factors, which were used to evaluate the Concept Packages identified during the Visioning process, included:

1. Improve mobility
2. Compatibility with existing plans
3. Timing of implementation
4. Cost
5. Level of environmental change
6. Level of economic benefit
7. Flexibility of design and long term usability
8. Community stakeholder acceptance
9. Attractive solution to gain funding and political support

10. Safety
11. Construction disruption

In **Step #4** of the 6-step CSS process, the Tunnel Visioning Workshop focused on developing a specific plan to address near-term and current mobility needs in the Twin Tunnels area, consistent with the PEIS Preferred Alternative. Starting with the substantial amount of data and input collected through the PEIS, the Tunnel Visioning team of stakeholders and technical experts conducted a thorough analysis of potential site-specific alternatives for the Twin Tunnels. The process first generated a broad number of ideas for improvements, including physical improvements, operational improvements, and other strategies (such as funding). These ideas were eventually packaged into seven (7) concept packages that represented a reasonable range of alternatives for improvements to the Twin Tunnels:

1. Widen both tunnels—55 mph design
2. Widen EB Tunnel and fix 45 mph curve EB
3. Widen both tunnels—65 mph design
4. Widen EB tunnel—65 mph design
5. 55 mph EB tunnel bypass
6. 65 mph EB tunnel bypass
7. New EB tunnel and fix 45 mph curve

In **Step #5** of the 6-step CSS process, each of the seven concept packages was developed, evaluated, and compared against the critical success factors. The Tunnel Visioning team recommended Concept Package 2 (with variations to be considered) because it best met the immediate mobility and safety needs, could be completed within four to five years, was consistent with the PEIS Preferred Alternative, constructed some permanent elements of the PEIS Preferred Alternative (the tunnel widening), and was cost competitive.

## CRITERIA, PROPOSED ACTION DEVELOPMENT, AND OPTIONS IDENTIFICATION IN THE TWIN TUNNELS EA

In **Step #3**, the Twin Tunnels EA developed factors for evaluating options. Since the Proposed Action is based on the Recommended Concept from Tunnel Visioning, which included its own alternatives development and evaluation process, alternatives evaluation criteria were not needed for the NEPA process. As part of **Step #3**, the team recognized that even without traditional NEPA like evaluation criteria, which are used to develop and screen alternatives, the Proposed Action should support the Core Values.

One variation not considered during Tunnel Visioning was the potential for tolling. Since this issue was raised by CDOT and some stakeholders including DRCOG during the NEPA Scoping process, as part of **Step #3**, the team developed factors to consider how this operational variation might be included in the Proposed Action.

The initial consideration for possible tolling was raised during the I-70 Mountain Corridor PEIS process. Tolling was discussed in the PEIS in the Financial Considerations chapter as an innovative funding source that might be sought. The discussion in that

chapter specifically mentioned consideration of tolling in future Tier 2 processes, such as the Twin Tunnels project.

Tolling was mentioned in the “Ideas” phase of the Tunnel Visioning process, as two of six funding elements, but it was not advanced because the funding elements were not within the scope of the process.

CDOT practices for tolling have been evolving in response to local and national transportation challenges. Some of these issues include:

- CDOT continues to face funding challenges and budget shortfalls
- National initiatives for investigating user fees to defray the cost for transportation improvements have been progressing.
- Tolloed or managed lanes have demonstrated an ability to provide for a less congested, more reliable travel option over time
- Tolling, particularly demand pricing, has been shown to change travel behaviors by encouraging off-peak travel, in effect increasing highway capacity.
- DRCOG guidance is that tolling should be in the mix of alternatives considered on all highway capacity projects in their region, and current CDOT practice for highway capacity projects in or adjacent to the DRCOG region is to consider tolling.

For these reasons, CDOT is examining the appropriate use of tolling on all of its major highway capacity projects. CDOT is not currently considering tolling outside of new highway development projects (that is, tolling existing capacity). Tolls very rarely cover the cost of construction for a project but instead can offer a revenue source to supplement other traditional sources of highway funding. The High Performance Transportation Enterprise (HPTE) was in fact established to pursue innovative means of more efficiently financing surface transportation projects.

The criteria for how tolling could be included in the Twin Tunnels project are included below.

1. Consistency with current CDOT practices for highway capacity projects in or adjacent to the DRCOG region
2. Ability to maintain a less congested, more reliable option for travel
3. Ability to alter travel behavior to encourage off peak travel
4. Ability to accommodate freight traffic
5. Socio-economic impacts on local travelers
6. Socio-economic impacts associated with recreational traffic
7. Ability to accommodate emergency vehicles
8. Safety
9. Energy consumption
10. Effect to adjacent roads of diverted traffic
11. Operating cost to implement tolling versus tolling revenue generated

Tolling options that were considered include:

- Toll all lanes all the time
- Toll only new lane all the time
- Toll all lanes during congested periods only
- Toll new lane during congested periods only
- Do not implement tolling at this time but reserve the right to implement tolling as part of a larger project in the future

The project team conducted an analysis of the five tolling options by considering the criteria listed above. This resulted in the following findings, as also presented in Table 1:

- Tolling all lanes (including general purpose lanes and any added new lanes) all the time is not consistent with current CDOT practices of not tolling existing capacity, has socio-economic impacts to all users of I-70 all the time, may disproportionately impact local travelers who do not have a reasonable alternate route for local travel, could be more burdensome to freight traffic, and would result in increased congestion on the adjacent frontage road.
- Tolling the new lane all the time is consistent with CDOT practices in the Denver metro area and is the current practice on the existing I-25 Express Lanes and future US 36 Express Lanes. However, this option can have more onerous impacts on local traffic, especially in the Twin Tunnels area where congestion is primarily related to recreational users traveling from outside of the local area.
- Tolling all lanes only during congested periods has not yet been done on a CDOT facility and is not consistent with CDOT's current practice of not tolling existing capacity. This option also could have socio-economic impacts (but not as severe as tolling all lanes all the time), could be more burdensome to freight traffic, and could divert traffic to the frontage road, greatly increasing traffic volumes and leading to congestion of the frontage road. The vast majority of the time in the near future, traffic is not expected to be congested enough to entice motorists to use the tolled lanes, even if the toll amount was trivial, resulting in overloading alternate routes such as the frontage road. However, there are times that congestion is such that motorists would be enticed to use the tolled lanes.
- The project team (with final direction provided by CDOT and FHWA) determined that either tolling only the new lane during congested periods only or providing three general purpose lanes while reserving the right to implement tolling as a part of a larger project in the future were the two options that best meet the purpose and need and other evaluation criteria, and support the Core Values. These options were advanced to **Step #4**. Details such as how and when tolls would be applied and whether or not

dynamic pricing is appropriate will continue to be developed in **Steps #4 and #5**.

TABLE 1:

Option	Evaluation
Toll all lanes all the time (eliminated)	<ul style="list-style-type: none"> <li>• Not consistent with CDOT’s current practices</li> <li>• Socioeconomic impacts to all users of I-70 all the time</li> <li>• May disproportionately impact local travelers</li> <li>• Could be more burdensome to freight traffic</li> <li>• Potential to greatly increase traffic on the frontage road, noticeably increasing frontage road congestion</li> </ul>
Toll only new lane all the time (eliminated)	<ul style="list-style-type: none"> <li>• Consistent with CDOT practices</li> <li>• More disproportionate impact on local traffic, since the tolling would also occur during times when there is more local traffic on I-70</li> </ul>
Toll all lanes during congested periods only (eliminated)	<ul style="list-style-type: none"> <li>• Has not yet been implemented and is not consistent with CDOT’s current practices</li> <li>• Similar issues as tolling all lanes all the time but lesser effects</li> <li>• Potential to greatly increase traffic on the frontage road</li> <li>• Not consistent with CDOT practices</li> </ul>
Toll new lane during congested periods only (retained and evaluated in EA)	<ul style="list-style-type: none"> <li>• Has not yet been implemented but is consistent with CDOT practices</li> <li>• Offers opportunity to manage congestion</li> </ul>
Do not implement tolling at this time but reserve the right to implement tolling as part of a larger project in the future (retained and evaluated in EA)	<ul style="list-style-type: none"> <li>• Consistent with state and federal tolling regulations</li> <li>• Offers flexibility to manage future traffic congestion without affecting current operations or incurring capital costs of implementing a tolling program at this time</li> </ul>

In **Step #4**, the team brainstormed with the PLT and Technical Team to capture ideas for the design. To ensure objectivity in the design process, the design team developed two “extreme” concepts of widening entirely to the inside (toward the median) and entirely to the outside (to the creek). This exercise allowed the team to receive feedback about the impacts that should be avoided in a recommended design. Feedback was received that it was important not to encroach into the 2-year or 100-year floodplain if those impacts could be avoided. Meeting the I-70 Mountain Corridor CSS Design Criteria was identified as important. Although traffic analyses continued in **Step #4**, no decisions were made between the tolling and general purpose lane options because the operational variations did not affect the design decisions about the footprint. Therefore, there were no distinguishing decision points regarding a managed vs. general purpose lane in this step.

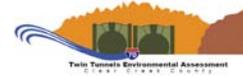


The 5<sup>th</sup> step in the CSS process is evaluating and selecting options. In **Step #5**, the team worked with stakeholders to develop a design that addressed the issues raised in **Step #4**, and supported the Core Values and other previous commitments, such as the mitigation strategies in the PEIS, the SWEEP and ALIVE MOUs, and the Section 106 Programmatic Agreement. The design was presented to the PLT and Technical Team on December 14, 2011, and the group endorsed moving forward with full analysis of the refined Proposed Action in the EA. The group also understood and endorsed the approach of evaluating a range of road section widths at the west end of the project to allow flexibility in maximizing the tunnel width. Additional refinements will occur during the impact analyses and mitigation development phases.

Consistent with the CSS Guidance, the team is considering the Core Values, combined with regulatory requirements from NEPA and other relevant laws such as the Clean Air Act, Clean Water Act, National Historic Preservation Act, and Section 4(f), in evaluating the impacts and benefits of the Proposed Action and recommending mitigation measures that may avoid or minimize adverse impacts. These factors, reflected in Table 2, are being used to inform the decisions regarding the final tolling (or no tolling) option and the final width of the road cross section.

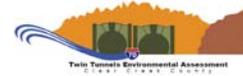
**TABLE 2: ADDRESSING TWIN TUNNELS CORE VALUES AND FEDERAL REGULATORY REQUIREMENTS**

Core Values	How the Twin Tunnels EA Addresses and Evaluates Core Values (factors)		
		Relevant to the Tolling Option	Relevant to the Road Cross Section
<b>Safe</b> travel for people and goods. <b>Safety</b> for emergency responders and maintenance workers. A <b>safe</b> crossing for wildlife.	<ul style="list-style-type: none"> <li>• Include safety in NEPA Purpose and Need</li> </ul>	✓	✓
	<ul style="list-style-type: none"> <li>• Crash history analysis and crash predictions for future conditions</li> </ul>	✓	✓
	<ul style="list-style-type: none"> <li>• Ability to accommodate emergency vehicles</li> </ul>	✓	✓
	<ul style="list-style-type: none"> <li>• Evaluate Proposed Action's ability to meet Purpose and Need</li> </ul>	✓	✓
	<ul style="list-style-type: none"> <li>• Application of State and Federal design standards</li> </ul>	✓	✓
	<ul style="list-style-type: none"> <li>• ALIVE Issue Task Force to evaluate wildlife crossings and make recommendation</li> </ul>		✓
<b>Mobility</b> through safe and reliable transportation facilities.	<ul style="list-style-type: none"> <li>• Include safety and need for reliable transportation facilities in NEPA Purpose and Need</li> </ul>	✓	
	<ul style="list-style-type: none"> <li>• Analysis of travel reliability, vehicle hours of travel, vehicle miles of travel, travel time, traffic density, line and screen line volumes, vehicle hours of delay, hours of congestion, queuing, recurring and non-recurring congestion, diversion to other routes, speed, level of service/other measure of congestion, energy consumption</li> </ul>	✓	



**TABLE 2: ADDRESSING TWIN TUNNELS CORE VALUES AND FEDERAL REGULATORY REQUIREMENTS**

Core Values	How the Twin Tunnels EA Addresses and Evaluates Core Values (factors)		
		Relevant to the Tolling Option	Relevant to the Road Cross Section
A primary access and visual gateway to the Mountain Mineral Belt, historic Idaho Springs and Front Range communities.	<ul style="list-style-type: none"> <li>Ability to alter travel behavior to encourage off peak travel or other behavioral changes</li> </ul>	✓	
	<ul style="list-style-type: none"> <li>Consistency with current CDOT practices for highway capacity projects in or adjacent to the DRCOG region</li> </ul>	✓	
	<ul style="list-style-type: none"> <li>Evaluate Proposed Action's ability to meet Purpose and Need</li> </ul>	✓	
	<ul style="list-style-type: none"> <li>Application of State, Federal, and I-70 Mountain Corridor design standards and operational improvements</li> </ul>	✓	
	<ul style="list-style-type: none"> <li>Application of the CSS Design Guidance</li> </ul>	✓	✓
	<ul style="list-style-type: none"> <li>Application of the CSS Mountain Mineral Belt Aesthetic Guidance</li> </ul>	✓	✓
	<ul style="list-style-type: none"> <li>NEPA resource evaluations of visual impacts, historic property effects, and transportation conditions</li> </ul>	✓	✓
	<ul style="list-style-type: none"> <li>NEPA evaluation of mitigation strategies and commitment to effective strategies in decision document</li> </ul>		✓
Wildlife, wildlife habitat, migration routes and access to Clear Creek.	<ul style="list-style-type: none"> <li>ALIVE MOU and Issue Task Force to review wildlife crossings and barriers</li> </ul>		✓
	<ul style="list-style-type: none"> <li>Review of ALIVE Recommendations</li> </ul>		✓
	<ul style="list-style-type: none"> <li>NEPA resource evaluation of wildlife and riparian area impacts</li> </ul>		✓
	<ul style="list-style-type: none"> <li>NEPA evaluation of mitigation strategies and commitment to effective strategies in decision document</li> </ul>		✓
Clear Creek, as a clean, high-quality water resource, a recreational asset, an aquatic resource with sustainable	<ul style="list-style-type: none"> <li>Application of SWEEP MOU</li> </ul>		✓
	<ul style="list-style-type: none"> <li>SWEEP Issue Task Force recommendations</li> </ul>		✓
	<ul style="list-style-type: none"> <li>NEPA resource evaluation of water quality, recreation impacts, aquatic resource impacts, wetland impacts</li> </ul>		✓



**TABLE 2: ADDRESSING TWIN TUNNELS CORE VALUES AND FEDERAL REGULATORY REQUIREMENTS**

Core Values	How the Twin Tunnels EA Addresses and Evaluates Core Values (factors)		
		Relevant to the Tolling Option	Relevant to the Road Cross Section
fisheries' habitat, a drinking water source, and a defining natural feature of the corridor.	<ul style="list-style-type: none"> <li>NEPA evaluation of mitigation strategies and commitment to effective strategies in decision document</li> </ul>		✓
<b>Tourist destinations and community facilities,</b> including the Scott Lancaster Trail and Bridge, wastewater treatment plant, planned Clear Creek Greenway, I-70 frontage road (CR 314), and Clear Creek.	<ul style="list-style-type: none"> <li>Application of the CSS Decision Process to identify issues and facilities of community concern</li> </ul>	✓	✓
	<ul style="list-style-type: none"> <li>Application of the CSS Design Guidance</li> </ul>	✓	✓
	<ul style="list-style-type: none"> <li>Consultation with Idaho Springs, Clear Creek County, and local stakeholders</li> </ul>	✓	✓
	<ul style="list-style-type: none"> <li>Section 4(f) evaluation of need for and ability to avoid transportation use of recreation facilities</li> </ul>		✓
	<ul style="list-style-type: none"> <li>NEPA resource evaluations of land use, economic impacts, social impacts, recreation resource impacts, freight traffic</li> </ul>	✓	
	<ul style="list-style-type: none"> <li>NEPA evaluation of mitigation strategies and commitment to effective strategies in decision document</li> </ul>	✓	✓
<b>History</b> as a defining element of Clear Creek County. Celebrating the cultural resources associated with mining and mining towns, and the first successful tunneling operation on I-70 west through Colorado's	<ul style="list-style-type: none"> <li>Engagement of the I-70 Mountain Corridor Section 106 Consulting Parties (Historic Issue Task Force) through all phases of the Section 106 process</li> </ul>		✓
	<ul style="list-style-type: none"> <li>Application of the Section 106 Programmatic Agreement</li> </ul>		✓
	<ul style="list-style-type: none"> <li>Historic properties survey to identify/confirm important historic properties within the project effects area</li> </ul>		✓
	<ul style="list-style-type: none"> <li>Section 4(f) evaluation of need for and ability to avoid transportation use of historic properties</li> </ul>		✓
	<ul style="list-style-type: none"> <li>NEPA resource evaluation of historic properties, including direct and indirect effects such as noise, visual, access, or tourism effects</li> </ul>		✓



**TABLE 2: ADDRESSING TWIN TUNNELS CORE VALUES AND FEDERAL REGULATORY REQUIREMENTS**

Core Values	How the Twin Tunnels EA Addresses and Evaluates Core Values (factors)		
		Relevant to the Tolling Option	Relevant to the Road Cross Section
mountains.	<ul style="list-style-type: none"> <li>NEPA evaluation of mitigation strategies and commitment to effective strategies in decision document and Memorandum of Agreement</li> </ul>		✓

The EA, which is expected to be completed in summer 2012, will document consideration of all of the factors in Table 2, in addition to more analysis and will be provided for detailed review and comment by stakeholders. The public review process is the official time in the NEPA process to request input on these factors and trade-offs.

The **6<sup>th</sup> Step** of the process will document how CDOT and FHWA worked together with the PLT and Technical Team using I-70 Mountain Corridor CSS processes, to review the input received during the public review process and the information provided in the EA. The technical analyses and stakeholder input will be carefully considered by CDOT and FHWA in making final decisions which will be presented in the final decision document.

# Twin Tunnels EA Construction Considerations

Project Leadership Team and  
Technical Team  
February 8, 2012



# Objectives of Today's Presentation

- Review anticipated construction issues
- Solicit feedback on impacts and issues of concern
- Discussion will inform the development of impacts and mitigation for the EA document



# Discussion Topics

- Construction plan assumptions
- Construction plan packages
- Tunnel expansion
- Retaining walls
- EB I-70 detour
- Contractor staging areas and access
- Questions; discussion of potential impacts and concerns



# Construction Plan Assumptions

- This construction plan is conceptual only
- Plan is subject to change in CM/GC process due to:
  - » Contractor's construction expertise and preferred methods
  - » Contractor's equipment and material availability
- Allows identification of impacts and discussion about potential mitigation
- Three construction packages to meet schedule



# Construction Package 1

- Anticipated schedule:
  - » Issue after EA decision document in early November 2012
  - » Construction timeframe: December 2012 to March 2013
- Contents of package:
  - » CR 314 relocation at Hidden Valley
  - » Doghouse rail bridge rehabilitation
  - » Detour construction
  - » Tunnel preparation work at portals/reinforcement of pillar
  - » Retaining wall west of tunnel
  - » Bridge outside of existing I-70 traffic



# Construction Package 2

- Anticipated schedule:
  - » Start after 2012/2013 ski season
  - » Construction timeframe: late March 2013 to October 2013
- Contents of package:
  - » Tunnel excavation, lining, portals, paving, services
  - » Retaining walls
  - » Remainder of bridge
  - » US 6 exit modifications
  - » Paving



# Construction Package 3

- Anticipated schedule:
  - » Construction November 2013 – March 2014
- Contents of package:
  - » Remove detour and restore traffic on eastbound I-70
  - » Reclaim detour crossovers at each end
  - » Reclaim CR 314 to existing condition
  - » Reclaim Old US 40 area; trailhead improvements
  - » Chain station relocation



# Long Lead Time Procurement

- Acquiring materials for early construction activities:
  - » Bridge girders
  - » Precast wall sections
  - » Precast bridge elements
  - » Other items to be determined
- Summer/Fall 2012 after design is confirmed



# Tunnel Expansion

- General considerations:
  - » To meet aggressive schedule, excavation required from both portals
  - » Work will be performed 24/7 and holidays
  - » Blasting could be any time day or night; precautions taken
  - » Blasting times will vary:
    - 53' tunnel every 36 hours
    - 61' tunnel every 48 hours

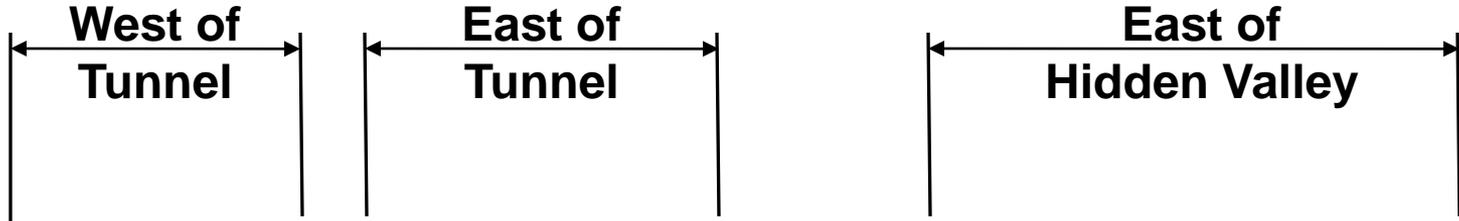


# Tunnel Expansion

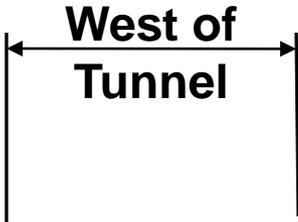
- Timeline:
  - » Construction begins as soon as traffic shifted onto detour
  - » Duration of tunnel work/detour:
    - 53' tunnel – 6 mos. (March-September)
    - 61' tunnel – 7 mos. (March-October)



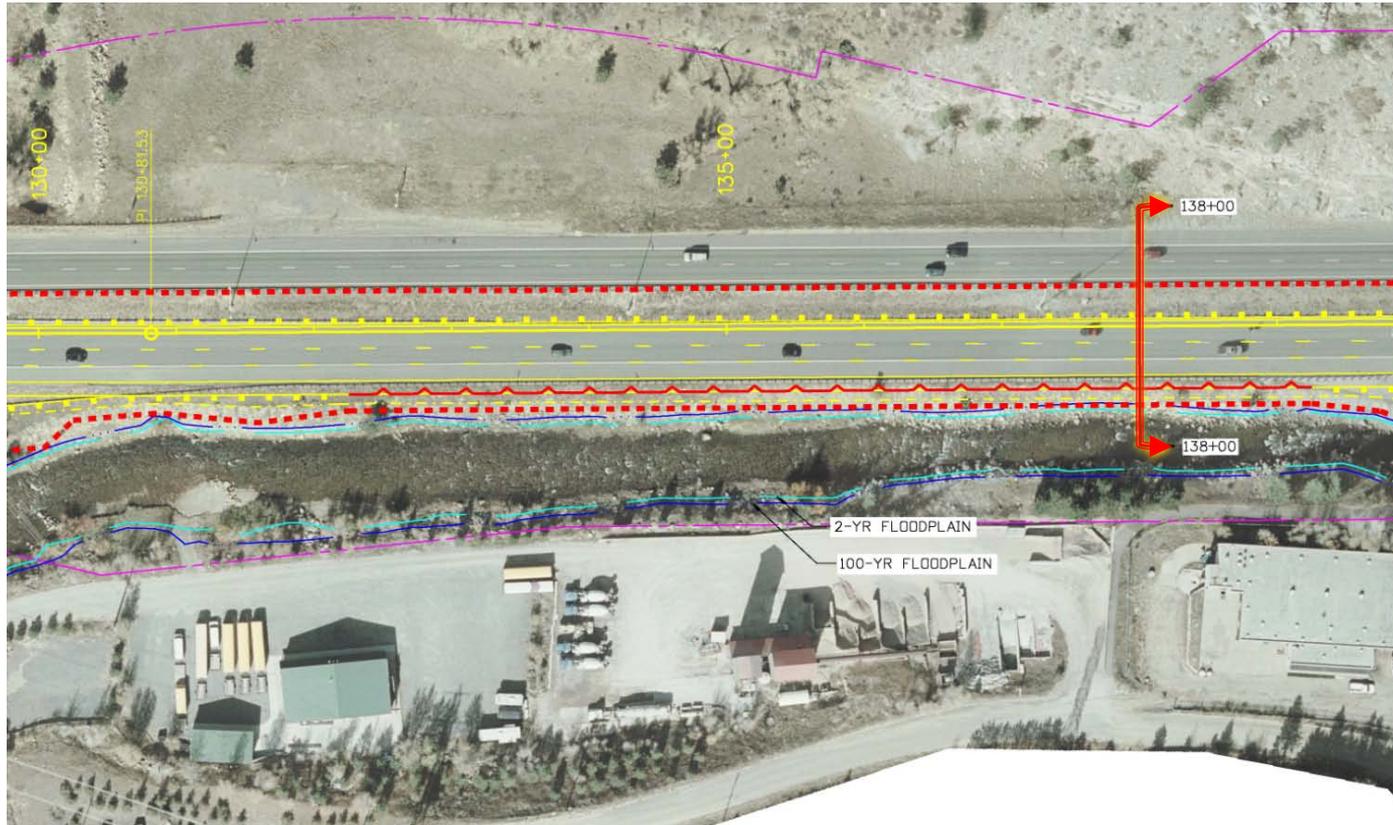
# Retaining Walls



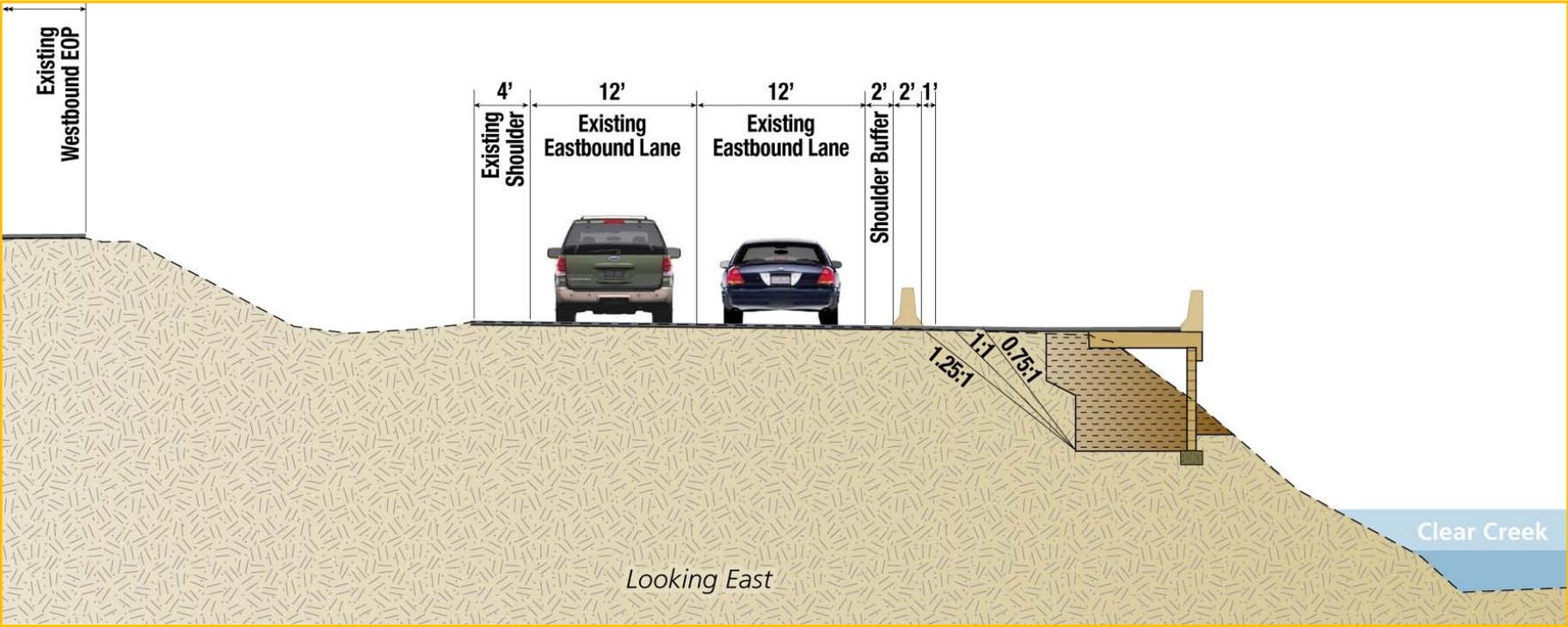
# Retaining Walls – West of Tunnel



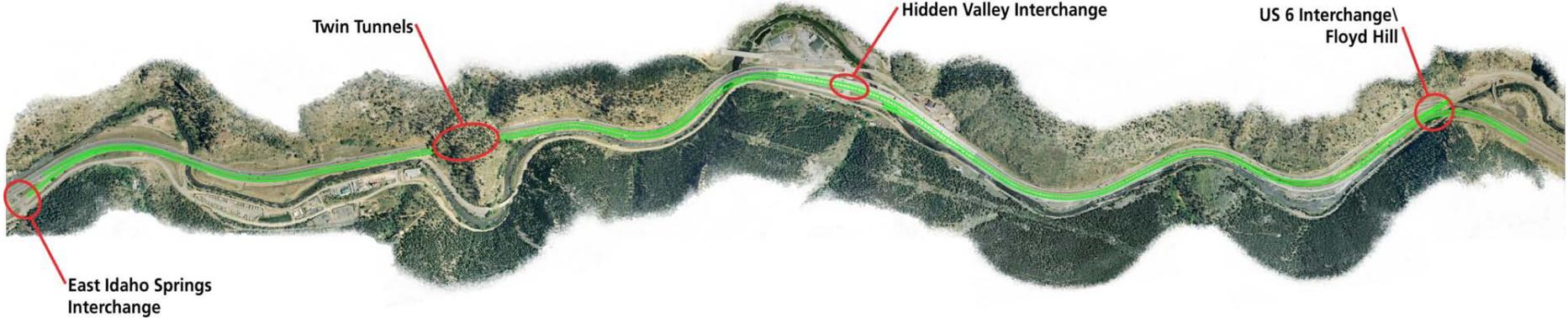
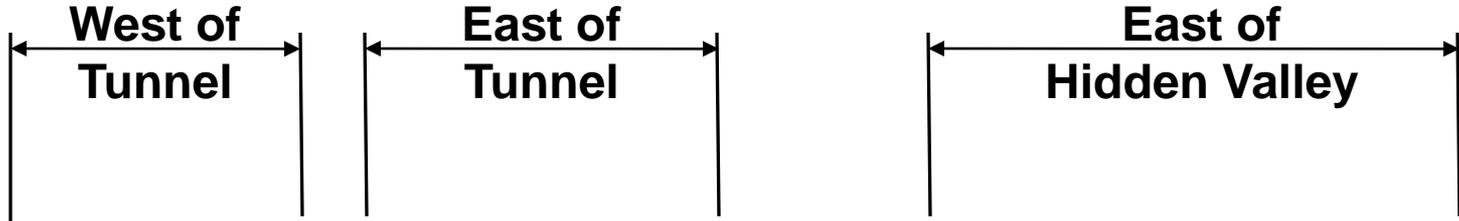
# Retaining Walls – West of Tunnel



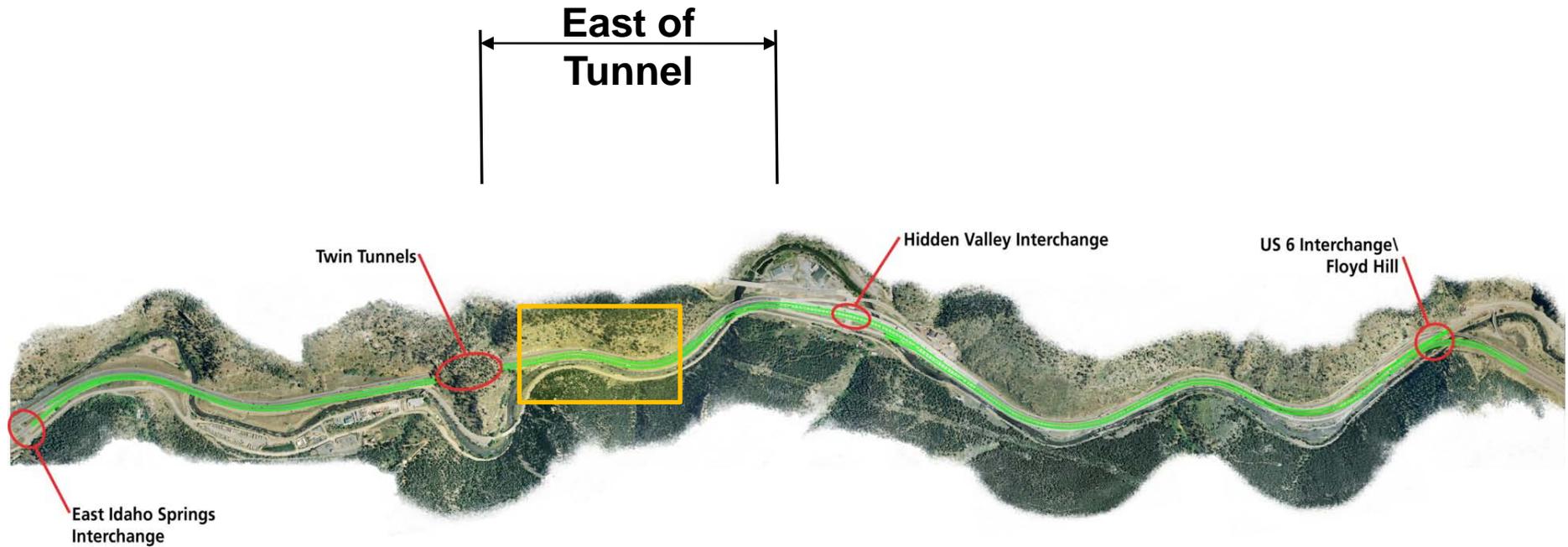
# Retaining Walls – West of Tunnel



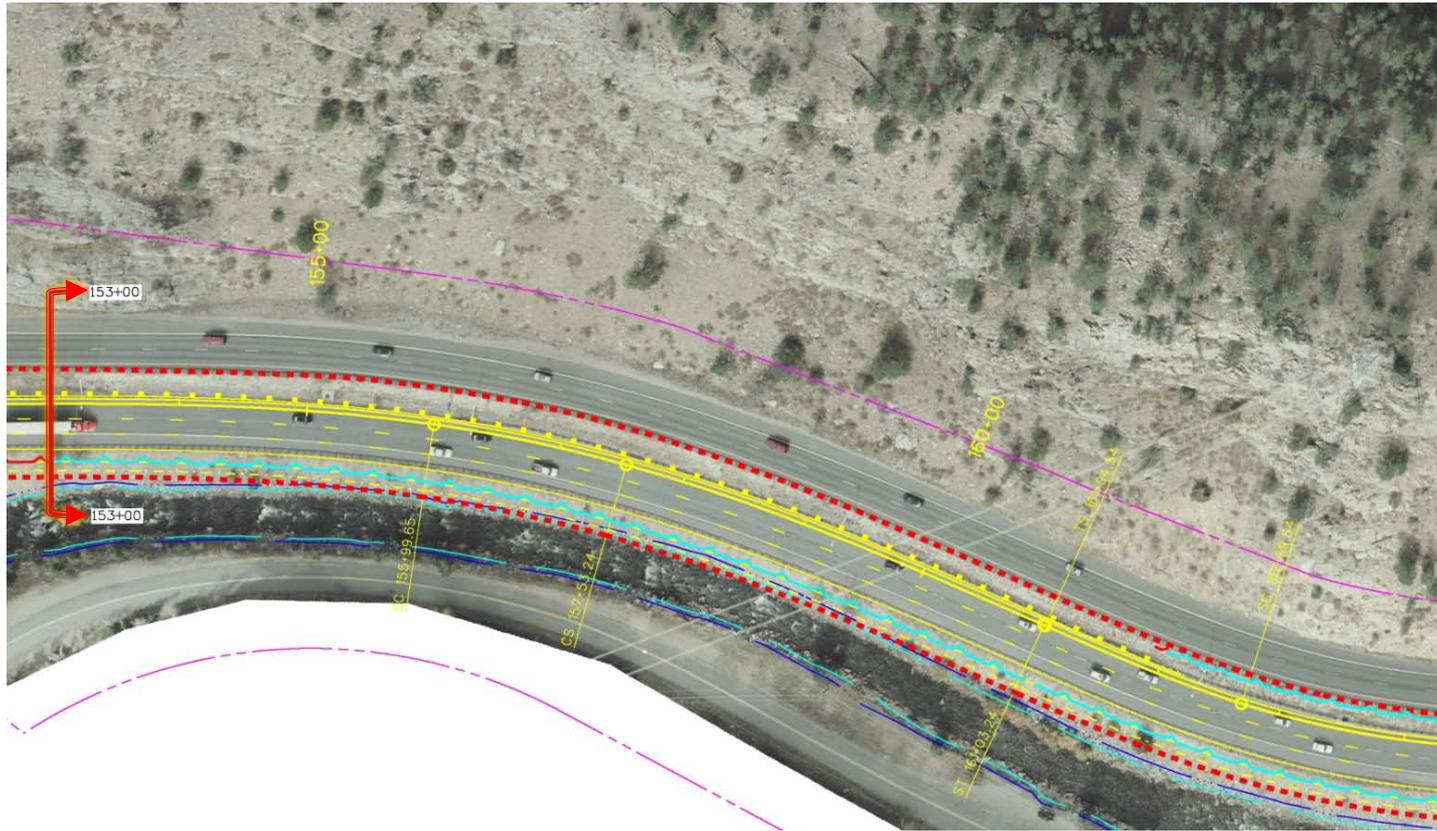
# Retaining Walls



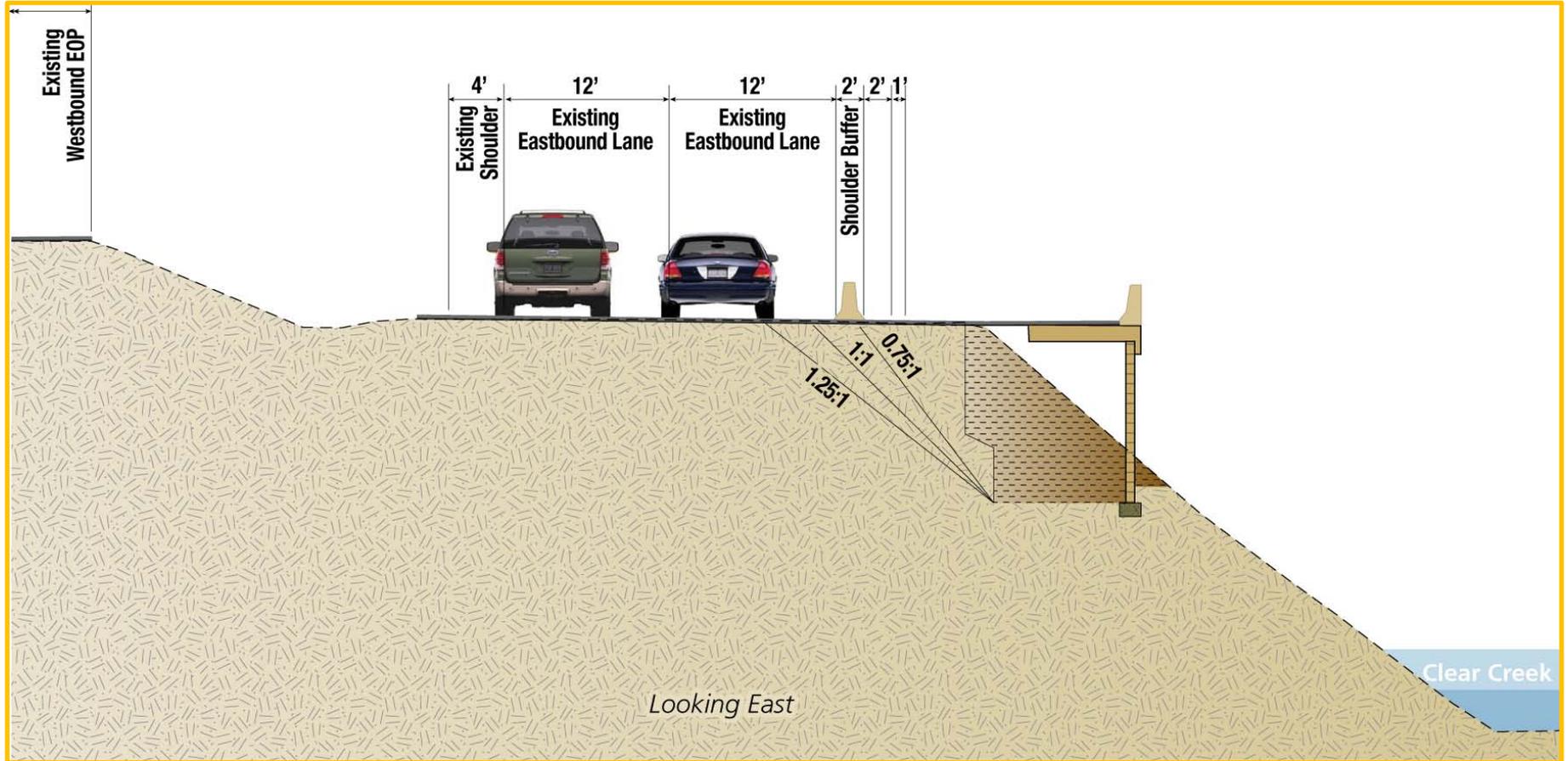
# Retaining Walls – East of Tunnel



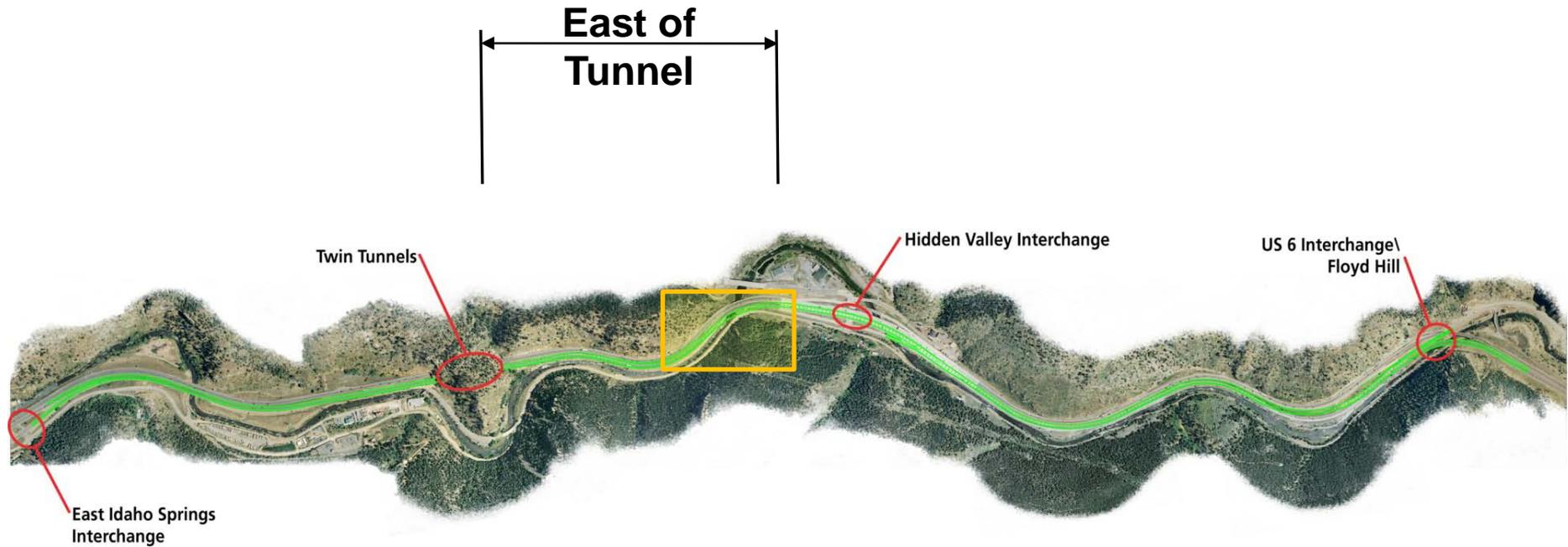
# Retaining Walls – East of Tunnel



# Retaining Walls – East of Tunnel

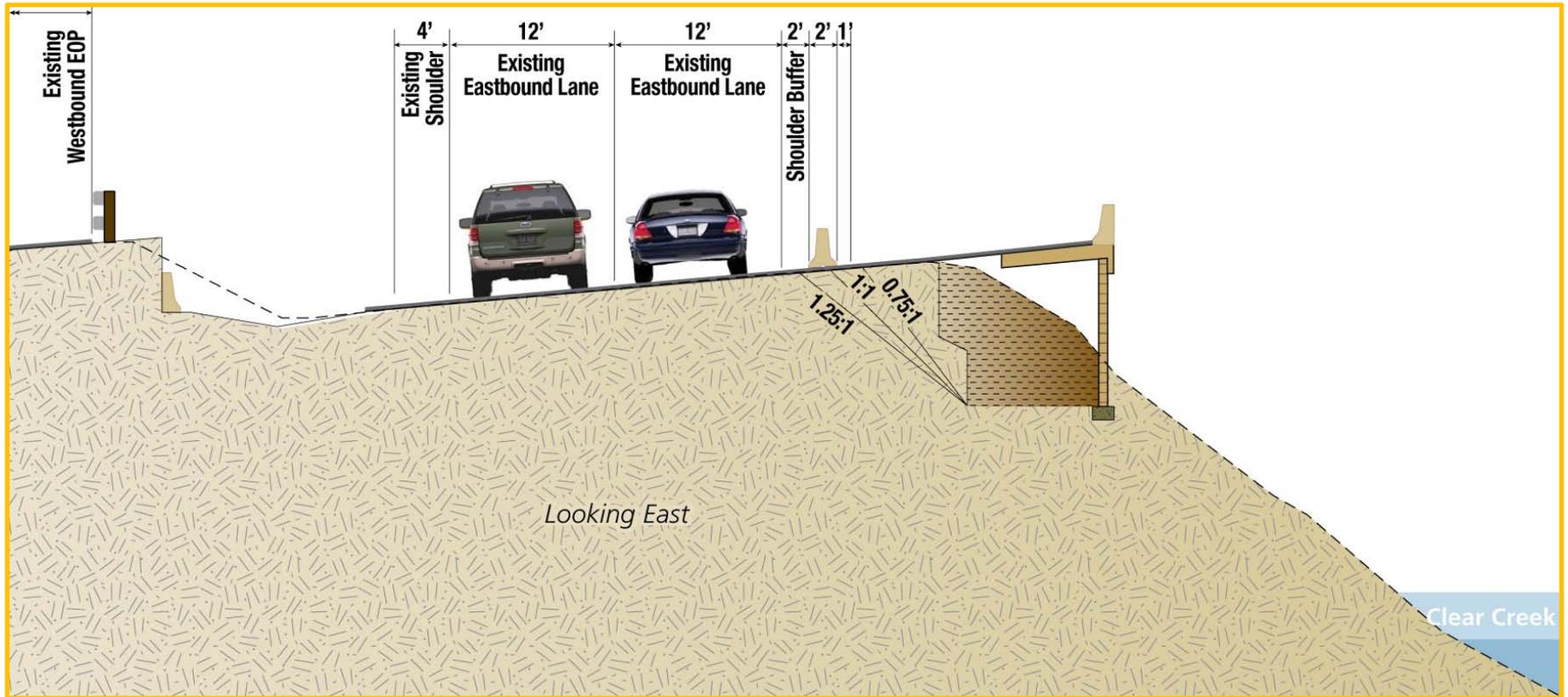


# Retaining Walls – East of Tunnel

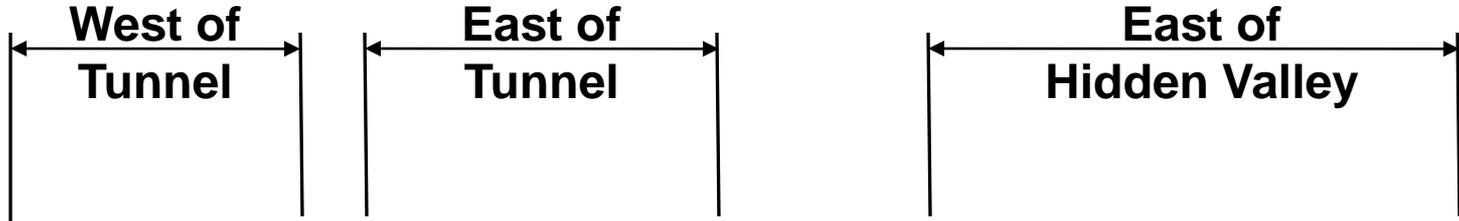




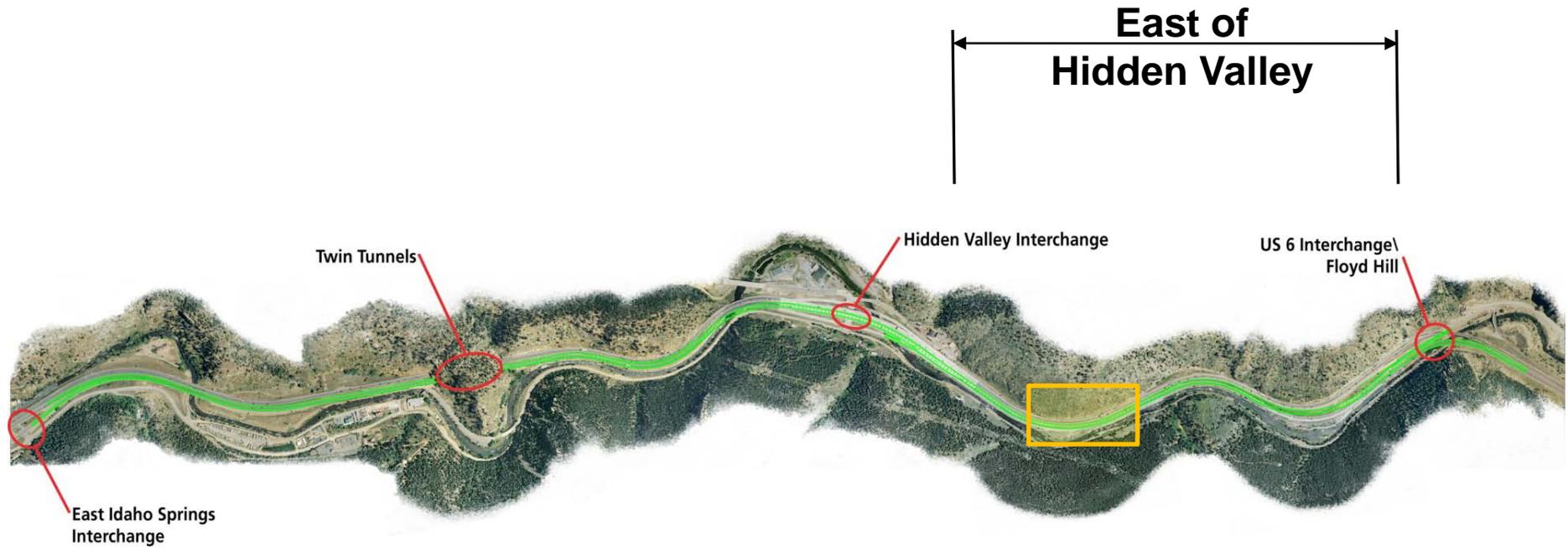
# Retaining Walls – East of Tunnel



# Retaining Walls



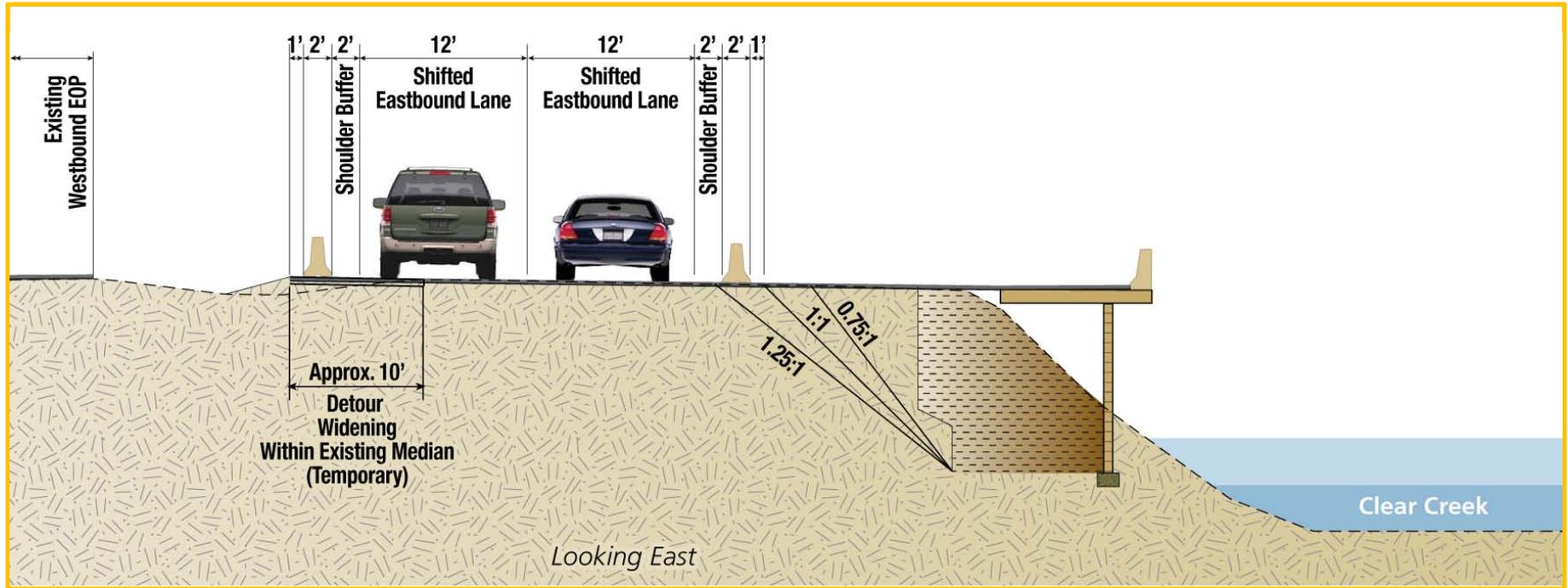
# Retaining Walls – East of Hidden Valley



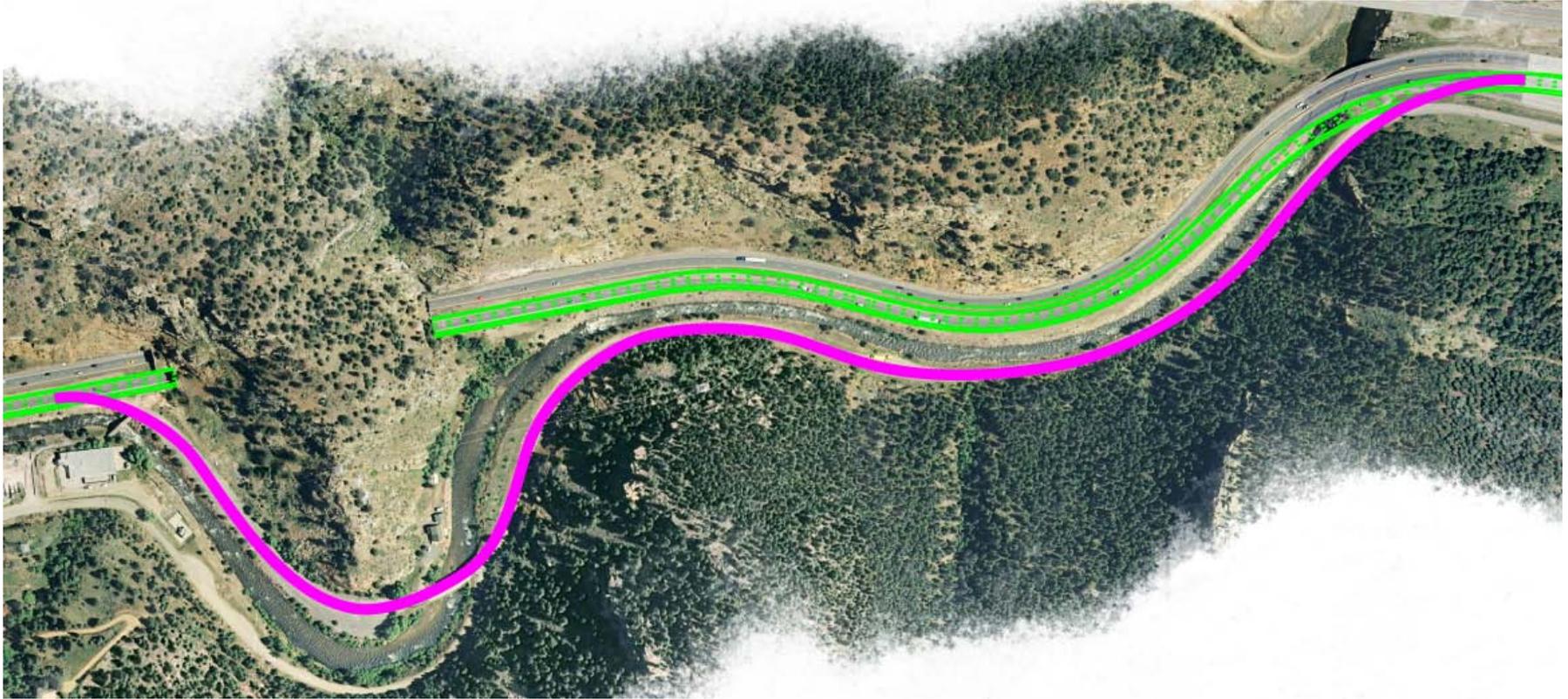
# Retaining Walls – East of Hidden Valley



# Retaining Walls – East of Hidden Valley



# EB I-70 Detour

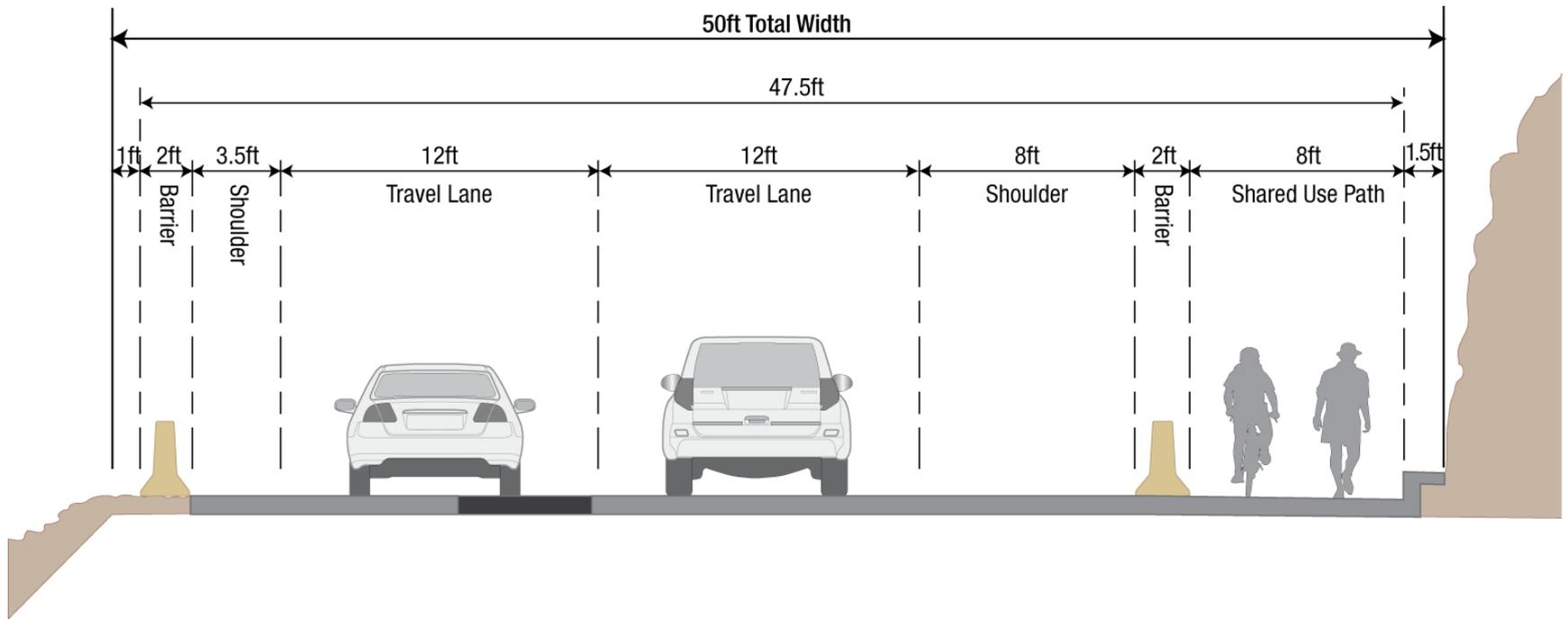


# EB I-70 Detour Timeframe

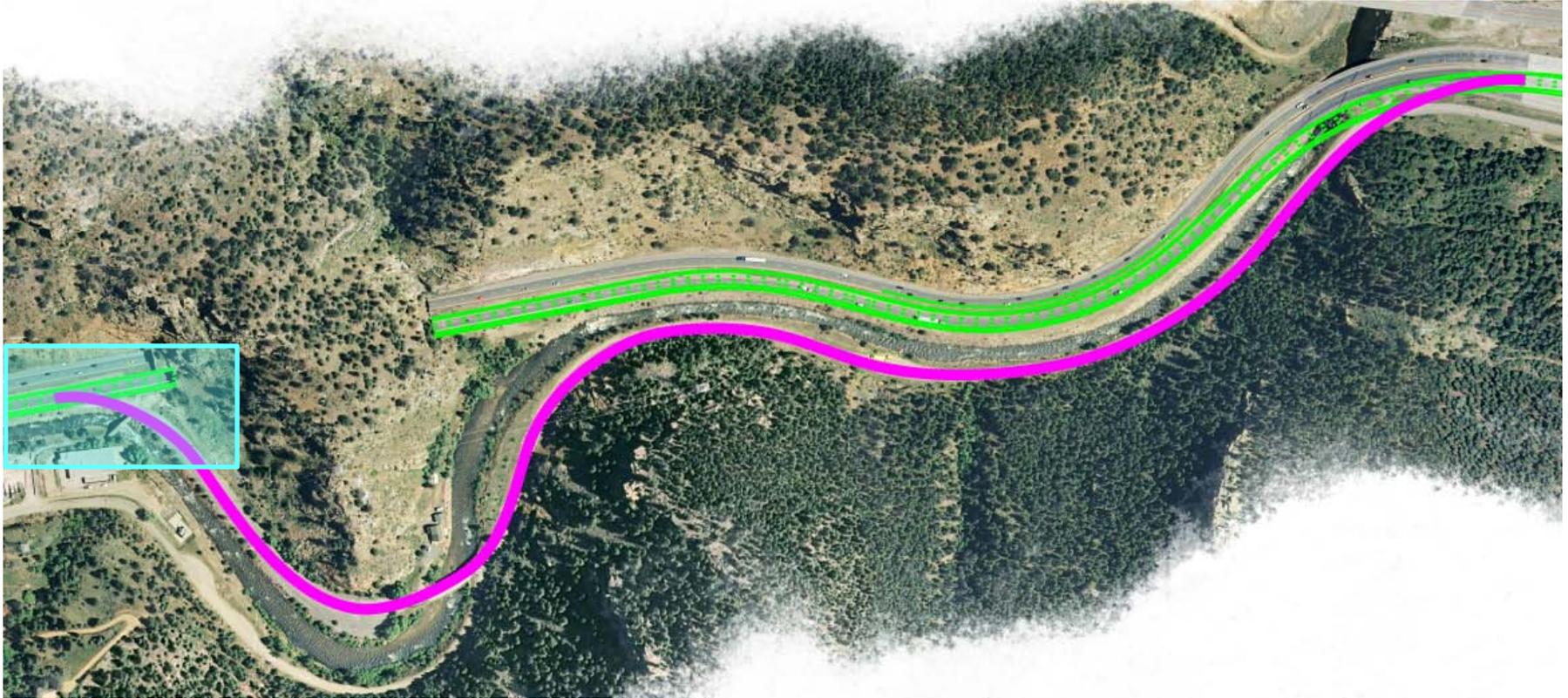
- Review of construction timeframes:
  - » Construct cut wall on CR 314 and east cross-over to I-70:
    - December 2012 – March 2013
  - » Tunnel construction:
    - March 2013 – October 2013
  - » Remove detour and construct “interim” CR 314 improvements:
    - November 2013 – March 2014
    - CR 314 could be open some of the time



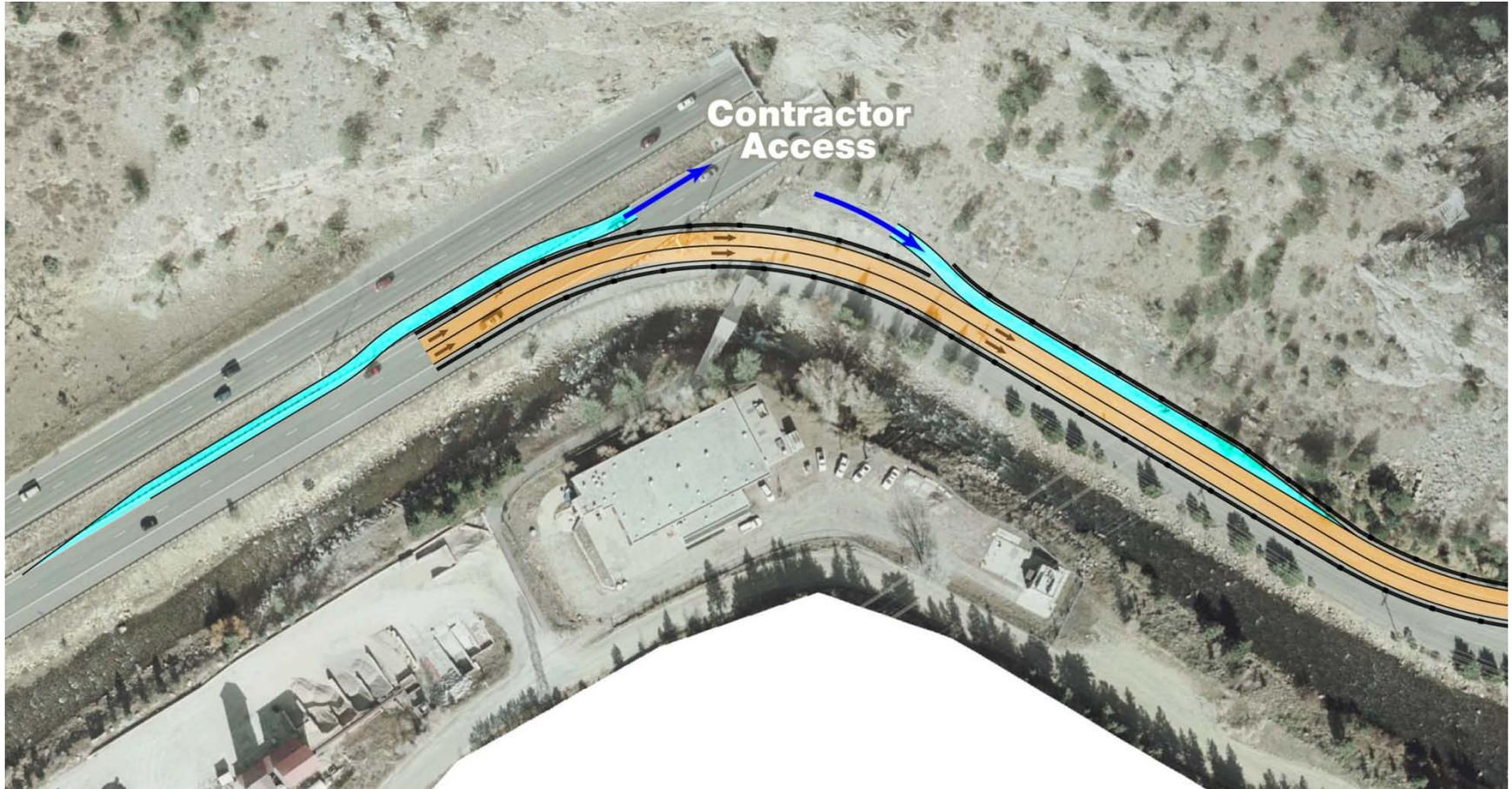
# EB I-70 Detour



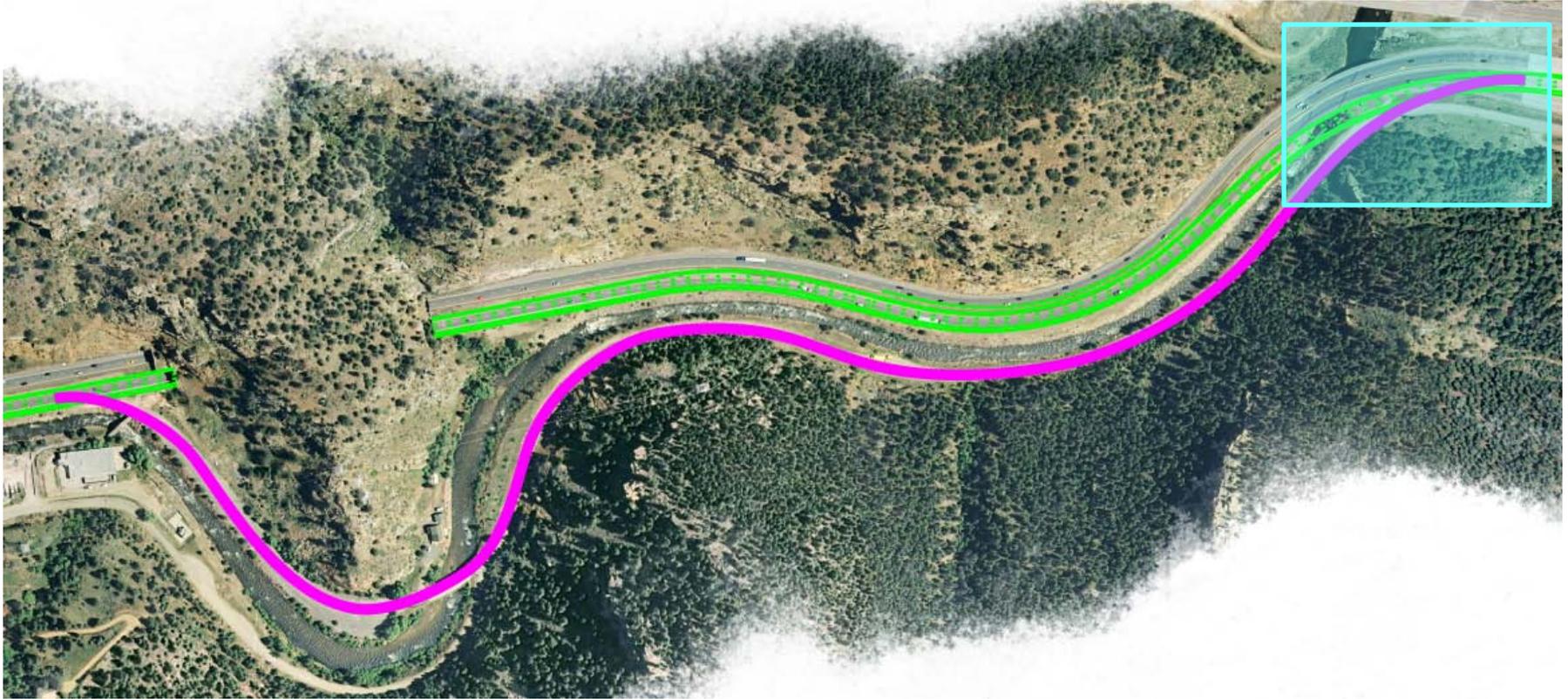
# EB I-70 Detour - West Portal



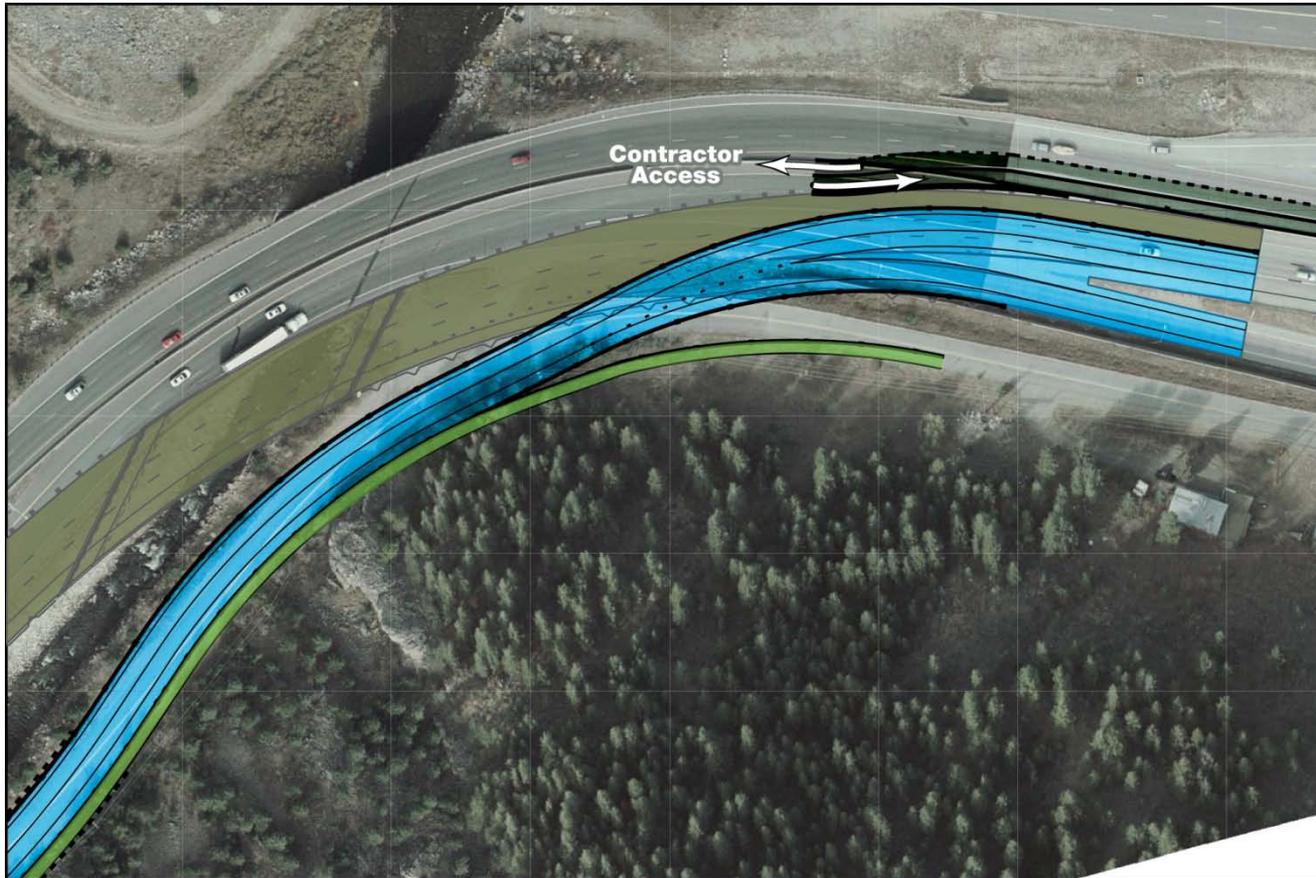
# EB I-70 Detour - West Portal



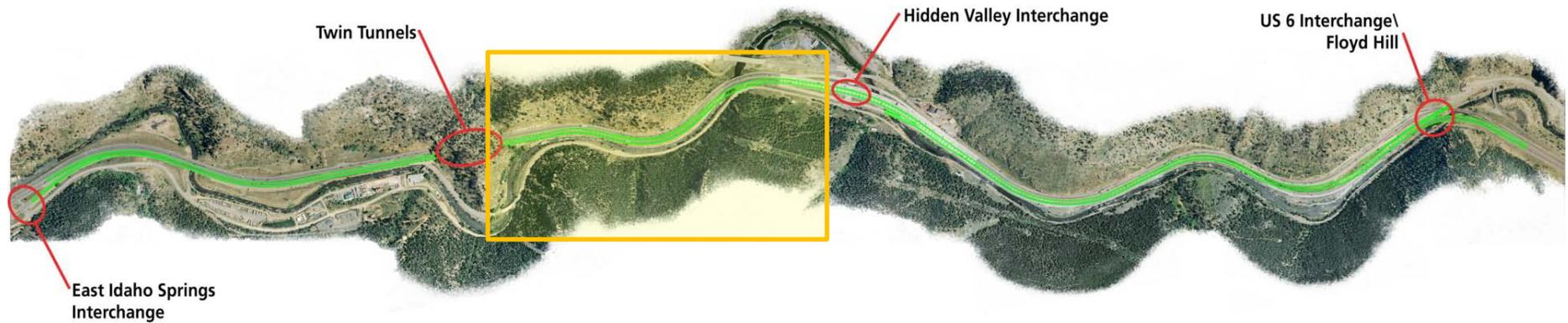
# EB I-70 Detour - East Crossover



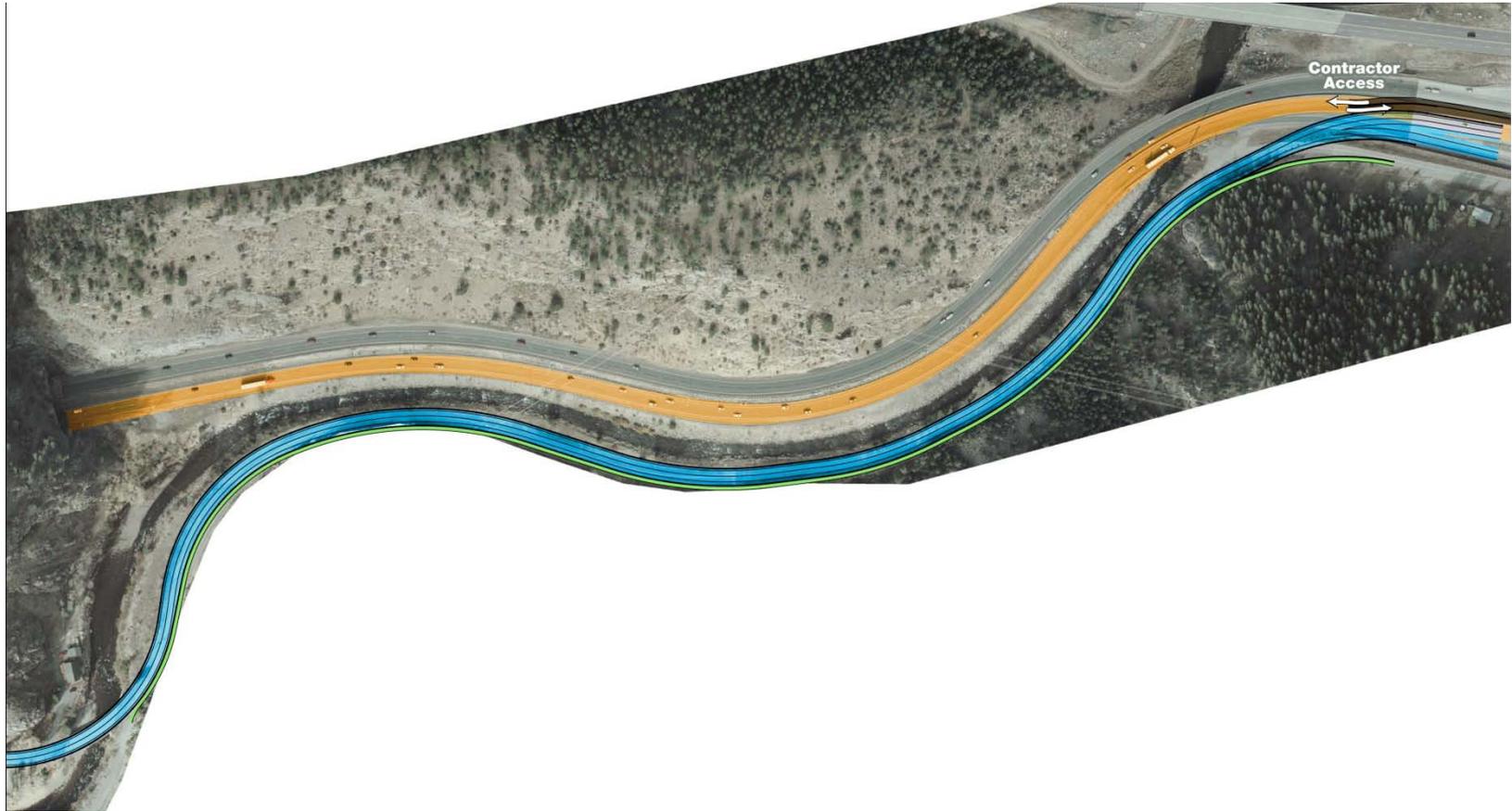
# EB I-70 Detour - East Crossover



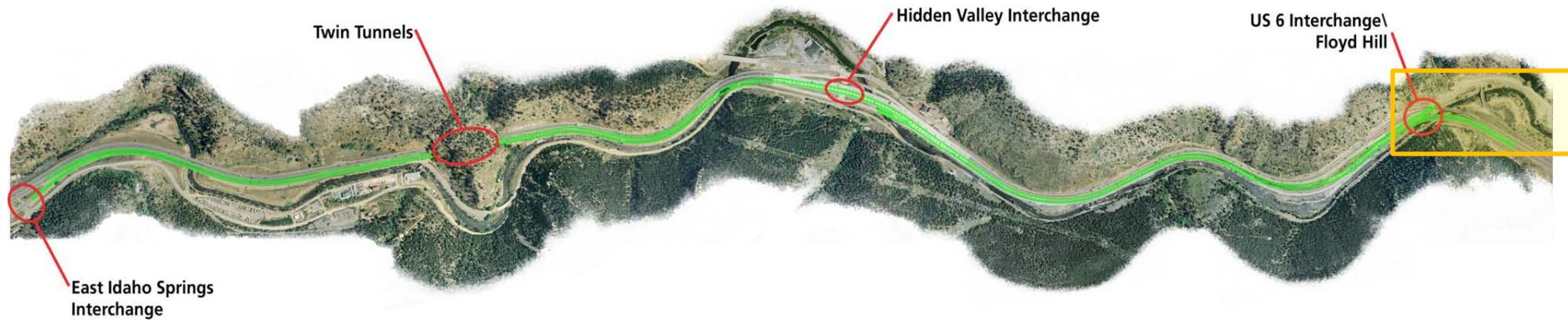
# Contractor Staging Areas and Access



# Contractor Staging Areas and Access



# Contractor Staging Areas and Access



# Contractor Staging Areas and Access



# Next Steps

- Designer and CM/GC contractor on board March 2012
- Evaluate construction plan and revise as necessary
- Update EA impacts, mitigation, commitments until document signed



# How the EA will Assess Impacts

- Resource specialists will use this information to assess construction impacts
- CM/GC may change the construction methods, sequencing, phasing, staging, etc.
- Purpose of the EA analysis is to
  - » identify the types of construction activities that affect resources,
  - » describe how, when, and where those activities impact resources
  - » Formulate and commit to mitigation measures to reduce adverse effects



# What are your concerns?

- Types of impacts that might occur?
- Timing?
- Duration?
- Overlap/sequencing of activities?
- Location of activities?
- Traffic?
- Safety?



# What are your concerns regarding effects to social and community resources?

- Air Quality?
- Environmental Justice?
- Hazardous and Solid Wastes?
- Historic Resources?
- Land Use?
- Noise?
- Recreation?
- Socioeconomics?
- Visual?



# What are your concerns regarding effects to natural resources?

- Aquatics/Fisheries?
- Floodplains?
- Geology?
- Terrestrial Wildlife?
- Water Resources/ Quality?
- Wetlands?



# Cumulative issues

- Are there construction activities for this project that overlap to create concerns?
- What other activities or events are planned during construction period that we need to consider?



# Public Education/Outreach Concerns?

- Impacts of greatest concern?
- Effective strategies to inform travelers and local residents of construction activities?



# Twin Tunnels EA Construction Considerations

