COLORADO
Department of Transportation

I-70 Mountain Corridor T&R Study
Technical Team Team Meeting
Agenda June 25, 2014 9:00-3:00, Silverthorne Pavilion

1. Introductions and Review of Agenda (Acimovic) 9:00 am to 9:15 am
   a. Outstanding PLT / TT Questions from 21 May Meeting
   b. Next Steps

2. PowerPoint Presentation (Singer) 9:15 am to 10:00 am
   a. Review of I-70 Mountain CSS Process
   b. Level 1 Screening Methodology
   c. Brief Review of Draft Recommendations

3. Break 10:00 am to 10:15 am

4. Small Group Break-out Sessions (5 groups) 10:15 am to 12:15 pm

   Facilitators: David/Sara, Ben A./Jen B., Angie/David K., Nick/Julia, Wendy/Mariana
   Timekeeper: Joe, Tom S.

5. Lunch 12:15 pm to 1:00 pm

6. Report out 1:00 pm to 2:00 pm

7. Wrap up 2:00 pm to 2:15 pm

8. Questions 2:15 pm to 2:45 pm

I-70 Traffic and Revenue Study
Technical Team (TT) Meeting #4
Meeting Minutes
June 25, 2014
Silverthorne, CO – The Pavilion

Handouts for the meeting included:

A meeting invitation was sent to TT and Project Leadership Team (PLT) members on May 30, 2014. At the meeting, the Agenda; the Core Values, Critical Issues, Critical Success Factors; the Design Alternatives Sheets; and the Q&A from May 21, 2014 PLT Meeting were distributed. These handouts, as well as the Power Point presentation are included as attachments to the meeting minutes for reference.

Introduction and Review of Agenda

David Singer (CDOT) opened the TT meeting with welcoming remarks and a request for self-introductions.(see attached Sign-in Sheet for attendees).

David stated that the purpose of this meeting is to get everyone "up to speed" on the status of the project and where we are at this point in the project. However, the majority of the meeting will occur in the small group break out sessions' discussions.

David also reminded the group that the project team put together Level 1 draft screening evaluation, but the TT's role is to provide assistance in evaluating the alternatives and providing technical recommendations.

David reviewed the I-70 Context Sensitive Solution (CSS) process. The Traffic and Revenue Study is in Step 5 of the CSS Process – Evaluate, Select, and Refine Alternative or Option. There are six alternatives under consideration, most with a number of options. The six alternatives were evaluated during the Level 1 process, detailed analysis of individual options did not occur, because this is a high-level screening.

This July, the project team will be completing the Level 1 evaluation based on input from the TT. The completed evaluation will then be distributed to the PLT and TT for review. In August, the completed evaluation will be presented to the PLT to determine what direction the study should take. David opened the floor for questions

Cindy Neely (Clear Creek County) commented that the unsolicited proposal drove the impetus to perform this Level 1 study, and that there was no opportunity to develop or look at other alternatives. She wanted to state that every alternative that could be possible for a solution were not included in this study. David Singer (CDOT) commented that many alternatives were previously screened out in the PEIS. With the help of this Technical Team six alternatives were developed, many with multiple options.

Agenda Item 1 – Screening PowerPoint Presentation

David Singer (CDOT) presented the screening process and the draft Level 1 Evaluation Matrix. The Level 1 Study is a broad-brush analysis, with evaluation criteria being more qualitative in nature. The goal is not to carry all sic Alternatives and the associated13 options forward to Level 2 – only a handful should be carried forward. During a Level 2 study a stated preference survey would be administrated to get current data on the value of time (VOT) and more accurate information on potential managed lane usage.

Cindy Neely (Clear Creek County) asked if an alternative in Level 1 cannot substantially pay its capital cost, it can't advance to Level 2 – is this still the "make-it or break-it" gauge? Nick Farber (CDOT) and David Singer (CDOT) answered yes. She said if this was the case, none of the proposed Alternatives will pass Level 1 based on what we

now know and this meeting is not warranted. David Singer (CDOT) cautioned that if we screen all of the Alternatives out, we wouldn't have any to move forward with.

Carol Kruse (USFS) stated she was frustrated that an AGS Alternative is not moving forward with these alternatives. She said the AGS will sustain itself if built to Eagle and she doesn't want to see "more pavement" solutions since that is not what came through the PEIS process. David Krutsinger (CDOT) stated there is not funding to even build out the minimum PEIS alternative; need to have all the performance measure information, including financial information, side-by-side for each of the alternative to fairly evaluate alternatives.

Cindy Neely (Clear Creek County) stated that she does not want to waste time today going point by point through the screening since she can't don't see this group coming to consensus because everyone has different positions. Feels people are tired of listening to Clear Creek County and how they are trying to protect their communities. Brendan McGuire (Vail Resorts) does not believe that is true.

David Singer (CDOT) stated we may not reach consensus; these screening measures are subjective and CDOT just wants to solicit input from each stakeholder.

He reminded the group prior to starting the evaluation that the values of good, fair and poor are compared to the Base Condition (which includes the eastbound peak period shoulder lane, and new eastbound and westbound Twin Tunnel bores). The alternatives are not compared to each other.

All draft evaluations presented are subject to review and discussion by the Technical Team.

Art Ballah (Colorado Motor Carriers Association) asked if all of the alternatives that advance will need a full NEPA review? David Singer (CDOT) answered yes. Some alternatives under consideration could fall under the existing PEIS/ROD, but others may need more NEPA evaluation.

Peter Kozinski (CDOT) How will feedback from this group be incorporated into initial recommendations? David Singer (CDOT) answered notes will be taken on flip charts to receive feedback today from stakeholders. CDOT will then incorporate feedback, and re-issue the revised matrix to the group for any further input (iterative process).

Cindy Neely (Clear Creek County) stated the matrix will need to show where there was no consensus, otherwise consensus would be presumed. David Singer (CDOT) stated that will be well articulated.

Break

Agenda Item 2 – Small Group Sessions

David Singer (CDOT) asked the group to break into three small groups that will rotate around three stations to facilitate discussions on each of the performance measures. There were three small groups that each spent 40 minutes at each station. Below are the summaries of feedback received from each small group, divided by performance measure. Group #1 notes from Small Group Workshops are denoted in Black, Group#2 in Green, and Group #3 in Blue)

Small Group #1

- Safety
- Engineering Criteria & Aesthetic Guidelines

Ben Acimovic, CDOT
Jen Babbington, Parsons

Safety

1. Does the alternative meet minimum design standards (AASHTO, CDOT, etc) of cross section, curvature, sight distance and grades?

- Colorado Motor Carriers Association (Art Ballah): Alternative 1 and 2 (Options 1 and 3) might even be poor due to truck safety.
- Clear Creek County (Cindy Neely): Should minimum PEIS alternative be poor since won't be consistent throughout the corridor as far as driver expectancy? Probably not because corridor has such various conditions (i.e. climb up Floyd Hill) that drivers get used to.
- Colorado Motor Carriers Association (Art Ballah): Would like to note safety issue for trucks for 55 mph versus 65 mph options for Alternative 4.
- Clear Creek County (Cindy Neely): Should alternatives 5 and 6 be broken up to have peak / off-peak options (i.e. meets standards majority of time for off-peak, but not peak)
- Clear Creek County (Cindy Neely): Edit language for alternative 5 to state 2' buffer is included.
- Group Consensus: Agreed all ratings were rated properly.
- Group Consensus: Agreed all ratings were rated properly.

2. Does the alternative provide safe and reliable access?

- Clear Creek County (Cindy Neely): Stakeholders need more information on access types and locations for each alternative. This information has not been communicated to them yet. Won't know if these access types and locations provide safe and reliable access until understand what accesses are.
- US Forest Service (Carol Kruse): Will operations discussion be tied to the performance measure?
- Clear Creek County (Cindy Neely): For alternatives 1 and 2, incident responders are concerned with using managed lanes due to: directional travel; jersey barriers prohibit U-turns; managed lanes get shut down during inclement weather which prohibits lane use; and significantly more animal encounters. Feels this should not be rated good.
- Clear Creek County (Cindy Neely): Alternatives 5 and 6 need to delete the word "no" when stating "no improvements to interchange ramps."
- Group Consensus: Agreed all ratings were rated properly.
- Clear Creek County (Tim Mauck): Need to compare alternatives to existing now.
- Clear Creek County (Tim Mauck): Alternatives 1 and 2 need to separate managed lanes / general purpose lanes into two ratings.
- Clear Creek County (Tim Mauck): Safer when speeds lower on highway and trying to get on highway (less speed differential).
- Clear Creek County (Tim Mauck): Stakeholders want to understand access types and locations in all alternatives before deciding.

3. Does the alternative provide protection for incident responders?

- Clear Creek County (Cindy Neely): Alternatives 5 and 6 need to divide into off-peak / peak ratings.
    - Alternative 5 Peak = Fair
    - Alternative 5 Off-Peak = Good
    - Alternative 6 Peak = Poor
    - Alternative 6 Off-Peak = Fair
- Vail Resorts (Brendan McGuire): Thought managed lanes worked well in one direction since can change the direction of travel (either for whole corridor or a segment of the corridor) if incident occurs.
- Group Consensus: Agreed all ratings were rated properly.
- Clear Creek County (Tim Mauck): Edit language in alternative 3 to "variable width", not 60' width. 60' width makes it appear good, when this is not the width through the entire corridor.
- Clear Creek County (Tim Mauck): Alternative 6 should be fair. You can close the lane or divert traffic around to protect responders; more opportunities to drive safely on shoulder than existing.

- CASTA (Elena Wilkins): Term "poor" should not be equated with safety of alternative that might be selected (and is being constructed currently as peak period shoulder lane in the eastbound direction). CDOT doesn't want to say they are implementing "poor" safety alternatives.
- Clear Creek County (Tim Mauck): Peak period shoulder lane only is open about 30 days of the year, for 4 hours each of those days. Those peak times will be "safer" since there will be lower speeds.

4. Does the alternative have the potential to reduce crashes?

- Clear Creek County (Cindy Neely): Alternatives 1 and 2 have no other standard to compare to besides flat-land standard.
- Clear Creek County (Cindy Neely): Alternatives 5 and 6 re-word to clarify.
- Denver Chamber Does "level of reduction depends on congestion and design details" apply to all alternatives?
- Denver Chamber Does operational details apply to all alternatives to affect reduction in crashes?
- Group Consensus: Agreed all ratings were rated properly.
- Clear Creek County (Tim Mauck): Alternatives 1 and 2 should be split out for managed lanes / general purpose lanes and rate each.
- Clear Creek County (Tim Mauck): Did the MNDOT include just managed lanes, or general purpose lanes too in their crash statistics?
- Clear Creek County (Tim Mauck): Need to look at Eastbound peak period shoulder lane safety study and edit language for Alternatives 5 and 6 and apply to this rating.

<u>Engineering Criteria and Aesthetic Guidelines</u>

13. Does the alternative provide opportunities to balance aesthetics and engineering?

- Clear Creek County (Cindy Neely): Believes alternatives 1 and 2 were not engineered for "this" corridor – not within context and should be rated poor.
- US Forest Service (Carol Kruse): Want to see visual simulation of viaduct in alternatives 1 and 2; can't answer aesthetic questions until see what looks like.
- US Forest Service (Carol Kruse): As far as not precluding future opportunities, alternatives 1 and 2 would possibly not allow for AGS as competitive route for 50 years under concessionaire. And it would take the median away so that AGS could not run down the median anymore.
- Clear Creek County (Cindy Neely): Only minimum PEIS really started by looking at space/context and then came up with design solution. CDOT (Ben Acimovic): Stated it is hard to do that level of effort through for every alternative, at this level of study.
- Vail Resorts (Brendan McGuire): If any alternative is implemented, then it will have the opportunity to balance because it will follow the CSS guidelines.
- Town of Frisco (Tom Breslin): Alternatives that don't have much to improve (i.e. Alternative 6) won't have as much opportunity to do balancing (less funding).
- Group Consensus: Alternatives 1, 2 and 4 rate good. Alternatives 3, 5 and 6 rate fair.
- CASTA (Elena Wilkins): Intuitively 9 lanes are more difficult to balance aesthetics than 4 lanes.
- Clear Creek County (Tim Mauck): Ability to negotiate private entity harder to get money to actually do that balancing. Process would help guide ratings.
- Clear Creek County (Tim Mauck): Alternatives 3 and 4 CSS already "baked in" to these alternatives (been doing that).
- Clear Creek County (Tim Mauck): Managed lanes and peak period shoulder lanes overhead signage will give an urban look in rural setting. Since CDOT did scale back signage for eastbound peak period shoulder lanes, there was an opportunity to balance.

14. Does the alternative adhere to the I-70 CSS Mountain Corridor Guidelines and specific design criteria?

- Clear Creek County (Cindy Neely): Alternatives 1, 2 and 4 take away the median and encroaches, so doesn't meet design criteria. Should be rated poor.
- Clear Creek County (Cindy Neely): Alternatives 3, 5 and 6 should be rated fair.

- Vail Resorts (Brendan McGuire): All alternatives will go through design criteria process; until define alternatives further in the design process won't be able to know to what degree they will adhere; at this level we can't rate them.
- Vail Resorts (Brendan McGuire): Hope during design try to best adhere to CSS design criteria, but will depend on funding available.
- Clear Creek County (Tim Mauck): Obligated to do this!
- CASTA (Elena Wilkins): The more the space is impacted, the less you are meeting the criteria/guidelines; bigger alternative does not equal better.
- Group Consensus: Alternatives 1 and 2 rate poor. Alternatives 3, 4 and 5 rate fair. Alternative 6 rate good.

Small Group #2

- Mobility
- Constructability
- Healthy Environment
- Historic Context

Mariana Torres, Louis Berger
Wendy Wallach, Parsons
Julia Barker, Parsons
Nick Farber, CDOT HPTE

Fiscal Responsibility

26a. Does the alternative have the ability to be financially self sustaining in terms of capital costs and operations and maintenance costs with minimal public funding? *minimum defined as no increase over existing CDOT expenditures.

- xx (): See considerations for Performance Measure #10.
- Alternative 3 has minimal funding, as well as AGS.

26b. Does the alternative have the ability to be financially self sustaining in terms of operations and maintenance costs only, with minimal public funding? *minimum defined as no increase over existing CDOT expenditures.

- Alternative #3 needs to be reconsidered for a poor rating. Won't there be some revenue?
- Note AGS covers its own operating costs.
- No comment.

Mobility

5. Does the alternative reduce travel times for long distance trips for all users?

- Congestion only related to peak period, so by providing relief only during peak you can address a large portion of problem.
- May not meet long term needs with peak period only improvements.
- General consensus supporting.
- Alternatives 1 and 2 should not be good because doesn't reduce travel time for all users. Those in off-peak direction no benefit.
- USFS has concerns that Alternatives 1 and 2 could handle latent demands. Suggest changing to fair.
- Also eliminate and/or define "out years." One rating for entire system.
- Reiterate one rating for whole system.
- Debatable if Alternative 6 should be rated as poor. Base case even has changed things significantly.
- One rating because both AGS and managed lanes have trickle down.

6. Does the alternative reduce the travel time for short distance trips for all users both on and off the Interstate?

- Why is alternative 5 rated the same as 4? Because we are comparing to base case and both include improvements in both directions.
- Define short distance in level 2.
- Ground truth at level 2.

- Alternative 6 has been very valuable and effective in reducing travel time for short local trips. Should be rated higher.
- General comment – Rationale for alternatives 5 and 6 often exact same with different ratings. Please revise.

7. Does the alternative offer competitive modal choices with reliable travel times?

- Can transit be added to alternatives 4, 5 and 6? Not precluded but if in mixed traffic not improving reliability and mobility. But if added to managed peak period should lane, alternatives 4, 5 and 6 may rate better.
- Consider that alternatives 1 and 2 should be rated fair because BRT can be hampered by weather. Some believe good rating should be applied because something is better than nothing.
- General consensus with removing date (2035) associated with AGS implementation.
- Reconsider good rating relative to BRT, maybe only fair because won't be as reliable and/or competitive in off-peak direction. Counterpoint – Off-peak not congested so may be reliable especially compared to base case.
- Consider dropping BRT terminology because no dedicated bus lanes. Label as bus in mixed traffic.
- Consider removing date (2035) associated with AGS implementation.

8. Does the alternative allow for increased person trips?

- Alternatives 3, 4, 5 and 6 with addition of AGS should move to good. At least alternatives 4 and 5 definitely should; alternatives 3 and 6 are debatable.
- Agreement on alternatives 4 and 5 moving to good.
- Alternatives 4, 5 and 6 AGS should be rated as good because many more person trips. Counterpoint – Capacity with BRT and managed lanes is greater than with minimum improvements and maximum improvements (group not buying this conclusion).

9. Does the alternative provide for incident management?

- Alternative 6 should be rated better, because in Minnesota they use active traffic management to give clear safe access. Move to fair.
- With elimination of median with alternatives 1 and 2 emergency responders may be hampered by inability to do a u-turn.
- Counter Opinion to "Alternative 6 should be rated as fair" – Keep as poor because with gridlock there is no access.
- Clear Creek County emergency response concerns in managed lanes: (1) directionality; (2) constraint with jersey barriers; (3) shut down managed lanes in bad weather; and (4) potential for increased AVC's.

<u>Constructability</u>

10. Is the construction of the alternative financially feasible with the minimal funding?

- AGS will not be accommodated because no incentive for concessionaire. Also alternatives 1 and 2's footprint severely constrained. Hard to accommodate AGS. Suggest revising to poor. No median.

11. Does the alternative provide flexibility for future expansion and modification?

- Alternatives 1 and 2 should be rated poor because there is zero availability to expand.
- Clear Creek County concerned that AGS will not be accommodated because no incentive for concessionaire. Also alternatives 1 and 2's footprint severely constrained. Hard to accommodate AGS. Suggest revising to poor. No median.

12. Does the alternative have a positive impact on operations and maintenance?

- How do barriers affect rating?
- Change wording in alternatives 5 and 6.
- More lanes equates to more snow storage.

- Concerns about removal requirements.
- The key word in the Measure – "positive" is problematic.

Small Group #3

- Sustainability
- Fiscal Responsibility
- Decision Making Process
- Community

David Singer, CDOT
Sara Richardson, Parsons
Angie Drumm, CDOT
David Krutsinger, CDOT

Decision Making Process

18. Does the alternative provide opportunities for enhancements (i.e. recreational, community, environmental)?

- Cindy: Does not agree with the premise that more money = more enhancements.
- Angie: Discussed the quality of the enhancements
- David K (DTR): Discussed previous group thought all alternatives could be rated "fair", as there is not a good differentiator
- Everyone in the group indicated they were okay with a "fair" rating across all alternatives.
- Vail Resorts (Brendan M): Alternative 2 is a big project, therefore there is more to mitigate. But he understands there is ability to mitigate more and possibly fix past mistakes due to the scale of the project.
- Georgetown (Tom Hale): I only do what Cindy Neely tells me to do.
- Tim Mauck (CCC): What is the quality of the enhancements? Improving rafting access is good, but building walls along the creek is not. Bike trails are good, but will they be designed well to meander and encourage use or are they a straight line?
- Terri: Does this include the AGS?
- David K (DTR): Part of what was discussed in the previous group is the ability to correct past mistakes.
- Elena Wilken (CASTA): : There are limited abilities to make improvements, Alt 3 and 6 is an incremental approach
- Tim Mauck (CCC):: If we built a bike trail today, they would like to use green space near the roadway. However, a wider footprint in the future takes away the green space. He thinks everything should be rated "fair".
- Elena Wilken (CASTA): Since thinking can go both ways, she agrees they could all be rated fair. It depends on how you look at it.
- Tim Mauck (CCC):: How do the enhancements balance the physical with the fiscal cost?

19. Is the alternative consistent with the Record of Decision?

- Angie D (CDOT): Discussed clarification for Alt 5 language. Asked Melinda her opinion.
- Melinda: OK with changing text, Alt 5 still provides six lanes of capacity which is consistent with the maximum program. This question could be changed to Yes or No answers.
- Vanessa: Is Alt 5 and 6 really consistent with the ROD?
- CDOT: FHWA has agreed Alt 6 is consistent. Discussion advanced on Alt 5.
- Vail Resorts (Brendan): Would Alt 3 be rated fair? How far into the box do you get? Alt 3 is not absolute adherence.
- David S (CDOT): Change rational in the description so it is not based on absolute adherence.
- Vanessa: Alt 5 and 6 are both within the box for adaptive management
- David K (DTR): Discussed economic health, environmental health and community health
- David S (CDOT): Ask FHWA if Alt 5 is consistent with the maximum program, change description as needed
- Georgetown (Tom): Alternatives need to be part of the ROD or an amended ROD.

- Summary – Alt 5 should not be described as non-infrastructure, check with FHWA on adherence to ROD as related to maximum program. Rest of Alternatives are fine as shown.
- Angie D (CDOT): Alt 5 will be addressed by changing language consistent with max program.

20. Does the alternative have a minimal risk of public or political opposition?

- Cindy Neely (CCC): Alt 1 and 2 is poor.
- Angie: Alt 3 and 4 should be fair, just because it is compliant does not mean it has less risk. (Briefly discussed previous group discussion.)
- Cindy Neely (CCC): Alt 6 is essentially over, it can be rated good. Alt 5 is fair, consistent with the others. Add "or legal opposition" to question since that is what is at stake
- Angie D (CDOT): Reviewed current rating on the alternatives. Alts 3, 4 and 6 assumed to have lower risk due to public support in the ROD. Looking for input an Alts 1, 2 and 5.
- Vail (Brendan): Based on current issues with US 36, assume all six alternatives would be rated poor. Even support due to a ROD does not mean there is only minimal risk.
- Vanessa: May want to reconsider re-wording "Minimal risk"
- Vail (Brendan): Alts 1 and 2 definitely have risk, rate poor or fair. Poor is probably most realistic due to significant hurdles.
- Georgetown (Tom): Alts 1 and 2 are high risk, rate as poor
- Vanessa: Thinks it would help to know why 1 and 2 were screened out of the ROD to understand the risks involved.
- Alt 5, if considered part of the maximum program, may have issues because there are certain triggers to be met before the max program could be done. Rate as "fair"
- Vail Resorts (Brendan): Alt 5 would be more in the poor category. Alt 6 would be an issue if it continued to Georgetown. Since this Alt shows it stopping at Empire, OK for him.
- Alt 4 would be in poor category if it tried to move forward today.
- Vail (Brendan): Asked Tom what the concerns would be if the PPSL went all the way to Georgetown
- Georgetown (Tom): Mitigation may be possible, but concerned with noise, issues with cops pulling trucks/cars over (visual and noise related), historic character
- Elena Wilken (CASTA): Whether or not an alternative is compliant with the ROD does not remove risk of opposition. Any tolled alternative has a huge political risk (example of US 36). There is also a perception of not getting anything done. For Alts 3, 4 and 6, may change to fair. Strike the "compliant with ROD" though. #1 poor, #2 poor, #3 good, #4 fair, #5 fair, #6 fair (Although there is some room looking from a regional/statewide view that could say poor on all.)
- Tim Mauck (CCC): Alts 3 thru 6 have some room to negotiate (so they are fair), no room on Alts 1 and 2

<u>Community</u>

21. Does the alternative improve accessibility/mobility to key destinations along the corridor, including recreation areas?

- Cindy Neely (CCC): What is a key destination?
- Carol: Arapahoe and Roosevelt, White River national forests are 2 of the top 3 most visited forests in the US.
- Cindy Neely (CCC): No comment on rating, how is each individual destination rated?
- DS: This considers multiple destinations along the corridor, such as Mt Evans.
- Cindy Neely (CCC): : Rating is driven by time to get there, not a thru put
- Eva Wilson (Eagle Co.): : Time can be used as a metric to measure the thru put
- Art: Don't focus on time buy capacity of the system, how many vehicles per hour can use the facility?
- Eva Wilson (Eagle Co.): : Harmonize congestion to have more capacity, speed up the time for the pack but not for an individual.
- Carol: Main forest service concern with the highway improvements versus transit, those using a highway (cars) can stop at any time and place. It is hard for them to manage dispersed recreation. They want fewer access points rather than more. From a forest service management perspective, they answer differently.

AGS is good because there would be limited access points. With dispersed recreation, they have a hard time with parking/trash control, etc.

- Cindy Neely (CCC): how much parking is available when they get there?
- Eva Wilson (Eagle Co.): Agree with key destination point with forest service.
- Cindy: Resorts want more people.
- Carol: Don't care about more people, fewer access points mean they can have contact with people before they disperse.
- Cindy Neely (CCC): Access by vehicles may not be good questions. Implies it is good to improve accessibility. If this is just vehicle accessibility, rating is true.
- Carol: Increased accessibility is negative for the forest service.
- Eva Wilson (Eagle Co.): Add another question on environmental impact tied to access locations.
- David S (CDOT): Add that language to the existing environmental question.
- Angie D (CDOT): Main focus is to reduce travel time to destinations.
- Vail (Brendan): "Like it"
- Vanessa: "OK"
- Georgetown (Tom): What does accessibility mean? AGS is shown in the ratings, what happens if this is off the table?
- Tim Mauck (CCC): Fine with all ratings.

22. Does the alternative have the potential to improve livability and vitality locally, regionally, and statewide?

- Cindy Neely (CCC): Livability in communities is different locally and statewide.
- Angie Drumm (CDOT): This measure may not be appropriate based on feedback from other groups.
- Cindy Neely (CCC):Does this consider noise and air pollution
- Carol Kruse (USFS): This seems more related to economic
- Cindy Neely (CCC): From a local perspective, Alts 1 and 2 are poor. AGS is not an economic benefit since it won't stop in all communities.
- Carol Kruse (USFS): Livability should only be on the local level. Vitality is separate for regional and statewide, maybe split into two questions
- Cindy Neely (CCC): : Having run a store in Idaho Springs just off the highway for 10 years, Alts 1 and 2 take away the cream of the customers. It becomes a flatline for economic vitality.
- David S. (CDOT): Different values placed between short term and long term. Alt 5 and 6 are good for short term, but poor in the long term
- Eva Wilson (Eagle Co.): Did you consider statewide urban has different values than local?
- Angie (CDOT): Reviewed measures
- Denver Chamber: Don't all alternatives improve livability statewide?
- Vail (Brendan): Difficult on this one, hard to say Alt 6 is poor when even the temporary PPSL gives some improvement
- This explains the benefits, but does not list impacts to a community
- Vanessa/Angie: Limited distance in improvements for Alt 5 and 6. For Alts 1, 2 and 4, add impacts to the boxes. For Alt 5 and 6, split boxes and show fair in short term, poor for long term
- Tim Mauck (CCC): Elena Wilken (CASTA): Hard to bundle together, could be fair or poor when looking at a local, regional or statewide perspective
- David K (DTR): Try to balance regional/local. What is good for one is poor for the other
- Tim Mauck (CCC): Questions Alt 5 and 6, why are they rated poor
- Elena Wilken (CASTA): Should not talk about congestion; use this one to discuss access to communities. Is pent up demand same as congestion? Under which alternative do businesses thrive/suffer?
- Tim Mauck (CCC): Hard to rate based on local, regional, statewide. Thinks all are fair.
- David K (DTR): Alts 3, 5 and 6 are fair in short term, poor in long term. There is too much overlap with other criteria, should this be dropped from the list?
- Elena Wilken (CASTA): This does not measure anything significant.
- David K (DTR): : Can't differentiate alternatives well

- Paul: I-70 is a bottleneck for economic vitality. Revenue study does not address the "if you build it, they will come"

Sustainability

15. Does the alternative protect existing natural resources?

- Cindy Neely (CCC): Why does AGS have a large impact? Why are Alts 1 and 2 not poor, how are they fair?
- Margaret (I-70 Coalition): Review rational at the bottom, AGS does "NOT" do a better job. (Need to revisit rationale at bottom of page.)
- David S (CDOT) : Rational is compared to existing conditions.
- Vanessa Henderson (CDOT): Disagree with narrow footprint on Alt 5, change to Poor rating
- Otherwise, general consensus was to agree with what is shown.
- Tim Mauck (CCC): AGS doesn't have big impacts
- Elena Wilken (CASTA): Hard question, does this just consider construction impacts or impacts on natural resources fifty years from now. Would be okay with rating on AGS if "substantial" was removed from the wording

16. Does the alternative use existing natural resources efficiently to generate improvements in efficiency and mobility?

- Cindy Neely (CCC): What does this mean? Is this referring to oil and gas energy?
- David K (DTR): If gas/energy, how do you differentiate? Can you measure kilowatt/hours usage per person?
- Cindy Neely (CCC): Is it a carbon footprint issue? Then, number of cars is substantially different.
- David K (DTR): But, how do you rate congestion of those cars?
- Cindy Neely (CCC): Alts 1, 2 and 4 are poor (allow more vehicles on the road with less congestion, but uses more natural resources). Alts 3, 4 and 6 are fair (fewer vehicles but more congestion) In the critical success factors, take out mobility/accessibility wording.
- David K (DTR): Alt 4 is poor when only building 6 lanes, but fair with AGS constructed
- Georgetown (Tom Hale): Maintenance of natural resources
- Denver Chamber: Less congestion reduces energy consumption
- Vail (Brendan Mc Guire): How do you balance cost/benefits for each alternative? How to get the most people in the corridor with the smallest footprint. (mobility vs the cost of infrastructure). Recognize the work done so far on the collaborative effort to get to the ROD, Alt 3 and 4 may be fair.
- Elena Wilken (CASTA): How do we use less gas?
- David S. (CDOT): AGS uses resources more efficiently, free flowing (non congested) traffic uses gas more efficiently
- Tim: Sustainability question, AGS is not as vulnerable
- Elena Wilken (CASTA): All alternatives are "poor" in her estimation.
- Sara: Consider BRT as fair since it helps with congestion in moving more people efficiently
- Elena Wilken (CASTA): BRT is not good, it has significant gas consumption

17. Does the alternative have the potential to improve operations and maintenance?

- David S. (CDOT) Discussed life cycle cost and fiscal options.
- Cindy Neely (CCC): O&M has to do with snowplows and maintenance, how do you handle along the corridor?
- David S. (CDOT) Interplay between CDOT and P3's O&M has not been defined
- Cindy Neely (CCC): : Alt 3 is fair
- Sara: Discussed Alts 1-4 are new infrastructure and have a different lifecycle cost related to O&M, Alts 5 and 6 do not replace/upgrade existing pavement, drainage, etc – therefore higher costs in future to maintain.
- Cindy Neely (CCC): Alt 5 and 6 are all new, they are putting in new drainage structures now for Alt 6
- David S. (CDOT) Explained there are new structures, but the pipes they tie into are not being replaced.

- Eva Wilson (Eagle Co.): Lifecycle costs make more sense, rephrase question as it relates to lifecycle cost instead of capital costs
- David S. (CDOT) : Discussed operations will improve with all alternatives
- Vanessa: Alts 3, 4, 5 and 6 have the same wording, revise to show differences
- Vail (Brendan): Alt 4 is not a minimal increase, descriptions need revised
- David S. (CDOT) : We are not replacing the pavement or drainage in Alt 5 and 6
- Tim Mauck (CCC): How is Alt 3 rated good?
- David S. (CDOT) : We will strike the "minimal" wording from Alt 4 and 5
- Paul: Toll revenues will supplement O&M, consider rewording the text
- Angie Drumm (CDOT): She also questions Alt 3.
- Elena Wilken (CASTA): This is a two part questions, can we be financially sustainable (good, longer lifespan) and are lifecycle costs covered by revenue?

<u>Healthy Environment</u>

23. Does the alternative have the ability to protect Historic Districts and Landmarks?

- Cindy Neely (CCC): Landmark districts are bisected by I-70 today. Discussed where the districts touch ROW and what was taken by the initial build of I-70. Context of the districts is vital. The wider the highway, the more visual impacts of being seen from any vantage point. Thinks Alt 1 and 2 are poor, struggles with Alt 4 as poor. A tunnel at Georgetown is a better solution; if any alternative had a tunnel there her opinion would change.
- Eva Wilson (Eagle Co.): Eagle County agrees
- Georgetown (Tom): Why are 1, 2, 4 and 5 rated fair?
- David Singer (CDOT): Ability to mitigate and make improvements was basis for fair.
- Georgetown (Tom Hale): Alt 1, 2, 4 and 5 should be Poor
- Vanessa Henderson (CDOT): Need to capture the visual impacts of the alternatives
- In Rationale, reword, add reference to physical and visual footprints are poor
- Tim Mauck (CCC): Why are Alt 1 and 2 not rated as poor?
- Paul Scherner (CDOT): Alternatives have an aesthetic impact even if they do not touch a landmark.
- David Singer (CDOT): Larger footprint alternatives have a higher potential to avoid and minimize impacts
- Paul Scherner (CDOT): Could potentially change Alt 1 and 2 to poor (general agreement all around)
- Terri Binder: What is the degree of impact to each individual landmark?
- Sara R. (PTG): Given the reasoning for Alt 1 and 2 to be poor given the larger footprint, Alt 4 should also be rated as poor.
- Elena Wilken (CASTA): Agree with Alt 4 as poor.

From notes on the flip chart: physical and visual footprint is poor for Alts #1, #2 and #4.

24. Does the alternative have opportunities for mitigation and/or enhancement to historic districts and landmarks?

- David K (DTR): Native American sites near Idaho Springs is one area
- Cindy Neely (CCC): The alternatives won't improve access; managed lanes mean more people with drive thru and not look at Idaho Springs. This is not good for the community. Need to mitigate noise and visual impacts, interpretive signs don't do much food for Clear Creek County. Alt 1 and 2 don't have any opportunities for mitigation or enhancement. Money doesn't enhance a district. Alt 6 has nice interpretive signs. Change question to interpretation, not enhancement. Does it provide opportunities to interpret historic districts and landmarks?
- Ran out of time to fully discuss
- Elena Wilken (CASTA): Wilken (CASTA): More lanes and less congestion = less people visiting the sites. Confusion on the writing, particularly "diverted traffic"
- Tim Mauck (CCC): Strike diverted traffic from the descriptions
- David Singer (CDOT): All alternatives have opportunities to enhance, but on an order of magnitude, 1, 2 and 4 have more opportunities

- Tim Mauck (CCC): Concerns of elimination of historic resources, how do you enhance something that is gone?
- Elena Wilken (CASTA): Agree to strike "diverted traffic", how is access enhanced? Is it easy to stop and see, ample parking, and good signage? How can it be improved?
- Elena(CASTA): Think Alts 1, 2, 4 and 5 are good (or fair), 3 and 6 are poor
- David Singer (CDOT): Don't use the narrative based on previous discussions.

From notes on the flip chart: Not a vibration/traffic issue, measure by ability to improve access and interpretive opportunities.

25. Does the alternative have the potential to avoid immitigable environmental impacts?

- Cindy Neely (CCC): Alts 1 and 2 should be poor
- David Singer (CDOT): Based on previous discussions today, Alts 1, 2 and 4 are poor based on putting wall in the creek
- Cindy Neely (CCC): Barriers to animal crossings, wider alternatives have a distance too long for wildlife
- Straightening and channelization of creek is not mitigable.
- Cindy Neely (CCC): What about the fens? Other roads are elevated to mitigate
- Ran out of time to fully discuss
- Vanessa Henderson (CDOT): Agrees with most based on how the question was worded, but to enhance or mitigate based on the critical success factor, does not agree with Alt 6
- Elena Wilken (CASTA): Why are the Alts 1 thru 5 rated as "fair"?
- Tim Mauck (CCC): A wall in the creek is immitigable; change of access points and feel of the corridor. Worried that the opportunities for improvements is nickels and dimes related to the scope of environmental improvements needed.
- Elena Wilken (CASTA): Alts 1 thru 5 should be rated as all poor, this is a yes or no question. Immitigable should be mitigable, becomes a tradeoff questions.

Meeting adjourned.

Attachments:

1. The entire presentation on screening.

2. Core Values, Critical Issues, Critical Success Factors, Level 1 Performance Measures matrix.

3. Stakeholder Q&A from May 21, 2014 PLT/TT meeting.

4. Alternatives Design Sheets

5. Sign-in sheet.

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I-70 Traffic & Revenue Study
2013 - 2014

Technical Team Meeting
June 25, 2014

I-70 Traffic & Revenue Study Agenda

- Welcome & Introductions

Today's Agenda

1. Evaluation Prep
   - Review of I-70 Mountain CSS Process
   - Level 1 Evaluation Methodology & Assumptions
2. Level 1 Evaluation: Small Group Discussions
3. Lunch
4. Level 1 Evaluation: Report Out to Tech Team
5. Wrap-Up

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Meeting Objectives

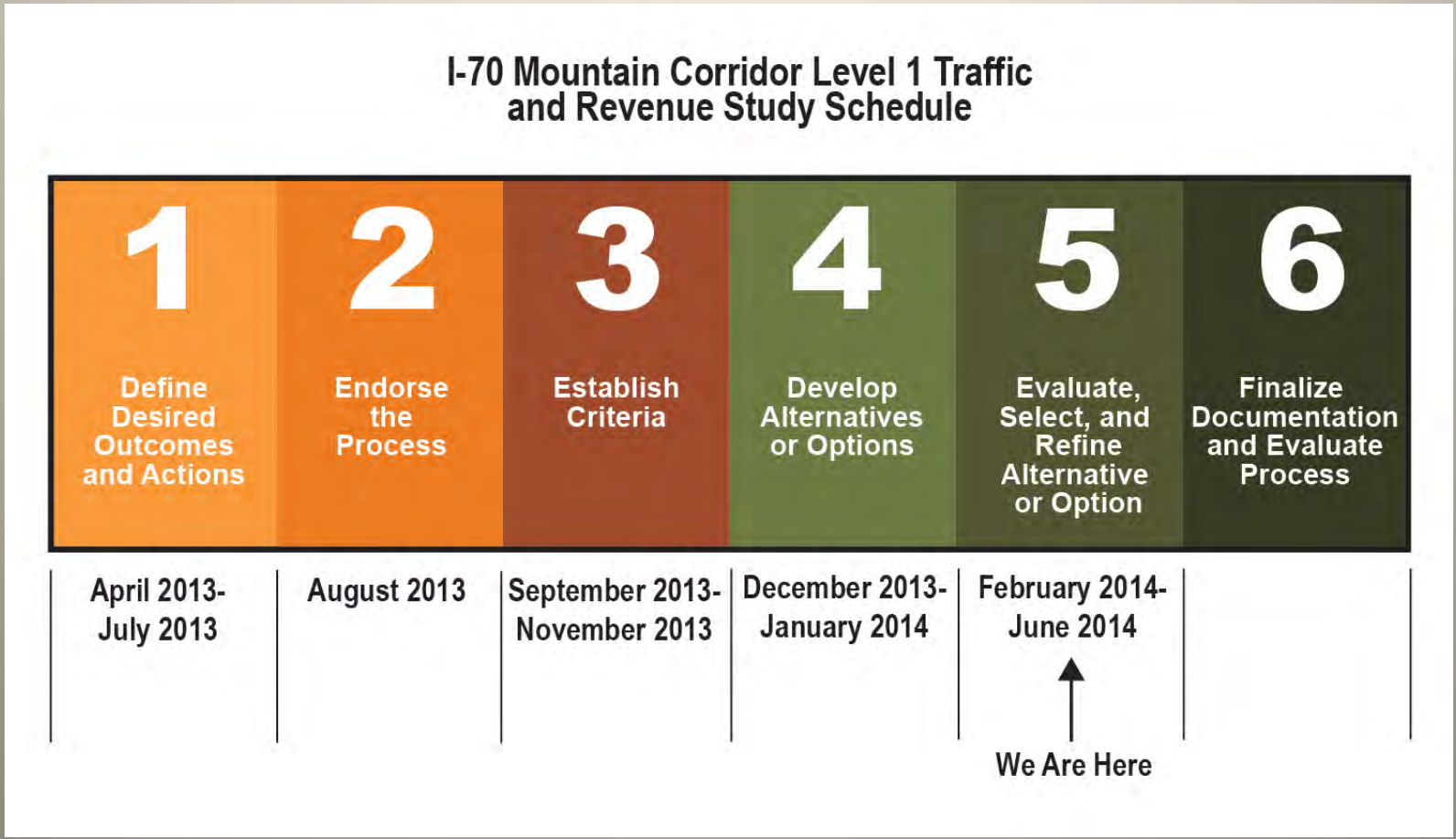
Solicit input from the Technical Team on Level 1 Evaluation.

Role of Technical Team

- Supporting and providing insight with respect to community and agency issues and regulations
- Recommending and guiding methodologies involving data
- **Assisting in evaluating, selecting and refining alternatives and options**
- Presenting the final recommendation to the PLT

(Excerpts from *I-70 Mountain CSS Guidance*)

I-70 Mountain Corridor Context Sensitive Solutions Process



Core Values for T&R Study

- **Safety**
- **Mobility**
- **Engineering Criteria and Aesthetic Guidelines**
- **Sustainability**
- **Decision Making Process**
- **Community**

  (Local, Regional, Statewide)
- **Historic Context**
- **Healthy Environment**
- **Fiscal Responsibility**
- **Constructability**

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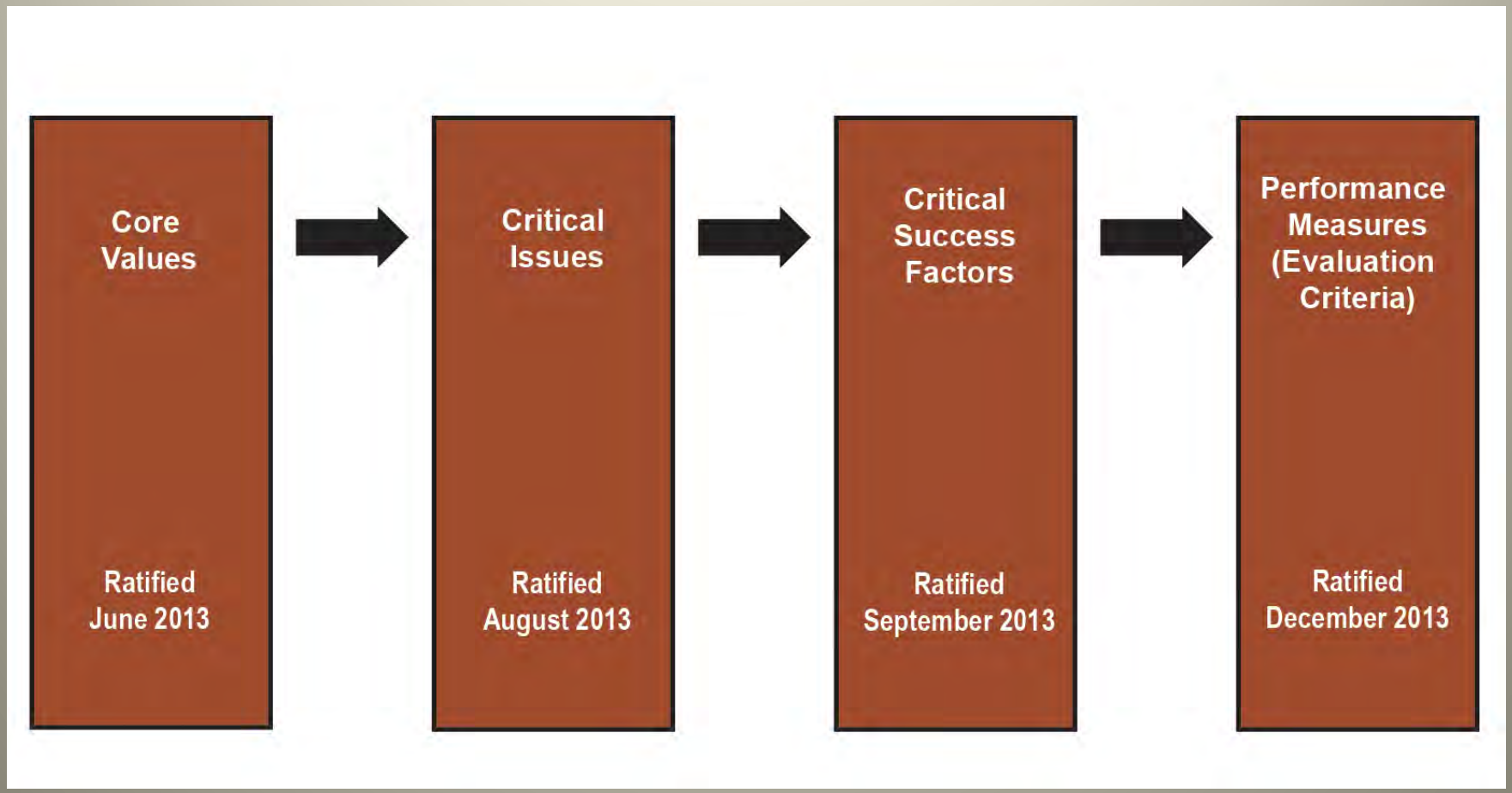
Step 3:
Establish Criteria



Step 4:
Six Alternatives Under Consideration

1. 2 Managed Lanes – 2 options
2. 3 Managed Lanes – 3 options
3. PEIS Minimum Improvements – 4 options
4. PEIS Maximum Improvements – 2 options
5. Permanent Peak Period Shoulder Lane*
6. Temporary Peak Period Shoulder Lane

* One option added as sensitivity analysis

Step 5:
Evaluate Alternatives

Today:

- Review and Discuss Level 1 Evaluation
- Solicit Input from Technical Team (TT) on the Level 1 Evaluation

July:

- Complete Level 1 Evaluation based on input from the TT
- Distribute Level 1 Evaluation for review by TT and PLT

July/August:

- Present findings and screening recommendations to PLT.

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Level 1 v Level 2

What to expect in Level 1?

LEVEL 1 STUDY (previously known as "Sketch level")-

- "Broad-brush"" analyses will be performed on the alternatives under consideration by CDOT, in concert with the Project Leadership Team. These alternatives will be screened against the Level 1 Evaluation Criteria.

- The Level 1 (Performance Measures) evaluation criteria will be more qualitative in nature and will be derived from corridor specific critical issues related to the Core Values.

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What to expect in Level 2?

- Remaining options will be evaluated and compared to each other using a more detailed level of analysis.
- Evaluation criteria does not change between Level 1 and Level 2, however the measures of effectiveness will change and rely on more detailed data.
- Updated data will be used to perform extensive analyses on remaining options.

What to expect in Level 2?

- Analysis would be conducted on considerations such as:

Example Level 2 Considerations	
Modes	Sensitivity of Pricing
Time of day travel	Value of Time variations
Seasonal Variations	Variations of Options

- The T&R Study will conclude with recommendations to advance the candidate options that best meet study objectives into Tier 2 NEPA processes and/or Investment Grade Study.

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Level 1 Evaluation:
Methodology and Assumptions

Level 1 Methodology

- Project Team populated some of the cells to begin the initial Level 1 evaluation.
- Qualitative, Alternatives rated Good, Fair or Poor against Performance Measures (evaluation criteria).

Level 1 Rating System

- Good (GREEN)-

Alternative address the majority of critical success factors and critical issues. Minor weaknesses can be addressed should the Alternative advance into Level 2.

Level 1 Rating System

- Fair (YELLOW)-

Alternative marginally meets some objectives of the performance measure including its critical success factors and critical issues. Negative aspects or deficiencies exist with the alternative that may prohibit it from successfully meeting the overall measure. Negative aspects or deficiencies can be addressed should the Alternative advance into Level 2.

Level 1 Rating System

- Poor (WHITE)-

Alternative contains weaknesses and deficiencies that substantially limit its ability to address this specific performance measure. Weaknesses or deficiencies can be addressed should the Alternative advance into Level 2.

Level 1 Methodology

- Technical Team members rotate among five stations.
- Approximately 20 minutes dedicated to each station.
- Members will provide input on all Performance Measures.

Level 1 Methodology

- Options to each alternative were evaluated but combined for screening.

- The Alternatives were measured against the Base Case Alternative- Existing I-70 with Eastbound Peak Period Shoulder Lane & EB & WB Twin Tunnels Expansions

Level 1 Methodology

- Supplemental materials such as Alternative Cheat Sheets, *I-70 Mountain Corridor Engineering Criteria and Aesthetics Guidance* are available today for the use by the Technical Team.

- Values were split when the Advanced Guideway System (AGS) altered the performance measure for Level 1 Evaluation.

7. Does the alternative offer competitive modal choices with reliable travel times?

Mobility

Critical Issues:

- Travel Time Reliability
- Slow Moving Vehicles
- Modal Choice
- Local Mobility
- Incident Management

Critical Success Factors:

- Provide a multimodal solution that improves mobility, reliability, increases person trips, efficiently manages slow moving vehicles, provides incident response access, and reduces travel time.

Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
2 Lane Reversible	3 Lane Reversible	Min PEIS	Max PEIS	Perm PPSL	Temp PPSL
Options 1 & 2	Options 1, 2, & 3	Options 1, 2, 3, & 4	Options 1 & 2	Option 1	Option 1
Good. BRT Provides alternative mode of travel in MLs at start up.	**Good.** BRT Provides alternative mode of travel in MLs at start up.	**Poor.** Prior to 2035 implementation of AGS.	**Poor.** Prior to 2035 implementation of AGS.	**Poor.** Prior to 2035 implementation of AGS.	**Poor.** Prior to 2035 implementation of AGS.
		Good once AGS in service.	**Good** once AGS in service.	**Good** once AGS in service.	**Good** once AGS in service.

Rationale: Alternatives 1&2 includes Bus Rapid Transit (BRT) on Opening Day, resulting in increased transit service. Alternatives 3-6 don't include a frequent reliable service until AGS can be implemented, assumed to be 2035.

Level 1 Methodology

- Some of the ratings are “blank” in order to defer to the Technical Team for consideration.
- All draft evaluations are subject to review and discussion by the Technical Team.

Engineering Criteria & Aesthetic Guidelines

13. Does the alternative provide opportunities to balance aesthetics and engineering?

Critical Issues:

- Aesthetics
- Adherence to Accepted Design Standards

Critical Success Factors:

- Use the I-70 Mountain Corridor CSS process to create and assess financially feasible infrastructure improvements that adhere to acceptable engineering standards and are inspired compatible with the natural surroundings and provide the best value for their life-cycle while not precluding future opportunities.

Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
2 Lane Reversible	3 Lane Reversible	Min PEIS	Max PEIS	Perm PPSL	Temp PPSL
Options 1 & 2	Options 1, 2, & 3	Options 1, 2, 3, & 4	Options 1 & 2	Option 1	Option 1

Rationale:

I-70 Traffic & Revenue Study

SMALL GROUP SESSIONS

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BREAK

I-70 Traffic & Revenue Study

REPORT OUT

I-70 Traffic & Revenue Study

Questions?

Next Steps, Wrap up, & Action Items Review

- Mid-July Project Team will release Revised Level 1 Evaluation Screening Matrix after reviewing comments from this meeting

- End of July TT Comments due on Revised Level 1 Evaluation Screening Matrix

- August PLT Meeting – Level 1 Recommendations and Results

Thank You!!!

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I-70 Mountain Corridor Traffic & Revenue Study
2013-2014
Core Values, Critical Issues, Critical Success Factors, Level 1 Performance Measures

Core Values	Critical Issues	Critical Success Factors	Level 1 Performance Measures
Safety	• Safe Traffic Operations • Emergency Response • Incident Management	• Enhancing safety for all is a priority. Balance the anticipated needs of capacity and safety improvements with minimized impacts. • Provide reliable access and protection for emergency responders to / from and through the corridor accident/incident scenes.	• Does the alternative meet minimum design standards (AASHTO, CDOT, etc) of cross section, curvature, sight distance and grades? • Does the alternative provide safe reliable access ? • Does the alternative provide protection for incident responders? • Does the alternative have the potential to reduce crashes?
Mobility	• Travel Time Reliability • Slow Moving Vehicles • Modal Choice • Local Mobility • Incident Management	• Provide a multimodal solution that improves mobility, reliability, increases person trips, efficiently manages slow moving vehicles, provides incident response access, and reduces travel time .	• Does the alternative reduce travel times for long distance trips for all users? • Does the alternative reduce the travel time for short distance trips for all users both on and off the Interstate? • Does the alternative offer competitive modal choices with reliable travel times? • Does the alternative allow for increased person trips? • Does the alternative provide for incident management?
Constructability	• Funding • Efficiency of Operations & Maintenance	• Develop funding priorities to construct financially feasible improvements that use innovative and efficient practices which have the greatest ability to preserve, conserve and maintain existing environment and future improvements. Must be "buildable".	• Is the construction of the alternative financially feasible with the minimal funding? • Does the alternative provide flexibility for future expansion and modification? • Does the alternative have a positive impact on operations and maintenance?
Engineering Criteria and Aesthetic Guidelines	• Aesthetics • Adherence to Accepted Design Standards	• Use the I-70 Mountain Corridor CSS process to create and assess financially feasible infrastructure improvements that adhere to acceptable engineering standards and are inspired compatible with the natural surroundings and provide the best value for their life-cycle while not precluding future opportunities.	• Does the alternative provide opportunities to balance aesthetics and engineering? • Does the alternative adhere to the I-70 CSS Mountain Corridor Guidelines and specific design criteria?

I-70 Mountain Corridor Traffic & Revenue Study
2013-2014
Core Values, Critical Issues, Critical Success Factors, Level 1 Performance Measures

Core Values	Critical Issues	Critical Success Factors	Level 1 Performance Measures
Sustainability	• Preserve Future Transportation Options • Energy Use • Maintenance • Impact of No Action	• Address the continuing decline of mobility and accessibility along the corridor by developing long-term multi-modal transportation solutions that are compatible with the natural surroundings and minimize the use of non-renewable resources.	• Does the alternative protect existing natural resources? • Does the alternative use existing natural resources efficiently to generate improvements in efficiency and mobility? • Does the alternative have the potential to improve operations and maintenance?
Decision Making Process (Local, Regional, Statewide)	• CSS Guidance • Stakeholder Support • Public Acceptance • Identify & Prioritize Mitigation and Enhancement Opportunities	• Conduct a transparent (fair, open, equitable and inclusive) CSS process utilizing relevant and defensible data and a consistent set of assumptions. • Obtain general agreement by the public, the Project Leadership Team, and stakeholders of the study process and results.	• Does the alternative provide opportunities for enhancements (i.e. recreational, community, environmental)? • Is the alternative consistent with the Record of Decision? • Does the alternative have a minimal risk of public or political opposition?
Community (Local, Regional, Statewide)	• Enhance Recreational Opportunities • Enhance Community Values • Improve Economic Vitality & Livability	• Advance a solution that improves local, regional and statewide livability and economic vitality.	• Does the alternative improve access to key destinations along the corridor, including recreation areas? • Does the alternative have the potential to improve livability and vitality locally, regionally, and statewide?
Historic Context	• Preservation & Enhancement of Historic Elements & Landscape	• Enable a positive experience for local residents and tourists through preservation and enhancement of historic elements and landscape.	• Does the alternative have the ability to protect Historic Districts and Landmarks? • Does the alternative have opportunities for mitigation and / or enhancement to historic districts and landmarks?
Healthy Environment	• Environmental Sensitivity • Ability to Mitigate	• Identify solutions that avoid, minimize, enhance and/or mitigate environmental impacts.	• Does the alternative have the potential to avoid immitigable environmental impacts?
Fiscal Responsibility	• Life Cycle Considerations • Benefit - Cost	• Assure fiscal responsibility through sustainable revenue generation and minimized public funding.	• Does the alternative have the ability to be financially self sustaining in terms of capital and operations and maintenance costs with minimal public funding?

I-70 Traffic & Revenue Study

Stakeholder Q&A from May 21, 2014 PLT Meeting

Question	Answer	Assignee
Does Alternative 3 include revenues from the temporary EB Peak Period Shoulder Lane currently under construction?	Alternative 3 does not include revenues from the temporary EB Peak Period Shoulder Lane. Indeed, none of the Alternatives 1-4 include the revenues from the temporary EB Peak Period Shoulder Lane. There are several reasons for this: 1. The definitions for Alternatives 1-4 did not include the EB PPSL in the descriptions. 2. Alternatives 1-4 represent permanent solutions to capacity constraints which would ideally replace the temporary EB PPSL under construction. Therefore none of the capacity improvements in these alternatives, as currently envisioned, are meant to coexist with the temporary PPSL. 3. Alternative 3 and Alternative 4 were meant to reflect the alternatives described in the PEIS as the minimum and the maximum programs respectively, which did not include a temporary EB PPSL.	BERGER
What is the assumption used for the base number of cars in these projections? How many cars would there be in the future?	At Level 1, the analysis predominantly addressed movements along the Corridor; we did not focus on other segments off of the Corridor. The forecasting process is based off of a regional model, and does provide this level of specificity. Specific information about ramp terminus and interchange movements could be addressed in Level 2.	BERGER

How does vehicle occupancy figure into number of trips?	The vehicle occupancy rate is used to translate between vehicle trips and person trips. We used a daily (24-hour) vehicle occupancy rate of 1.67 for weekdays and 1.75 for weekends, based on averages for vehicle occupancy rate per trip purpose presented in the PEIS. We recognize that peak hour vehicle occupancy rates are much higher.	BERGER
How would these alternatives really get financed? Low interest loans? Bonds?	Options include low interest loans, revenue bonds, a TIFIA loan(s) or Private Activity Bonds (PABs); however, more analysis needs to be done to see which one or combination of options will work best.	HPTE
Does BRT have lower demand than AGS? Could BRT run in a temporary peak period shoulder lane (both on and off peak)? Can the alternatives be refined to include these considerations in Level 2?	BRT as defined in this study includes regularly scheduled busses running in the Managed Lanes in the peak period along with tolled vehicles. **Does BRT have lower demand than AGS?** From current studies, the BRT captures less ridership than the studied AGS. The higher speed of the AGS makes the AGS a more attractive transit option than the BRT. **Could busses run in a temporary peak period shoulder lane (both on and off peak)?** It is possible that the BRT can run in a temporary peak period shoulder lane during **peak** periods. Based on the recent CDOT test-runs, it appeared that the buses used traveled in the shoulder lane safely. Travel time savings were not conclusive in the test-runs. FHWA has indicated that buses could not run in the shoulder lane during non-peak periods. **Can the alternatives be refined to include these considerations in Level 2?** Yes.	PARSONS
Is there consideration for Eagle Airport to be used more, and become a competitor to I-70?	It does not appear that the Eagle Airport would become a competitor to I-70 for travel between the western slope and Denver. There may be, however, some competition with I-70 for travel from Eagle Airport to destinations beyond DIA.	PARSONS

Is there any appetite for an alternative route to I-70?	In the original PEIS, 17 alternate routes were analyzed. These routes were evaluated to determine if the travel times and speeds could be competitive enough to attract enough Corridor travelers. The 17 alternate routes either had substantially longer travel times, were located too far away from the primary origination of travel, so they were eliminated. Two of the alternate routes were examined in more detail. One route was eliminated due to larger capital costs and noticeably longer travel times. The remaining route was eliminated because of greater environmental impacts and longer travels times.	PARSONS
Melinda Urban (FHWA) stated Alternative 5 has an error on the design sheet. It is missing the two foot buffer.	As directed by CDOT, a 2' buffer between the general purpose lane and managed lane will be added in each direction. An updated Level 1 roadway/structure cost estimate will be provided to reflect this update.	PARSONS

Base Condition

Existing I-70 with EB Peak Period Shoulder Lane

Base Condition includes the existing highway infrastructure including the planned improvement of the EB peak period shoulder lane from Empire to Floyd Hill. The recently completed widening of the EB Twin Tunnel is part of the peak period shoulder lane project.

Roadway Information

Extent of Roadway Improvements	Empire to Floyd Hill
General Purpose (GP) Lane Information	Additional capacity by restriping existing pavement
Direction of Improvements	EB Only Direction
Design Speed	Match Existing
Trucks, Private Buses, BRT	Allowed in Peak Period Shoulder Lane (Always in GP Lanes)
Tolling	
Capacity Improvements	Dynamic priced toll for EB Peak Period Shoulder Lane
Tunnels	Dynamic priced toll as part of the EB Peak Period Shoulder Lane
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2014 (Assumes NEPA Cat-Ex)
Construction Duration	1 year
First Year Operation	2014 - WB Tunnel / 2015 - EB PPSL
Financial Period	50 years

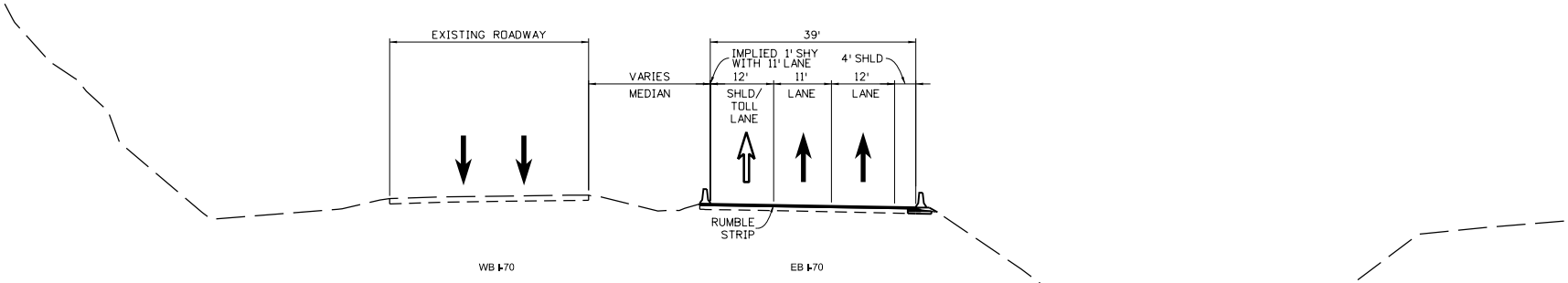
Transit Information

Termini	Glenwood Springs to Denver (CDOT Bus)
Special Infrastructure	N/A
Schedule	Fall 2014
Stations	6 CDOT Bus Stations - Glenwood Springs, Eagle, Vail, Frisco, Denver (2)
Type	
CDOT Bus	TBD by CDOT
BRT	N/A
AGS	N/A

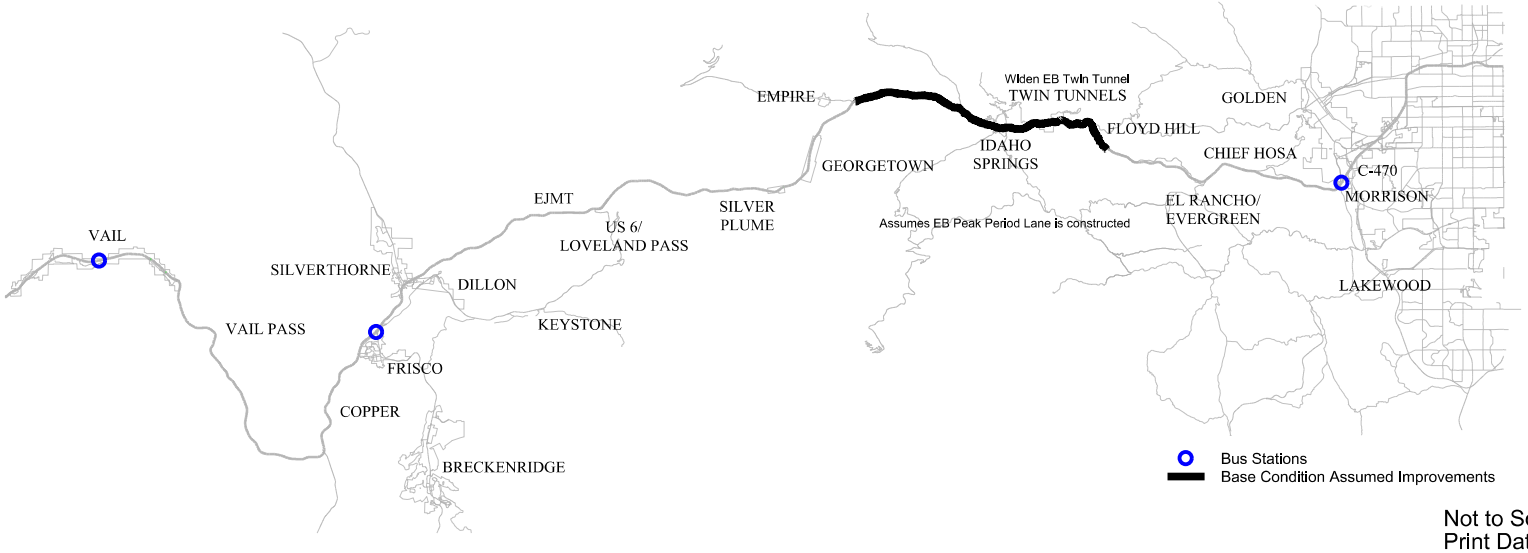
Special Structures

Special Structures	Existing EB Twin Tunnel Widening

GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels



TYPICAL SECTION BASE CONDITION
PEAK PERIOD SHOULDER LANE (TEMPORARY)
APPROX LIMITS: EB I-70 EMPIRE TO FLOYD HILL



Not to Scale
Print Date: 1/16/2014

Alt01_Opt01

2 Tolled Reversible Managed Lanes

Reversible managed lanes designed at 65 mph. The reversible managed lanes are on a separate viaduct structure from East Idaho Springs to Floyd Hill in order to maintain 65 mph design speed. General purpose (GP) lanes designed at 55 mph except from East Idaho Springs to Floyd Hill, where existing design speeds & lanes will remain.

Roadway Information

Extent of Roadway Improvements	Silverthorne to C-470
General Purpose (GP) Lane Information	Align managed lanes with GP lanes except from E Idaho Springs to Floyd Hill
Direction of Improvements	Both directions (EB and WB)
Design Speed	65 mph Managed Lanes, 55 mph GP lanes
Trucks, Private Buses, BRT	Allowed in Managed Lanes (Always in GP Lanes)
Tolling	
Capacity Improvements	Dynamic priced toll for Reversible Managed Lanes
Tunnels	Dynamic priced toll for EJMT 3rd Bore and Twin Tunnels 3rd bore
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2019 (Assumes 4 years NEPA & Procurement)
Construction Duration	4 years
First Year Operation	2023
Financial Period	50 years

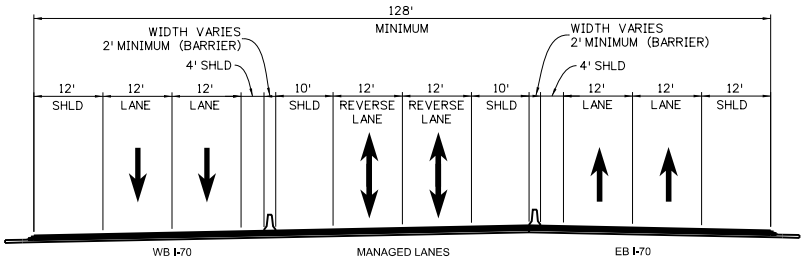
Transit Information

Termini	Vail to Denver
Special Infrastructure	Stations
Schedule	2019 - Limited Startup / 2023 - Full BRT Service
Stations	12 Total
Type	
CDOT Bus	N/A
BRT	Transit option for full 50 year concession
AGS	N/A

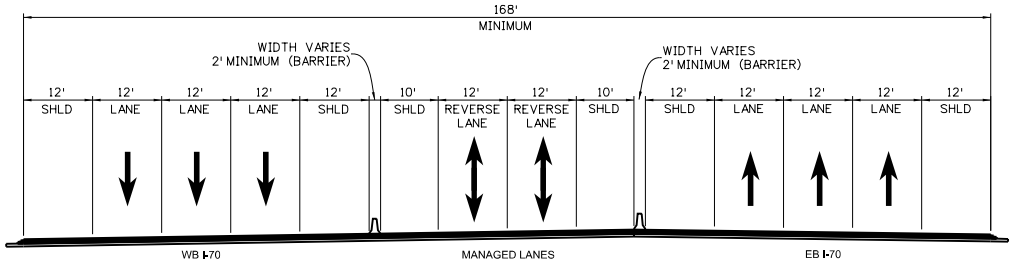
Special Structures

Special Structures	EJMT and Twin Tunnel 3rd Bores
	Managed Lanes on Viaduct from East Idaho Springs to Floyd Hill

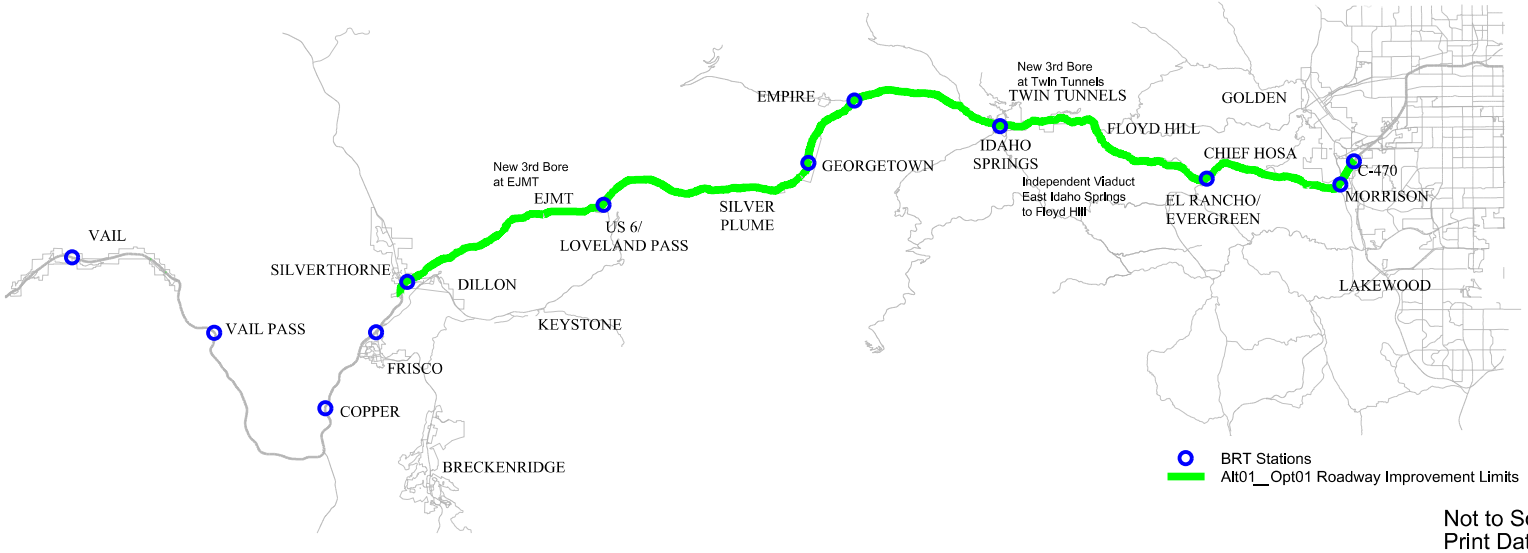
GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels



TYPICAL SECTION ALT01
2 TOLLED REVERSIBLE MANAGED LANES
EXISTING 2 GENERAL PURPOSE LANES EB & WB I-70
APPROX LIMITS: EJMT TO FLOYD HILL



TYPICAL SECTION ALT01
2 TOLLED REVERSIBLE MANAGED LANES
EXISTING 3 GENERAL PURPOSE LANES EB & WB I-70
APPROX LIMITS: SILVERTHORNE TO EJMT, FLOYD HILL TO C-470



Not to Scale
Print Date: 1/16/2014

Alt01_Opt02

2 Tolled Reversible Managed Lanes

Reversible managed lanes and I-70 designed at 65 mph. This option matches Alt01_Opt01 except from East Idaho Springs to Floyd Hill, where the reversible managed lanes and I-70 will be reconstructed to meet a 65 mph design speed.

Roadway Information

Extent of Roadway Improvements	Silverthorne to C-470
General Purpose (GP) Lane Information	Align managed lanes with GP lanes
Direction of Improvements	Both directions (EB and WB)
Design Speed	65 mph - Managed Lanes & GP Lanes
Trucks, Private Buses, BRT	Allowed in Managed Lanes (Always in GP Lanes)
Tolling	
Capacity Improvements	Dynamic priced toll for Reversible Managed Lanes
Tunnels	Dynamic priced toll for EJMT 3rd Bore and Twin Tunnels 3rd bore
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2019 (Assumes 4 years NEPA & Procurement)
Construction Duration	4 years
First Year Operation	2023
Financial Period	50 years

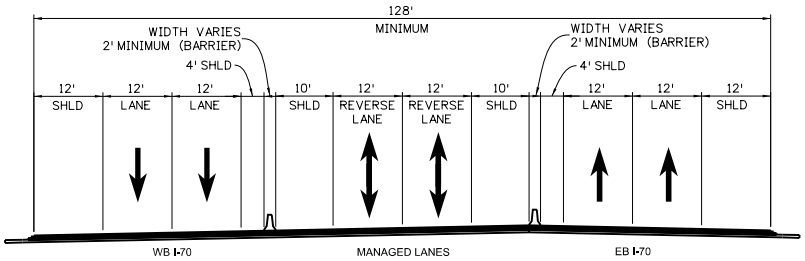
Transit Information

Termini	Vail to Denver
Special Infrastructure	Stations
Schedule	2019 - Limited Startup / 2023 - Full BRT Service
Stations	12 Total
Type	
CDOT Bus	N/A
BRT	Transit option for full 50 year concession
AGS	N/A

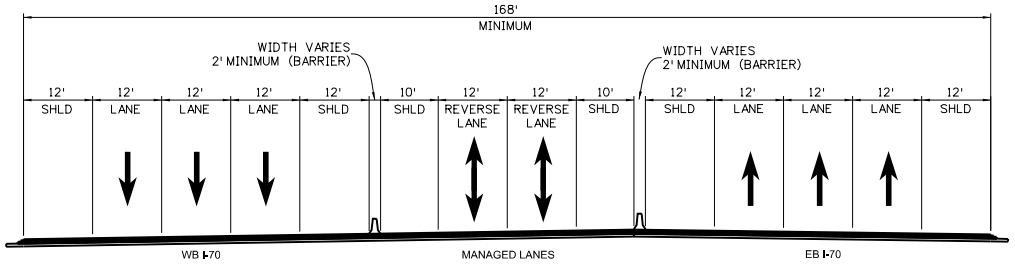
Special Structures

Special Structures	EJMT and Twin Tunnel 3rd Bores

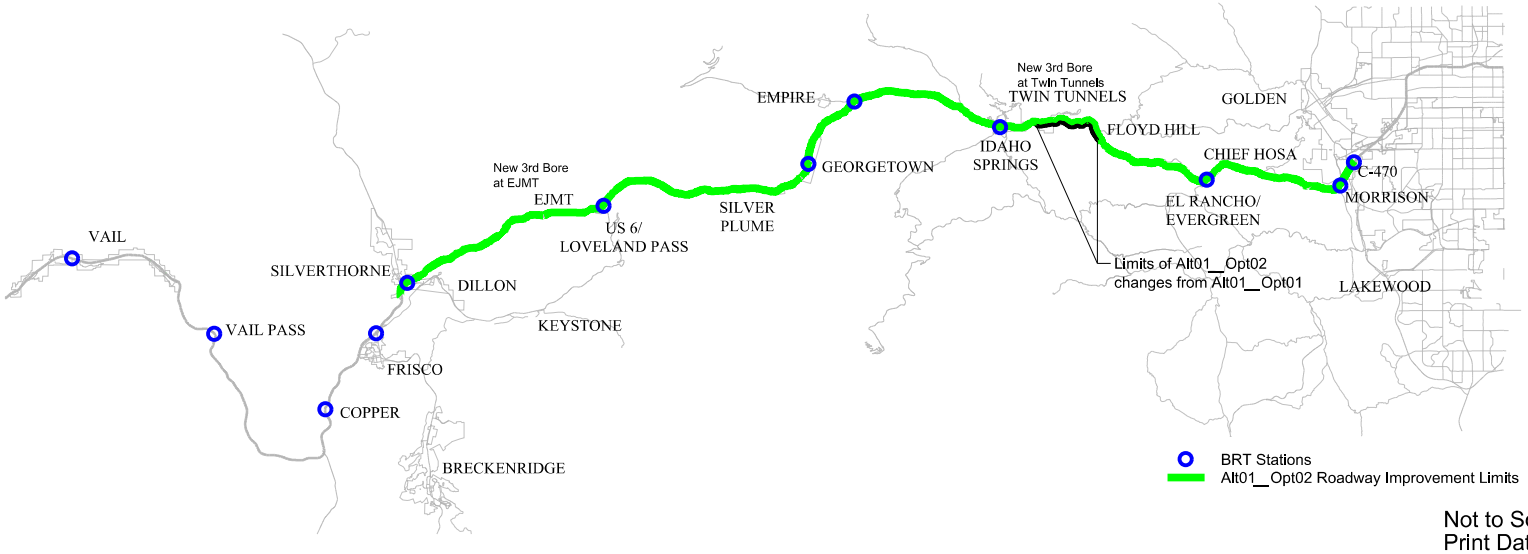
GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels



TYPICAL SECTION ALT01
2 TOLLED REVERSIBLE MANAGED LANES
EXISTING 2 GENERAL PURPOSE LANES EB & WB I-70
APPROX LIMITS: EJMT TO FLOYD HILL



TYPICAL SECTION ALT01
2 TOLLED REVERSIBLE MANAGED LANES
EXISTING 3 GENERAL PURPOSE LANES EB & WB I-70
APPROX LIMITS: SILVERTHORNE TO EJMT, FLOYD HILL TO C-470



Not to Scale
Print Date: 1/16/2014

Alt02_Opt01

3 Tolled Reversible Managed Lanes

Reversible managed lanes designed at 65 mph. The reversible managed lanes are on a separate viaduct structure from East Idaho Springs to Floyd Hill in order to maintain 65 mph design speed. General purpose (GP) lanes designed at 55 mph except from East Idaho Springs to Floyd Hill, where existing design speeds & lanes will remain.

Roadway Information

Extent of Roadway Improvements	Silverthorne to C-470
General Purpose (GP) Lane Information	Align managed lanes with GP lanes except from E Idaho Springs to Floyd Hill
Direction of Improvements	Both directions (EB and WB)
Design Speed	65 mph Managed Lanes, 55 mph GP lanes
Trucks, Private Buses, BRT	Allowed in Managed Lanes (Always in GP Lanes)
Tolling	
Capacity Improvements	Dynamic priced toll for Reversible Managed Lanes
Tunnels	Dynamic priced toll for EJMT 3rd Bore and Twin Tunnels 3rd bore
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2019 (Assumes 4 years NEPA & Procurement)
Construction Duration	4 years
First Year Operation	2023
Financial Period	50 years

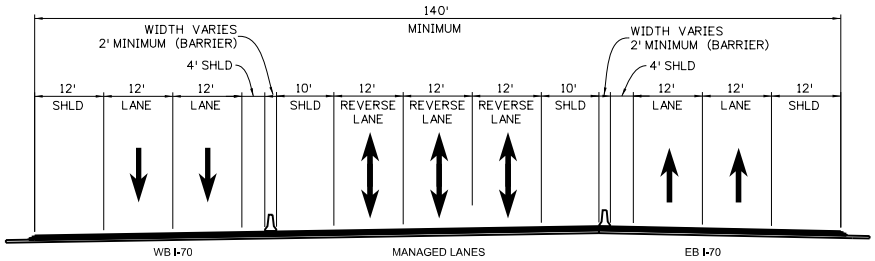
Transit Information

Termini	Vail to Denver
Special Infrastructure	Stations
Schedule	2019 - Limited Startup / 2023 - Full BRT Service
Stations	12 Total
Type	
CDOT Bus	N/A
BRT	Transit option for full 50 year concession
AGS	N/A

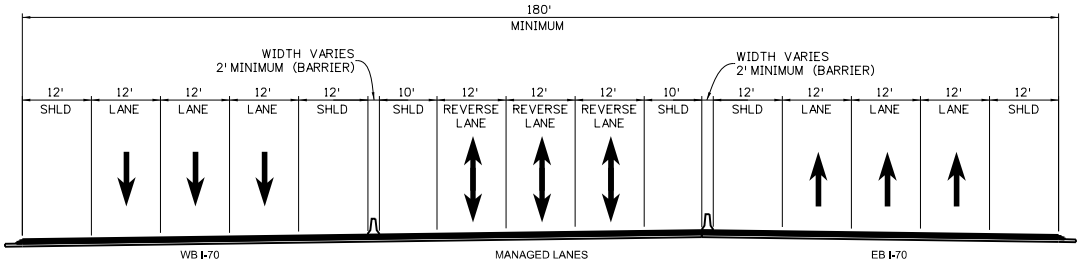
Special Structures

Special Structures	EJMT and Twin Tunnel 3rd Bores
	Managed Lanes on Viaduct from East Idaho Springs to Floyd Hill

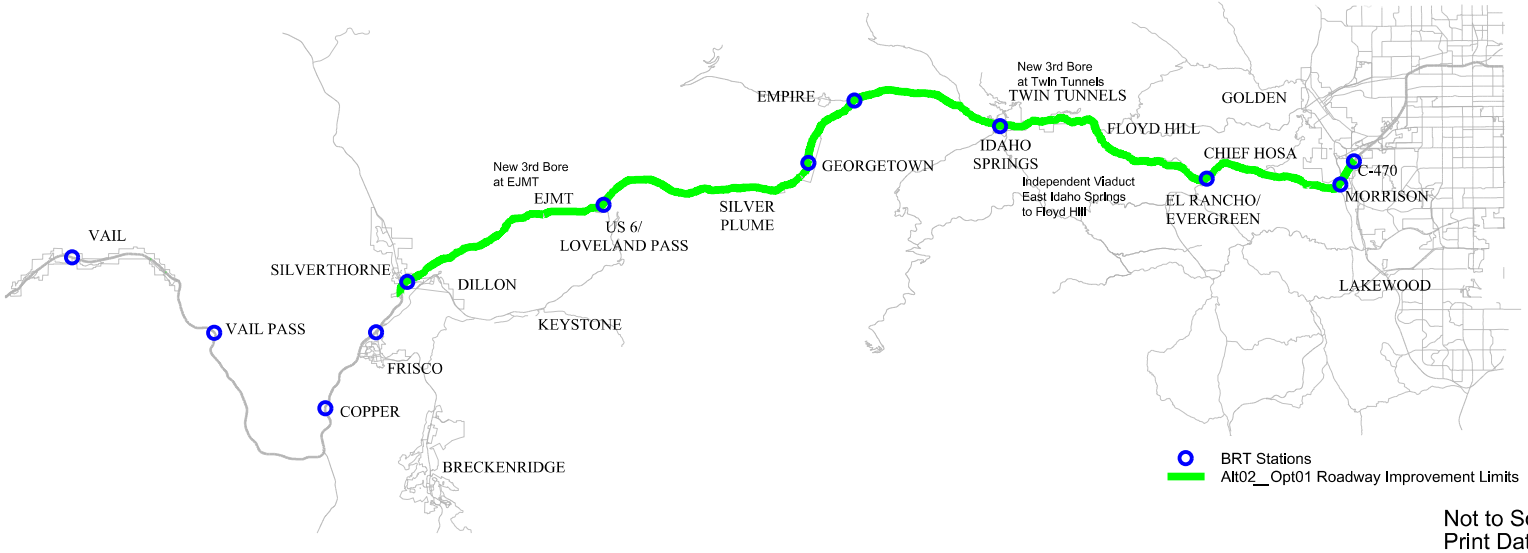
GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels



TYPICAL SECTION ALT02
3 TOLLED REVERSIBLE MANAGED LANES
EXISTING 2 GENERAL PURPOSE LANES EB & WB I-70
APPROX LIMITS: EJMT TO FLOYD HILL



TYPICAL SECTION ALT02
3 TOLLED REVERSIBLE MANAGED LANES
EXISTING 3 GENERAL PURPOSE LANES EB & WB I-70
APPROX LIMITS: SILVERTHORNE TO EJMT, FLOYD HILL TO C-470



Not to Scale
Print Date: 1/16/2014

Alt02_Opt02

3 Tolled Reversible Managed Lanes

Reversible managed lanes and I-70 designed at 65 mph. This option matches Alt02_Opt01 except from East Idaho Springs to Floyd Hill, where the reversible managed lanes and I-70 GP lanes will be reconstructed to meet a 65 mph design speed.

Roadway Information

Extent of Roadway Improvements	Silverthorne to C-470
General Purpose (GP) Lane Information	Align managed lanes with GP lanes
Direction of Improvements	Both directions (EB and WB)
Design Speed	65 mph - Managed Lanes & GP Lanes
Trucks, Private Buses, BRT	Allowed in Managed Lanes (Always in GP Lanes)
Tolling	
Capacity Improvements	Dynamic priced toll for Reversible Managed Lanes
Tunnels	Dynamic priced toll for EJMT 3rd Bore and Twin Tunnels 3rd bore
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2019 (Assumes 4 years NEPA & Procurement)
Construction Duration	4 years
First Year Operation	2023
Financial Period	50 years

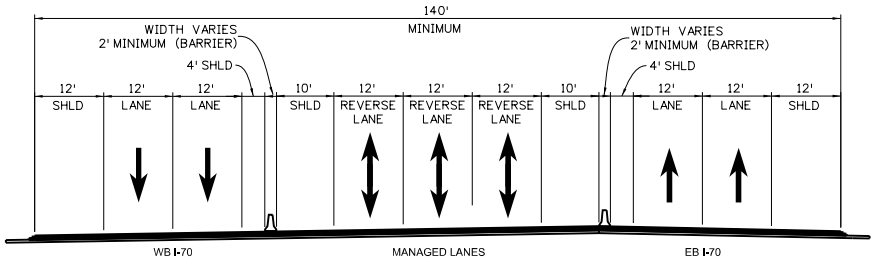
Transit Information

Termini	Vail to Denver
Special Infrastructure	Stations
Schedule	2019 - Limited Startup / 2023 - Full BRT Service
Stations	12 Total
Type	
CDOT Bus	N/A
BRT	Transit option for full 50 year concession
AGS	N/A

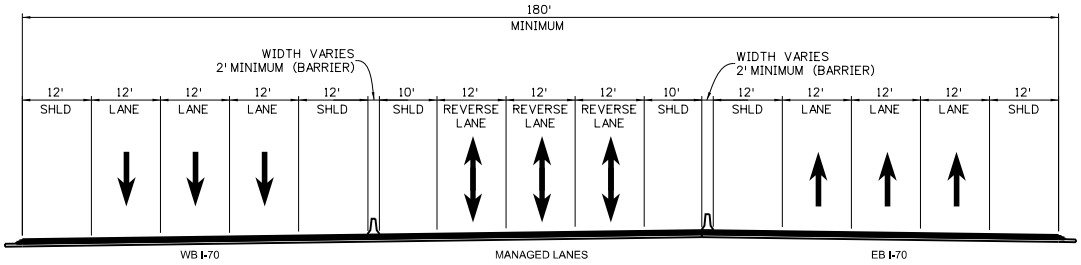
Special Structures

Special Structures	EJMT and Twin Tunnel 3rd Bores

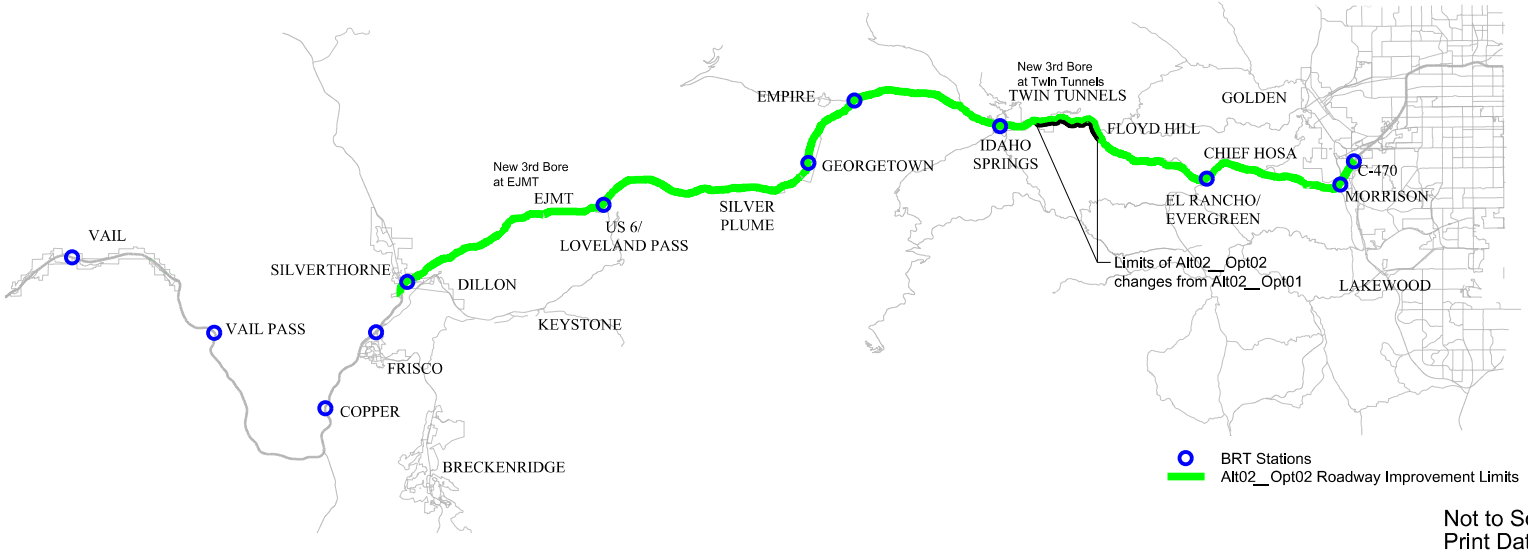
GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels



TYPICAL SECTION ALT02
3 TOLLED REVERSIBLE MANAGED LANES
EXISTING 2 GENERAL PURPOSE LANES EB & WB I-70
APPROX LIMITS: EJMT TO FLOYD HILL



TYPICAL SECTION ALT02
3 TOLLED REVERSIBLE MANAGED LANES
EXISTING 3 GENERAL PURPOSE LANES EB & WB I-70
APPROX LIMITS: SILVERTHORNE TO EJMT, FLOYD HILL TO C-470



Not to Scale
Print Date: 1/16/2014

Alt02_Opt03

3 Tolled Reversible Managed Lanes

Reversible managed lanes designed at 65 mph. The reversible managed lanes are on a separate viaduct structure from West Idaho Springs to Floyd Hill to minimize impacts. General purpose (GP) lanes designed at 65 mph except from West Idaho Springs to Floyd Hill, where existing design speeds & lanes will remain. This option is similar to Alt02_Opt01, except viaduct extends to West Idaho Springs.

Roadway Information

Extent of Roadway Improvements	Silverthorne to C-470
General Purpose (GP) Lane Information	Align managed lanes with GP lanes except from W Idaho Springs to Floyd Hill
Direction of Improvements	Both directions (EB and WB)
Design Speed	65 mph Managed Lanes, 55 mph GP lanes
Trucks, Private Buses, BRT	Allowed in Managed Lanes (Always in GP Lanes)
Tolling	
Capacity Improvements	Dynamic priced toll for Reversible Managed Lanes
Tunnels	Dynamic priced toll for EJMT 3rd Bore and Twin Tunnels 3rd bore
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2019 (Assumes 4 years NEPA & Procurement)
Construction Duration	4 years
First Year Operation	2023
Financial Period	50 years

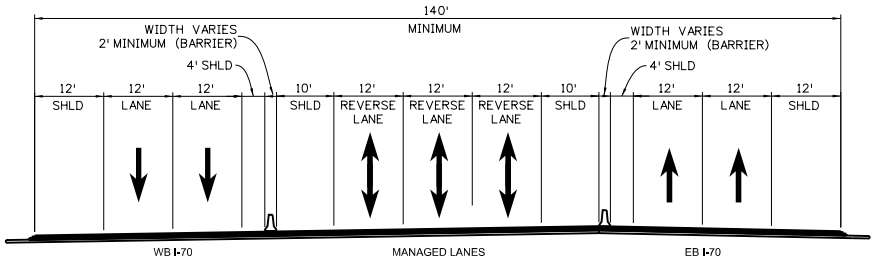
Transit Information

Termini	Vail to Denver
Special Infrastructure	Stations
Schedule	2019 - Limited Startup / 2023 - Full BRT Service
Stations	12 Total
Type	
CDOT Bus	N/A
BRT	Transit option for full 50 year concession
AGS	N/A

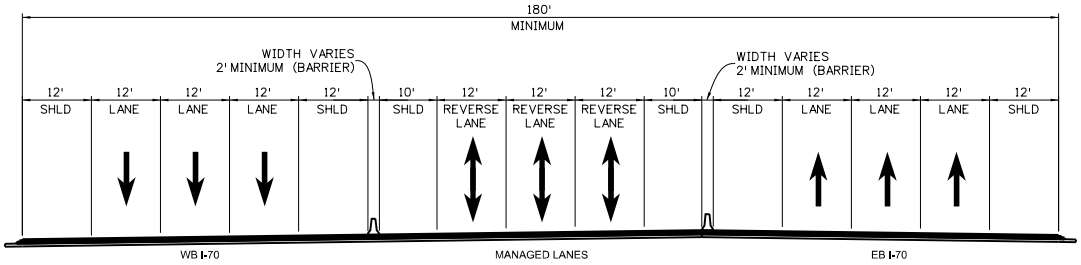
Special Structures

Special Structures	EJMT and Twin Tunnel 3rd Bores
	Managed Lanes on Viaduct from West Idaho Springs to Floyd Hill

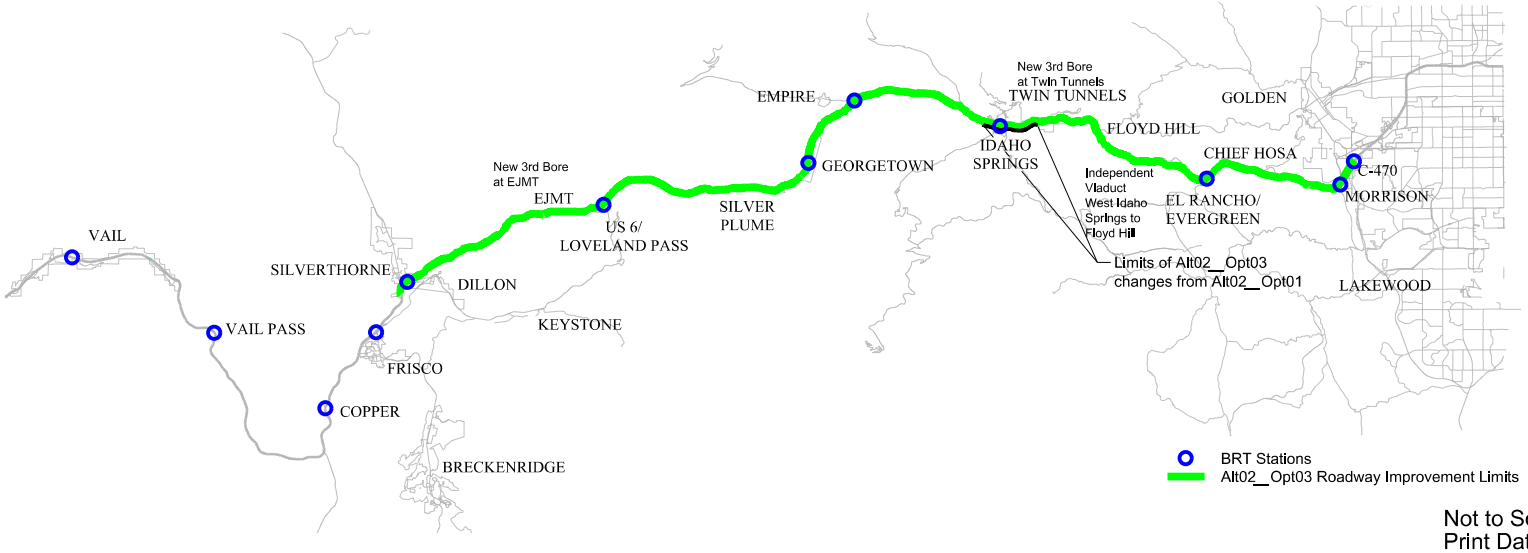
GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels



TYPICAL SECTION ALT02
3 TOLLED REVERSIBLE MANAGED LANES
EXISTING 2 GENERAL PURPOSE LANES EB & WB I-70
APPROX LIMITS: EJMT TO FLOYD HILL



TYPICAL SECTION ALT02
3 TOLLED REVERSIBLE MANAGED LANES
EXISTING 3 GENERAL PURPOSE LANES EB & WB I-70
APPROX LIMITS: SILVERTHORNE TO EJMT, FLOYD HILL TO C-470



Not to Scale
Print Date: 1/16/2014

Alt03_Opt01

Minimum Program per PEIS

Minimum program per PEIS with 55 mph design speed including a 3rd bore at EJMT. Minimum program is generally localized auxiliary lane improvements.

Roadway Information

Extent of Roadway Improvements	EJMT to Floyd Hill
General Purpose (GP) Lane Information	Auxiliary lanes added at localized areas between interchanges
Direction of Improvements	Both directions (EB and WB)
Design Speed	55 mph
Trucks, Private Buses, BRT	Allowed in GP Lanes and auxiliary lanes
Tolling	
Capacity Improvements	No toll for auxiliary lanes
Tunnels	Dynamic priced toll for EJMT 3rd Bore and Twin Tunnels 3rd Lane
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2018 (Assumes 3 years NEPA)
Construction Duration	3 years
First Year Operation	2021
Financial Period	50 years

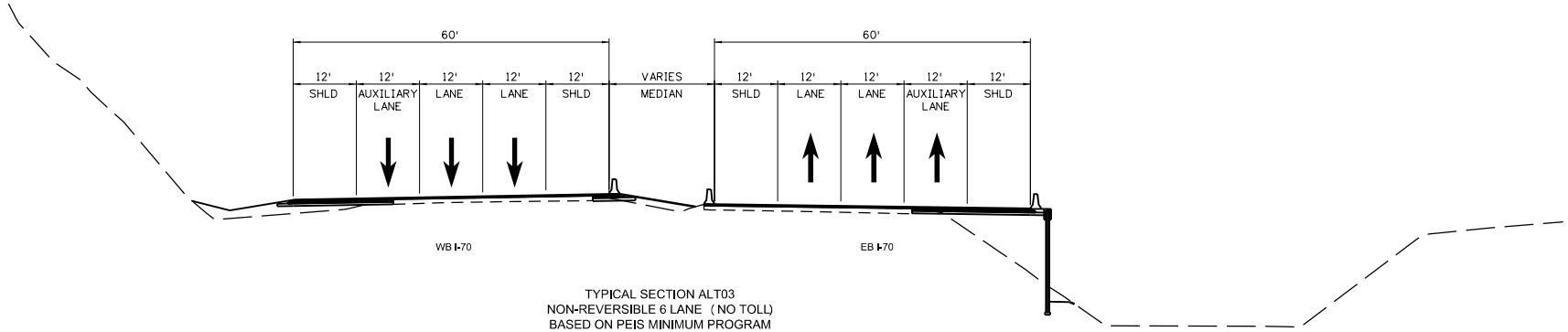
Transit Information

Termini	Silverthorne-Denver, Service to GWS (CDOT Bus), Breckenridge-Denver (AGS)
Special Infrastructure	AGS System; None for CDOT Bus
Schedule	Fall 2014 - CDOT Bus / After 2035 - AGS
Stations	6 CDOT Bus Stations - GWS, Eagle, Vail, Frisco, Denver (2); 5 AGS Stations
Type	
CDOT Bus	TBD by CDOT
BRT	N/A
AGS	In operation after 2035

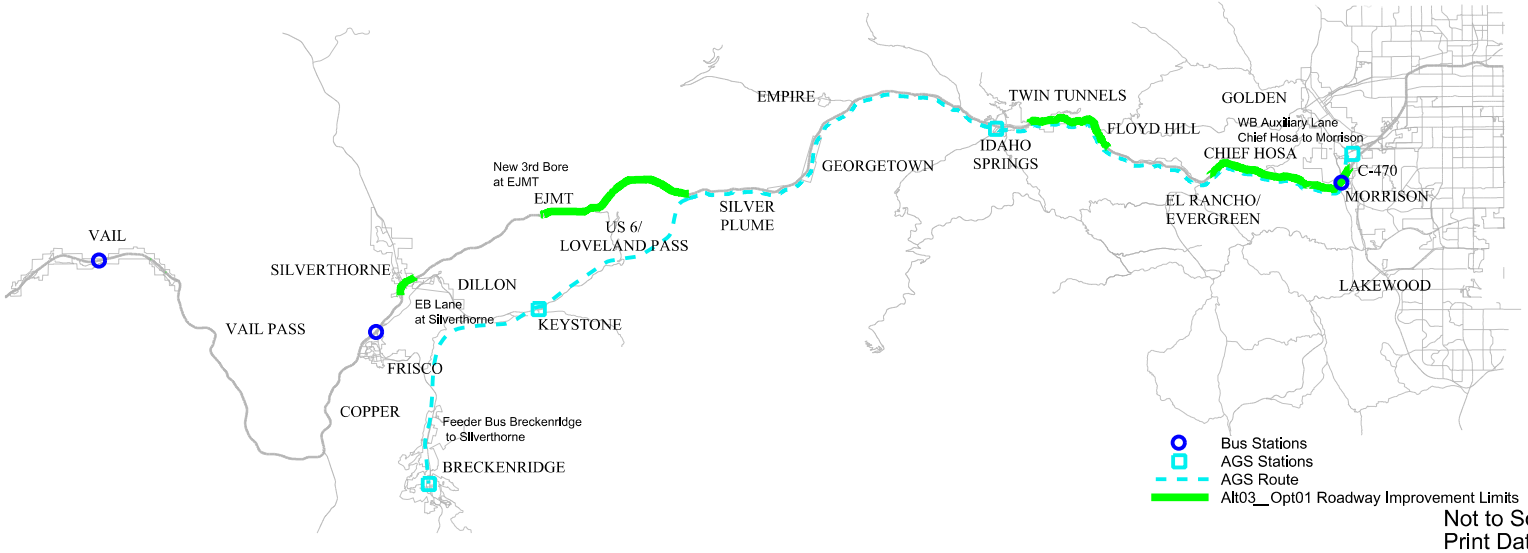
Special Structures

Special Structures	EJMT 3rd Bore

GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels GWS = Glenwood Springs



TYPICAL SECTION ALT03
NON-REVERSIBLE 6 LANE (NO TOLL)
BASED ON PEIS MINIMUM PROGRAM
APPROX LIMITS: EJMT TO BAKERVILLE, IDAHO SPRINGS TO FLOYD HILL



Not to Scale
Print Date: 1/16/2014

Alt03_Opt02

Minimum Program per PEIS

Minimum program per PEIS with 65 mph design speed including a 3rd bore at EJMT. Minimum program is generally localized auxiliary lane improvements.

Roadway Information

Extent of Roadway Improvements	EJMT to Floyd Hill
General Purpose (GP) Lane Information	Auxiliary lanes added at localized areas between interchanges
Direction of Improvements	Both directions (EB and WB)
Design Speed	65 mph
Trucks, Private Buses, BRT	Allowed in GP Lanes and auxiliary lanes
Tolling	
Capacity Improvements	No toll for auxiliary lanes
Tunnels	Dynamic priced toll for EJMT 3rd Bore, New & Twin Tunnels 3rd Lane
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2018 (Assumes 3 years NEPA)
Construction Duration	3 years
First Year Operation	2021
Financial Period	50 years

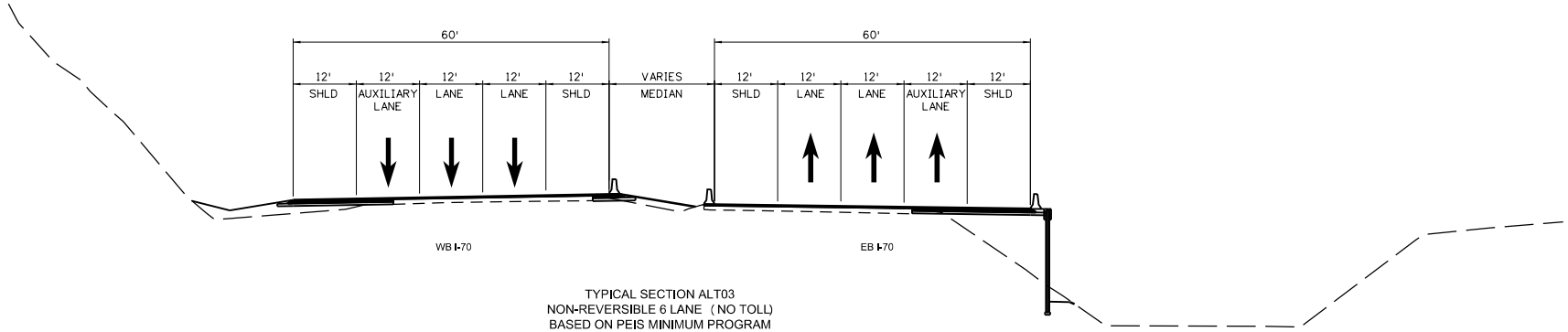
Transit Information

Termini	Silverthorne-Denver, Service to GWS (CDOT Bus), Breckenridge-Denver (AGS)
Special Infrastructure	AGS System; None for CDOT Bus
Schedule	Fall 2014 - CDOT Bus / After 2035 - AGS
Stations	6 CDOT Bus Stations - GWS, Eagle, Vail, Frisco, Denver (2); 5 AGS Stations
Type	
CDOT Bus	TBD by CDOT
BRT	N/A
AGS	In operation after 2035

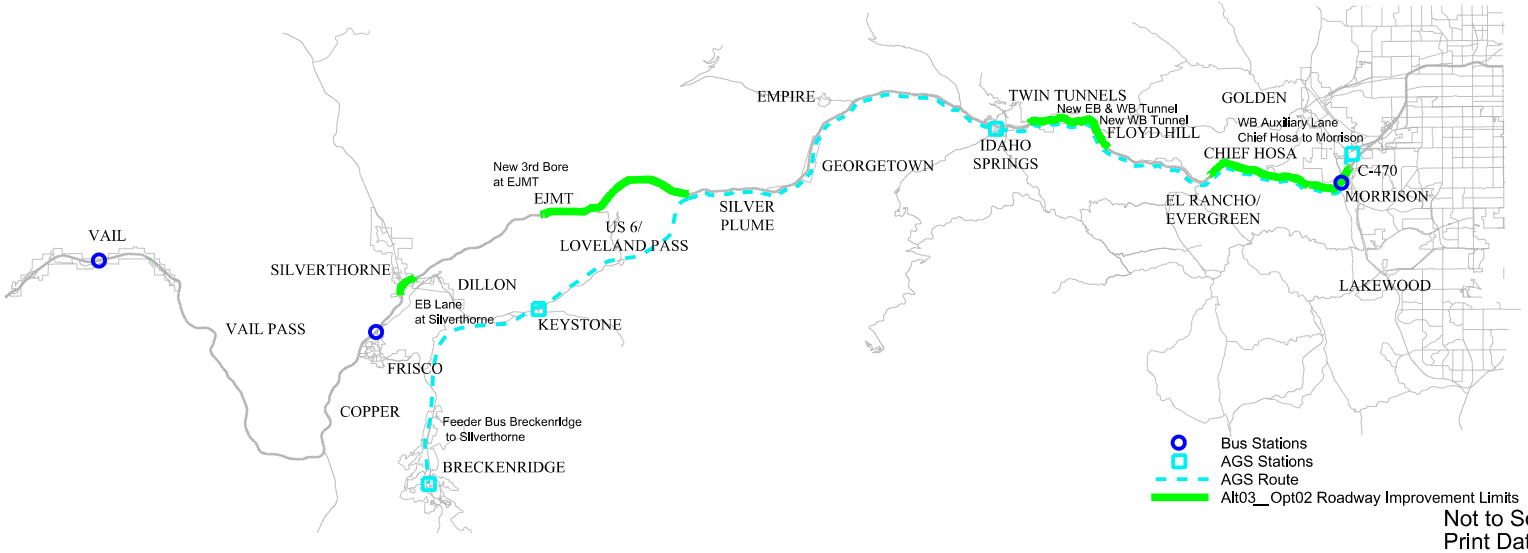
Special Structures

Special Structures	EJMT 3rd Bore
	New EB & WB Tunnel at Hidden Valley, New WB Tunnel near SH 6

GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels GWS = Glenwood Springs



TYPICAL SECTION ALT03
NON-REVERSIBLE 6 LANE (NO TOLL)
BASED ON PEIS MINIMUM PROGRAM
APPROX LIMITS: EJMT TO BAKERVILLE, IDAHO SPRINGS TO FLOYD HILL



Not to Scale
Print Date: 1/16/2014

Alt03_Opt03

Minimum Program per PEIS

Minimum program per PEIS with 55 mph design speed without a 3rd bore at EJMT. Minimum program is generally localized auxiliary lane improvements. Option is similar to Alt03_Opt01 without 3rd Bore EJMT.

Roadway Information

Extent of Roadway Improvements	EJMT to Floyd Hill
General Purpose (GP) Lane Information	Auxiliary lanes added at localized areas between interchanges
Direction of Improvements	Both directions (EB and WB)
Design Speed	55 mph
Trucks, Private Buses, BRT	Allowed in GP Lanes and auxiliary lanes
Tolling	
Capacity Improvements	No toll for auxiliary lanes
Tunnels	Dynamic priced toll for Twin Tunnels 3rd Lane
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2018 (Assumes 3 years NEPA)
Construction Duration	3 years
First Year Operation	2021
Financial Period	50 years

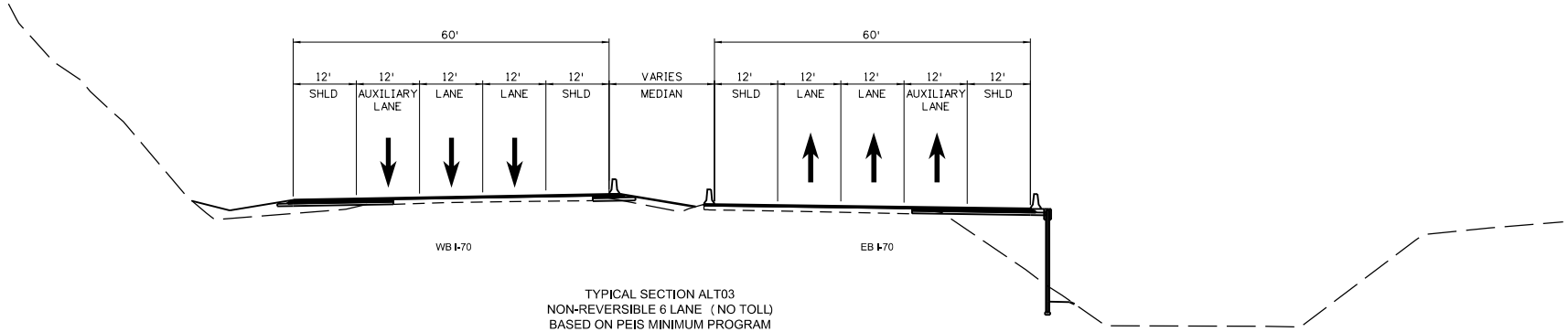
Transit Information

Termini	Silverthorne-Denver, Service to GWS (CDOT Bus), Breckenridge-Denver (AGS)
Special Infrastructure	AGS System; None for CDOT Bus
Schedule	Fall 2014 - CDOT Bus / After 2035 - AGS
Stations	6 CDOT Bus Stations - GWS, Eagle, Vail, Frisco, Denver (2); 5 AGS Stations
Type	
CDOT Bus	TBD by CDOT
BRT	N/A
AGS	In operation after 2035

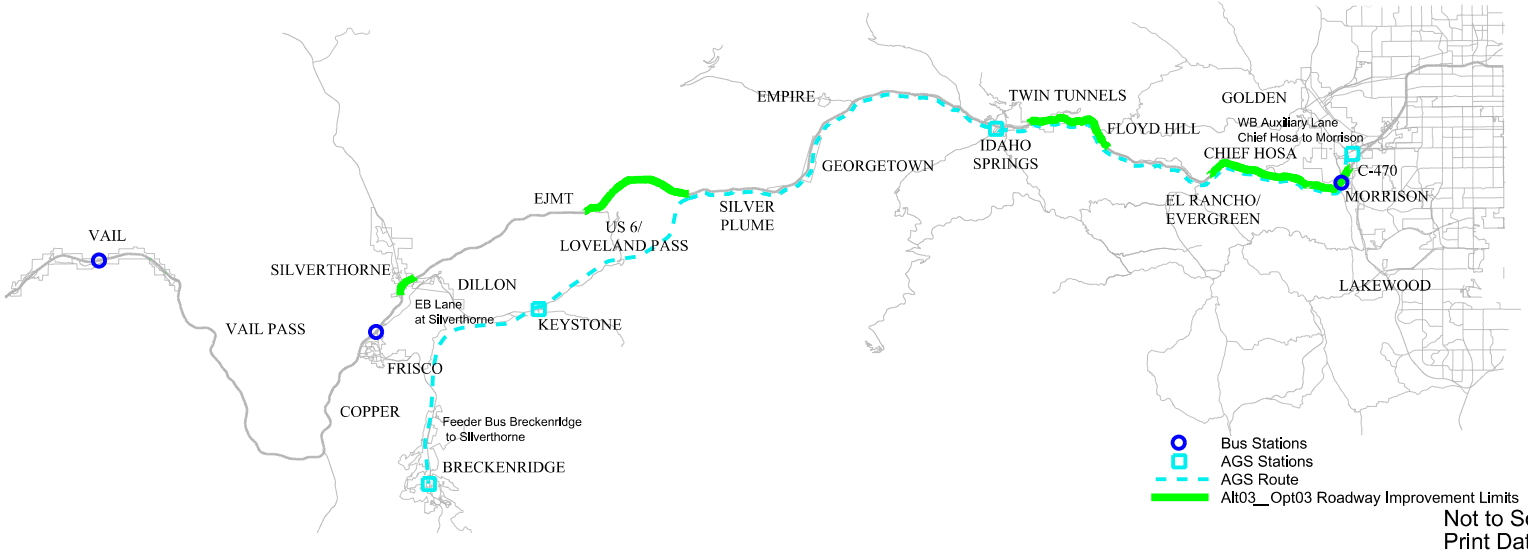
Special Structures

Special Structures	

GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels GWS = Glenwood Springs



TYPICAL SECTION ALT03
NON-REVERSIBLE 6 LANE (NO TOLL)
BASED ON PEIS MINIMUM PROGRAM
APPROX LIMITS: EJMT TO BAKERVILLE, IDAHO SPRINGS TO FLOYD HILL



Not to Scale
Print Date: 1/16/2014

Alt03_Opt04

Minimum Program per PEIS

Minimum program per PEIS with 65 mph design speed without a 3rd bore at EJMT. Minimum program is generally localized auxiliary lane improvements. Option is similar to Alt03_Opt02 without 3rd Bore EJMT.

Roadway Information

Extent of Roadway Improvements	EJMT to Floyd Hill
General Purpose (GP) Lane Information	Auxiliary lanes added at localized areas between interchanges
Direction of Improvements	Both directions (EB and WB)
Design Speed	65 mph
Trucks, Private Buses, BRT	Allowed in GP Lanes and auxiliary lanes
Tolling	
Capacity Improvements	No toll for auxiliary lanes
Tunnels	Dynamic priced toll for New & Twin Tunnels 3rd Lane
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2018 (Assumes 3 years NEPA)
Construction Duration	3 years
First Year Operation	2021
Financial Period	50 years

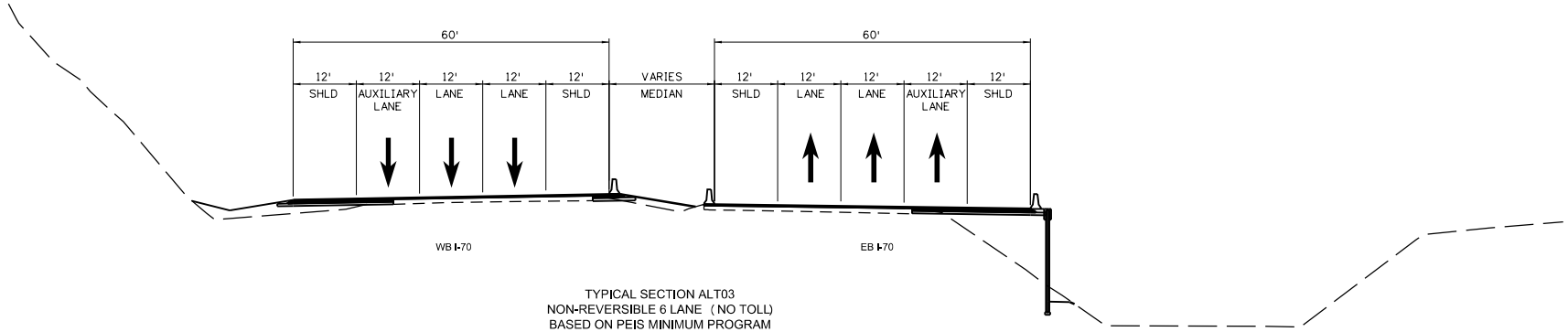
Transit Information

Termini	Silverthorne-Denver, Service to GWS (CDOT Bus), Breckenridge-Denver (AGS)
Special Infrastructure	AGS System; None for CDOT Bus
Schedule	Fall 2014 - CDOT Bus / After 2035 - AGS
Stations	6 CDOT Bus Stations - GWS, Eagle, Vail, Frisco, Denver (2); 5 AGS Stations
Type	
CDOT Bus	TBD by CDOT
BRT	N/A
AGS	In operation after 2035

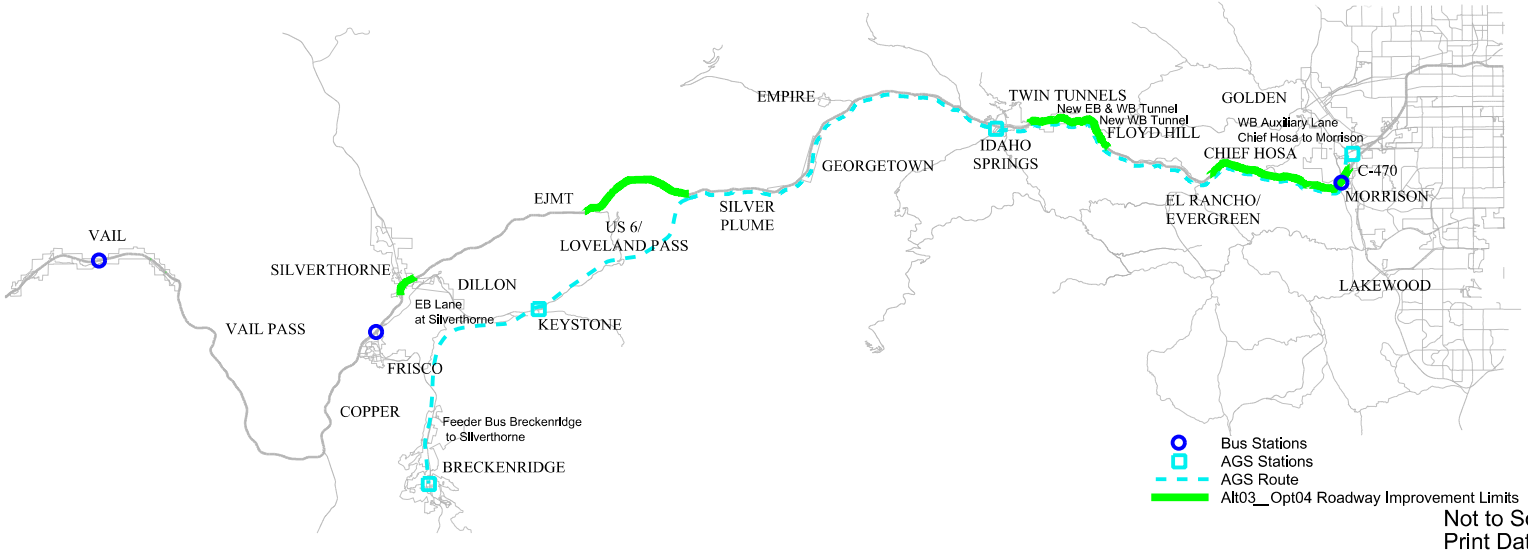
Special Structures

Special Structures	New EB & WB Tunnel at Hidden Valley, New WB Tunnel near SH 6

GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels GWS = Glenwood Springs



TYPICAL SECTION ALT03
NON-REVERSIBLE 6 LANE (NO TOLL)
BASED ON PEIS MINIMUM PROGRAM
APPROX LIMITS: EJMT TO BAKERVILLE, IDAHO SPRINGS TO FLOYD HILL



Not to Scale
Print Date: 1/16/2014

Alt04_Opt01

Maximum Program per PEIS

Maximum program per PEIS with 55 mph design speed including a 3rd bore at EJMT. Maximum program includes one additional non-reversible tolled lane (EB & WB) between EJMT and Floyd Hill.

Roadway Information

Extent of Roadway Improvements	EJMT to Floyd Hill
General Purpose (GP) Lane Information	Additional capacity by widening existing (Non-reversible)
Direction of Improvements	Both directions (EB and WB)
Design Speed	55 mph
Trucks, Private Buses, BRT	Allowed in Toll Lane (Always in GP Lanes)
Tolling	
Capacity Improvements	Dynamic priced toll for 3rd toll lane
Tunnels	Dynamic priced toll for EJMT 3rd Bore and Twin Tunnels 3rd Lane
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2018 (Assumes 3 years NEPA)
Construction Duration	4 years
First Year Operation	2022
Financial Period	50 years

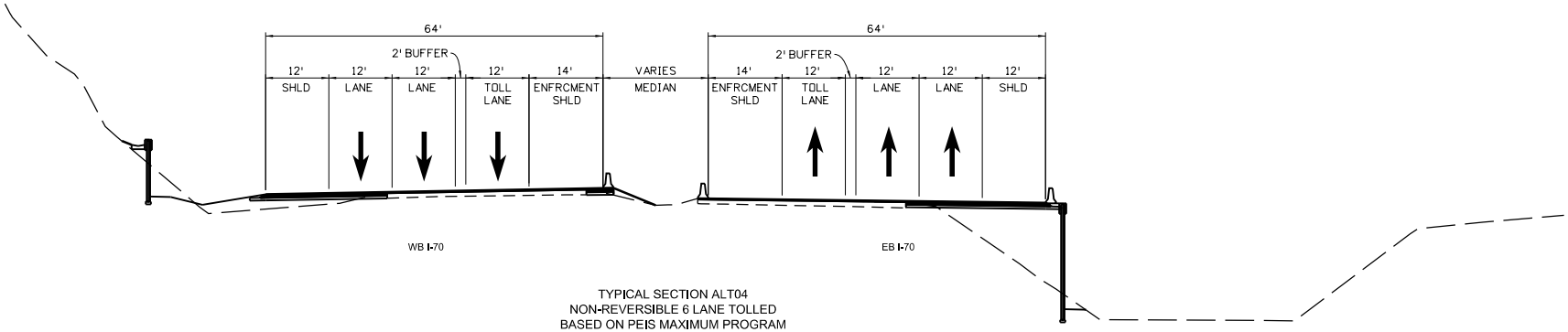
Transit Information

Termini	Silverthorne-Denver, Service to GWS (CDOT Bus), Breckenridge-Denver (AGS)
Special Infrastructure	AGS System; None for CDOT Bus
Schedule	Fall 2014 - CDOT Bus / After 2035 - AGS
Stations	6 CDOT Bus Stations - GWS, Eagle, Vail, Frisco, Denver (2); 5 AGS Stations
Type	
CDOT Bus	TBD by CDOT
BRT	N/A
AGS	In operation after 2035

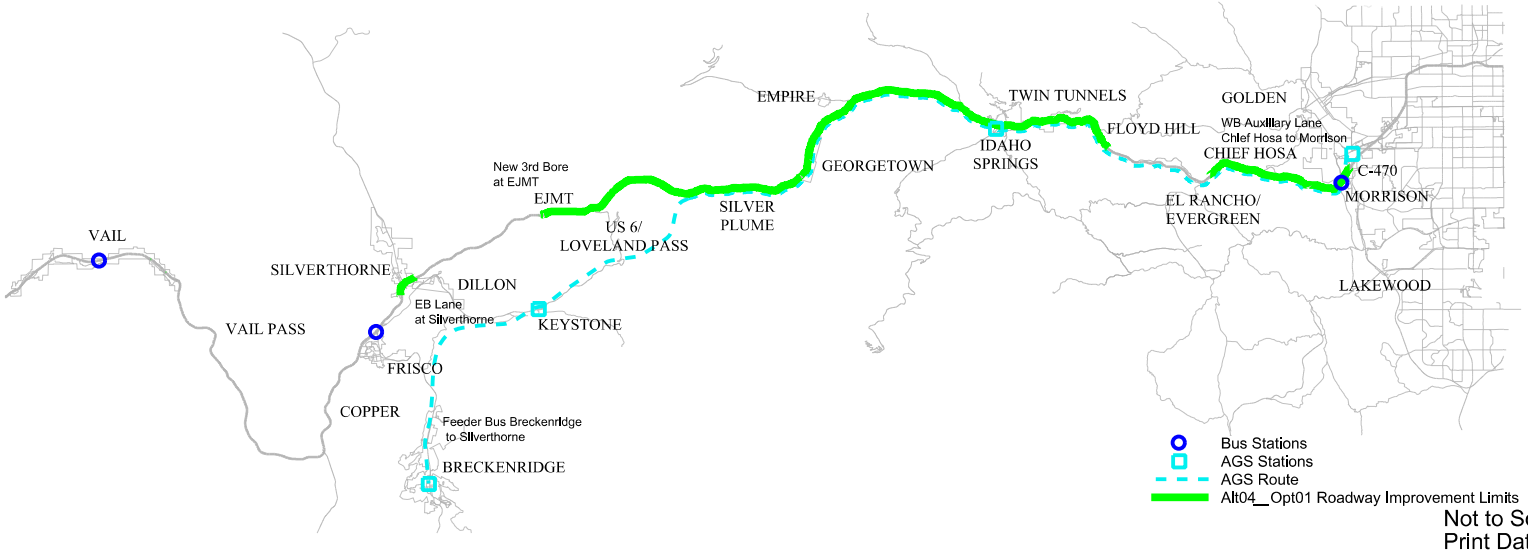
Special Structures

Special Structures	EJMT 3rd Bore

GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels GWS = Glenwood Springs



TYPICAL SECTION ALT04
NON-REVERSIBLE 6 LANE TOLLED
BASED ON PEIS MAXIMUM PROGRAM
APPROX LIMITS: EJMT TO FLOYD HILL



Not to Scale
Print Date: 1/16/2014

Alt04_Opt02

Maximum Program per PEIS

Maximum program per PEIS with 65 mph design speed including a 3rd bore at EJMT. Maximum program includes one additional non-reversible tolled lane (EB & WB) between EJMT and Floyd Hill.

Roadway Information

Extent of Roadway Improvements	EJMT to Floyd Hill
General Purpose (GP) Lane Information	Additional capacity by widening existing
Direction of Improvements	Both directions (EB and WB)
Design Speed	65 mph
Trucks, Private Buses, BRT	Allowed in Toll Lane (Always in GP Lanes)
Tolling	
Capacity Improvements	Dynamic priced toll for 3rd toll lane
Tunnels	Dynamic priced toll for EJMT 3rd Bore and New & Twin Tunnels 3rd Lane
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2018 (Assumes 3 years NEPA)
Construction Duration	4 years
First Year Operation	2022
Financial Period	50 years

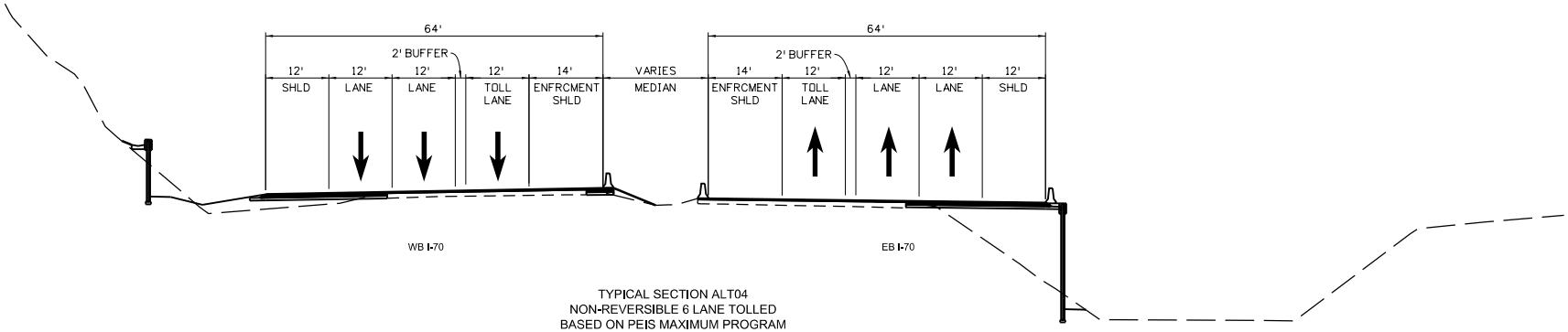
Transit Information

Termini	Silverthorne-Denver, Service to GWS (CDOT Bus), Breckenridge-Denver (AGS)
Special Infrastructure	AGS System; None for CDOT Bus
Schedule	Fall 2014 - CDOT Bus / After 2035 - AGS
Stations	6 CDOT Bus Stations - GWS, Eagle, Vail, Frisco, Denver (2); 5 AGS Stations
Type	
CDOT Bus	TBD by CDOT
BRT	N/A
AGS	In operation after 2035

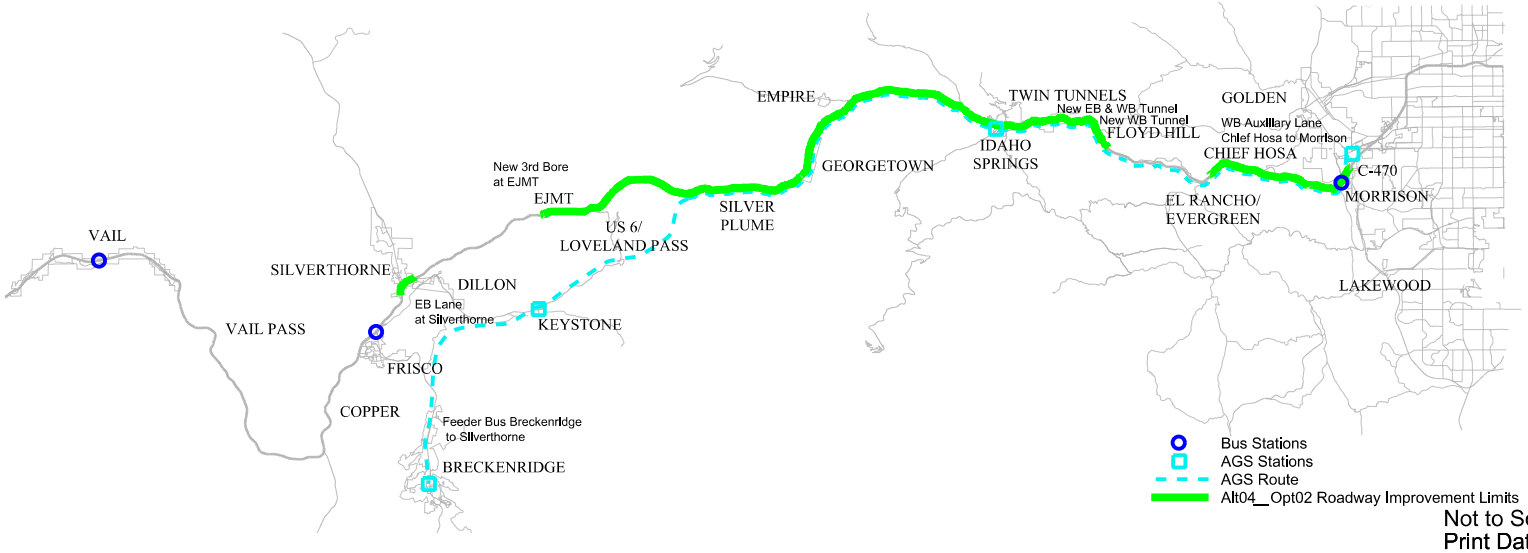
Special Structures

Special Structures	EJMT 3rd Bore
	New EB & WB Tunnel at Hidden Valley, New WB Tunnel near SH 6

GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels GWS = Glenwood Springs



TYPICAL SECTION ALT04
NON-REVERSIBLE 6 LANE TOLLED
BASED ON PEIS MAXIMUM PROGRAM
APPROX LIMITS: EJMT TO FLOYD HILL



Not to Scale
Print Date: 1/16/2014

Alt05_Opt01

Permanent Peak Period Shoulder Lane

Widen the existing roadway to accommodate one additional left side managed lane (EB & WB) for use during peak times, during non-peak times operates as a standard shoulder. Provide full width shoulder on right side.

Roadway Information

Extent of Roadway Improvements	EJMT to Floyd Hill
General Purpose (GP) Lane Information	Additional capacity by widening existing
Direction of Improvements	Both directions (EB and WB)
Design Speed	Match Existing
Trucks, Private Buses, BRT	Allowed in Peak Period Lane (Always in GP Lanes)
Tolling	
Capacity Improvements	Dynamic priced toll for EB & WB Peak Period Shoulder Lanes
Tunnels	Dynamic priced toll for EJMT 3rd Bore and Twin Tunnels 3rd Lane
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2019 (Assumes 4 years NEPA)
Construction Duration	4 years
First Year Operation	2023
Financial Period	50 years

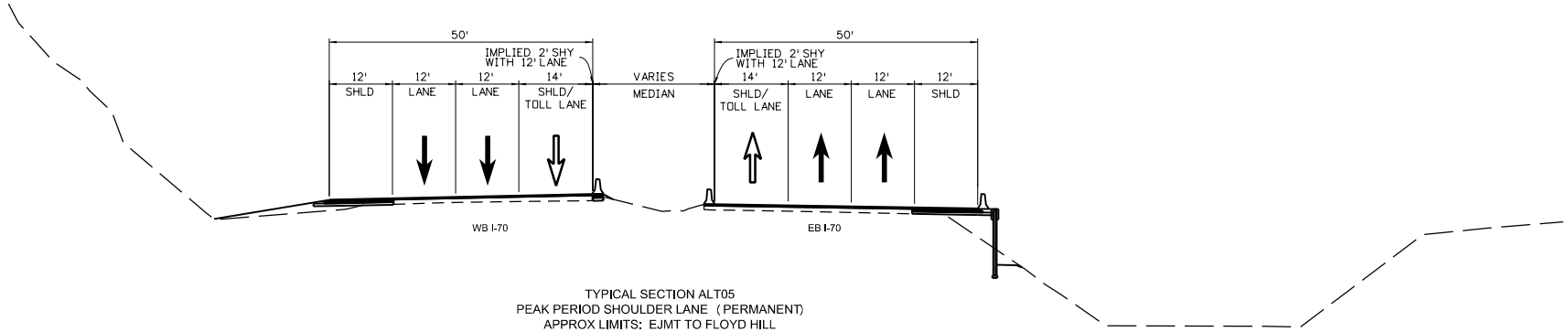
Transit Information

Termini	Silverthorne-Denver, Service to GWS (CDOT Bus), Breckenridge-Denver (AGS)
Special Infrastructure	AGS System; None for CDOT Bus
Schedule	Fall 2014 - CDOT Bus / After 2035 - AGS
Stations	6 CDOT Bus Stations - GWS, Eagle, Vail, Frisco, Denver (2); 5 AGS Stations
Type	
CDOT Bus	TBD by CDOT
BRT	N/A
AGS	In operation after 2035

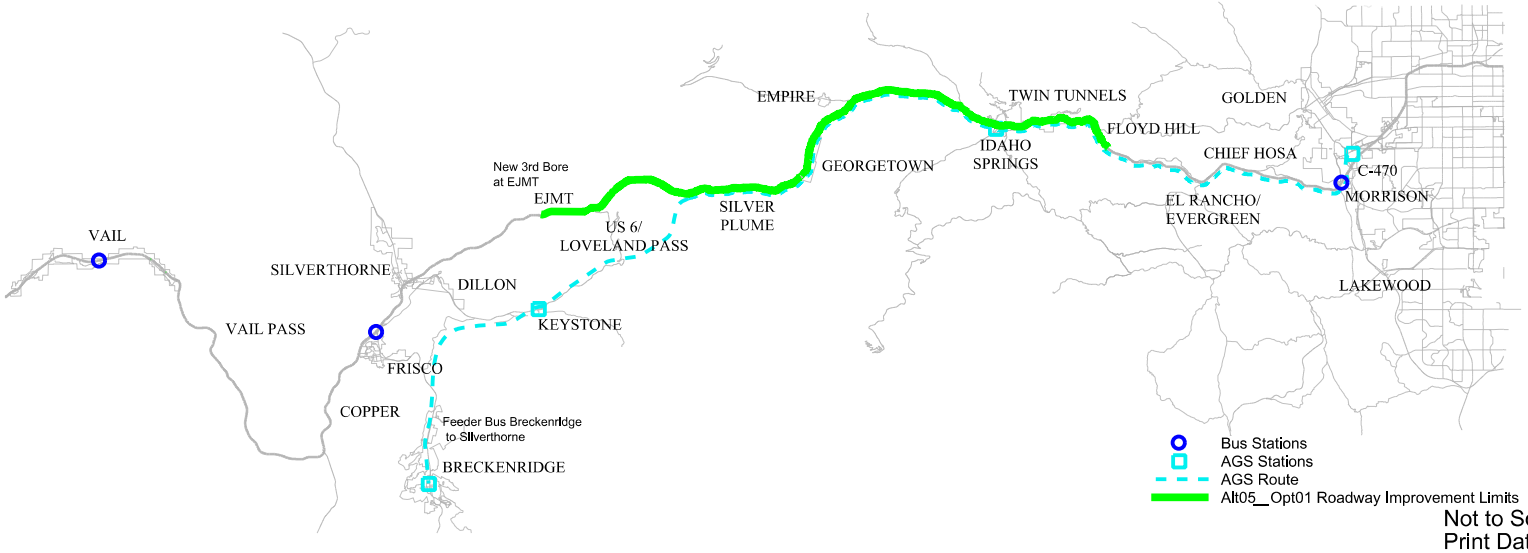
Special Structures

Special Structures	EJMT 3rd Bore

GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels GWS = Glenwood Springs



TYPICAL SECTION ALT05
PEAK PERIOD SHOULDER LANE (PERMANENT)
APPROX LIMITS: EJMT TO FLOYD HILL



Not to Scale
Print Date: 1/16/2014

Alt06_Opt01

Temporary Peak Period Shoulder Lane

Using the existing roadway, accommodate one additional WB left side managed lane for use during peak times; during non-peak times operates as a standard shoulder. No twelve foot wide shoulders are available during peak periods. During non-peak periods, twelve foot breakdown shoulder is on left side instead of right. Construction of WB peak period lane from Empire to Floyd Hill only. (This alternative assumes EB direction peak period lane from Empire to Floyd Hill is constructed.)

Roadway Information

Extent of Roadway Improvements	Empire to Floyd Hill
General Purpose (GP) Lane Information	Additional capacity by restriping existing
Direction of Improvements	WB Only Direction
Design Speed	Match Existing
Trucks, Private Buses, BRT	Allowed in Peak Period Lane (Always in GP Lanes)
Tolling	
Capacity Improvements	Dynamic priced toll for EB & WB Peak Period Shoulder Lanes
Tunnels	Dynamic priced toll for Twin Tunnels 3rd Lanes
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2016 (Assumes 1.5 years NEPA)
Construction Duration	3 years
First Year Operation	2019
Financial Period	50 years

Transit Information

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Special Structures	

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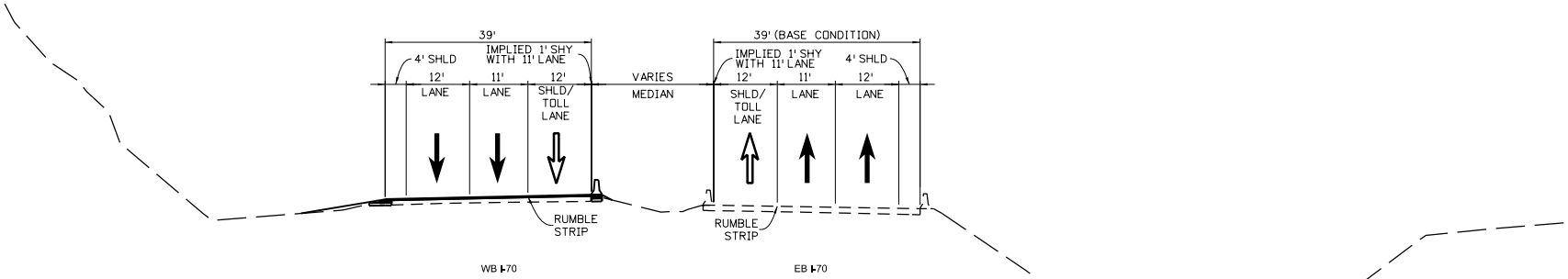
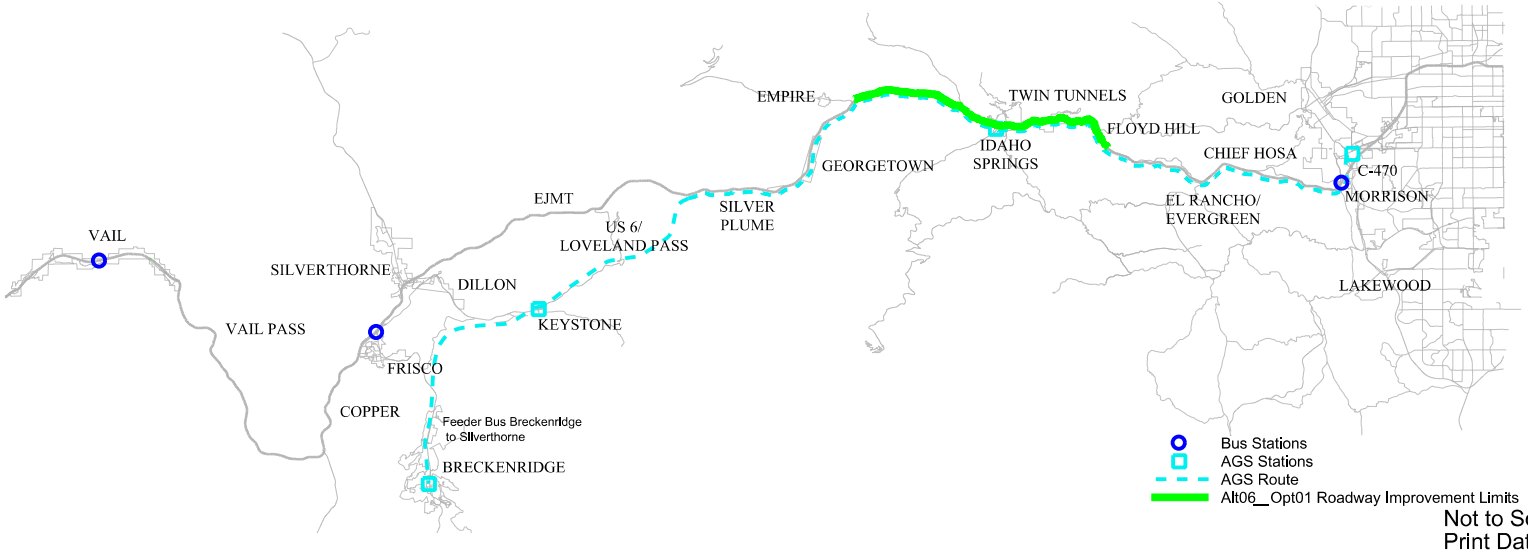


TYPICAL SECTION ALT06__OPT01
PEAK PERIOD SHOULDER LANE (TEMPORARY)
APPROX LIMITS: WB I-70 EMPIRE TO FLOYD HILL



Not to Scale
Print Date: 1/16/2014

I-70 Traffic & Revenue Study **June 25, 2014**

Technical Team Meeting **Silverthorne, CO**

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