I-70 Mountain Corridor CSS
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I-70 Mountain Corridor CSS
Alternative Evaluation Guidance

Introduction

The Context Statement and Core Values developed through the I-70 Mountain Corridor Context Sensitive Solutions (CSS) process have generated the following table of example criteria for alternatives evaluation. The Context Statement, Core Values, and project -specific purpose and need are the basis for selection and customization of these criteria.

Stakeholder comments provided the foundation for the Context Statement and Core Values, and each has been vetted through agency and public stakeholders for approval. To that end, these documents have broad support and are widely accepted throughout the I-70 Mountain Corridor.

It is important to note that the list of potential criteria herein does not replace scoping activities, the Purpose and Need required by the National Environmental Policy Act (NEPA), or guidance given in the Colorado Department of Transportation (CDOT) NEPA Manual. Rather, it provides continuity and acknowledges the years of active participation by stakeholders in studies along the corridor. It also results in early and effective integration of the Core Values into the process, thereby minimizing costs and delays.

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Feasibility-Level Evaluation	
Criteria	**How could we measure it?**
Sustainability	
A. Is the alternative compatible with local sustainability plans?	A. (YES/NO)
B. Is the alternative compatible with the State of Colorado Climate Action Plan?	B. (YES/NO)
C. Does this alternative preserve future transportation options?	C. (YES/NO)
Safety	
A. Can this idea improve safety?	A. (YES/NO)

Concept-Level Evaluation	
Criteria	**How could we measure it?**
Sustainability	
A. How compatible is the alternative with local sustainability plans?	A. ● ◐ ○ (GOOD/FAIR/POOR)
B. How compatible is the alternative with the State of Colorado Climate Action Plan?	B. ● ◐ ○ (GOOD/FAIR/POOR)
C. How well does this alternative reduce maintenance costs?	C. ● ◐ ○ (GOOD/FAIR/POOR)
D. What is the capital cost of this alternative?	D. ● ◐ ○ (LOW/MEDIUM/HIGH)
Safety	
A. How well does the alternative reduce the number of or improve hazardous locations?	A. ● ◐ ○ (GOOD/FAIR/POOR)
B. How well does alternative follow current design standards?	B. ● ◐ ○ (GOOD/FAIR/POOR)

Detailed-Level Evaluation	
Criteria Measures	**How could we measure it?**
Sustainability	
Detailed-Level Criteria Measures will measure specific items, will be quantitative more than qualitative, and will help further support and answer the criteria questions asked during the Concept-Level Evaluation. The sustainability criteria will help determine how well an alternative creates a solution for today that does not diminish resources for future generations.	A. Capital cost of the alternative ($) B. Operations and maintenance costs of the alternative ($)
Safety	
Detailed-Level Criteria Measures will measure specific items, will be quantitative more than qualitative, and will help further support and answer the criteria questions asked during the Concept-Level Evaluation. The safety criteria will help determine how well an alternative is able to enhance safety in the I-70 Mountain Corridor.	A. Number of improved high-accident locations B. Number of ALIVE MOU recommendations implemented C. Number of improved rock slide and avalanche areas

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Feasibility-Level Evaluation		Concept-Level Evaluation		Detailed-Level Evaluation	
Criteria	**How could we measure it?**	**Criteria**	**How could we measure it?**	**Criteria Measures**	**How could we measure it?**
Healthy Environment		**Healthy Environment**		**Healthy Environment**	
A. Can adverse environmental impacts be avoided, minimized, or mitigated?	A. (YES/NO)	A. How well can adverse environmental impacts be avoided?	a. ● ◐ ○ (GOOD/FAIR/POOR)	Detailed-Level Criteria Measures will measure specific items, will be quantitative more than qualitative, and will help further support and answer the criteria questions asked during the Concept-Level Evaluation. The healthy environment criteria will help determine how well an alternative is able to preserve, restore, and enhance natural resources and ecosystems. The healthy environment criteria are a proxy for the overall goal of avoiding, minimizing, and mitigating impacts. For example, a significant increase in acres of new right-of-way impacted indicates that more biological resources may be impacted. These impacts could be mitigated, however, if a solution provides the same access and mobility with significantly fewer acres of new right-of-way. This may be a solution that minimizes or even avoids impacts to biological resources. Some measures, such as hours of LOS C per day, indicate environmental goals for improved noise levels.	<u>Biological Resources</u> A. Acres of riparian habitat disturbed B. Total acres of new right-of-way. Of the new right-of way: • Number of acres of impact to indicator species habitat • Number of acres of native vegetation • Number of acres of 6f • Number of acres of 4f • Number of acres of already disturbed land • Number of acres of wetlands C. Number of ALIVE MOU recommendations implemented <u>Air Quality</u> A. Hours of delay at signalized intersections <u>Noise</u> A. Hours of LOS C per day <u>Mine Waste</u> A. Cubic yards of disturbed mine waste <u>Threatened and Endangered Species</u> A. Number of acres of T&E habitat disturbed B. Number of new habitat connections
B. Can impacts to irreplaceable natural resources (e.g., wetlands or Gold Medal Fisheries) be avoided?	B. (YES/NO)	B. How well can adverse environmental impacts be minimized?	b. ● ◐ ○ (GOOD/FAIR/POOR)		
		C. How well can adverse environmental impacts be mitigated?	c. ● ◐ ○ (GOOD/FAIR/POOR)		
		D. Can this alternative be built within the existing right-of-way?	d. ● ◐ ○ (YES/SOMEWHAT/NO)		
		E. How well does the alternative contribute toward local watershed initiatives?	e. ● ◐ ○ (GOOD/FAIR/POOR)		
		F. How well does the alternative contribute toward the SWEEP MOU goals?	f. ● ◐ ○ (GOOD/FAIR/POOR)		
		G. How well does the alternative contribute toward the ALIVE MOU goals?	g. ● ◐ ○ (GOOD/FAIR/POOR)		

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Feasibility-Level Evaluation		Concept-Level Evaluation		Detailed-Level Evaluation	
Criteria	**How could we measure it?**	**Criteria**	**How could we measure it?**	**Criteria Measures**	**How could we measure it?**
					<u>Water Resources</u> A. Number of SWEEP MOU goals advanced <u>Wetlands</u> A. Number of acres of wetlands impacted (quality of wetlands to be noted). <u>Recreation Resources</u> A. Number of acres of recreation resources impacts. Including: • Number of acres of 4f • Number of acres of 6f • Number of acres of publicly owned lands • Number of acres of streams

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Feasibility-Level Evaluation	
Criteria	**How could we measure it?**
Historic Context	
A. Can impacts to historic resources be avoided, minimized, or mitigated?	A. (YES/NO)
Communities	
A. Is the alternative compatible with local land use plans?	A. (YES/NO)

Concept-Level Evaluation	
Criteria	**How could we measure it?**
Historic Context	
A. How well does the alternative support the communities' investments in and goals for historic resources?	A. ● ◐ ○ (GOOD/FAIR/POOR)
B. How compatible is the alternative with adopted heritage tourism plans?	B. ● ◐ ○ (GOOD/FAIR/POOR)
Communities	
A. What is the level of community support?	A. ● ◐ ○ (GOOD/FAIR/POOR)
B. How compatible is the alternative with adopted local land use plans?	B. ● ◐ ○ (GOOD/FAIR/POOR)

Detailed-Level Evaluation	
Criteria Measures	**How could we measure it?**
Historic Context	
Detailed-Level Criteria Measures will measure specific items, will be quantitative more than qualitative, and will help further support and answer the criteria questions asked during the Concept-Level Evaluation. The historic context criteria will help determine how well an alternative contributes to and is compatible with the human-made past that creates the corridor's sense of place and is the foundation of the corridor's character.	A. Number of potentially eligible historic properties impacted
Communities	
Detailed-Level Criteria Measures will measure specific items, will be quantitative more than qualitative, and will help further support and answer the criteria questions asked during the Concept-Level Evaluation. The criteria related to communities will help determine how well an alternative respects the individuality of communities and promotes their viability.	A. How well does this alternative support current and ongoing economic investments in the community? (GOOD/FAIR/POOR) B. How well is this alternative supported by the community? (GOOD/FAIR/POOR)

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Feasibility-Level Evaluation	
Criteria	**How could we measure it?**
Mobility and Accessibility	
A. Does the alternative improve mobility?	A. (YES/NO)
B. Is this alternative compatible with the existing and planned transportation system?	B. (YES/NO)
C. Does this alternative provide access for local trips?	C. (YES/NO)
D. Does this alternative provide for regional mobility?	D. (YES/NO)
Aesthetics	
No specific aesthetics criteria are used to evaluate alternatives at the feasibility level.	

Concept-Level Evaluation	
Criteria	**How could we measure it?**
Mobility and Accessibility	
A. How well does the alternative improve mobility?	A. ● ◐ ○ (GOOD/FAIR/POOR)
B. How well does the alternative eliminate barriers to non-motorized mobility?	B. ● ◐ ○ (GOOD/FAIR/POOR)
C. How well does the alternative address cut-through traffic?	C. ● ◐ ○ (GOOD/FAIR/POOR)
D. How well does the alternative promote efficient freight movement?	D. ● ◐ ○ (GOOD/FAIR/POOR)
Aesthetics	
A. How consistent is the alternative with the Aesthetic Guidance?	A. ● ◐ ○ (GOOD/FAIR/POOR)

Detailed-Level Evaluation	
Criteria Measures	**How could we measure it?**
Mobility and Accessibility	
Detailed-Level Criteria Measures will measure very specific items, will be quantitative more than qualitative, and will help further support and answer the criteria questions asked during the Concept-Level Evaluation. The mobility and accessibility criteria will help determine how well an alternative addresses local, regional, and national travel while providing reliable, efficient interconnectivity between systems and communities.	A. Projected LOS and average peak-hour speed B. Projected ADT at key locations C. Projected number of person trips on alternate modes D. Projected number of new transit route miles E. Projected number of person trips across the Continental Divide
Aesthetics	
Detailed-Level Criteria Measures will measure specific items, will be quantitative more than qualitative, and will help further support and answer the criteria questions asked during the Concept-Level Evaluation. The aesthetics criteria will help determine whether an alternative was inspired by the surroundings, protects scenic integrity, and incorporates the context of the I-70 Mountain Corridor.	A. How well does this alternative support the goals of the Aesthetic Guidance? (GOOD/FAIR/POOR)

Feasibility-Level Evaluation

Overview

Feasibility evaluation focuses on eliminating alternative(s) that do not meet purpose and need or are infeasible (i.e., have fatal flaws). The alternatives are evaluated for unacceptable environmental impacts and incompatibility with local, state, and corridor plans.

Feasibility-Level Evaluation Criteria

The following questions will be asked about each alternative and will be answered YES or NO. The YES or NO answer will be the measure to determine if an alternative advances to Concept-Level Evaluation.

Alternatives receiving all YES answers will be advanced to Concept-Level Evaluation. Any alternatives with a NO answer will be reviewed. These alternatives may be best forwarded to other planning studies. Some alternatives may be great solution elements when combined with other alternatives. And some alternatives may best be forwarded to city, county and state groups to address.

If an alternative receives a NO answer and it can add no value to a final recommendation, then the alternative will be considered to have a fatal flaw and that alternative will be eliminated.

Sustainability

Is the alternative compatible with local sustainability plans?

Intent -- The purpose of this criterion is to provide a basis for advancing an alternative that is compatible with local sustainability plans. Comments for each alternative will be prepared as to how the current and ongoing sustainability planning in the community are impacted -- positively or negatively. This question will also help in a discussion of what it would take to make an alternative compatible with local sustainability goals and objectives, thus helping to give definition to compatible ideas.

Measure -- YES or NO

Is the alternative compatible with the State of Colorado Climate Action Plan?

Intent -- The purpose of this criterion is to provide a basis for advancing an alternative that is compatible with statewide sustainability plans. Comments for each alternative will be prepared as to how the current and ongoing sustainability planning in the state are impacted -- positively or negatively. This question will also help in a discussion of what it would take to make an alternative compatible with state sustainability goals and objectives, thus helping to give definition to compatible ideas.

Measure -- YES or NO

Does this alternative preserve future transportation options?

Intent -- The purpose of this criterion is to provide a basis for advancing an alternative that is compatible with future transportations systems. The Core Values and Context Statement for the I-70 Mountain Corridor state that alternatives must foster and nurture new ideas to address the challenges in the corridor. This question will help in a discussion of what it would take to make an alternative compatible with future travel needs and travel options.

Measure -- YES or NO

Safety

Can this idea improve safety?

Intent -- The purpose of this criterion is to provide a basis for advancing an alternative that can improve safety. This question reflects the Core Value of enhancing safety. At this level, the lack of alternatives definitions hampers the ability to answer this question with an absolute. However, this question will eliminate any alternative that clearly cannot improve safety in any way. Or, this question may identify such an alternative as a strategy comprising a part of an alternative rather than a standalone solution.

Measure -- YES or NO

Healthy Environment

Can adverse environmental impacts be avoided, minimized, or mitigated?

Intent -- The purpose of this criterion is to provide a basis for advancing an alternative that has resolvable environmental impacts. This question will eliminate alternatives that have “fatal flaws” or irresolvable environmental impacts.

Measure -- YES or NO

Can impacts to irreplaceable natural resources (e.g., FENS wetlands or Gold Medal Fisheries) be avoided?

Intent -- The purpose of this criterion is to provide a basis for advancing an alternative that does not impact irreplaceable natural resources. Irreplaceable natural resources will be established based on the “no impact areas” identified in the I-70 PEIS. This question will eliminate alternatives that have “fatal flaws” or irresolvable environmental impacts.

Measure -- YES or NO

Historic Context

Can impacts to historic resources be avoided, minimized, or mitigated?

Intent -- The purpose of this criterion is to provide a basis for advancing an alternative with resolvable impacts to historic resources. This question will eliminate alternatives that have "fatal flaws" or irresolvable impacts to historic resources.

Measure -- YES or NO

Communities

Is the alternative compatible with local land use plans?

Intent -- The purpose of this criterion is to provide a basis for advancing an alternative that is compatible with local land use plans. Comments for each alternative will be prepared as to how current and ongoing local land use planning are impacted -- positively or negatively. This question will also help in a discussion of what it would take to make an alternative compatible with local goals and objectives, thus helping to give definition to compatible ideas.

Measure -- YES or NO

Mobility and Accessibility

Does the alternative improve mobility?

Intent -- The purpose of this criterion is to provide a basis for advancing an alternative that improves mobility in the I-70 Mountain Corridor. The Core Values state the desire to balance the needs of various trips within the area and to provide access to destinations within the area. This criterion addresses the mobility of people and goods. The question simply measures whether an alternative would improve the mobility of the interstate, regional, and local trips and help travelers reach their destinations sooner.

Measure -- YES or NO

Is this alternative compatible with the existing and planned transportation system?

Intent -- The purpose of this criterion is to provide a basis for advancing an alternative that is compatible with existing and planned transportation systems. This question addresses a concern that an alternative could be in conflict with the existing and planned systems. Existing and planned transportation systems have been developed based on existing land use and planned land use determined to maximize the communities' resources and goals. The planned land use patterns in the Transportation Elements of Master Plans has considered the connections and effects land use and

transportation facilities have on one another. Therefore, this question is asked so that alternatives that would not be compatible with existing plans are eliminated. Alternatives that are not *in* current plans, but that would be *compatible* with plans will be advanced.

Measure -- YES or NO

Does this alternative provide access for local trips?

Intent -- The purpose of this criterion is to provide a basis for advancing an alternative that improves local mobility in the I-70 Mountain Corridor. The Core Values state the desire to balance the needs of various trips within the area and to provide access to destinations within the area. This question simply measures whether an alternative would improve mobility for local trips.

Measure -- YES or NO

Does this alternative provide for regional mobility?

Intent -- The purpose of this criterion is to provide a basis for advancing an alternative that improves regional mobility in the I-70 Mountain Corridor. The Core Values state the desire to balance the needs of various trips within the area and to provide access to destinations within the area. This question simply measures whether an alternative would improve the mobility of regional trips.

Measure -- YES or NO

Concept-Level Evaluation

Overview
Conceptual evaluation is used to compare alternatives and measure how well an alternative achieves the Core Values of the project.

Concept-Level Evaluation Criteria
For each alternative that is forwarded on from the Feasibility-Level Evaluation, the following questions will be asked. The questions will be answered using a three-tiered rating system. Each criterion has a definition and actual measurement (i.e., good/fair/poor, high/medium/low, or yes/somewhat/no).

These questions will be answered using the following rankings:

GOOD/HIGH/YES	●
FAIR/MEDIUM/SOMEWHAT	◐
POOR/LOW/NO	○

The purpose of Concept-Level Evaluation is to look at each alternative and compare it with other alternatives in the same category, rate the alternative's ability to meet the project's Core Values and project goals, and address the stated concerns. The evaluation will give all project participants the opportunity to discuss the alternatives, how they meet the project's Core Values, and how they might be improved to better meet project goals.

Sustainability

How compatible is the alternative with local sustainability plans?

Intent -- The purpose of this criterion is to provide a basis for evaluating to what level an alternative is compatible with local sustainability plans. Comments for each alternative will be prepared as to how current and ongoing sustainability planning are impacted -- positively or negatively. This question will also help in a discussion of what it would take to make an alternative compatible with local sustainability goals and objectives, thus helping to give definition to compatible ideas.

Measure -- The measurement will be GOOD/FAIR/POOR. If an alternative is compatible with local sustainability plans, then it will be rated with a GOOD. If an alternative is only partially compatible with local sustainability plans and/or concerns have been recorded through the project process about this alternative, it will be rated with a FAIR. And, if there is no support that an alternative is compatible with local sustainability plans, it will be rated with a POOR.

How compatible is the alternative with the State of Colorado Climate Action Plan?

Intent -- The purpose of this criterion is to provide a basis for evaluating to what level an alternative is compatible with the statewide sustainability plan. Comments for each alternative will be prepared as to how current and ongoing sustainability planning in the state are impacted -- positively or negatively. This question will also help in a discussion of what it would take to make an alternative compatible with state sustainability goals and objectives, thus helping to give definition to compatible ideas.

Measure -- The measure will be GOOD/FAIR/POOR. An alternative that is GOOD meets all of the actions related to transportation systems that are detailed in the State of Colorado Climate Action Plan. A FAIR rating would indicate an alternative that might require some variances from the current action plan, though these variances may be minor or commonly requested and, therefore, consistent with the overall goals of the plans. An alternative that receives a POOR rating is one that has many and serious issues in meeting the action plan.

How well does this alternative reduce maintenance costs?

Intent -- The purpose of this criterion is to provide a basis for evaluating whether an alternative can reduce maintenance costs. The objective of this criterion is to provide a way to evaluate an alternative's level of sustainability. One key component of a sustainable alternative is reduced maintenance costs.

Measure -- To measure each alternative for its ability to reduce maintenance costs, issues such as increased lane miles and improved conditions will be considered. The measure will be GOOD/FAIR/POOR. A concept that would lower maintenance costs would be rated GOOD for this criterion.

What is the capital cost of this alternative?

Intent -- The purpose of this criterion is to provide a basis for evaluating what it will cost to implement an alternative. The objective of this criterion is to provide a way to evaluate an alternative's level of sustainability. One key component of a sustainable alternative will be the financial ability of the stakeholders, the communities, and CDOT to implement it.

Measure -- A table of construction costs will be prepared for each type of construction. Using this table and reviewing the alternative, an assessment will be made that indicates an overall LOW/MEDIUM/HIGH cost for the concept (in this measurement, HIGH COST would be rated poorly).

Safety

How well does the alternative reduce the number of or improve hazardous locations?

Intent -- The purpose of this criterion is to provide a basis for evaluating to what level an alternative can improve safety. A map of the high crash locations will be prepared. Each alternative will be evaluated based on its ability to improve existing high crash locations. It is assumed that if an alternative makes any improvements within the area of an existing high crash location, the improvements would address the reasons for the crashes.

Measure -- GOOD/FAIR/POOR will be the measurement used. GOOD meaning that most or all of the existing high-crash locations are within the influence of the alternative. A FAIR rating will be used when an alternative makes changes in only some of the high-crash locations, some being around half. The POOR rating will be used when an alternative makes changes in very few or none of the existing high-crash locations.

High-crash locations are defined as those interchanges, intersections, and stretches of road with accident rates at 80% and higher of the states average crash rate for that type of facility.

It is noted that improvements in the area of a location not meeting this criterion may address crash problems.

How well does alternative follow current design standards?

Intent -- This criterion measures each alternative against the current design standards for construction of highways, roads, interchanges, intersections, and transit. The Technical Team will review each concept for consistency with current design standards.

Measure -- The measure will be GOOD/FAIR/POOR. An alternative that is GOOD meets all of the current design standards. A FAIR rating would indicate an alternative that might require some variances from current design standards. However, these variances may be minor or commonly requested and, therefore, consistent with the overall goals of the standards. An alternative that receives a POOR rating is one that has many and serious issues in meeting the current design standards.

Healthy Environment

How well can adverse environmental impacts be avoided?

Intent -- The purpose of this criterion is to provide a basis for evaluating to what level an alternative can avoid environmental impacts.

Measure -- The measure will be GOOD/FAIR/POOR. An alternative that is GOOD avoids all environmental impacts. A FAIR rating would indicate an alternative that might require some environmental impacts, which may be minor and can be minimized or mitigated. An alternative that receives a POOR rating is one that presents many and serious environmental impacts.

How well can adverse environmental impacts be minimized?

Intent -- The purpose of this criterion is to provide a basis for evaluating to what level an alternative can minimize environmental impacts.

Measure -- The measure will be GOOD/FAIR/POOR. An alternative that is GOOD is one in which all environmental impacts can be minimized. A FAIR rating would indicate an alternative that might require some environmental impacts that would be difficult to minimize. An alternative that receives a POOR rating is one that has many and serious environmental impacts that are difficult to minimize.

How well can adverse environmental impacts be mitigated?

Intent -- The purpose of this criterion is to provide a basis for evaluating to what level an alternative can mitigate environmental impacts.

Measure -- The measure will be GOOD/FAIR/POOR. An alternative that is GOOD is one in which all environmental impacts can be mitigated. A FAIR rating would indicate an alternative that might require some environmental impacts that would difficult to mitigate. An alternative that receives a POOR rating is one that has many and serious environmental impacts that are difficult to mitigate. If an alternative receives a POOR rating, serious consideration should be given to not advancing the alternative to the Detailed Level evaluation.

Can this alternative be built within the existing right-of-way?

Intent -- The purpose of this criterion is to provide a basis for evaluating to what level an alternative may have environmental impacts. This criterion is a proxy for the overall goal of avoiding, minimizing, and mitigating environmental impacts. For example, a significant increase in acres of new right-of-way impacted indicates that more environmental resources may be impacted.

Measure -- This question will be answered YES/SOMEWHAT/NO for each alternative. Each concept will have a defined right-of-way 'footprint,' if that is appropriate. Using the 'footprint,' an assessment will be made of the right-

of-way needs for the alternatives. Again, this measurement will be a comparison among the alternatives.

A YES answer would indicate concepts that can be built within the existing right-of-way. A concept that may take small amounts of right-of-way for the entire length, or one in which a few areas where significant right-of-way may be needed, will be rated as SOMEWHAT. A concept that requires all new right-of-way or significant right-of-way along the entire length of the concept will be rated NO.

How well does the alternative contribute toward local watershed initiatives?

Intent -- The purpose of this criterion is to provide a basis for evaluating to what level an alternative is compatible with local watershed initiatives. Comments for each alternative will be prepared as to how the current and ongoing watershed initiatives in the community are impacted, positively or negatively. This question will also help in a discussion of what would it take to make an alternative compatible with local watershed initiatives goals and objectives, thus helping to give definition to compatible ideas.

Measure -- The answer to this question will be discussed in the SWEEP Committee meetings. The measurement will be GOOD/FAIR/POOR. If all SWEEP Committee meeting participants support that an alternative is compatible with local watershed initiatives, it will be rated GOOD. If only some of the participants support that an alternative is compatible with local watershed initiatives and/or concerns have been recorded through the project process about this alternative, it will be rated FAIR. And if there is no support that an alternative is compatible with local watershed initiatives, it will be rated POOR.

How well does the alternative contribute toward the SWEEP MOU goals?

Intent -- The purpose of this criterion is to provide a basis for evaluating to what level an alternative is compatible with the SWEEP MOU goals. Comments for each alternative will be prepared as to how the current and ongoing SWEEP MOU goals are impacted -- positively or negatively. This question will also help in a discussion of what it would take to make an alternative compatible with the SWEEP MOU goals and objectives, thus helping to give definition to compatible ideas.

Measure -- The answer to this question will be discussed in the SWEEP Committee meetings. The measurement will be GOOD/FAIR/POOR. If all SWEEP Committee meeting participants support that an alternative is compatible with the SWEEP MOU goals, then it will be rated GOOD. If only some of the participants support that an alternative is compatible with the SWEEP MOU goals and/or concerns have been recorded through the project process about this alternative, it will be rated FAIR. And if there is no support that an

alternative is compatible with the SWEEP MOU goals, it will be rated with a POOR.

How well does the alternative contribute toward the ALIVE MOU goals?

Intent -- The purpose of this criterion is to provide a basis for evaluating to what level an alternative is compatible with the ALIVE MOU goals. Comments for each alternative will be prepared as to how the current and ongoing ALIVE MOU goals are impacted -- positively or negatively. This question will also help in a discussion of what it would take to make an alternative compatible with the ALIVE MOU goals and objectives, thus helping to give definition to compatible ideas.

Measure -- The answer to this question will be discussed in the ALIVE Committee meetings. The measurement will be GOOD/FAIR/POOR. If all ALIVE Committee meeting participants support that an alternative is compatible with the ALIVE MOU goals, then it will be rated GOOD. If only some of the participants support that an alternative is compatible with the ALIVE MOU goals and/or concerns have been recorded through the project process about this alternative, it will be rated FAIR. And if there is no support that an alternative is compatible with the ALIVE MOU goals, it will be rated POOR.

Historic Context

How well does the alternative support the communities' investments in and goals for historic resources?

Intent -- The purpose of this criterion is to provide a basis for evaluating to what level an alternative supports the communities' investment in and goals for historic resources. Comments for each alternative will be prepared as to how the current and ongoing investments in and goals for historic resources are impacted -- positively or negatively. This question will also help in a discussion of what it would take to make an alternative compatible with the communities' investment in and goals and objectives for historic resources, thus helping to give definition to compatible ideas.

Measure -- The measure for this criterion will be GOOD/FAIR/POOR. An alternative that is rated as GOOD is supportive of all of the current community investments in and goals for historic resources along the corridor. A concept that receives a FAIR rating is one that is somewhat supportive or supports some of the current investments and goals. A POOR rating is given to an alternative that does not support any of the current historic investments and goals.

How compatible is the alternative with adopted heritage tourism plans?

Intent -- The purpose of this criterion is to provide a basis for evaluating how compatible an alternative is with adopted heritage tourism plans. Comments for each alternative will be prepared as to how the current and ongoing

heritage tourism plan goals are impacted -- positively or negatively. This question will also help in a discussion of what it would take for an alternative to contribute to the heritage tourism goals and objectives, thus helping to give definition to compatible ideas.

Measure -- The measurement will be GOOD/FAIR/POOR. If an alternative supports Heritage Tourism Plan goals then it will be rated with a GOOD. If an alternative only somewhat supports Heritage Tourism Plan goals and/or concerns have been recorded through the project process about this alternative it will be rated with a FAIR. And if there is no support that an alternative can contribute to the Heritage Tourism Plan goals it will be rated with a POOR.

Communities

What is the level of community support?

Intent -- The purpose of this criterion is to provide a basis for evaluating what level of community support exists for an alternative.

Measure -- The measurement will be GOOD/FAIR/POOR. If an alternative has community support, it will be rated GOOD. If an alternative is only somewhat supported by a community and/or concerns have been recorded about an alternative through the project process, it will be rated FAIR. And if no support is found for an alternative, it will be rated POOR.

How compatible is the alternative with adopted local land use plans?

Intent -- The purpose of this criterion is to provide a basis for evaluating an alternative's compatibility with adopted land use plans. This question addresses a concern that an alternative could be in conflict with existing local land use plans. Local land use plans have been developed based on existing land use and planned land use that has been determined to maximize the communities' resources and goals. This criterion measures how changes to the existing transportation system may support (be compatible with) or may not support what communities have planned.

Measure -- The measurement will be GOOD/FAIR/POOR. If an alternative supports the local land use plans, then it will be rated GOOD. If an alternative is only somewhat compatible with local land use plans and/or concerns have been recorded about an alternative through the project process, it will be rated FAIR. And if there is no support that an alternative is compatible with local land use plans, it will be rated POOR.

Mobility and Accessibility

How well does the alternative improve mobility?

Intent -- The purpose of this criterion is to provide a basis for evaluating whether an alternative improves mobility. For each alternative, a qualitative measure will be made for travel time improvements. Each alternative will be compared with the other alternatives to determine the improvement of travel time.

Measure -- The measure will be GOOD/FAIR/POOR for this criterion.

How well does the alternative eliminate barriers to non-motorized mobility?

Intent -- The purpose of this criterion is to provide a basis for evaluating the barriers that an alternative could eliminate for non-motorized (e.g., pedestrians or bikers) mobility.

Measure -- A map showing current barriers -- such as creeks, railroad tracks, and intersection crossings -- will be prepared. Other barriers will be added as agreed upon by technical staff and project participants.

The measure for this criterion will be GOOD/FAIR/POOR. A GOOD rating would represent an alternative that eliminates all of the barriers to non-motorized mobility. A FAIR rating would indicate that elimination or access across some of the barriers was achieved, and a POOR rating would be given to an alternative that eliminated no barriers.

How well does the alternative address cut-through traffic?

Intent -- The purpose of this criterion is to provide a basis for evaluating whether an alternative can address cut-through traffic.

Measure -- A map showing the current locations where traffic is cutting through neighborhoods and communities will be prepared.

The measure for this criterion will be GOOD/FAIR/POOR. A GOOD rating would represent an alternative that eliminates cut-through traffic. A FAIR rating would indicate that alternative can reduce some cut-through traffic, but not all; and a POOR rating would be given to an alternative that would eliminate no cut-through traffic.

How well does the alternative promote efficient freight movement?

Intent -- The purpose of this criterion is to provide a basis for evaluating whether an alternative can promote efficient freight movement.

Measure -- The answer to this question will be discussed with project participants and trucking industry leaders. The measure for this criterion will be GOOD/FAIR/POOR. A GOOD rating would represent an alternative that can

promote efficient freight movement. A FAIR rating would indicate that an alternative can provide some efficiencies to freight movement, but not a substantial improvement; and a POOR rating would be given to an alternative that has no impact on improving freight movement in the corridor.

Aesthetics

How consistent is the alternative with the Aesthetics Guidance?

Intent -- The purpose of this criterion is to provide a basis for evaluating to what level an alternative is consistent with the Aesthetic Guidance. Comments for each alternative will be prepared as to how consistent an alternative is with the Aesthetic Guidance. This question will also help in a discussion of what it would take to make an alternative consistent with the Aesthetics Plan's goals and objectives.

Measure -- The measurement will be GOOD/FAIR/POOR. If an alternative is consistent with the Aesthetic Guidance, it will be rated GOOD. If an alternative only somewhat supports the goals of the Aesthetic Guidance and/or concerns have been recorded about an alternative through the project process, it will be rated FAIR. And if there is no support that an alternative is consistent with the goals of the Aesthetic Guidance, it will be rated POOR.

Detailed-Level Evaluation

Overview

Detailed evaluation provides continued refinement of the alternative(s), seeks balance between benefits and impacts, and considers mitigation opportunities. This quantitative analysis serves as the final step in developing the recommended alternative.

Detailed-Level Evaluation Criteria

A Detailed-Level Evaluation will be completed for each alternative that is forwarded on from the Concept-Level Evaluation. The Detailed-Level Evaluation analysis will measure specific items, will be quantitative more than qualitative, and will result in a recommended alternative.

Sustainability

The sustainability criteria will help determine how well an alternative creates a solution for today that does not diminish resources for future generations.

The following will help further support and answer the sustainability questions asked during the Concept-Level Evaluation:

- **Capital cost of the alternative:** A cost of the alternative will be calculated using CDOT cost estimating methods for program development. These costs will be shown in current dollars.

- **Operations and maintenance costs of the alternative:** A cost of annual operation and maintenance will be developed for the alternative. These costs will be shown in current dollars.

Safety

The safety criteria will help determine how well an alternative is able to enhance safety in the I-70 Mountain Corridor.

The following will help further support and answer the safety questions asked during the Concept-Level Evaluation:

- **Number of improved high-accident locations**

- **Number of ALIVE MOU recommendations implemented**

- **Number of improved rock slide and avalanche areas**

Healthy Environment

The healthy environment criteria will help determine how well an alternative is able to preserve, restore, and enhance natural resources and ecosystems.

The healthy environment criteria are a proxy for the overall goal of avoiding, minimizing, and mitigating impacts. For example, a significant increase in acres of new right-of-way impacted indicates that more biological resources may be impacted. These impacts could be mitigated, however, if a solution provides the same access and mobility with significantly fewer acres of new right-of-way. This may be a solution that minimizes or even avoids impacts to biological resources. Some measures, such as hours of Level of Service (LOS) C per day, indicate environmental goals for improved noise levels.

The following will help further support and answer the environmental questions asked during the Concept-Level Evaluation. Measurements will be made by overlaying each alternative on a map of the environmental resource considering the following:

- **Biological Resources:**
  - Acres of riparian habitat disturbed
  - Total acres of new right-of-way. Of the new right-of way:
    - Number of acres of impact to indicator species habitat
    - Number of acres of native vegetation
    - Number of acres of 6f
    - Number of acres of 4f
    - Number of acres of already disturbed land
    - Number of acres of wetlands
  - Number of ALIVE MOU recommendations implemented

- **Air Quality:**
  - Hours of delay at signalized intersections

- **Noise:**
  - Hours of LOS C per day

- **Mine Waste**
  - Cubic yards of disturbed mine waste

- **Threatened and Endangered Species:**
  - Number of acres of T&E habitat disturbed
  - Number of new habit connections

- **Water Resources:**
  - Number of SWEEP MOU goals that are advanced (See SWEEP Implementation Matrix)

- **Wetlands:**
  - **Number of acres of wetlands impacted. (Quality of wetlands to be noted)**

- **Recreation Resources:**
  - Number of acres of recreation resources impacts. Including:
    - Number of acres of 4f
    - Number of acres of 6f
    - Number of acres of publicly owned lands
    - Number of acres of streams

Historic Context

The historic context criterion will help determine how well an alternative contributes to and is compatible with the human-made past that creates the corridor's sense of place and provides the foundation of its character.

The criterion will help further support and answer the historic context questions asked during the Concept-Level Evaluation. Measurements will be made by overlaying each alternative on a map of the environmental resource considering the following:

- **Number of potentially eligible historic properties impacted**

Communities

The criteria related to communities will help determine how well an alternative respects the individuality of communities and promotes their viability. The following questions will help further support and answer the communities' questions asked during the Concept-Level Evaluation:

- **How well does this alternative support current and ongoing economic investments in the community?** A measurement of GOOD, FAIR, or POOR for both neighborhoods and businesses, individually, will be recorded.

- **How well is this alternative supported by the community?** A measurement of GOOD, FAIR, or POOR for both neighborhoods and businesses, individually, will be recorded.

Mobility and Accessibility

The mobility and accessibility criteria will help determine how well an alternative addresses local, regional, and national travel while providing reliable, efficient interconnectivity between systems and communities. The following will help further support and answer the mobility and accessibility questions asked during the Concept-Level Evaluation:

- **Projected Level of Service and Average Peak Hour Speed:** A map showing projected LOS and average peak-hour speed will be developed for the major roadways in the alternatives. These will be calculated using the forecasts from the adopted model for the study area for the design year.

- **Projected Average Daily Traffic (ADT) at key locations:** A map showing projected ADT at key locations will be developed. These will be calculated using the forecasts from the adopted model for the study area for the design year.

- **Projected number of person trips on alternate modes**

- **Projected number of new transit route miles**

- **Projected number of person trips across the Continental Divide**

Aesthetics

The aesthetics criterion will help determine whether an alternative was inspired by the surroundings, protects scenic integrity, and incorporates the context of the I-70 Mountain Corridor. The following question will help further support and answer the aesthetics question asked during the Concept-Level Evaluation:

- **How well does this alternative support the goals of the Aesthetic Guidance?** A measurement of GOOD, FAIR, or POOR will be recorded.

Appendix

Alternative Evaluation Templates

Feasibility-Level Evaluation

Criteria	How could we measure it?	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Sustainability					
D. Is the alternative compatible with local sustainability plans?	D. (YES/NO)				
E. Is the alternative compatible with the State of Colorado Climate Action Plan?	E. (YES/NO)				
F. Does this alternative preserve future transportation options?	F. (YES/NO)				
Safety					
B. Can this idea improve safety?	B. (YES/NO)				
Healthy Environment					
C. Can adverse environmental impacts be avoided, minimized, or mitigated?	C. (YES/NO)				
D. Can impacts to irreplaceable natural resources (e.g., FENS wetlands or Gold Medal Fisheries) be avoided?	D. (YES/NO)				
Historic Context					
B. Can impacts to historic resources be avoided, minimized, or mitigated?	B. (YES/NO)				
Communities					
B. Is the alternative compatible with local land use plans?	B. (YES/NO)				
Mobility and Accessibility					
E. Does the alternative improve mobility?	A. (YES/NO)				
F. Is this alternative compatible with the existing and planned transportation system?	B. (YES/NO)				
C. Does this alternative provide access for local trips?	C. (YES/NO)				
D. Does this alternative provide for regional mobility?	D. (YES/NO)				
Aesthetics					
No specific aesthetics criteria are used to evaluate alternatives at the feasibility level.					

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Concept-Level Evaluation					
Criteria	**How could we measure it?**	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 4**
Sustainability					
E. How compatible is the alternative with local sustainability plans?	E. ● ◐ ○ (GOOD/FAIR/POOR)				
F. How compatible is the alternative with the State of Colorado Climate Action Plan?	F. ● ◐ ○ (GOOD/FAIR/POOR)				
G. How well does this alternative reduce maintenance costs?	G. ● ◐ ○ (GOOD/FAIR/POOR)				
H. What is the capital cost of this alternative?	H. ● ◐ ○ (LOW/MEDIUM/HIGH)				
Safety					
C. How well does the alternative reduce the number of or improve hazardous locations?	A. ● ◐ ○ (GOOD/FAIR/POOR)				
D. How well does the alternative follow current design standards?	B. ● ◐ ○ (GOOD/FAIR/POOR)				

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Concept-Level Evaluation

Criteria	How could we measure it?	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Healthy Environment					
H. How well can adverse environmental impacts be avoided?	A. ● ◐ ○ (GOOD/FAIR/POOR)				
I. How well can adverse environmental impacts be minimized?	B. ● ◐ ○ (GOOD/FAIR/POOR)				
J. How well can adverse environmental impacts be mitigated?	C. ● ◐ ○ (GOOD/FAIR/POOR)				
K. Can this alternative be built within the existing right-of-way?	D. ● ◐ ○ (YES/SOMEWHAT/NO)				
L. How well does the alternative contribute toward local watershed initiatives?	E. ● ◐ ○ (GOOD/FAIR/POOR)				
M. How well does the alternative contribute toward the SWEEP MOU goals?	F. ● ◐ ○ (GOOD/FAIR/POOR)				
N. How well does the alternative contribute toward the ALIVE MOU goals?	G. ● ◐ ○ (GOOD/FAIR/POOR)				

Concept-Level Evaluation					
Criteria	**How could we measure it?**	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 4**
Historic Context					
C. How well does the alternative support the communities' investments in and goals for historic resources?	A. ● ◐ ○ (GOOD/FAIR/POOR)				
D. How compatible is the alternative with adopted heritage tourism plans?	B. ● ◐ ○ (GOOD/FAIR/POOR)				
Communities					
C. What is the level of community support?	A. ● ◐ ○ (GOOD/FAIR/POOR)				
D. How compatible is the alternative with adopted local land use plans?	B. ● ◐ ○ (GOOD/FAIR/POOR)				
Mobility and Accessibility					
E. How well does the alternative improve mobility?	E. ● ◐ ○ (GOOD/FAIR/POOR)				
F. How well does the alternative eliminate barriers to non-motorized mobility?	F. ● ◐ ○ (GOOD/FAIR/POOR)				
G. How well does the alternative address cut-through traffic?	G. ● ◐ ○ (GOOD/FAIR/POOR)				
H. How well does the alternative promote efficient freight movement?	H. ● ◐ ○ (GOOD/FAIR/POOR)				

Concept-Level Evaluation					
Criteria	**How could we measure it?**	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 4**
Aesthetics					
B. How consistent is the alternative with the Aesthetic Guidance?	A. ● ◐ ○ (GOOD/FAIR/POOR)				

Detailed-Level Evaluation					
Criteria Measures	**How could we measure it?**	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 4**
Sustainability					
Detailed-Level Criteria Measures will measure specific items, will be quantitative more than qualitative, and will help further support and answer the criteria questions asked during the Concept-Level Evaluation. The sustainability criteria will help determine how well an alternative creates a solution for today that does not diminish resources for future generations.	C. Capital cost of the alternative ($) D. Operations and maintenance costs of the alternative ($)				
Safety					
Detailed-Level Criteria Measures will measure specific items, will be quantitative more than qualitative, and will help further support and answer the criteria questions asked during the Concept-Level Evaluation. The safety criteria will help determine how well an alternative is able to enhance safety in the I-70 Mountain Corridor.	D. Number of improved high-accident locations E. Number of ALIVE MOU recommendations implemented F. Number of improved rock slide and avalanche areas				

Detailed-Level Evaluation					
Criteria Measures	**How could we measure it?**	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 4**
Healthy Environment					
Detailed-Level Criteria Measures will measure specific items, will be quantitative more than qualitative, and will help further support and answer the criteria questions asked during the Concept-Level Evaluation. The healthy environment criteria will help determine how well an alternative is able preserve, restore, and enhance natural resources and ecosystems. The healthy environment criteria are a proxy for the overall goal of avoiding, minimizing, and mitigating impacts. For example, a significant increase in acres of new right-of-way impacted indicates that more biological resources may be impacted. These impacts could be mitigated, however, if a solution provides the same access and mobility with significantly fewer acres of new right-of-way. This may be a solution that minimizes or even avoids impacts to biological resources. Some measures, such as hours of LOS C per day, indicate environmental goals for improved noise levels.	<u>Biological Resources</u> D. Acres of riparian habitat disturbed E. Total acres of new right-of-way. Of the new right-of way: • Number of acres of impact to indicator species habitat • Number of acres of native vegetation • Number of acres of 6f • Number of acres of 4f • Number of acres of already disturbed land • Number of acres of wetlands F. Number of ALIVE MOU recommendations implemented <u>Air Quality</u> B. Hours of delay at signalized intersections <u>Noise</u> B. Hours of LOS C per day <u>Mine Waste</u> B. Cubic yards of disturbed mine waste <u>Threatened and Endangered Species</u> C. Number of acres of T&E habitat disturbed D. Number of new habitat connections <u>Water Resources</u> B. Number of SWEEP MOU goals that are advanced <u>Wetlands</u> B. Number of acres of wetlands impacted (quality of wetlands to be noted). <u>Recreation Resources</u> B. Number of acres of recreation resources impacts. Including: • Number of acres of 4f • Number of acres of 6f • Number of acres of publicly owned lands • Number of acres of streams				

Detailed-Level Evaluation					
Criteria Measures	**How could we measure it?**	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 4**
Historic Context					
Detailed-Level Criteria Measures will measure specific items, will be quantitative more than qualitative, and will help further support and answer the criteria questions asked during the Concept-Level Evaluation. The historic context criteria will help determine how well an alternative contributes to and is compatible with the human-made past that creates the corridor's sense of place and is the foundation of corridor's character.	B. Number of potentially eligible historic properties impacted				

Detailed-Level Evaluation					
Criteria Measures	**How could we measure it?**	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 4**
Communities					
Detailed-Level Criteria Measures will measure specific items, will be quantitative more than qualitative, and will help further support and answer the criteria questions asked during the Concept-Level Evaluation. The criteria related to communities will help determine how well an alternative respects the individuality of communities and promotes their viability.	C. How well does this alternative support current and ongoing economic investments in the community? (GOOD/FAIR/POOR) D. How well is this alternative supported by the community? (GOOD/FAIR/POOR)				
Mobility and Accessibility					
Detailed-Level Criteria Measures will measure specific items, will be quantitative more than qualitative, and will help further support and answer the criteria questions asked during the Concept-Level Evaluation. The mobility and accessibility criteria will help determine how well an alternative addresses local, regional, and national travel while providing reliable, efficient interconnectivity between systems and communities.	F. Projected LOS and average peak-hour speed G. Projected ADT at key locations H. Projected number of person trips on alternate modes I. Projected number of miles of new transit route miles J. Projected number of person trips across the Continental Divide				

Detailed-Level Evaluation					
Criteria Measures	**How could we measure it?**	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 4**
Aesthetics					
Detailed-Level Criteria Measures will measure specific items, will be quantitative more than qualitative, and will help further support and answer the criteria questions asked during the Concept-Level Evaluation. The aesthetics criteria will help determine whether an alternative was inspired by the surroundings, protects scenic integrity, and incorporates the context of the I-70 Mountain Corridor.	B. How well does this alternative support the Aesthetic Guidance Goals? (GOOD/FAIR/POOR)				