

# Technical Memorandum

February 28, 2024

Project# 27003.014

To: Lisa Cornutt, Oregon Department of Transportation

Karl MacNair, City of Medford

From: Marc Butorac, PE, PTOE, PMP; John McPherson, AICP (HDR), Matt Bell, Amy Griffiths

RE: Tech Memo #2.1.3: Goals, Objectives, Evaluation Criteria, and Performance Measures

## GOALS, OBJECTIVES, EVALUATION CRITERIA, and PERFORMANCE MEASURES

This memorandum proposes the Goals, Objectives, Evaluation Criteria, and Performance Measures that will inform the South Stage Road Extension planning process. The evaluation criteria reflect the draft Purpose and Need Statement identified in Tech Memo 2.1.2 as well as the goals and objectives from the 2018 Medford Transportation System Plan (2018 TSP) that are relevant to the facility planning process for South Stage Road. Setting clear, actionable, and measurable evaluation criteria enables the Project Management Team (PMT), with support from the Project Development Team (PDT) and Project Advisory Committee (PAC), to recommend a preferred alternative concept for adoption.

### Purpose and Need Statement Context

The Purpose and Need Statement documented in Tech Memo 2.1.2 is being developed by the project team to ensure that the project remains focused on the transportation problems being addressed. The *purpose* defines the transportation problems, while the *need* provides data and other evidence to support the purpose. The Purpose and Need Statement provides the primary basis for developing methods and criteria for narrowing the range of alternatives to be carried forward into the National Environmental Policy Act (NEPA) process.

### Medford TSP Goals and Objectives

The City of Medford uses the goals and objectives from the 2018 TSP to guide the development of the transportation system over time. Per the 2018 TSP, *goals* are broad statements of philosophy that describe the hopes of people in the community for the future of the community, while *objectives* explain how the goals will be accomplished, detail the activities that must be

completed, and guide the work of the City. The objectives also include action items that offer direction to the City about steps that should be taken to achieve the objectives.

The goals and objectives from the 2018 TSP were reviewed to determine which would help inform the Purpose and Need Statement and help distinguish between the alternatives. Further review was conducted to determine if they could be supported by quantifiable data or if the technical analysis could provide the quantifiable data needed to support the evaluation and, ultimately, the selection of the preferred alternative. The review found that each TSP goal includes at least one objective that can help distinguish between the alternatives and can be quantified by the results of the technical analysis. Attachment B contains the review of the 2018 TSP goals and objectives and those that would be applicable to the South Stage Extension Plan.

## EVALUATION CRITERIA

The evaluation criteria are summarized below. A quantitative/qualitative process in applying the evaluation criteria will be used to compare and contrast the no-build and build alternatives to identify recommendations. The method used to evaluate the alternatives is described below.

- Each high-level solution scenario will be evaluated based on the criteria and the corresponding performance measure to determine whether it satisfies the purpose and need for the project and whether it is feasible to develop alternatives within that scenario.
- Each alternative developed within the feasible scenarios will be evaluated based on the criteria and the corresponding performance measure to determine whether it satisfies the purpose and need for the project and how the alternative compares to the no-build alternative.
- Technically and economically feasible alternatives will be evaluated to identify those that solve the transportation problems and thus warrant further evaluation and consideration.

At this level of screening, the criteria will not be weighted; the performance ratings will be used to inform discussions about the benefits and tradeoffs of each alternative.

## Purpose and Need Statement Evaluation Criteria

The Purpose and Need Statement TM #2.1.2 was used to develop evaluation criteria to support the development and evaluation of transportation alternatives under Level 1: Overall Solution Scenario Screening and Level 2: Identifying Most Promising (Technically and Economically Feasible) Alternatives described below. The Purpose and Need Statement evaluation criteria are shown in Table 1.

**Table 1. Purpose and Need Statement Evaluation Criteria**

Related Need	Evaluation Criteria	Performance Measure
<b>Purpose 1. Reduce out of direction travel by improving east-west multimodal connectivity across Interstate-5</b>		
Need 1A. I-5 creates a barrier to local east-west travel that limits local road connectivity.	<p>For Scenario Screening: Does the alternative reduce the ADT on Barnett, Garfield, and Phoenix Roads crossing I-5?</p> <p>For Evaluation and Narrowing: If so, by how much?</p>	ADT on bridge for each overcrossing/interchange (Phoenix Road, potential new location, Garfield, and Barnett) of I-5
Need 1B. Out-of-direction travel.	<p>For Scenario Screening: Does the alternative reduce the travel distance and out-of-direction travel?</p> <p>For Evaluation and Narrowing: If so, by how much?</p> <p>For Scenario Screening: Does the alternative reduce the 2.65-mile gap for pedestrians and bicycles crossing I-5 and Bear Creek?</p> <p>For Evaluation and Narrowing: If so, by how much?</p>	<p>Travel distance</p> <ul style="list-style-type: none"> <li>OR99/Barnett to South Stage/Phoenix</li> <li>OR99 South Stage to South Stage/Phoenix</li> </ul> <p>Average spacing for I-5 crossings</p>
Need 1C. Poor east-west travel times.	<p>For Scenario Screening: Does the alternative reduce travel times?</p> <p>For Evaluation and Narrowing: If so, by how much?</p>	<p>Travel time (vehicle/pedestrian/bicycle)</p> <ul style="list-style-type: none"> <li>OR99/Barnett to South Stage/Phoenix</li> <li>OR99 South Stage to South Stage/Phoenix</li> </ul>
<b>Purpose 2. Reduce existing and projected congestion and related traffic safety issues in the vicinity of the Interstate-5 interchanges with Garfield St. and N. Phoenix Rd. and the adjacent local street network</b>		
Need 2A. Congestion at the existing interchanges and the local roads accessing the interchanges in Year 2045.	<p>For Scenario Screening: Does the alternative allow the intersection, interchange, and freeway merge/diverge points to meet the mobility target or stay under capacity in the direction of the mobility targets (potential for an alternative mobility standard)?</p> <p>For Evaluation and Narrowing: If so, by how much?</p>	V/c ratio and LOS
Need 2B. Reduce traffic volumes at intersections with high crash rates.	<p>For Scenario Screening: Does the alternative maintain or reduce traffic demand at identified high-crash locations?</p> <p>For Evaluation and Narrowing: If so, by how much?</p> <p>For Scenario Screening: Does the alternative modify the intersection and/or segment to reduce the</p>	<p>Total entering traffic</p> <ul style="list-style-type: none"> <li>Crash modification factor</li> </ul>

	identified crash types? For Evaluation and Narrowing: If so, by how much?	
Need 2C. At the South Medford interchange, congestion is causing a bottleneck, with southbound queues spilling back onto the I-5 mainline, which is not just a congestion issue but also a safety concern for potential high-speed, rear-end collisions.	For Scenario Screening: Does the alternative avoid potential spillback onto I-5? For Evaluation and Narrowing: If so, by how much?	Queue length
<b>Purpose 3. Support local system improvements associated with current and planned land uses as well as improved emergency preparedness in the rapidly urbanizing area of south Medford, Oregon and north Phoenix, Oregon</b>		
Need 3A. Local, adopted land use and transportation system plans identify South Stage Road as needed to support future land development in the south Medford and north Phoenix areas.	For Scenario Screening: Does the alternative allow the intersection, interchange, and freeway merge/diverge points to meet the mobility target or stay under capacity in the direction of the mobility targets (potential for an alternative mobility standard)? For Evaluation and Narrowing: If so, by how much?	V/c ratio and LOS
Need 3B. Without improved connectivity across and/or access to/from I-5, future congestion, safety conditions, emergency response times (for wildfire, medical, etc.), and travel times will worsen for all modes.	For Scenario Screening: Does the alternative allow the intersection, interchange, and freeway merge/diverge points to meet the mobility target or stay under capacity in the direction of the mobility targets (potential for an alternative mobility standard)? For Evaluation and Narrowing: If so, by how much?	Average spacing of I-5 crossings V/c ratio and LOS
Need 3C. Improve emergency response times via the existing interchanges and local street network accessing those interchanges.	For Scenario Screening: Does the alternative reduce the travel time for emergency vehicles? For Evaluation and Narrowing: If so, by how much?	Travel time (vehicle) <ul style="list-style-type: none"> <li>OR99/Barnett to South Stage/Phoenix</li> <li>OR99 South Stage to South Stage/Phoenix</li> </ul>

ADT = Average Daily Traffic; LOS = Level of Service; v/c = Volume to Capacity ratio.

## Goals, Objectives, Evaluation Criteria, and Performance Measures

The goals and objectives from the 2018 TSP, relevant to this planning process, were used to develop secondary evaluation criteria to support the development, refinement, and assessment of alternatives under Level 2: Identifying the Most Promising (Technically and Economically Feasible) Alternatives and Level 3: Select the Preferred Alternative(s). The related 2018 TSP goals and objectives evaluation criteria are shown in Table 2.

**Table 2. Related 2018 TSP Goals and Objectives Evaluation Criteria**

Objective	Evaluation Criteria	Performance Measure
<b>Goal 1 – Safety and Public Health: The transportation system will improve safety for users of all modes of transportation and be a public resource that supports public health in the community</b>		
Objective 1: Transportation improvement projects and transportation management decisions shall be evaluated to reduce risk to the traveling public, and improvement projects and management decisions shall strive to enhance safety for the traveling public.	<p>Does the alternative maintain or reduce traffic demand at identified high-crash locations? If so, by how much?</p> <p>Does the alternative modify the intersection and/or segment to reduce the identified crash types? If so, by how much?</p>	<p>Total entering traffic</p> <p>Crash modification factor</p>
<b>Goal 2 – Economic Development: The transportation system shall enhance economic development and vitality within the City and through the Region</b>		
Objective 4: Provide transportation facilities that support existing and planned land uses, consistent with the City's Comprehensive Plan.	Does the alternative allow the intersection, interchange, and freeway merge/diverge points to meet the mobility target or stay under capacity in the direction of the mobility targets (potential for an alternative mobility standard)? If so, by how much?	V/c ratio and LOS
Objective 5: Maintain and improve the efficiency of the movement of freight and goods by ground, rail, air, pipeline, and transmission infrastructure.	<p>Does the alternative allow the intersection, interchange, and freeway merge/diverge points to meet the mobility target or stay under capacity in the direction of the mobility targets (potential for an alternative mobility standard)? If so, by how much?</p> <p>Does the alternative reduce the travel distance and out-of-direction travel? If so, by how much?</p>	<p>V/c ratio and LOS</p> <p>Travel distance</p> <ul style="list-style-type: none"> <li>OR99/Barnett to South Stage/Phoenix</li> <li>OR99 South Stage to South Stage/Phoenix</li> </ul>
Objective 6: Increase resilience of the local freight and logistics network to natural disaster.	<p>Does the alternative reduce the travel distance and out-of-direction travel? If so, by how much?</p> <p>Does the alternative reduce the gap for vehicles, pedestrians, and bicycles crossing I-5 and Bear Creek? If so, by how much?</p>	<p>Travel distance</p> <ul style="list-style-type: none"> <li>OR99/Barnett to South Stage/Phoenix</li> <li>OR99 South Stage to South Stage/Phoenix</li> </ul> <p>Average spacing of I-5 crossings</p>
<b>Goal 3 – Livability: Design and construct transportation facilities to enhance the livability of the City's neighborhoods and business centers</b>		
Objective 9: The City will balance transportation system objectives to improve mobility against objectives to avoid disruption of existing neighborhoods and nonresidential districts and minimize impacts to individual properties.	Does the alternative avoid impacts to developed properties? If so, by how much?	<p>Number of developed parcels with potential right-of-way takes</p> <p>Number of undeveloped parcels with potential right-of-way takes</p>

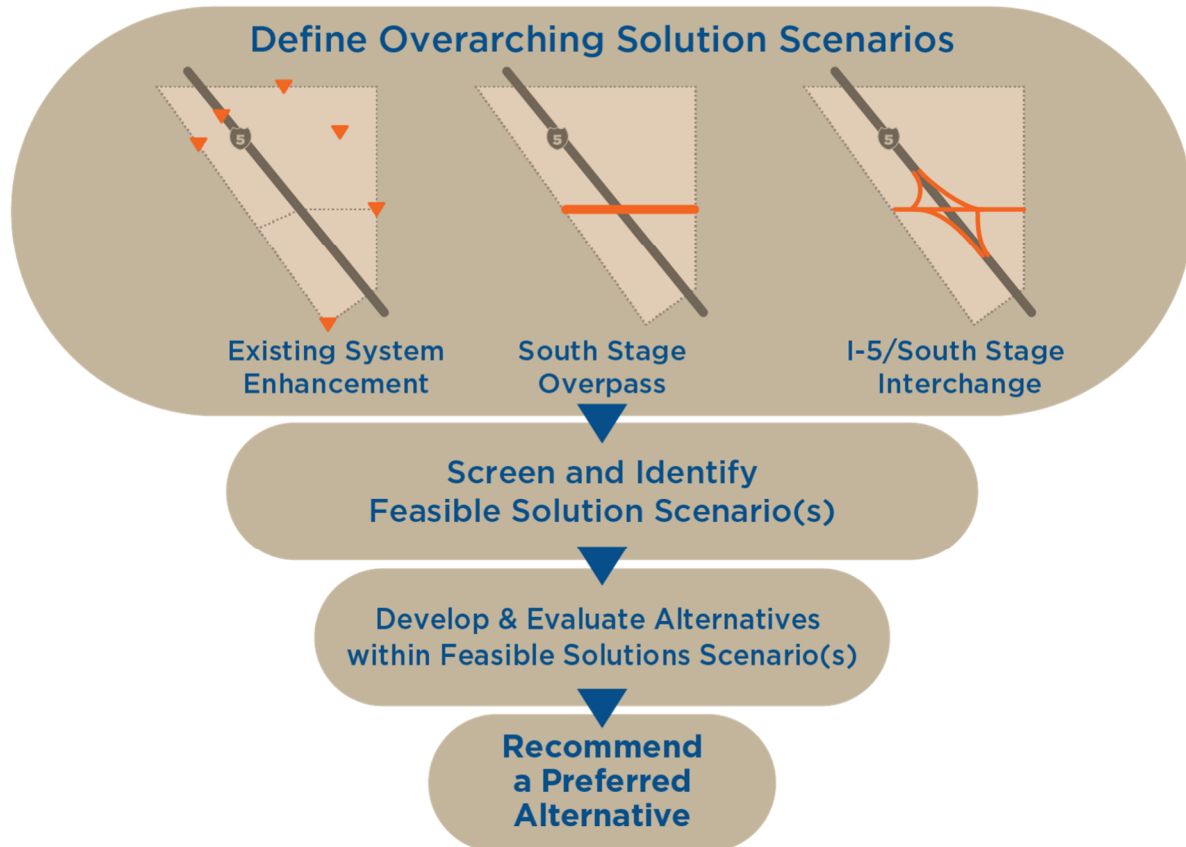
		Number of structures requiring removal
<b>Goal 4 – Connectivity: Achieve connectivity appropriate for planned land uses in the area for all modes which is well connected to the regional system</b>		
Objective 11: The City of Medford will strive to develop and maintain a well-connected transportation system for all modes and users.	<p>Does the alternative reduce the travel distance and out-of-direction travel? If so, by how much?</p> <p>Does the alternative reduce the gap for vehicles, pedestrians, and bicycles crossing I-5 and Bear Creek? If so, by how much?</p>	<p>Travel distance</p> <ul style="list-style-type: none"> <li>OR99/Barnett to South Stage/Phoenix</li> <li>OR99 South Stage to South Stage/Phoenix</li> </ul> <p>Average spacing of I-5 crossings</p>
<b>Goal 5 – Financing: Optimize funding resources so that transportation investments are fiscally sound and economically sustainable</b>		
Objective 14: Systematically and regularly plan and predict the need for the acquisition of needed public right-of-way in order to implement the adopted Functional Classification Map.	Does the alternative avoid impacts to developed properties? If so, by how much?	<p>Number of developed parcels with potential right-of-way takes</p> <p>Number of undeveloped parcels with potential right-of-way takes</p> <p>Number of structures requiring removal</p>
Objective 18: Support the development of stable and flexible transportation financing that provides adequate funding sources for Medford's transportation system while supporting the TSP's economic development goal.	Does the alternative provide an equal or lower cost comparatively? If so, by how much?	Design and construction cost opinion
<b>Goal 6 – Environment: Reduce environmental impacts from transportation</b>		
Objective 19: Reduce environmental impacts of the transportation infrastructure.	Does the alternative avoid or minimize environmental impacts comparatively? If so, by how much?	<p>Acreage or number of impacts to environmental resources</p> <p>Section 4(f)</p> <p>Wetlands and Waters</p> <p>Environmental Justice</p> <p>Floodplains</p> <p>Community Cohesion</p> <p>Section 106 Resources.</p>
Objective 20: Adopt policies designed to reduce per capita Vehicle Miles Traveled (VMT), reliance on Single Occupant Vehicle (SOV) trips, and roadway congestion.	Does the alternative reduce the travel distance and out-of-direction travel? If so, by how much?	<p>Travel distance</p> <ul style="list-style-type: none"> <li>OR99/Barnett to South Stage/Phoenix</li> <li>OR99 South Stage to South Stage/Phoenix</li> </ul>

Objective 21: Reduce emissions of atmospheric pollutants, including greenhouse gas emissions and particulate matter.	Does the alternative reduce the travel time? If so, by how much?	Travel time (vehicle) OR99/Barnett to South Stage/Phoenix OR99 South Stage to South Stage/Phoenix
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LOS = level of service; v/c = volume to capacity.

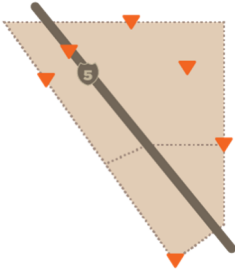
## SCREENING AND NARROWING APPROACH

The purpose, needs, and related TSP goals and objectives evaluation criteria identified above will be used throughout scenario screening and alternative narrowing process. This process is envisioned to occur at three levels: (1) *Overarching solution scenarios* will be identified and assessed to determine if alternatives within this genre can meet the basic Purpose and Need evaluation criteria; (2) *Alternatives within the feasible scenarios* will then be , conceptually sketched and assessed against the project’s identified goals, objectives, evaluation criteria, and performance measures and each other, with the most promising (technically and economically feasible) alternatives advancing to the next level, and (3) the *Most promising (technically and economically feasible) alternatives* will be further refined and evaluated from a constructability, localized environment resource impact, and cost perspective to recommendations for a preferred alternative. The exhibit below illustrates this process.

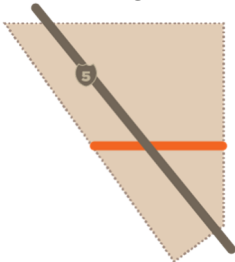
**Exhibit 1. Alternatives Development and Selection Process****Alternatives Development and Selection Process****LEVEL 1: OVERARCHING SOLUTION SCENARIO SCREENING (TASK 5.1)**

The project team will define and screen overarching solution scenario concepts (No Action, Existing System Enhancement, South Stage Overpass, and I-5/South Stage Interchange) against the Purpose and Need evaluation criteria. For scenario(s) meeting these criteria, the project team will solicit and screen potential alternatives for technical (constructability and high-level environment viability) and economic feasibility. The screening is envisioned to include a fatal flaw assessment at the conceptual engineering level that would make alternatives unreasonable if they are not technically feasible or have impacts that would make them unpermissible or unselectable. The remaining potential feasible alternatives would move on to Level 2 screening.

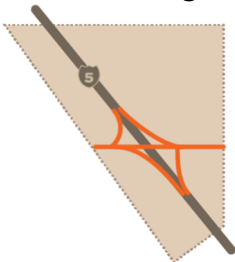


**Existing System Enhancement**

Under this scenario, potential alternatives will be developed that primarily improve existing transportation facilities to address gaps or deficiencies. These alternatives generally do not add new transportation system connections.

**South Stage Overpass**

This scenario will include potential alternatives that create a connection across I-5 and Bear Creek between the South Medford and Phoenix interchange.

**I-5/South Stage Interchange**

This scenario will include potential alternatives that create a connection across I-5 and Bear Creek and add a new I-5 interchange between the South Medford and Phoenix interchange.

## **LEVEL 2: IDENTIFY THE MOST PROMISING (TECHNICALLY AND ECONOMICALLY FEASIBLE) ALTERNATIVES) (TASK 5.1)**

The project team will develop single-line concept sketches of the potential feasible alternatives identified in Level 1. The concept sketches would include preliminary horizontal and vertical alignments to further vet technical and economic feasibility. These alternatives would then be evaluated and compared using the TSP goals and objectives evaluation criteria to identify the most promising alternatives.

## **LEVEL 3: RECOMMEND THE PREFERRED ALTERNATIVE(S) (TASK 5.2)**

The project will take the most promising alternatives from the Level 2 screening and convert them into double-line concepts. The double-line alternatives will show intersection/interchange control/configurations, approximate right-of-way lines, necessary structures, edge of pavement/curb/slope, striping, and other details to properly assess and understand the

potential impacts and identify the necessary geometries to accommodate travel demand and alternative modes, support trucks, store vehicles, etc.

The project team will evaluate the alternatives according to their ability to meet all elements of the Purpose and Need and TSP goal and objective evaluation criteria and compare the performance of the alternatives. The project team will conduct the evaluation and screening of alternatives in an objective and unbiased manner.

Based on this evaluation, the project team will recommend a preferred alternative to the PAC and PDT for consideration and feedback. The PAC and PDT will then make their recommendations to the PMT. With the recommendations and public feedback, the PMT will recommend a preferred alternative that would be considered for adoption by the City of Medford and Oregon Transportation Commission.

# ATTACHMENT A: TSP GOALS AND OBJECTIVES

Table A1 presents a review of the goals and objectives from the 2018 TSP to determine if they can help meet the Purpose and Need Statement for the South Stage Extension Plan project, as well as distinguish between the alternatives developed through the planning process.

**Table A1 Goals and Objectives Evaluation**

	Demonstrate compliance with TSP goals	Demonstrate compliance with Purpose and Need Statement	Distinguish between no-build and overpass/ interchange alternatives	Distinguish between overpass and interchange alternatives	Distinguish between overpass alternatives	Distinguish between interchange alternatives	Quantifiable
<b>Goal 1 – Safety and Public Health: The transportation system will improve safety for users of all modes of transportation and be a public resource that supports public health in the community</b>							
Objective 1: Transportation improvement projects and transportation management decisions shall be evaluated to reduce risk to the traveling public, and improvement projects and management decisions shall strive to enhance safety for the traveling public.	Yes	Yes	Yes	Yes	Yes	Yes	Yes – Safety performance
Objective 2: Continue to remove impediments to mobility for vulnerable citizens such as those with disabilities, children, and older adults.	Yes	Yes	Yes	No	No	No	No <sup>1</sup>
Objective 3: Promote active transportation as a means of improving public health.	Yes	Yes	Yes	No	No	No	No <sup>1</sup>
<b>Goal 2 – Economic Development: The transportation system shall enhance economic development and vitality within the City and through the Region</b>							
Objective 4: Provide transportation facilities that support existing and planned land uses, consistent with the City's Comprehensive Plan.	Yes	Yes	Yes	Yes	Possible	Possible	Yes – Traffic volumes

Objective 5: Maintain and improve the efficiency of the movement of freight and goods by ground, rail, air, pipeline, and transmission infrastructure.	Yes	Yes	Yes	Yes	Yes	Yes	Yes – Traffic operations
Objective 6: Increase resilience of the local freight and logistics network to natural disaster.	Yes	Yes	Yes	Yes	Possible	Possible	Yes – Street connectivity
Objective 7: Identify and improve transportation facilities that support the Region's tourism industry.	Yes	Yes	No	No	No	No	No
Objective 8: Support initiatives to redevelop Downtown, Liberty Park, and other existing neighborhoods through transportation infrastructure investments.	No	No	No	No	No	No	No
<b>Goal 3 – Livability: Design and construct transportation facilities to enhance the livability of the City's neighborhoods and business centers</b>							
Objective 9: The City will balance transportation system objectives to improve mobility against objectives to avoid disruption of existing neighborhoods and nonresidential districts and minimize impacts to individual properties.	Yes	No	Yes	Yes	Possible	Possible	Yes – Property impacts
Objective 10: Increase the number of walkable, bikeable, mixed-use, transit-oriented, and transit-supportive neighborhoods while promoting connectivity to existing neighborhoods.	No	No	No	No	No	No	No <sup>1</sup>
<b>Goal 4 – Connectivity: Achieve connectivity appropriate for planned land uses in the area for all modes which is well connected to the regional system</b>							
Objective 11: The City of Medford will strive to develop and maintain a well-connected transportation system for all modes and users.	Yes	Yes	Yes	Yes	Possible	Possible	Yes – Street connectivity
Objective 12: Improve access (on or off roadway) for people to walk and bike to public places, especially schools, parks, employment centers, commercial areas, and other public facilities.	Yes	Yes	Yes	No	No	No	No <sup>1</sup>

Objective 13: Improve vehicle, pedestrian, and bicycle network connections with current and planned public transportation routes and improve public transportation service.	Yes	Yes	Yes	No	No	No	No <sup>1</sup>
<b>Goal 5 – Financing: Optimize funding resources so that transportation investments are fiscally sound and economically sustainable</b>							
Objective 14: Systematically and regularly plan and predict the need for the acquisition of needed public right-of-way in order to implement the adopted Functional Classification Map.	Yes	No	Yes	Yes	Possible	Possible	Yes – Property impacts
Objective 15: When opportunities arise, the City will deploy new technologies that safely increase the efficiency of existing street facilities to reduce the need for roadway expansion.	No	No	No	No	No	No	No
Objective 16: Amendments to the land development code and municipal code to implement the TSP shall be targeted for completion within 24 months of TSP acknowledgment.	No	No	No	No	No	No	No
Objective 17: Partner with local jurisdictions, state and federal agencies, and private sector partners to maximize the City's return on transportation investments whenever possible.	Yes	No	No	No	No	No	No
Objective 18: Support the development of stable and flexible transportation financing that provides adequate funding sources for Medford's transportation system while supporting the TSP's economic development goal.	Yes	No	Yes	Yes	Yes	Yes	Yes – Cost
<b>Goal 6 – Environment: Reduce environmental impacts from transportation</b>							
Objective 19: Reduce environmental impacts of the transportation infrastructure.	Yes	No	Yes	Yes	Yes	Yes	Yes – Impacts to 4F and 6F properties
Objective 20: Adopt policies designed to reduce per capita Vehicle Miles Traveled	Yes	No	Yes	Yes	Yes	Yes	Yes – VMT

(VMT), reliance on Single Occupant Vehicle (SOV) trips, and roadway congestion.							
Objective 21: Reduce emissions of atmospheric pollutants, including greenhouse gas emissions and particulate matter	Yes	No	Yes	Yes	Yes	Yes	Yes – VMT

1. All alternatives could include similar pedestrian, bicycle, and/or public transportation facilities.