

# Exhibit 5-1: ALTERNATIVES EVALUATION MATRIX

Evaluation Criteria	Alternatives Forwarded		
	3(a) Harvard-Diamond Lake Alignment (Railroad At Grade)	6(a) Diamond Lake – Odell Couplet	6(b) Diamond Lake – Odell Couplet with Direct Connection
<b>Transportation</b>			
<b>Mobility Standards</b>	<ul style="list-style-type: none"> <li>All signalized intersections would meet Oregon Highway Plan and city mobility standards</li> <li>One signalized intersection with capacity improvements would not meet the Highway Design Manual mobility standards</li> </ul>	<ul style="list-style-type: none"> <li>All signalized intersections would meet Highway Design Manual, Oregon Highway Plan, and city mobility standards</li> </ul>	<ul style="list-style-type: none"> <li>All signalized intersections would meet Oregon Highway Plan and city mobility standards</li> <li>One signalized intersection with capacity improvements would not meet the Highway Design Manual mobility standards</li> </ul>
<b>Signalized Intersections</b>	<ul style="list-style-type: none"> <li>Three signals in both directions along OR 138 between Madrone and Fulton</li> <li>New signal at Douglas &amp; Jackson</li> </ul>	<ul style="list-style-type: none"> <li>Eight eastbound and seven westbound signals along OR 138 between Madrone and Fulton</li> <li>New signals at Odell &amp; Stephens, Odell &amp; Winchester, and Douglas &amp; Jackson</li> <li>Signal phasing changes at Diamond Lake &amp; Stephens and Diamond Lake &amp; Winchester</li> </ul>	<ul style="list-style-type: none"> <li>Three eastbound and four westbound signals along OR 138 between Madrone and Fulton</li> <li>New signals at Odell &amp; Stephens, Odell &amp; Winchester, and Douglas &amp; Jackson</li> <li>Signal phasing changes at Diamond Lake &amp; Stephens and Diamond Lake &amp; Winchester</li> </ul>
<b>Traffic Flow</b>	<ul style="list-style-type: none"> <li>New direct connection from Harvard Ave to Diamond Lake Blvd</li> <li>Washington Avenue would be closed at Spruce St</li> </ul>	<ul style="list-style-type: none"> <li>Stephens St would be one-way southbound from Winchester St to Diamond Lake Blvd</li> <li>Winchester St would be one-way northbound from Diamond Lake Blvd to Stephens St</li> <li>Diamond Lake Blvd would be one-way eastbound from Stephens St to new Odell Ave connection</li> <li>Odell Ave would be one-way westbound from Diamond Lake Blvd connection to Stephens St</li> <li>Downtown accessibility via Jackson St more limited</li> </ul>	<ul style="list-style-type: none"> <li>New direct connection from Harvard Ave to Diamond Lake Blvd</li> <li>Stephens St would be one-way southbound from Winchester St to Diamond Lake Blvd</li> <li>Winchester St would be one-way northbound from Diamond Lake Blvd to Stephens St</li> <li>Diamond Lake Blvd would be one-way eastbound from Stephens St to new Odell Ave connection</li> <li>Odell Ave would be one-way westbound from Diamond Lake Blvd connection to Stephens St</li> <li>Downtown accessibility via Jackson St more limited</li> </ul>
<b>Bridges</b>	<ul style="list-style-type: none"> <li>New bridge would serve traffic to/from north and Diamond Lake Blvd with added demand from south if Oak Ave bridge is one-way</li> <li>Oak Ave bridge could be one-way or two-way and mostly serve downtown and to/from south</li> <li>Washington Ave bridge would be closed</li> <li>Stephens and Diamond Lake bridges over Deer Creek would be widened</li> </ul>	<ul style="list-style-type: none"> <li>Existing Oak and Washington Ave bridges would continue to serve as OR 138</li> </ul>	<ul style="list-style-type: none"> <li>New bridge would serve traffic to/from north and Diamond Lake Blvd</li> <li>Oak Ave bridge would become two-way and mostly serve downtown and to/from south</li> <li>Washington Avenue bridge would be closed</li> </ul>
<b>Queuing</b>	<ul style="list-style-type: none"> <li>Moderate queuing at Stephens/ Diamond Lake intersection</li> <li>Westbound traffic along Oak Ave bridge would queue across river to Spruce with two-way travel</li> <li>Long queues on Diamond Lake at Winchester intersection without additional lane improvements</li> </ul>	<ul style="list-style-type: none"> <li>Two-way couplet and additional travel lanes at existing intersections would generally reduce queues</li> </ul>	<ul style="list-style-type: none"> <li>Moderate queuing at Stephens/ Diamond Lake intersection with addition of new bridge</li> <li>Westbound traffic along Oak Ave bridge would queue across river to Spruce</li> </ul>
<b>Grade Separation between OR 138 and Railroad</b>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>
<b>Bicycle and Pedestrian Facilities</b>	<ul style="list-style-type: none"> <li>New facilities added with bridge directly to Diamond Lake Blvd</li> <li>Large intersections could disrupt bike/ped traffic flow (may explore below grade crossing)</li> </ul>	<ul style="list-style-type: none"> <li>Bikes and enhanced sidewalks added on Diamond Lake Blvd east of Winchester and on Odell Avenue</li> </ul>	<ul style="list-style-type: none"> <li>New facilities added with bridge directly to Diamond Lake Blvd</li> <li>Bikes and enhanced sidewalks added on Diamond Lake Blvd east of Winchester and on Odell Ave</li> </ul>
<b>Transit Facilities</b>	<ul style="list-style-type: none"> <li>More direct route to Diamond Lake Blvd available, although not necessarily desirable from a transit standpoint (more stops to pick up riders)</li> </ul>	<ul style="list-style-type: none"> <li>Existing routes would be split over couplets</li> <li>Some bus pullouts could be added</li> <li>Potentially longer distances to some bus stops</li> </ul>	<ul style="list-style-type: none"> <li>Existing routes would be split over couplets</li> <li>More direct route to Diamond Lake Blvd available although not necessarily desirable</li> <li>Some bus pullouts could be added</li> <li>Potentially longer distances to some bus stops</li> </ul>
<b>Environmental and Land Use</b>			
<b>Goal 5 Resources</b> Natural Resources, Scenic and Historic Areas, and Open Spaces	<ul style="list-style-type: none"> <li>Significant impact to the South Umpqua River due to construction of new and longer span bridge crossing the river diagonally.</li> <li>Significant impact to Deer Creek due to reconstruction and widening of DLB and Stephens Bridges.</li> </ul>	<ul style="list-style-type: none"> <li>No to minimal impact to the South Umpqua River (no bridge construction or reconstruction)</li> <li>Moderate to significant impact to Deer Creek depending upon the extent of improvements at the Stephens/DLB intersection</li> </ul>	<ul style="list-style-type: none"> <li>Significant impact to the South Umpqua River due to construction of new and longer span bridge crossing the river diagonally.</li> <li>Significant impact to Deer Creek due to reconstruction and widening of DLB and Stephens Bridges.</li> </ul>

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	3(a) Harvard-Diamond Lake Alignment (Railroad At Grade)	6(a) Diamond Lake – Odell Couplet	6(b) Diamond Lake – Odell Couplet with Direct Connection
<b>FEMA Floodplain</b>	<ul style="list-style-type: none"> <li>• Significant impact to the floodway areas due to construction of new and longer span bridge crossing the river basin diagonally</li> <li>• Significant impact to floodplain areas due new bridge construction over river embankment and reconstruction and widening of DLB and Stephens Bridges over Deer Creek</li> </ul>	<ul style="list-style-type: none"> <li>• No to minimal impact to Zone AE floodway areas (South Umpqua River/Deer Creek)</li> <li>• Moderate impact to Zone X 100-year floodplain areas depending upon the extent of improvements at the Stephens/DLB intersection</li> </ul>	<ul style="list-style-type: none"> <li>• Significant impact to the floodway areas due to construction of new and longer span bridge crossing the river basin diagonally</li> <li>• Significant impact to floodplain areas due new bridge construction over river embankment and reconstruction and widening of DLB and Stephens Bridges over Deer Creek</li> </ul>
<b>Natural Heritage Database/ Threatened &amp; Endangered (T&amp;E) Listed Species</b>	<ul style="list-style-type: none"> <li>• No T&amp;E listed species documented in the project area.</li> </ul>	<ul style="list-style-type: none"> <li>• No T&amp;E listed species documented in the project area.</li> </ul>	<ul style="list-style-type: none"> <li>• No T&amp;E listed species documented in the project area.</li> </ul>
<b>Historic Resources</b>	<ul style="list-style-type: none"> <li>• Potential impact to one site (236 SE Stephens St.) categorized as Eligible for NRHP list</li> <li>• Indirect impacts from increased noise to Laurelwood historic district</li> <li>• Significant impacts at Douglas County Health Department due to new bridge structure encroaching on parking area</li> </ul>	<ul style="list-style-type: none"> <li>• Potential impact to one site (236 SE Stephens St.) categorized as Eligible for NRHP list</li> <li>• Some roadway widening in downtown historic district</li> </ul>	<ul style="list-style-type: none"> <li>• Potential impact to one site (236 SE Stephens St.) categorized as Eligible for NRHP list</li> <li>• Indirect impacts from increased noise to Laurelwood historic district</li> <li>• Significant impacts at Douglas County Health Department due to new bridge structure encroaching on parking area</li> </ul>
<b>Potential Archeology Sites</b>	<ul style="list-style-type: none"> <li>• No impact based on available information</li> </ul>	<ul style="list-style-type: none"> <li>• No impact based on available information</li> </ul>	<ul style="list-style-type: none"> <li>• No impact based on available information</li> </ul>
<b>Known Hazardous Materials Locations</b>	<ul style="list-style-type: none"> <li>• No to minimal impact based on available information</li> </ul>	<ul style="list-style-type: none"> <li>• No to minimal impact based on available information</li> </ul>	<ul style="list-style-type: none"> <li>• No to minimal impact based on available information</li> </ul>
<b>Potential Wetlands/ Riparian Corridor and Jurisdictional Area of South Umpqua River and Deer Creek</b>	<ul style="list-style-type: none"> <li>• See impacts under <b>Goal 5 Resources</b> category. Additionally, palustrine areas surrounding the South Umpqua River/Deer Creek confluence significantly impacted.</li> </ul>	<ul style="list-style-type: none"> <li>• See impacts under <b>Goal 5 Resources</b> category</li> </ul>	<ul style="list-style-type: none"> <li>• See impacts under <b>Goal 5 Resources</b> category. Additionally, palustrine areas surrounding the South Umpqua River/Deer Creek confluence significantly impacted.</li> </ul>
<b>Parks and Recreation, Section 4(f) and 6(f) Resources</b>	<ul style="list-style-type: none"> <li>• See impacts under <b>Historic Resources</b> category</li> <li>• Existing South Umpqua River bike path impacted by construction and placement of new at-grade five lane roadway connecting Harvard Avenue to DLB</li> <li>• No to minimal impact to parks</li> </ul>	<ul style="list-style-type: none"> <li>• See impacts under <b>Historic Resources</b> category</li> <li>• No to minimal impact to parks or bike paths</li> </ul>	<ul style="list-style-type: none"> <li>• See impacts under <b>Historic Resources</b> category</li> <li>• Existing South Umpqua River bike path impacted by construction and placement of new at-grade five lane roadway connecting Harvard Avenue to DLB</li> <li>• No to minimal impact to parks</li> </ul>
<b>Community Features</b>	<ul style="list-style-type: none"> <li>• Significant impacts at Douglas County Health Department due to new bridge structure encroaching on parking area</li> </ul>	<ul style="list-style-type: none"> <li>• No to minimal impact to community features</li> </ul>	<ul style="list-style-type: none"> <li>• Significant impacts at Douglas County Health Department due to new bridge structure encroaching on parking area</li> </ul>
<b>Socioeconomic and Environmental Justice</b>	<ul style="list-style-type: none"> <li>• Minimal impact to tribal properties held in trust (unless the Oak Avenue Bridge requires widening)</li> </ul>	<ul style="list-style-type: none"> <li>• Minimal impacts expected to Cow Creek tribal properties held in trust.</li> </ul>	<ul style="list-style-type: none"> <li>• Minimal impact to tribal properties held in trust (unless the Oak Avenue Bridge requires widening)</li> </ul>
<b>Air Quality</b>	<ul style="list-style-type: none"> <li>• No conflict anticipated</li> </ul>	<ul style="list-style-type: none"> <li>• No conflict anticipated</li> </ul>	<ul style="list-style-type: none"> <li>• No conflict anticipated</li> </ul>
<b>Existing Land Uses</b>	<ul style="list-style-type: none"> <li>• See <b>Community Features, Historic Resources and Parks and Recreation</b></li> <li>• Properties around Stephens/Diamond Lake intersection would be impacted by widening and realignment to north</li> <li>• Significant short term economic development stimulus</li> <li>• Significant potential long term economic development stimulus</li> </ul>	<ul style="list-style-type: none"> <li>• Potential disruption to downtown businesses if downtown turning radii are widened along the designated Hwy 138 route</li> <li>• Demolition of properties in the Odell alignment</li> <li>• Disruption expected in vicinity of DLB and Stephens</li> <li>• Significant short term economic development stimulus</li> <li>• Moderate potential long term economic development stimulus</li> </ul>	<ul style="list-style-type: none"> <li>• See <b>Community Features, Historic Resources and Parks and Recreation</b></li> <li>• Demolition of properties in the Odell alignment</li> <li>• Properties around Stephens/Diamond Lake intersection would be impacted by widening and realignment to north</li> <li>• Significant short term economic development stimulus</li> <li>• Significant potential long term economic development stimulus</li> </ul>
<b>Applicable Land Use Plans, Policies, Studies and Reports</b>	<ul style="list-style-type: none"> <li>• Alternative is listed in the Roseburg Comprehensive Plan (TSP)</li> </ul>	<ul style="list-style-type: none"> <li>• In keeping with applicable plans</li> </ul>	<ul style="list-style-type: none"> <li>• Alternative is listed in the Roseburg Comprehensive Plan (TSP)</li> </ul>
<b>Land Use Goal Exceptions</b>	<ul style="list-style-type: none"> <li>• Goal exception allowed due to project listed on Roseburg Transportation System Plan</li> </ul>	<ul style="list-style-type: none"> <li>• No goal exception requirement anticipated</li> </ul>	<ul style="list-style-type: none"> <li>• Goal exception allowed due to project listed on Roseburg Transportation System Plan</li> </ul>
<b>Visual Resources</b>	<ul style="list-style-type: none"> <li>• Visual impact of new bridge spanning across Elk Island.</li> </ul>	<ul style="list-style-type: none"> <li>• Visual impact to Diamond Lake Boulevard and Odell Avenue</li> </ul>	<ul style="list-style-type: none"> <li>• Visual impact of new bridge spanning across Elk Island.</li> <li>• Visual impact to Diamond Lake Boulevard and Odell Avenue</li> </ul>
<b>Noise Impacts</b>	<ul style="list-style-type: none"> <li>• New bridge directly to Diamond Lake Blvd will move traffic noise further north and closer to the Laurelwood neighborhood</li> </ul>	<ul style="list-style-type: none"> <li>• Residences north of Diamond Lake Boulevard and east of Stephen Street will be impacted</li> </ul>	<ul style="list-style-type: none"> <li>• New bridge directly to Diamond Lake Blvd will move traffic noise further north and closer to the Laurelwood neighborhood</li> <li>• Residences north of Diamond Lake Boulevard and east of Stephen Street will be impacted</li> </ul>
<b>Cost Opinions (2007 Dollars)</b>			
	• \$74 million	• \$14 million	• \$82 million