

## 4. INITIAL CONCEPT DEVELOPMENT AND SCREENING

A coordinated effort by the project team and members of the three oversight committees (Citizen Advisory, Technical Advisory, and Steering) led to 17 initial study area design concepts and options for consideration. Through the development and application of screening criteria, the list of design concepts and options were reduced to six alternatives to be forwarded for further analysis of how they would function under year 2030 conditions, further assessment of impacts, and preliminary cost opinions. Each of the 17 design concepts and options were presented for public review during an Open House held on April 11, 2007.

The screening process was revisited later during the course of the study when two additional design concepts were forwarded for consideration by members of the CAC and TAC.<sup>1</sup> Hence, a total of 19 design options ultimately went through the screening process.

This section describes the 19 design concepts and options for the study area and the screening process utilized to identify fatal flaws that removed some of the design options from further consideration. It concludes with a summary of written comments submitted during a public Open House at the Douglas County Library plus additional presentations by Oregon Department of Transportation (ODOT) staff to various local organizations.

### Screening Criteria

The screening criteria used to identify alternatives for more detailed evaluation reflect the projects Purpose and Need statements plus Goals and Objectives. The Initial Circulation Option Screening Matrix displayed in Exhibit 4-1 indicates how the various concepts and design options were assessed based on fatal flaw analysis and the extent to which they were considered to meet the criteria. The screening criteria are divided into seven categories plus a relative cost assessment as follows:

- **Project Purpose:** To what extent do the concept and design options address the mobility, safety, connectivity, and multi-modal needs of Highway 138 within the study area?
- **Traffic Flow:** The concepts and design options are assessed on whether they provide a solution that meets future regional and through travel demand along the corridor, whether it adheres to State, County, and local planning efforts, and whether they enhance local freight access.
- **Connectivity:** Under this category, the matrix indicates the concepts and design options that provide a grade-separated railroad crossing versus those that do not, assesses the extent to which they protect access and minimize disruption to existing circulation in the downtown vicinity, and considers whether they provide a solution that could enhance economic development.

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<sup>1</sup> The Steering Committee (SC) did not review the Concept 6 design options until after Open House #4

- **Environmental Impacts:** To what extent do the concepts and design options avoid or impact wetlands and aquatic/terrestrial wildlife habitat?
- **Cultural Impacts:** Under this category, the concepts and design options are assessed based on the extent to which they impact recreational resources, properties listed or eligible for listing on the NRHP, the Downtown, Laurelwood, and Mill-Pine Historic Neighborhoods, known archaeological resources, and the extent to which the concepts and options protect and enhance existing neighborhoods and businesses.
- **Safety:** The concepts and design options are assessed based on whether they mitigate safety problems on Highway 138.
- **Multi-Modal:** To what extent do the concepts and design options improve linkages for non-auto travel modes?

## **Circulation Concepts and Design Options**

The project team and oversight committees developed 19 design options that can be categorized under six concepts. The Concept 1 design options attempt to enhance the existing corridor to the greatest extent possible. Concepts 2 through 4 all reroute the corridor from its current alignment and are differentiated by whether they keep the alignment largely in the vicinity of downtown (Concept 2), provide a direct Harvard Avenue to Diamond Lake Boulevard connection (Concept 3), or utilize existing uphill topography north of Diamond Lake Boulevard to ensure a grade separation of the railroad line (Concept 4). Concept 5 introduces a new bridge over the South Umpqua River south of downtown and outside the study area boundaries aligned with Portland Avenue, which connects with Interstate 5 at Exit 123. Finally, Concept 6 is a couplet system in the northern section of the study area with Diamond Lake Boulevard and Odell Avenue forming the east-west couplet, and Stephens Street and Winchester Street forming north-south.

### ***Concept 1: Existing Corridor Alignment with Intersection Capacity Improvements***

Design options under Concept 1 preserve the existing Highway 138 corridor alignment by implementing improvements to the system designed to maximize its efficiency. The three design options displayed in Figure 4-1 and described below could be incorporated individually or in tandem with each other or some of the other concepts described in this section.

#### **Design Option 1(a): Intersection Capacity Enhancements**

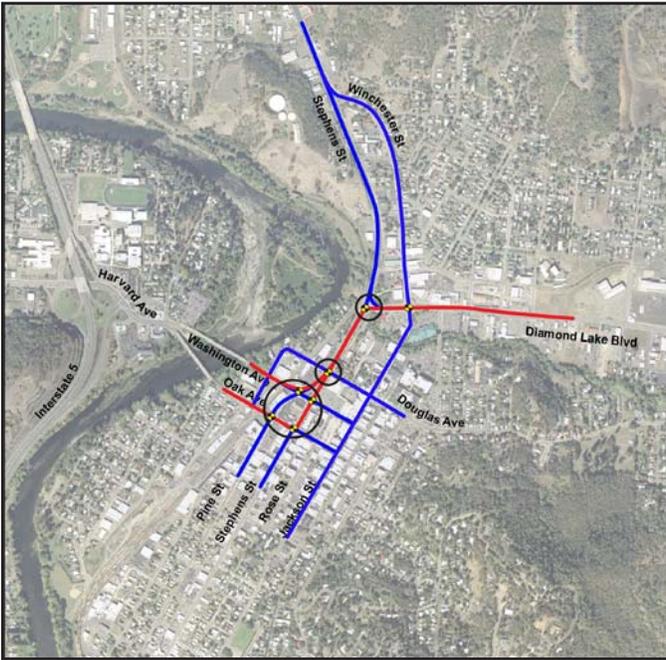
This design option would focus on the three primary intersections within the downtown: Stephens/Diamond Lake Boulevard; Stephens/Douglas; and the four intersections where the Washington/Oak and Stephens/Pine couplets converge. Improvements at these locations could range from simply re-striping to larger scale improvements such as increasing existing turning radii and adding lanes. Incorporating potential southbound left turn movements onto Douglas Avenue off of Stephens Street have been explored in the past and have been deemed to be not workable.

# Exhibit 4-1. Initial Circulation Options Screening Matrix

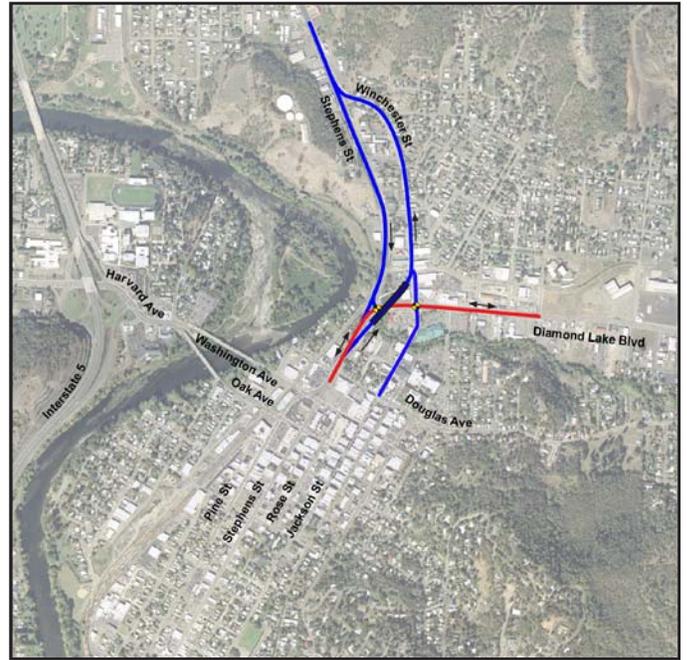
	DESIGN CONCEPTS																		
	Existing Corridor Improvements			Downtown Realignment					Direct Realignment				Northern Grade Separated Realignment				Portland Ave. Bridge	Diamond Lake - Odell Couplet	
	1a	1b	1c*	2a	2b	2c	2d	2e	3a	3b	3c	3d*	4a	4b	4c	4d	5	6a	6b
<b>PROJECT PURPOSE</b>																			
Does the concept address mobility, safety, connectivity, and multi-modal needs on Highway 138 between I-5 Exit 124 and Fulton Street?	●	○	*	●	●	●	●	●	●	●	●	*	●	●	●	●	○	●	●
<b>TRAFFIC FLOW</b>																			
Does the concept provide a solution that meets the future demand for regional and through travel to/from and between I-5 and the North Umpqua Highway (OR 138)?	●	○	*	●	●	●	●	●	●	●	●	*	●	●	●	●	○	●	●
Does the concept provide a transportation solution in keeping with State, County, and City planning efforts?	⊙	○	*	⊙	⊙	⊙	⊙	⊙	●	⊙	⊙	*	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Does the concept improve freight access to and from I-5 to Highway 138?	⊙	○	*	●	●	●	●	●	●	●	●	*	●	●	●	●	○	⊙	●
<b>CONNECTIVITY</b>																			
Does the concept provide relief from restricted east-west travel when trains pass through?	○	○	*	○	○	○	○	○	○	●	●	*	●	●	●	●	●	○	○
Does the concept provide a solution that protects access and minimizes disruption to existing circulation to and within the downtown?	⊙	⊙	*	⊙	⊙	⊙	●	●	●	○	●	*	○	⊙	⊙	●	●	⊙	⊙
Does the concept provide a solution that enhances economic development opportunities?	⊙	○	*	●	●	⊙	●	⊙	●	●	●	*	●	●	●	●	○	●	●
<b>ENVIRONMENTAL IMPACTS</b>																			
Does the concept avoid or minimize impacts to wetlands and Waters of the State or US?	●	●	*	⊙	○	⊙	○	○	○	○	○	*	○	○	○	○	○	●	○
Does the concept avoid or minimize impacts to aquatic and terrestrial wildlife habitat?	●	●	*	⊙	○	⊙	○	○	○	○	○	*	○	○	○	○	○	●	○
<b>CULTURAL IMPACTS</b>																			
Does the concept avoid or minimize adverse impacts to Section 4(f) resources?	●	●	*	●	○	⊙	○	○	⊙	●	○	*	●	●	●	●	?	●	⊙
Does the concept avoid adverse impacts to properties listed, or eligible for listing, on the National Register of Historic Places?	●	●	*	●	○	⊙	○	○	⊙	●	○	*	●	●	●	●	?	●	●
Does the concept avoid adverse impacts to the historic neighborhood districts?	Downtown	⊙	●	*	⊙	⊙	⊙	○	●	⊙	⊙	*	●	●	●	●	⊙	⊙	⊙
	Laurelwood	●	●	*	●	●	●	●	●	●	⊙	*	⊙	⊙	⊙	⊙	●	●	●
	Mill-Pine	●	●	*	●	●	●	●	●	●	●	*	●	●	●	●	⊙	●	●
Does the concept avoid adverse impacts to archaeological resources?	●	●	*	●	●	●	●	●	●	●	●	*	●	●	●	●	?	●	●
Does the concept provide a transportation solution that protects and enhances existing neighborhoods and businesses?	●	○	*	⊙	⊙	⊙	○	○	●	○	⊙	*	○	○	⊙	○	●	○	○
<b>SAFETY</b>																			
Does the concept mitigate safety impacts on Highway 138?	●	○	*	●	●	●	●	●	●	●	●	*	●	●	●	●	○	●	●
<b>MULTI-MODAL</b>																			
Does the concept improve linkages for non-auto travel modes (e.g. bicycle, pedestrian, transit)?	○	○	*	⊙	⊙	⊙	⊙	⊙	●	●	●	*	●	●	●	●	●	●	●
<b>RELATIVE COST (\$, \$\$, \$\$\$, \$\$\$\$\$, \$\$\$\$\$\$)</b>	\$	\$	*	\$\$	\$\$	\$\$\$	\$\$\$	\$\$\$	\$\$\$\$	\$\$\$\$\$	\$\$\$\$\$	*	\$\$\$\$\$	\$\$\$\$\$	\$\$\$\$\$	\$\$\$\$\$	\$\$\$	\$	\$\$\$\$
<b>CONCEPTS RECOMMENDED FOR MODELING</b>	YES			YES		YES			YES			YES	YES						

\* Proposed during the TAC meeting, not assessed for compliance with screening criteria

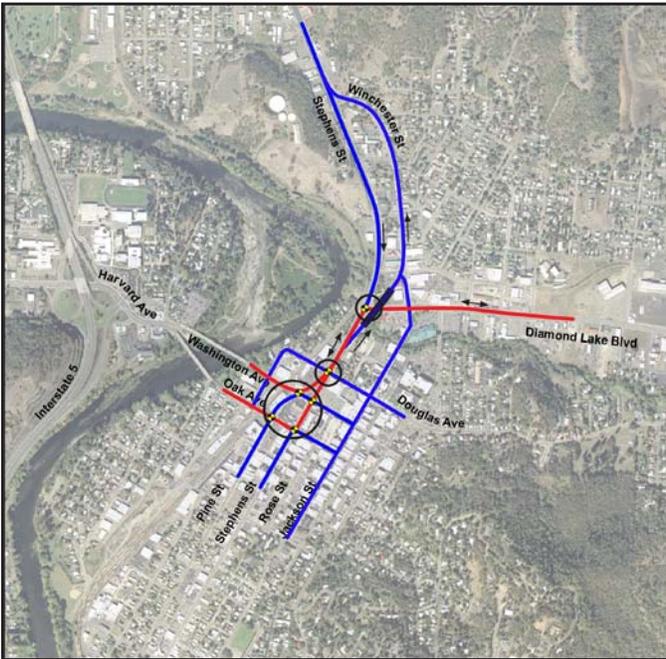
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**Concept 1a: Intersection Capacity Enhancements**



**Concept 1b: Winchester/Stephens Couplet**



**Concept 1c: Combine Capacity Enhancements and Couplet (1a and 1b)**

**Legend**

-  Highway 138 Alignment
-  Surrounding Streets
-  Bridge
-  Traffic Signal



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*Roseburg, Oregon*

**Figure 4-1**

*Existing Corridor Improvements*

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Intersection improvements at the Stephens/Diamond Lake Boulevard intersection are likely to include additional travel lanes and possibly reorienting the intersection to provide some wider turning radii and reducing the number of stopped movements at the signal.

### Potential Impacts

If improvements are limited to re-striping, physical impacts to the downtown vicinity could be minimal. However, larger scale enhancements that widen intersection turning radii or add travel lanes will directly affect adjacent downtown city blocks, portions of which would have to be acquired for new roadway alignments.

Improvements at the Stephens/Diamond Lake intersection could impact the two bridges that cross Deer Creek and could potentially require widening one or both structures. This would give rise to potential environmental impacts and structural work would increase the cost of this option. Widening and/or reorienting the intersection could also impact adjacent properties.

Although Design Option 1(a) is generally considered to be the lowest cost option, a common concern raised by the three oversight committees regarding this design concept is that it may at best provide minimal traffic flow improvements. The design option, along with Design Option 1(b) is considered to have the least environmental impact and low cultural impacts.

### Screening Results

The three oversight committees recommended that Design Option 1(a) be forwarded as an alternative for further analysis.

### Design Option 1(b): Winchester/Stephens Couplet

This design option concept incorporates a couplet aligned with Winchester Street (northbound) and Stephens Street (southbound) north of Diamond Lake Boulevard. Motorists traveling southbound on Stephens Street and destined for downtown would follow the right lane(s) and continue south, merging with traffic veering southbound off of Diamond Lake Boulevard. Southbound motorists on Stephens Street destined for Diamond Lake Boulevard would follow left lanes to a signalized T-intersection with Diamond Lake Boulevard. At the southern end of the new couplet, northbound traffic destined to points north of Diamond Lake Boulevard would veer to the right onto an overpass that flies over Diamond Lake Boulevard and aligns with Winchester until it reconnects back to Stephens Street. Northbound motorists destined for Diamond Lake Boulevard would use the far left lane(s) to turn onto Diamond Lake Boulevard. Westbound traffic on Diamond Lake Boulevard could stay on the roadway as it veers south onto Stephens Street and into downtown, or if heading to points north, turn right onto a short two-way portion of Winchester Street and merge with the northbound one-way lanes of Winchester Street.

### Potential Impacts

Although not a likely stand-alone option, Design Option 1b could potentially be incorporated into other Concept 1 and 2 design options. Concerns expressed by the committees centered on

impacts to surrounding neighborhoods and intersections along Winchester Street and that the design option does not meet project purpose. Nonetheless, there was some interest in exploring the possibility of merging the design option perhaps with some of the other concepts and design options under consideration. Ultimately, it was agreed upon by members of the TAC to screen a third design option under Concept 1 that combines the Design Options 1(a) and 1(b).

### **Screening Results**

The three oversight committees were in agreement that Design Option 1(b) should not advance as a standalone alternative for analysis. However, the TAC recommended screening a third design option under Concept 1 that folds Design Option 1(b) with 1(a).

### **Design Option 1(c): Combined Capacity Improvements and Couplet**

The TAC recommended a third Concept 1 design option be screened for consideration that consolidated the intersection capacity enhancements that are the centerpiece of Design Option 1(a) with the Stephens/Winchester couplet proposal of Design Option 1(b).

### **Potential Impacts**

The impacts associated with Design Concepts 1(a) and 1(b) is also applicable with Design Option 1(c). The potential benefits of incorporating the improvements may not offset the substantial impacts expected along the Winchester corridor and adjacent neighborhoods, coupled with potential disruption of downtown city blocks.

### **Screening Results**

Although the design proposal was not presented to the CAC, the TAC and SC were both in agreement that this design option should not advance as an alternative for further analysis.

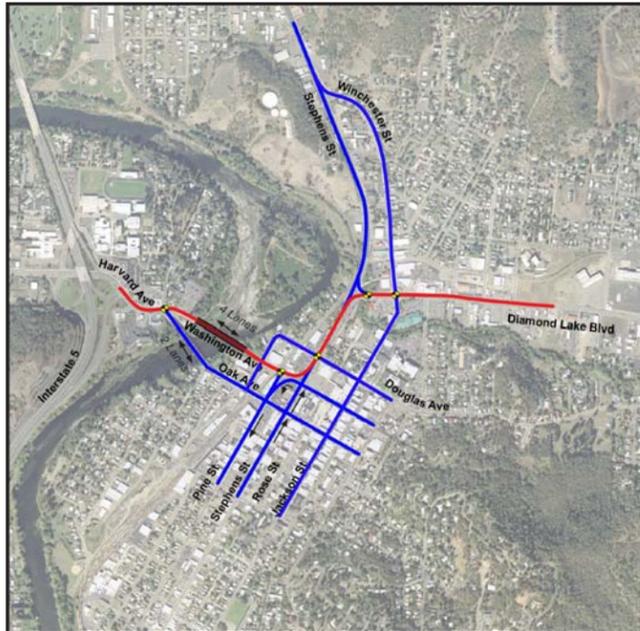
## ***Concept 2: Downtown Realignment***

The varying design options discussed under this concept incorporate a new Highway 138 alignment into the existing downtown grid (see Figure 4-2) – placing prioritization of traffic flow through downtown on the newly realigned highway. The design options utilize the existing couplet bridges or build a parallel new bridge aligned with or in proximity to Douglas Avenue. The section of the realigned downtown highway between the bridges and where it arcs northward towards Diamond Lake Boulevard could potentially be a five-lane corridor with center turn lane or perhaps comprise four-lanes with a boulevard style landscaped median. All design options discussed below utilize the Oak Avenue Bridge and corridor as a secondary two-way auxiliary roadway providing direct access into and out of downtown and points south. None of the design options provide a grade separated crossing of the railroad line. Finally, all options would require some degree of reconfiguring existing streets in the downtown vicinity.

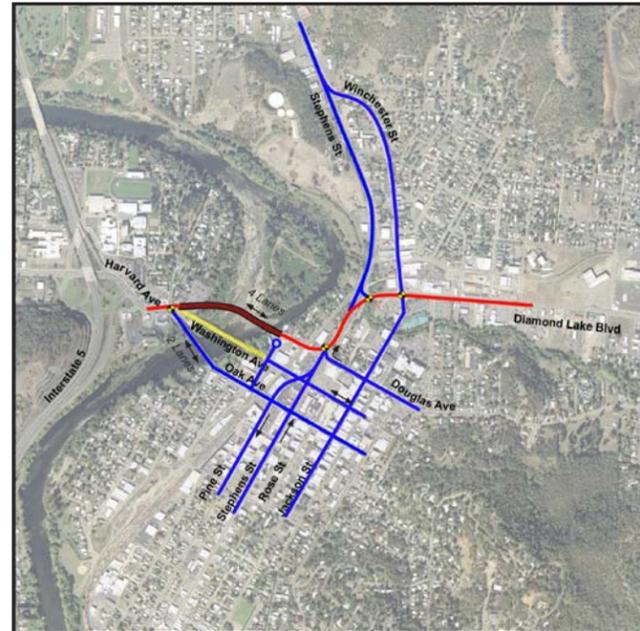
**Highway 138 Corridor Solutions Study**  
*Roseburg, Oregon*

**Legend**

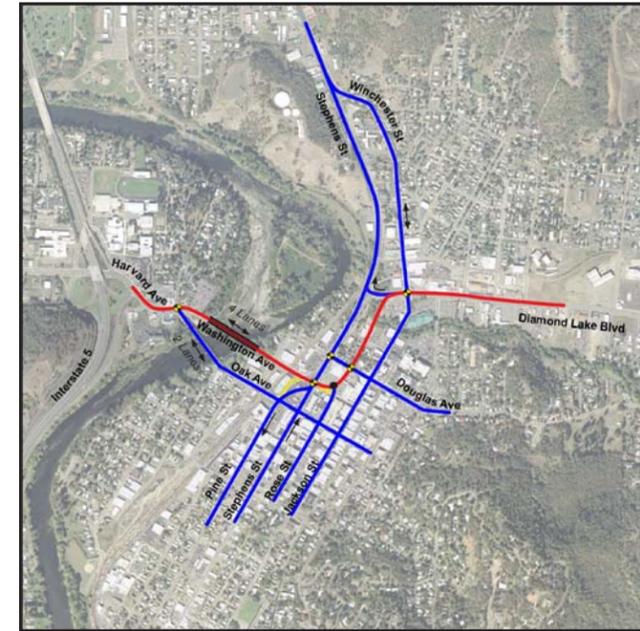
-  Highway 138 Alignment
-  Surrounding Streets
-  Railroad
-  Bridge
-  Vacated Streets
-  Traffic Signal



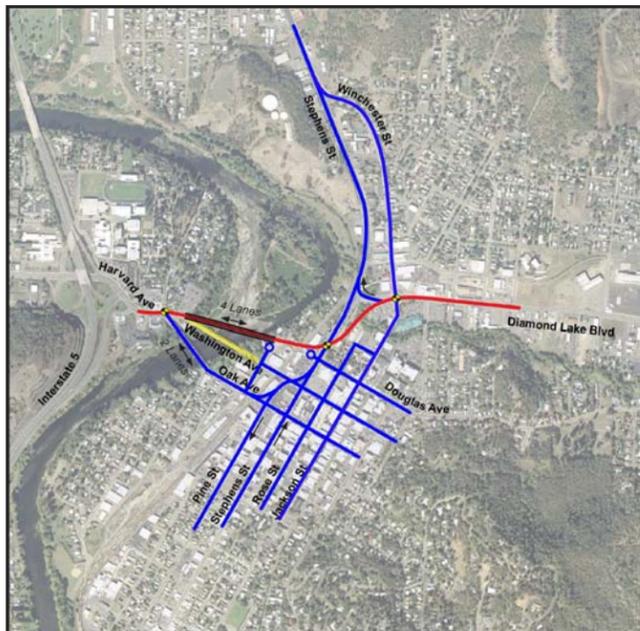
**Concept 2a:** Widen Washington Avenue Bridge:  
 Washington - Stephens - Diamond Lake Alignment



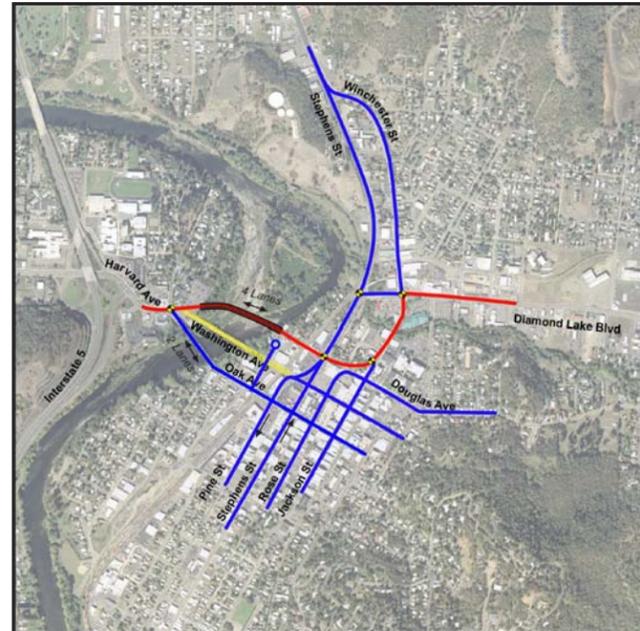
**Concept 2b:** New Bridge: Douglas - Stephens -  
 Diamond Lake Alignment



**Concept 2c:** Widen Washington Avenue Bridge:  
 Washington - Rose - Diamond Lake Alignment



**Concept 2d:** New Bridge: Sweeping Curve to Diamond  
 Lake



**Concept 2e:** New Bridge: Douglas - Jackson - Diamond  
 Lake Alignment



**Figure 4-2**  
 Downtown Realignments

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### Design Option 2(a): Widen Washington Avenue Bridge (Washington-Stephens-Diamond Lake Alignment)

This design option widens the Washington Avenue Bridge to four travel lanes with two-way travel. Past the bridge, the route veers north along the Stephens Street alignment to Diamond Lake Boulevard. Signalized intersections would be positioned at Pine Street, Douglas Avenue, Diamond Lake Boulevard, and Winchester Street. The northbound couplet portion of Stephens Street south of Washington Street would merge onto the reconfigured corridor. Washington Avenue east of Stephens Street could either remain a westbound one-way street or convert to two-way traffic. West of Stephens Street, however, the alignment would be restricted to a one-way eastbound loop south onto Pine street.

The Oak Avenue Bridge could also be converted to a two-way travel but would remain two lanes. Changes to travel patterns on Oak Avenue would further affect traffic flow downtown.

### Potential Impacts

Of the five Concept 2 design options under consideration, Design Option 2(a) has the least amount of impact to the existing downtown alignment and to the physical and cultural environment. The design option is also likely the least costly of the five downtown alignment options under consideration. Nonetheless, depending on the final realignment, the two blocks between Oak and Douglas Avenues and Pine and Stephens Streets could be impacted. The primary concern expressed by the oversight committees was that the design option does not properly address or improve the intersection at Stephens Street and Diamond Lake Boulevard and would therefore require improvements similar to those described for Design Option 1(a) to address concerns at that location.

### Screening Results

With the CAC split on its decisions regarding Design Option 2(a), the TAC and SC voted on the option and forwarded it for consideration as an alternative for further study.

### Design Option 2(b): New Bridge (Douglas-Stephens-Diamond Lake Alignment)

The design option incorporates a new parallel, two-way, four-lane bridge north of the existing Washington Avenue Bridge in alignment with Douglas Avenue. The route would then veer north along Stephens Street and then veer east onto Diamond Lake Boulevard. The Washington Avenue Bridge and corridor would be vacated west of Spruce Street and become a two-way traffic roadway east of Spruce Street. Meanwhile, Spruce Street would stop short of connecting with Douglas Avenue. Signalized intersections would be placed along the new corridor at Douglas Avenue/Stephens Street, Stephens Street/Diamond Lake Boulevard, and Diamond Lake Boulevard/Winchester Street.

As with Option 2(a), the Oak Avenue Bridge could also be converted to a two-way travel but would remain two lanes. Changes to travel patterns on Oak Avenue would further affect traffic flow downtown.

### *Potential Impacts*

Cultural impacts of this design option are considered to be high with regard to Section 4(f) and historic resources. Widening Douglas Avenue to five lanes will impact the Lane House and other nearby historic properties fronting the roadway and the new bridge alignment would also impact Riverside Park. The design option would also have environmental impacts associated with constructing a new bridge over the South Umpqua River. Concern was expressed by members of the oversight committees regarding the potential impacts on the downtown couplet system and how the new alignment would interact with the rest of downtown.

### *Screening Results*

Overall, Design Option 2(b) was deemed to have environmental and cultural impacts while providing minimal to no traffic flow or connectivity advantages over Design Option 2(a). Therefore, the design option was not recommended as an alternative to be considered for further study.

### *Design Option 2(c): Widen Washington Avenue Bridge (Washington-Rose-Diamond Lake Alignment)*

Design Option 2(c) places the two-way, four-lane bridge alignment back on Washington Avenue as in Design Option 2(a). However, this time, Highway 138 crosses Stephens Street and veers north onto the Rose Street alignment toward Diamond Lake Boulevard. The reconfiguration would require signalized intersections through downtown at three locations: Washington Avenue/Stephens Street; Rose Street/Douglas Avenue; and Diamond Lake Boulevard/Winchester Street. The segment of Rose Street south of Washington Avenue would connect with the Highway 138 corridor via a right-in/right-out intersection at the corner where Washington Avenue turns north onto the section of the Rose Street alignment that connects with Diamond Lake Boulevard. Another change under this design option would be the Diamond Lake Boulevard approach to Stephens Street. Although several potential new configurations are possible, designing a connection that does not curtail movements between Stephens Street north of Highway 138 and Diamond Lake Boulevard may prove difficult.

As with the other Concept 2 options, the Oak Avenue Bridge could be converted to a two-way travel but would remain two lanes. Changes to travel patterns on Oak Avenue would further affect traffic flow downtown.

### *Potential Impacts*

Common concerns expressed by members of the oversight committees were the impacts to properties targeted for future development, particularly the old Safeway site and the north side of Douglas Avenue, where a public service building is under consideration. Although there are

some possible historic resources along Rose Street, impacts to these buildings could potentially be avoided or mitigated. Finally, the design option would incorporate two parallel highways through downtown Roseburg.

### Screening Results

Concerns expressed by the oversight committees were substantial. Nonetheless, there was enough interest in seeing more detail on how the design option would operate that it was recommended for advancement as an alternative for further study.

### Design Option 2(d): New Bridge (Sweeping Curve to Diamond Lake Boulevard)

Differing from the other four Concept 2 design options under consideration which generally reroute Highway 138 along the existing alignments of the downtown grid, Design Option 2(d) would initiate a sweeping diagonal S-curve through downtown and towards Diamond Lake Boulevard. The design option would incorporate a new two-way, four-lane bridge over the South Umpqua River that would gradually sweep northward then east where the corridor merges into the existing Diamond Lake corridor. Subsequently, the Washington Avenue Bridge and corridor would be vacated between Harvard Avenue and Spruce Street. The configuration of the highway corridor would require two signalized intersections – one at Stephens Street and the other at Winchester Street – the fewest of the Concept 2 design options. The option would enable an exclusive westbound lane off of Diamond Lake Boulevard that could merge onto northbound Stephens Street.

As with the other Concept 2 options, the Oak Avenue Bridge could be converted to a two-way travel but would remain two lanes. Changes to travel patterns on Oak Avenue would further affect traffic flow downtown.

### Potential Impacts

Some members of the oversight committee noted the potential for addressing the congestion issues in the vicinity of Stephens Street and Diamond Lake Boulevard. Impacts to environmental/cultural resources and surrounding neighborhoods and businesses can be expected. Construction of a new bridge would impact the South Umpqua River. Likewise, the new bridge would cross directly over Riverside Park and the new alignment would impact historic resources. The assessed degree of impact depends upon the specific alignment of the S-curve.

### Screening Results

Due to environmental and cultural impacts, Design Option 2(d) was not recommended by the oversight committees as a viable alternative for further study.

## Design Option 2(e): New Bridge (Douglas-Jackson-Diamond Lake Boulevard)

Similar to Design Option 2(b), this option incorporates a new parallel bridge in alignment with Douglas Avenue north of the existing Washington Avenue Bridge and corridor. However, instead of veering north up Stephens Street, the highway alignment would utilize the Jackson Street alignment to bring Highway 138 traffic up to Diamond Lake Boulevard. The Washington Avenue Bridge and corridor would be vacated between Harvard Avenue and Spruce Street. The realigned corridor would pass through three signalized intersections at Stephens Street, Diamond Lake Boulevard and one at the curve where Washington Avenue turns into Jackson Street to provide access to the segment of Jackson Street south of Washington Avenue. Under the design option, Douglas Avenue would cross Jackson Street and then turn south to become Rose Street.

As with the other Concept 2 options, the Oak Avenue Bridge could be converted to a two-way travel but would remain two lanes. Changes to travel patterns on Oak Avenue would further affect traffic flow downtown.

### Potential Impacts

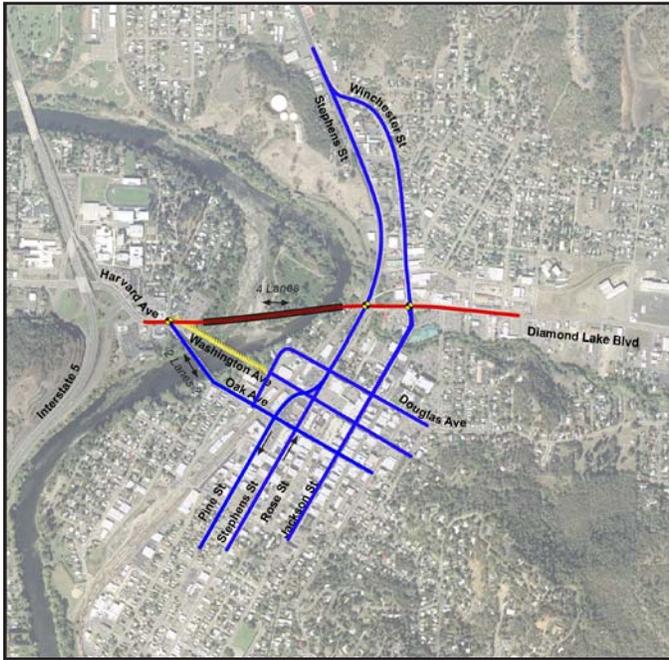
Members of the oversight committees cited possible impacts along Douglas Avenue and Jackson Street. The design option would have impacts associated with the construction of a new bridge across the South Umpqua River. Potential impacts to 4(f) resources and historic properties are considerable given the alignment of the proposed multi-lane roadway directly above Riverside Park and fronting the historic Lane House. In addition, realigning Highway 138 along Jackson Street would permanently alter a primary gateway into the Downtown Neighborhood District. Finally, the oversight committees also expressed concerns that the option merely shifts the current intersection problem occurring at Diamond Lake Boulevard and Stephens Street to the intersection at Winchester Street.

### Screening Results

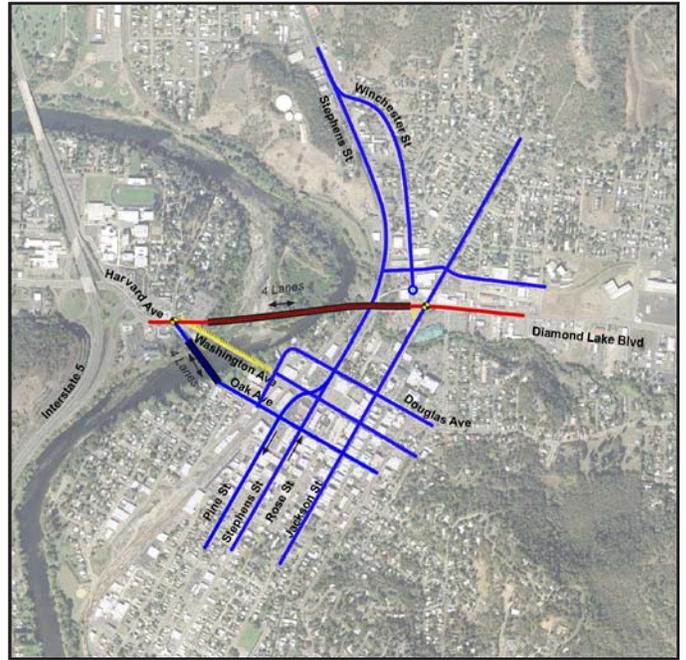
Considering the potential for impacts to environment and cultural resources, plus surrounding neighborhoods and businesses, members of the oversight committees did not recommend Design Option 2(e) for further study as an alternative.

## **Concept 3: Direct Alignment**

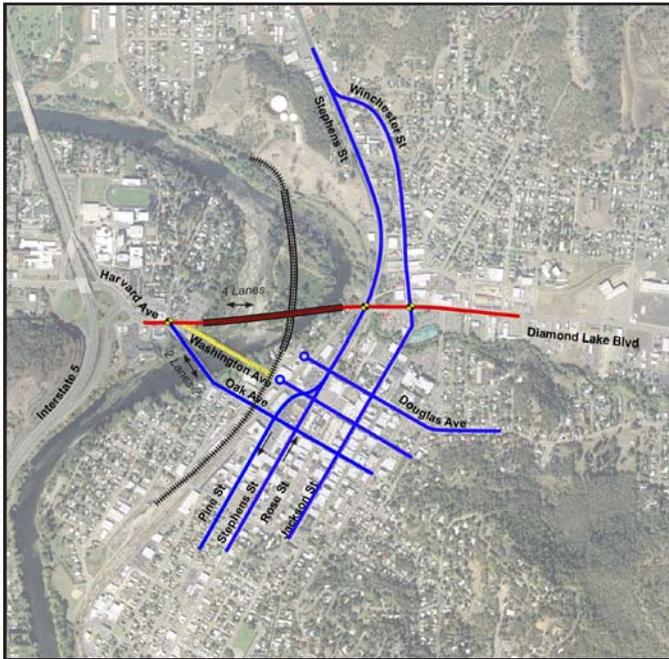
The Direct Alignment design options that comprise Concept 3 all are configured to provide the most direct link between Harvard Avenue west of the South Umpqua River to Diamond Lake Boulevard on the east side of the river. The central feature of all four design options displayed in Figure 4-3 and described below is a new bridge crossing diagonally over the South Umpqua River and southern portion of Elk Island. The Washington Avenue Bridge would likely need to be vacated under all four options. The options are differentiated primarily by whether and how they provide a grade separated crossing over the railroad line. Three of the four design options do provide a grade separated crossing, either by flying over the existing railroad alignment, relocating the railroad, or by elevating the existing railroad line to enable streets to traverse under



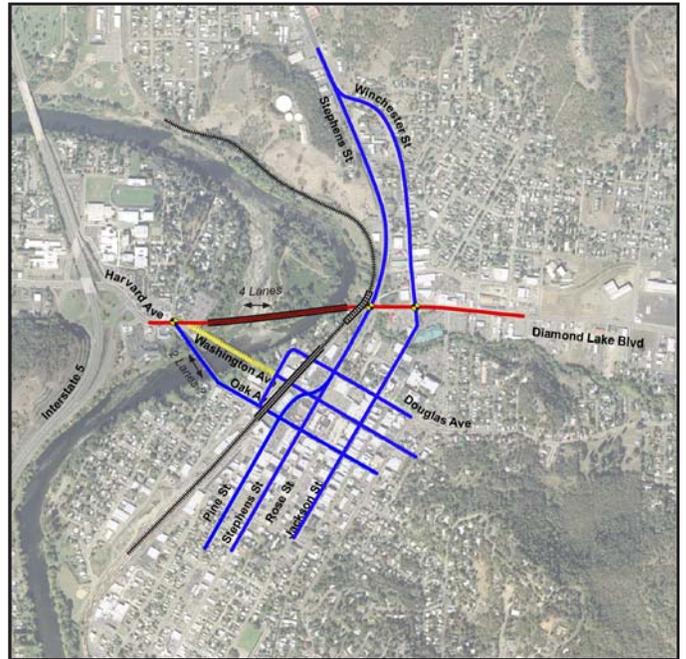
**Concept 3a:** New Bridge: Harvard - Diamond Lake At-Grade Crossing at Railroad/Stephens



**Concept 3b:** New Bridge: Harvard - Diamond Lake Grade Separated Flyover Crossing at Railroad/Stephens



**Concept 3c:** New Bridge: At-Grade Harvard - Diamond Lake at Stephens Supplemented by Railroad realignment



**Concept 3d:** New Bridge: Harvard - Diamond Lake Elevated Railroad

**Legend**

-  Highway 138 Alignment
-  Surrounding Streets
-  Railroad
-  Bridge
-  Vacated Streets
-  Traffic Signal



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**Figure 4-3**  
Direct Alignments

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the line. Currently unknown is whether the Oak Avenue Bridge will need to be widened to four lanes (two lanes in each direction) under all design option scenarios. If the new alignment flies over Stephens and Winchester Street with no access as with Design Option 3(b), the required bridge widening will be a certainty. Otherwise, widening of the Oak Avenue Bridge is an unknown with regards to the other three design options.

### Design Option 3(a): New Bridge (Harvard-Diamond Lake Boulevard At-Grade Crossing at Railroad/Stephens Street)

Under Design Option 3(a), the east end of the bridge would cross the existing railroad line at grade and connect with Stephens Street at a signalized crossing before proceeding eastward along the existing Diamond Lake Boulevard alignment. The existing two lane configuration of the Oak Avenue Bridge may be sufficient for two-way travel to and from downtown and points south under this option. However, further analysis would be needed to confirm that a widened four lane bridge would not be necessary.

#### Potential Impacts

In all likelihood, Design Option 3(a) would be the least expensive of the options considered under Concept 3; however, the common deficiency noted by the oversight committees on this design option is the lack of a grade-separated railroad crossing.

Other issues include the potential wetlands impacts and possibly some cultural impacts to historic and 4(f) resources. An existing dwelling considered potentially eligible for listing on the National Register of Historic Places lies near the most direct alignment between Harvard Avenue and Diamond Lake Boulevard. The new roadway would also cross an existing multi-use trail popular with bicyclists, pedestrians, and other recreational users.

#### Screening Results

The design option was recommended by the oversight committees for advancement as an alternative for further study.

### Design Option 3(b): New Bridge (Harvard-Diamond Lake Boulevard Grade-Separated Flyover Crossing at Railroad/Stephens Street)

Design Option 3(b) would continue the new bridge east of the river, over the railroad line and Stephens Street landing at a point west of Jackson Street. Subsequently, the configuration would require that Winchester Street terminates short of connecting with Diamond Lake Boulevard. The southern segment of Jackson Street would reconnect with the northern portion as a continuous street crossing Diamond Lake Boulevard as a signalized intersection. Because the grade-separated crossing of Stephens would require traffic to/from Stephen Street north of Diamond Lake Boulevard to travel through downtown, Design Option 3(b) would require that the Oak Avenue Bridge be widened to four lanes with two-way traffic flow.

### *Potential Impacts*

While this would provide more efficient movement of through traffic from Harvard Avenue to Diamond Lake Boulevard and points east and the option provides a grade-separated crossing of the existing railroad line, the trade-off is diminished access to downtown and surrounding neighborhoods from the realigned elevated highway. The option would eliminate direct access from Diamond Lake Boulevard to Stephens Street and would eliminate through access into downtown from Winchester. The option would also impose environmental impacts with the construction of a new bridge and the widening of the existing Oak Avenue Bridge

### *Screening Results*

Due primarily to poor connections on the east side coupled with downtown and neighborhood impacts, the design option was not recommended by the oversight committees for advancement as an alternative for further study.

### **Design Option 3(c): New Bridge (Harvard-Diamond Lake with At-Grade Stephens Crossing Supplemented by Railroad Realignment)**

This design option would incorporate the identical bridge configuration and cross traffic at Stephens Street and Winchester Street as Design Option 3(a). The difference would be that the railroad would be rerouted and a bridge would be constructed over the South Umpqua River and Elk Island. Rerouting the railroad line would begin in the vicinity of Oak Avenue and along the Spruce Street alignment, travel through existing neighborhoods and parks across the river, and reconnect on its existing alignment on the opposite side of the river from the Laurelwood neighborhood. The downtown grid pattern west of Stephens Street would be disrupted under the option because the railroad realignment would require that Washington and Douglas Avenues terminate at the new railroad alignment.

### *Potential Impacts*

Although the design option provides a solution for separating railroad operations from arterial traffic circulation, the environmental and cultural impacts are substantial. Aligning the railroad down Spruce Street would impact historic structures in the vicinity of the Lane House and bisect Riverside Park. This option would also result in a substantial volume of new fill within the South Umpqua River floodway.

### *Screening Results*

The design option was not recommended by the oversight committees for consideration as an alternative for further study due to the environmental and cultural impacts.

### Design Option 3(d): New Bridge (Harvard-Diamond Lake with Elevated Railroad)

The CORP presented members attending the TAC meeting with a design option that would elevate the railroad over several existing downtown roadways and a new direct bridge connection from Harvard Avenue to Diamond Lake Boulevard. This option would gradually elevate the existing railroad bed starting from the south in the vicinity of Mosher Avenue to a point where the line goes over Oak, Washington, and Douglas Avenues as an overpass and then continues north and over the realigned Highway 138 at Diamond Lake Boulevard, before descending north of the Diamond Lake Boulevard corridor to its existing grade. Because this option would eliminate several at-grade railroad crossings without impacts to the existing downtown grid, members of the TAC recommended forwarding Design Option 3(d) for screening.

#### Potential Impacts

The design scenario would impose visual and noise impacts. An ideal clearance for vehicles passing under railroad tracks would be 17 feet. Thus, trains passing through the downtown vicinity could possibly be elevated more than 20 feet above street level. The design option would pose impacts to the Mill-Pine Neighborhood and cross streets such as Mosher Avenue, which serves as a primary access point into Mill-Pine, and Lane Avenue. Finally, the option will impose historic impacts from the old railroad station (operated as a restaurant by McMenamin Brothers) to the historic properties along Spruce Street, Douglas Avenue, and Pine Street.

#### Screening Results

Although the design proposal was not presented to the CAC, the TAC and SC were both in agreement that this design option be advanced as an alternative for further analysis.

### **Concept 4: Northern Grade-Separated Alignment**

Design options under Concept 4 attempt to utilize the existing topography to align a new bridge that crosses over the railroad line. North of Diamond Lake Boulevard, the railroad line stays along the level banks of the South Umpqua River while Stephens Street and the surrounding landscape east of the corridor ascend uphill – thus enabling a bridge to cross over the railroad with shorter distances to descend onto the surface streets. As displayed in Figure 4-4, all design options under consideration incorporate bridges over the river and Elk Island to align north and parallel to the existing Highway 138 route along Diamond Lake Boulevard, reconnecting with the existing corridor at a point east of Jackson Street. The design options would also require vacating the Washington Avenue Bridge and widening Oak Avenue Bridge to four-lane, two-way traffic due to access limitations with some of the new bridge configurations.

### Design Option 4(a): New Bridge (Flyover Railroad/Access via Jackson Street)

Under this design option, the eastern terminus of the bridge aligns with Rowe/Odell Avenues, descending to a signalized intersection at Jackson Street north of Diamond Lake Boulevard. The limited bridge clearance at Winchester Street would require closing Winchester Street north of Odell Avenue and eliminating existing north-south through access to Diamond Lake Boulevard.

#### Potential Impacts

Of the four Concept 4 options under consideration, Design Option 4(a) is considered to have the most disruption to circulation and access in the project area because of the closure of Winchester Street to through travel and the lack of connection to Stephens Street. The option would impose impacts to wetlands and wildlife in the vicinity where it crosses South Umpqua River, Deer Creek and Elk Island. Likewise, the design option would impose a sizeable impact on adjacent neighborhoods and businesses.

#### Screening Results

Although the Citizen Advisory Committee voted against forwarding this option, the other two oversight committees recommended the design option be advanced as an alternative for further analysis.

### Design Option 4(b): New Bridge (Access with Right-In/Right-Out Ramps)

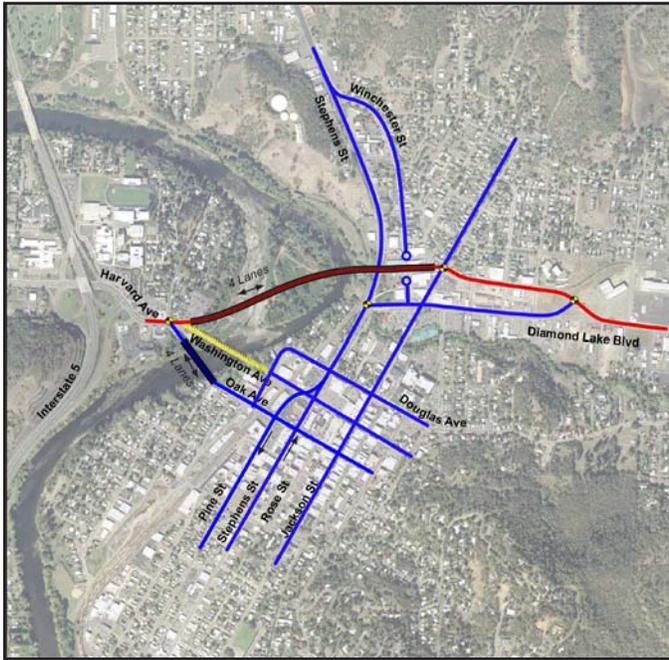
The option follows the identical alignment as Design Option 4(a) with the difference being the incorporation of right-in/right-out ramps at an elevated intersection with Winchester Street. These ramps would link the bridge with Winchester Street, Diamond Lake Boulevard and Stephens Street.

#### Potential Impacts

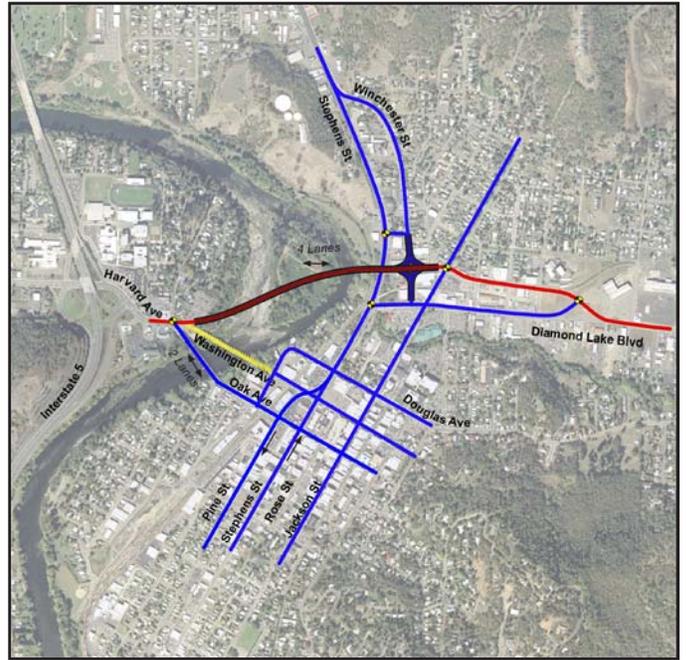
The on and off ramps at the eastern end of the bridge would provide improved access to Stephens and Winchester Streets and the surrounding neighborhoods. However, the elevated intersection and ramps would be visually imposing and through travel on Winchester Street would still not be possible. The option would also impose impacts to wetlands, wildlife and adjacent neighborhoods and businesses.

#### Screening Results

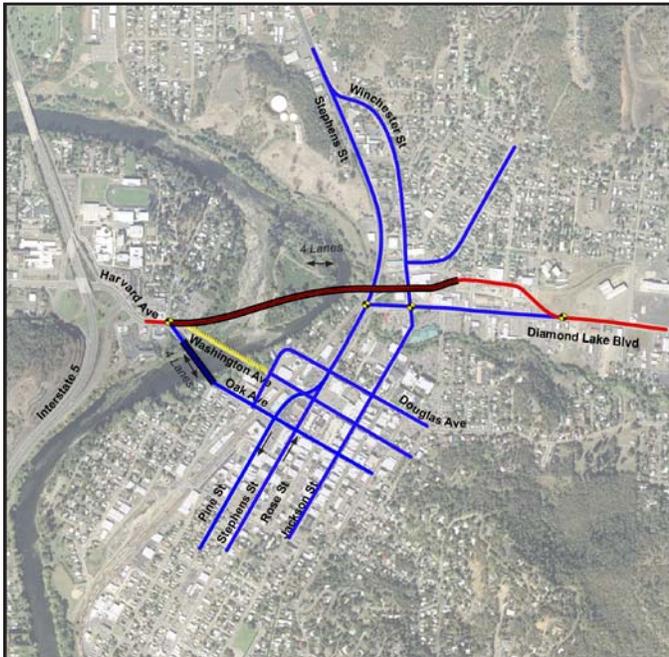
The design option was not recommended by the oversight committees for consideration as an alternative for further study due to the visual, environmental and business impacts.



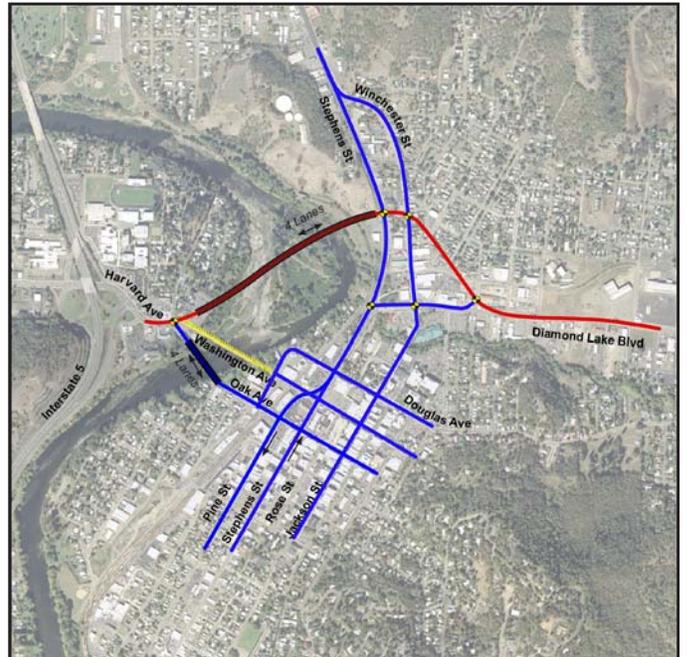
**Concept 4a:** New Bridge: Access via Jackson



**Concept 4b:** New Bridge: Right-In/Right-Out Access Ramps



**Concept 4c:** New Bridge Flyover Railroad/Stephens/Winchester



**Concept 4d:** New Bridge: Wright - Washington - Odell Alignment

**Legend**

-  Highway 138 Alignment
-  Surrounding Streets
-  Bridge
-  Vacated Streets
-  Traffic Signal



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**Figure 4-4**

*North Grade-Separated Alignments*

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### Design Option 4(c): New Bridge (Flyover Railroad/Stephens/Winchester)

The advantage of this design option is that it would enable all the existing surface streets in the vicinity to remain intact (with the exception of Washington Avenue from Harvard Avenue to Spruce Street). The eastern terminus of the new bridge would align between Diamond Lake Boulevard and Rowe/Odell Avenues, clearing both Stephens and Winchester Streets, thereby allowing for the continued north-south service that those streets currently provide. However, the added bridge clearance would be at the expense of existing businesses in that block and a longer bridge through the surrounding neighborhood that would not reconnect to grade level until somewhere near Jackson Street.

#### Potential Impacts

A longer bridge section east of the river would be necessary to clear both Stephens and Winchester Streets. Subsequently, the bridge would impact businesses north of Diamond Lake Boulevard and provide no access onto Stephens and Winchester Streets. The option would also impose impacts to wetlands, wildlife and adjacent neighborhoods and businesses.

#### Screening Results

The design option was not recommended by the oversight committees for consideration as an alternative for further study due to concerns that the route would bypass the city and impose undue environmental and business impacts.

### Design Option 4(d): New Bridge (Wright-Odell Alignment)

The northernmost of the Concept 4 options, Design Option 4(d) would enable the new Highway 138 alignment to bridge the railroad while directly connecting with Stephens Street and Winchester Street at-grade. The new Highway 138/Stephens Street intersections would need to be repositioned in alignment with Wright Avenue approximately 1,000 feet north of the Diamond Lake Boulevard, cross Winchester Street, then veer in a southeasterly direction toward Diamond Lake Boulevard.

#### Potential Impacts

The new alignment would impact residential and commercial areas in the vicinity while providing a circuitous connection to Diamond Lake Boulevard. The uphill slope in the northbound direction along Stephen Street could impose problems for vehicles, particularly trucks, stopped at a signalized intersection attempting to accelerate after the light turns green. The issue could be partially remedied by constructing a truck lane through the intersection and continuing north until level terrain is reached.

#### Screening Results

The oversight committees did not recommend the design option be advanced as an alternative for further study due to environmental and neighborhood impacts, the circuitous connection to

Diamond Lake Boulevard, and the steep graded intersection along Stephens Street that the option would impose.

### ***Concept 5: Portland Avenue Bridge***

This concept has only one option which would construct a new bridge across the South Umpqua River and CORP Railroad line aligned along Portland Avenue as displayed in Figure 4-5. The bridge would enable direct access from Stephens Street south of downtown to Interstate 5 via Exit 123. The natural topography would enable the new bridge to fly over the railroad while connecting with Stephens Street at grade. The concept would also require reconstruction of the 1-5 interchange and Portland Avenue (Interchange 123 IAMP).

### **Potential Impacts**

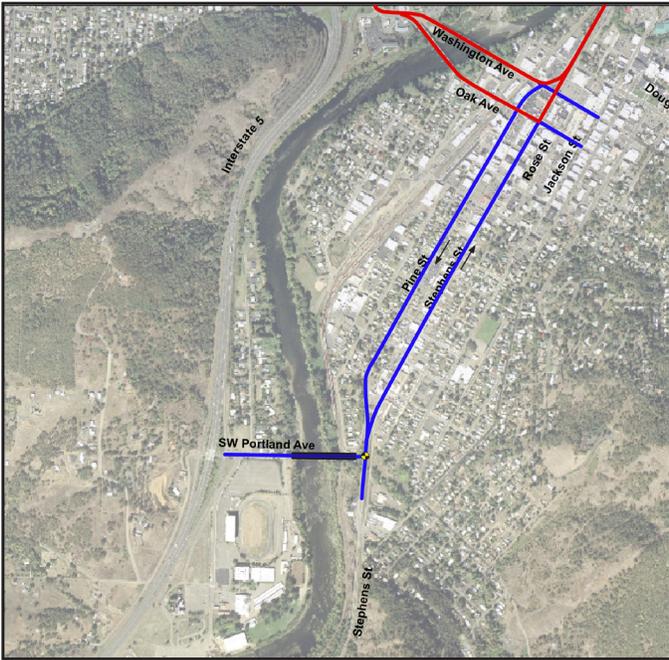
Constructing a new bridge over the South Umpqua River would impose environmental impacts. The concept would also impose some impacts to the downtown and Mill-Pine historic neighborhoods. Although Concept 5 holds the advantage over the other concepts under consideration with regards to relative ease of providing a grade-separated railroad crossing, it would likely provided limited relief downtown and no relief to future Stephens/Diamond Lake intersection congestion.

### **Screening Criteria**

Although a good remedy for providing a grade-separated crossing of the railroad, the concept was not considered a viable alternative for further analysis by the oversight committees due to its limited ability to address the purpose and need of the study.

### ***Concept 6: Diamond Lake – Odell Couplet***

The options under Concept 6 incorporate an east-west and north-south couplet system north of downtown Roseburg. As displayed in Figure 4-6, both design options would convert Diamond Lake Boulevard to an eastbound one-way street and create an Odell Avenue alignment forming a one-way roadway in the westbound direction. The eastern terminus of the couplet would be west of Fulton Street while Stephens Street would form the western end. Meanwhile, Stephens Street and Winchester Street would form a north-south couplet system between Diamond Lake Boulevard to the south and the Stephens-Winchester merge to the north. Stephens Street would convert to one-way southbound traffic while Winchester Street would carry northbound traffic. Topography and infrastructure constraints (Deer Creek and existing bridge) would force the Odell Avenue alignment to be directed northward at Atlanta Street and run perpendicular to Jackson Street before turning back to a roughly parallel direction with Diamond Lake Boulevard east of Winchester Street.



**Concept 5: Grade Separated Railroad Crossing**

**Legend**

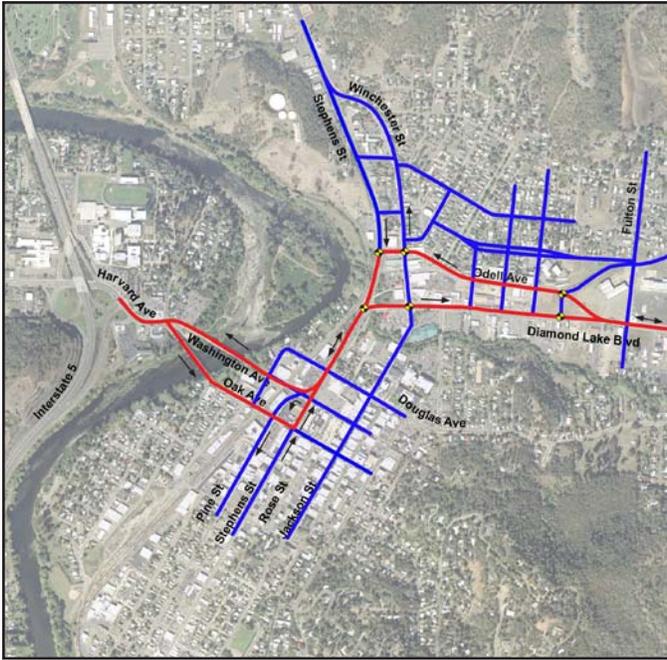
- Highway 138 Alignment
- Surrounding Streets
- Traffic Signal



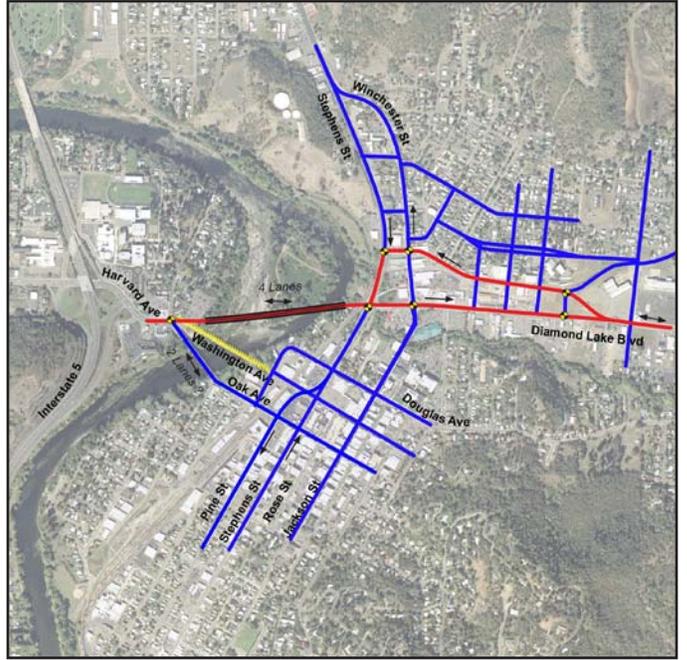
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*Roseburg, Oregon*

**Figure 4-5**  
*Portland Avenue Bridge*

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**Concept 6a:** *Diamond Lake - Odell Couplet*



**Concept 6b:** *Diamond Lake - Odell Couplet with Direct Connection*

**Legend**

-  Highway 138 Alignment
-  Surrounding Streets
-  Bridge
-  Vacated Streets
-  Traffic Signal



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*Roseburg, Oregon*

**Figure 4-6**

*Diamond Lake - Odell Couplet*

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### Design Option 6(a): Diamond Lake – Odell Couplet

This design option combines the Diamond – Odell couplet system described above for the northern portion of the study area with the Design Option 1(a) improvements in the southern half of the study area – primarily the downtown vicinity. This is the only design option that would not require widening of existing bridge structures or construction of new bridge facilities.

#### Potential Impacts

The new couplet system could reduce direct access into downtown Roseburg from Winchester Street. Reduced access could partially be remedied by reconfiguring a left turn lane off of Stephens Street either eastbound to Jackson or southbound onto Douglas Street eastbound. However, this would necessitate an additional northbound lane of Stephens Street due to the additional signal phase to accommodate the new left movement. The Nash-Commercial-Klamath neighborhoods north of Odell Avenue could be impacted by one-way traffic along Winchester Street.

The option received high marks for the potential to greatly enhance multi-modal travel by incorporating into the design transit bus turnouts, bike lanes, and wider pedestrian sidewalks along the newly improved Diamond Lake and Odell corridors. It will also be important to provide enough side street width to enable transit buses to turn on and off of Diamond Lake Boulevard and Odell Avenue.

#### Screening Criteria

Members of the CAC, TAC, and SC recommended that Design Option 6(a) be forwarded as an alternative for further analysis.

### Design Option 6(b): Diamond Lake – Odell Couplet with Direct Connection

This option folds in the direct at-grade Harvard – Diamond Lake bridge connection of Design Option 3(a) into the Diamond Lake – Odell couplet system. As with Design Option 3(a), the Washington Street Bridge would be vacated while the Oak Street Bridge would be converted to single lane two-way travel.

#### Potential Impacts

Design Option 6(b) has similar impacts associated with 6(a), including reduced direct access to downtown Roseburg from Winchester Street and Jackson Street and impacts to the Nash-Commercial-Klamath neighborhoods. Also like 6(a), the option could potentially enhance multi-modal travel opportunities along Diamond Lake Boulevard and Odell Avenue.

The design option also possesses potential impacts associated with Design Option 3(a), including wetlands and cultural impacts to historic and 4(f) resources.

## Screening Criteria

The design option was recommended by members of the CAC, TAC, and SC for advancement as an alternative for further consideration.

### **Summary of Recommendations**

Yes	1(a)	Intersection Capacity Enhancements
No	1(b)	Winchester/Stephens Couplet
No	1(c)	Combined Capacity Improvements and Couplet
Yes	2(a)	Widen Washington Avenue Bridge (Wash.-Stephens-Diamond Lake Alignment)
No	2(b)	New Bridge (Douglas-Stephens-Diamond Lake Alignment)
Yes	2(c)	Widen Washington Avenue Bridge (Wash.-Stephens-Diamond Lake Alignment)
No	2(d)	New Bridge (Sweeping Curve to Diamond Lake Boulevard)
No	2(e)	New Bridge (Douglas-Jackson-Diamond Lake Alignment)
Yes	3(a)	New Bridge (Harvard-Diamond Lake At-Grade Crossing of Railroad/Stephens)
No	3(b)	New Bridge (Harvard-Diamond Lake Grade Separated Flyover Crossing at Railroad/Stephens)
No	3(c)	New Bridge (Harvard-Diamond Lake with At-Grade Stephens Crossing Supplemented by Railroad Realignment)
Yes	3(d)	New Bridge (Harvard-Diamond Lake with Elevated Railroad)
Yes	4(a)	New Bridge (Flyover Railroad/Access via Jackson Street)
No	4(b)	New Bridge (Access with Right-In/Right-Out Ramps)
No	4(c)	New Bridge (Flyover Railroad/Stephens/Winchester)
No	4(d)	New Bridge (Wright-Odell Alignment)
No	5	Portland Avenue Bridge
Yes	6(a)	Diamond Lake-Odell Couplet
Yes	6(b)	Diamond Lake-Odell Couplet with Direct Connection