I-5: Exit 124 Signal Upgrades & Bellows St Realign  K20694

Project Purpose

This project is located at the I-5 124 interchange. The traffic signals at both sides of the interchange are past their expected life span and require frequent maintenance. The southbound side of the interchange is at capacity during peak traffic flows and has a high accident rate. This project will improve safety and efficiency while increasing capacity. Construction will likely begin in May of 2019 and the contract completion date is October 31, 2019.

Project Overview

The I-5: Exit 124 Signal Upgrades & Bellows St Realign (K20694) project, includes the following work:

1. Replace all signal components at both sides of the interchange.

2. Realign Bellows and the I-5 southbound ramps so they meet directly across from each other.

3. Add a left-turn lane from Bellows onto eastbound Harvard Ave.

4. A left-turn lane will be added from the southbound off ramp to westbound Harvard Ave.

5. Replace curb ramps at the northbound onramps with ADA compliant curb ramps. Reduce pedestrian crossing distance across the westbound Harvard Ave. to northbound on ramp and add a truck apron to reduce vehicle speeds turning onto the on-ramp.

6. Replace curb ramps at Diamond Lake Blvd. (OR138E) and Fowler with ADA compliant curb ramps.
Permanent Changes including ORS 366.215 Impacts

Exit 124 Southbound Ramps

The proposed new design at the southbound ramps/Harvard Ave/Bellows St. intersection is shown in figure 2 below. Turning movements for the following design vehicles were used for the southbound ramps and any associated turn movements onto or off of the ramps: WB-67, 115’ overall length special booster trailer lowboy, Manufactured home transport. All vehicles listed can make the turn movements without any need to off-track onto concrete medians.

Figure 2 — Proposed Design of Southbound Ramps/Harvard Ave/Bellows St.
Exit 124 Southbound Off Ramps and Westbound Harvard to Southbound On Ramp

The current Exit 124 southbound on-ramp for vehicles travelling from Bellows St. or westbound Harvard Ave. is a total width of 22.5’ at cross section EB-EB, as shown in Figure 3 and 4, consists of a 3.5’ shoulder, 16’ travel lane and 3’ shoulder. The current southbound off-ramp is a total width of 34’ and consists of two 5’ shoulders and two 12’ travel lanes.

Figure 3 — Southbound Ramp Design
The proposed cross section for southbound on-ramp is shown in section E-E (Figure 5). The total width of this on-ramp is 23’ and consists of a 3’ shoulder, 16’ travel lane, and 4’ shoulder.

The proposed cross section for the Exit 124 southbound off-ramp is 35.7’ as shown in cross section D-D (Figure 6). Section D-D consists of a 6’ shoulder, 12’ left turn lane, 12’ thru lane, and 5.7’ shoulder.
The right turn slip lane of the southbound off-ramp is shown in cross section C-C (Figure 7). This consists of a 5.8’ shoulder, 12’ travel lane, and 10’ shoulder for a total width of 27.8’.

**Figure 7— Cross Section of C-C**

![Cross Section of C-C](image)

**Exit 124 Eastbound Harvard to Southbound On Ramp**

The current cross section for the Exit 124 SB on-ramp for westbound vehicles traveling on Harvard Ave. is shown in section EC-EC (Figure 8). Currently there is a 5.5’ shoulder, a 15’ travel lane and a 5’ shoulder, with a total width of 25.5’.

**Figure 8— Cross Section of EC-EC**

![Cross Section of EC-EC](image)
The proposed cross section for this same ramp is shown in section F-F (Figure 9). The total width of this on-ramp is 30.4’ and consists of a 11.4’ shoulder, 16’ travel lane, and 3’ shoulder.

Exit 124 Westbound Harvard to Northbound On Ramp

The current configuration of the westbound Harvard to northbound on ramp is such that vehicles entering the on ramp are able to do so at a high rate of speed. This increases the risk to pedestrians crossing in the crosswalk across the on ramp. The current distance at G-G (Figure 10) is 33.5’.

Harvard Ave.
The proposed new cross section would consist of 24’ of asphalt and 6.5’ of a concrete truck apron. The truck apron will be sloped to the curb. This ramp was designed so that a WB-67 would not need to track onto the truck apron. A manufactured home transport or 115’ overall length special booster trailer lowboy are accommodated with this design and will track onto the truck apron.

**Temporary Traffic Control Overview**

**Exit 124 Southbound Ramps**

There will be nighttime lane closures on the southbound off ramp and narrowing of the lanes on the southbound on ramp while the initial work to realign the southbound ramps and Bellows St. are being constructed. Two signal poles and pedestrian poles can also be installed during this time. Both southbound on ramps will have 15’ available for a single travel lane for each lane. Traffic will be separated from the work by barrels. The southbound off ramps will have 28’ available for 2 travel lanes. From September 3 to June 13 lane closures will be allowed nightly, Sunday night through Friday morning between 7:00 p.m. and 6:00 a.m. From June 14 to September 2 single lane closures will be allowed nightly, Sunday night through Friday night between 7:00 p.m. and 7:00 a.m.

During the remaining realignment work and signal pole installations at the southbound ramps and Bellows St. the ramps and Bellows St. will be under a full closure. Harvard Ave. (OR138E) westbound will have 25’ for two eastbound travel lanes at this location and 13’ for a single eastbound travel lane. There will also be a 5’ temporary pedestrian route on the roadway during this time. The contract allows 14 consecutive days for this closure period. The closure can only occur between June 14, 2019 and September 1, 2019, but cannot occur during holidays, Graffiti Weekend (July 4, 2019 to July 7, 2019), or the Douglas County Fair (First full week in August).

During the closure, vehicles on Harvard Ave. will be routed north to the Exit 125 interchange where they can then exit and return to I-5 via the southbound on ramp at Exit 125. Vehicles on I-5 with destinations off of Exit 124 will be routed south to the Exit 123 interchange where they can then exit and return to I-5 via the northbound on ramp at Exit 123. Bellows traffic will be directed to use a designated
route through the Roseburg High School parking lot to the signalized intersection at the Roseburg High School main entrance. This intersection is also the northbound side of the I-5 Exit 124 interchange.

**Exit 124 Westbound Harvard to Northbound On Ramp**

When the truck apron and curb ramps are being constructed on the westbound Harvard Ave. to northbound on ramp this northbound on ramp will be closed from 7:00 p.m. to 6:00 a.m. Additionally, the westbound lane closest to the curb can be closed for a one week period to allow for the construction and concrete cure time. This closure cannot take place at the same time as the Exit 124 southbound ramps are closed.

During the closure, vehicles traveling westbound on Harvard Ave. will be routed south to the Exit 123 interchange where they can then exit and return to I-5 via the northbound on ramp at Exit 123.

**Exit 124 Westbound Harvard to Northbound Off Ramp and OR138E**

When the signals at the Exit 124 northbound off ramps and Roseburg High School main entrance are being replaced there will be single lane closures at night, for the same periods of time as shown above for other lane closure time periods (nights). During the signal replacement OR138E will have one lane in each direction of travel with each lane having 17’ available. Tubular markers could be moved with minimal delay to allow wider loads through the work zone.

**Exit 124 Eastbound Harvard to Northbound Off Ramp**

When the curb ramps are being constructed at the eastbound Harvard to northbound I-5 on ramp there will be 21’ available for this movement.

**Northeast Curb Ramp at OR138E (Oak Ave.) and Spruce St.**

When the curb ramp at the northeast corner of OR138E (Oak Ave.) and Spruce St. are being constructed a single lane will be closed. There will be a 15’ wide travel lane for one-way traffic. This will occur nightly while the contractor is working.

**OR138E Curb Ramps and Fowler Blvd.**

When the curb ramps at OR138E (Diamond Lake Blvd.) and Fowler Blvd. are being constructed there will be single lane closures. The total available roadway width will be 49’ for one lane eastbound, 2 lanes westbound, and a center turn lane.

**Height, Weight, and Length Restrictions**

There will not be any height, weight or length restrictions.

**Delay Considerations**

On average, delay is expected to be no more than four minutes.
Traffic Control Plans

Traffic Control Plans are by standard drawing and project specific plans found in the bid/contract documents; traffic control specs can be found in the bid/contract documents.

Any discussion of changes to traffic control plans and specs, including those that will affect required notifications, will be completed in consultation with Motor Carrier Transportation Division (MCTD) and the trucking industry.
# Work Zone Decision Tree

**Evaluate Separation Opportunities, WZ Concepts, WZ Devices**

**Project Name (Section)**

I-5: Exit 124 Signal Upgrades & Bellows St. Realign

**Phase:**

- [ ] 1 – Scoping
- [ ] 2 – Project Initiation to DAP
- [x] 3 – DAP to Final PS&E
- [ ] 4 – Construction

**Highway**

Pacific/ North Umpqua Highway

**Contractor**

**Key No.**

20694

**Contract No.**

Highway

**Project Leader / Project Manager**

Stephanie Bentea

**Agency Project Manager**

Ted Paselk

**Region**

Region 3

## Opportunities to Evaluate

<table>
<thead>
<tr>
<th>Opportunities to Evaluate</th>
<th>Phase</th>
<th>Possible / Viable</th>
<th>Impacts</th>
<th>Stakeholders &amp; Input</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road closure (full closure, directional closure)</td>
<td>1</td>
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<tr>
<td></td>
<td></td>
<td>Full closure of Harvard ave is possible, not viable</td>
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<td></td>
<td>3</td>
<td>Full closure for the Exit 124 ramps is possible and viable. Full closure for Bellows st. is possible and viable.</td>
<td>Local traveling public, ODOT region 3, the awarded contractor and freight mobility.</td>
<td>The city of Roseburg, Roseburg school district, local business owners, local residents, ODOT district 7</td>
<td>Not recommended for full closure of Harvard. The detour route is Garden Valley and Edenbower Ave. Closure of Harvard and utilization of these routes would cause gridlock during peak hours. Full road closure is not practical to perform the curb ramp upgrades. Paving will require signal shut downs and flagging. Signal installation will require signal shut down and flagging. Recommended for Exit 124 SB Ramps and Bellows st. to complete the finally realignment work and signal installation a full 2 week closure provides the following benefits to the public: cost effective, enhance safety, shorter duration traffic impact. Detour routs with minor delay are available.</td>
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<tr>
<td>Crossover/on-site diversion</td>
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<td></td>
<td>3</td>
<td>Possible and viable for Harvard Ave. Not-possible or viable for Exit 124 ramps</td>
<td>Local traveling public, ODOT region 3, the awarded contractor and freight mobility.</td>
<td>The city of Roseburg, Roseburg school district, local business owners, local residents, ODOT district 7</td>
<td>Recommended for Harvard Ave. To separate the workzone from the traveling public during the closing period the travel lanes of Harvard will be shifted and restriped to include the center turn lane as a thru lane. With the closure in place, no turning movements will be allowed. Not recommended for Exit 124 ramps. These ramps are constrained by the I05 over-crossing structure and a rock mass in the SW quadrant of project area.</td>
</tr>
<tr>
<td>Rigid barrier (concrete, steel, temporary guardrail)</td>
<td>1</td>
<td>Possible, not viable for the short duration work to be performed</td>
<td>Local traveling public, ODOT region 3, the awarded contractor and freight mobility.</td>
<td>The city of Roseburg, Roseburg school district, local business owners, local residents, ODOT district 7</td>
<td>Rigid barrier not practical for curb ramp upgrades. Not recommended. Rigid barrier not practical as work is performed on a low speed facility. Barrier would also impede contractor access to and from the work zone.</td>
</tr>
<tr>
<td>Work at night</td>
<td>1</td>
<td>Possible and viable</td>
<td>Local traveling public, ODOT region 3, the awarded contractor and freight mobility.</td>
<td>The city of Roseburg, Roseburg school district, local business owners, local residents, ODOT district 7</td>
<td>Recommended. Lane closures of Harvard and Exit 124 ramps will only be allowed at night, except for the 2 week period in which the the road closures are allowed. Lane closures and signal shutdowns are required to perform the work outside of the two week closure window.</td>
</tr>
<tr>
<td>Staged construction with temporary widening</td>
<td>1</td>
<td>Not possible or viable.</td>
<td>Local traveling public, ODOT region 3, the awarded contractor and freight mobility.</td>
<td>The city of Roseburg, Roseburg school district, local business owners, local residents, ODOT district 7</td>
<td>Not Recommended. Harvard is confined by and overcrossing structure and the Exit 124 ramps are confined by the same structure and a large rock mass SW of the project. Temp widening to perform the work would be extremely costly and is not practical.</td>
</tr>
<tr>
<td>Standard lane closures with channelizing devices</td>
<td>1</td>
<td>Possible and viable</td>
<td>Local traveling public, ODOT region 3, the awarded contractor and freight mobility.</td>
<td>The city of Roseburg, Roseburg school district, local business owners, local residents, ODOT district 7</td>
<td>Recommended. Standard lane closures allow the contractor to perform pre-road closure work and the exit 124 NB off ramp signal work at night.</td>
</tr>
<tr>
<td>Law enforcement overtime</td>
<td>1</td>
<td>Possible and viable</td>
<td>Local traveling public, ODOT region 3, the awarded contractor and freight mobility.</td>
<td>The city of Roseburg, Roseburg school district, local business owners, local residents, ODOT district 7</td>
<td>Not Recommended. This project has inherent safety concerns so law enforcement would be helpful to slow down traffic. However, the project is already over budget. And the posted speed is currently 30 MPH.</td>
</tr>
<tr>
<td>Smart Work Zone System/Work Zone ITS</td>
<td>1</td>
<td>Possible, not viable</td>
<td>Local traveling public, ODOT region 3, the awarded contractor and freight mobility.</td>
<td>The city of Roseburg, Roseburg school district, local business owners, local residents, ODOT district 7</td>
<td>Not Recommended. This workzone is a relatively small area and this technology is cost prohibitive on a project of this size.</td>
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<td>Accelerated contracting strategies</td>
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<tr>
<td>3</td>
<td>possible and Viable</td>
<td>Local traveling public, ODOT region 3, the awarded contractor and freight mobility.</td>
<td>The city of Roseburg, Roseburg school district, local business owners, local residents, ODOT district 7</td>
<td>Recommended. This project has very specific time constraints, the contractor should be given as much lead time as possible to ensure that these closures are well planned.</td>
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<tr>
<td>Accelerated construction strategies</td>
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<tr>
<td>3</td>
<td>possible and Viable</td>
<td>Local traveling public, ODOT region 3, the awarded contractor and freight mobility.</td>
<td>The city of Roseburg, Roseburg school district, local business owners, local residents, ODOT district 7</td>
<td>Recommended for exit 124 ramp and Bellows st realignment. This technique provides the following benefit to the project: increased project safety, decreased project cost, and shorter construction duration.</td>
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<td>Automated Flagger Assistance Devices (AFAD)</td>
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<td>3</td>
<td>Possible, not viable</td>
<td>Local traveling public, ODOT region 3, the awarded contractor and freight mobility.</td>
<td>The city of Roseburg, Roseburg school district, local business owners, local residents, ODOT district 7</td>
<td>Not recommended. There will be 8 flaggers needed during signal shutdowns (assuming they are concurrent). With the turning movements and complexity of an intersection AFAD's can not adequately direct traffic through the workzone.</td>
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<td>Temporary Transverse Rumble Strips (TTRS)</td>
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<tr>
<td>3</td>
<td>Possible and viable</td>
<td>Local traveling public, ODOT region 3, the awarded contractor and freight mobility.</td>
<td>The city of Roseburg, Roseburg school district, local business owners, local residents, ODOT district 7</td>
<td>Not recommended. Safety concerns with deployment and maintenance of these measures.</td>
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<td>Radar speed trailers</td>
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<td>3</td>
<td>Possible and viable</td>
<td>Local traveling public, ODOT region 3, the awarded contractor and freight mobility.</td>
<td>The city of Roseburg, Roseburg school district, local business owners, local residents, ODOT district 7</td>
<td>Not recommended. Short duration work zone. Using radar speed trailers cost prohibitive.</td>
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<td>Construction Speed Zone Reductions</td>
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<tr>
<td>3</td>
<td>Possible, not viable</td>
<td>Local traveling public, ODOT region 3, the awarded contractor and freight mobility.</td>
<td>The city of Roseburg, Roseburg school district, local business owners, local residents, ODOT district 7</td>
<td>Not recommend. Current posted speed is 30 MPH. Speed reduction would have minimal benefit and should be reserved to projects that it will have a maximal benefit.</td>
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<td>Increased lateral buffer space</td>
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<td>3</td>
<td>Possible and viable</td>
<td>Local traveling public, ODOT region 3, the awarded contractor and freight mobility.</td>
<td>The city of Roseburg, Roseburg school district, local business owners, local residents, ODOT district 7</td>
<td>Recommended. At night during lane closures, the contractor should have plenty of room to increase lateral buffer space beyond minimums</td>
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<td>Public information campaigns</td>
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<tr>
<td>3</td>
<td>possible and viable</td>
<td>Local traveling public, ODOT region 3, the awarded contractor and freight mobility.</td>
<td>The city of Roseburg, Roseburg school district, local business owners, local residents, ODOT district 7</td>
<td>Recommended. This project will impact local business and the traveling public at a major intersection.</td>
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<td>Other:</td>
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