5.1 Evaluation Methods

River crossing components RC-1 through RC-12 were grouped into two major categories. The first category replaces the existing bridges with a new I-5 bridge. The second category retains one or both of the existing bridges and supplements them with a new I-5 bridge.

Using an aerial photograph base map, each crossing option was laid out in plan and profile views. Components with a new supplemental bridge assume that a single-deck, 10-lane bridge would be built. As components are later combined into alternative packages and future traffic volumes become available, different bridge types and lane configurations can be evaluated.

The Pearson Airpark airspace approach surface was overlaid on the designs in both plan and profile to identify airspace encroachments. In addition, water navigation routes were evaluated by noting the likely paths that marine vessels would take depending on the number and location of pier structures and span openings.

For river crossing components RC-13 through RC-23, staff reviewed relevant documents and drawings from the I-5 Partnership Study, as well as documents and drawings submitted by the public for components that have not been previously studied.

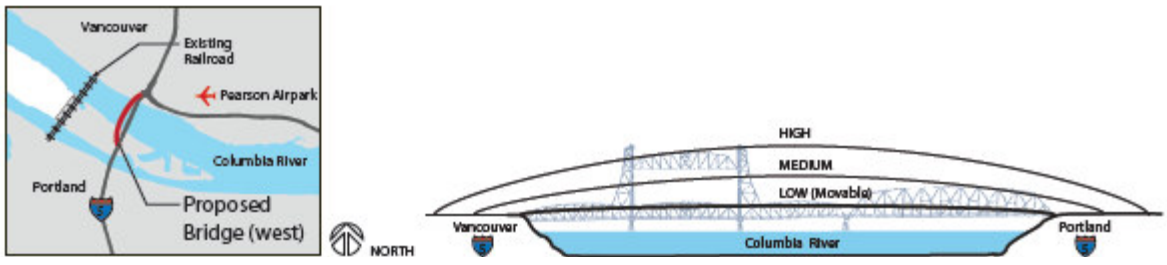
5.2 Components that Pass Step A

5.2.1 RC-1 Through RC-4 (Replacement Bridge Variations)

Descriptions:

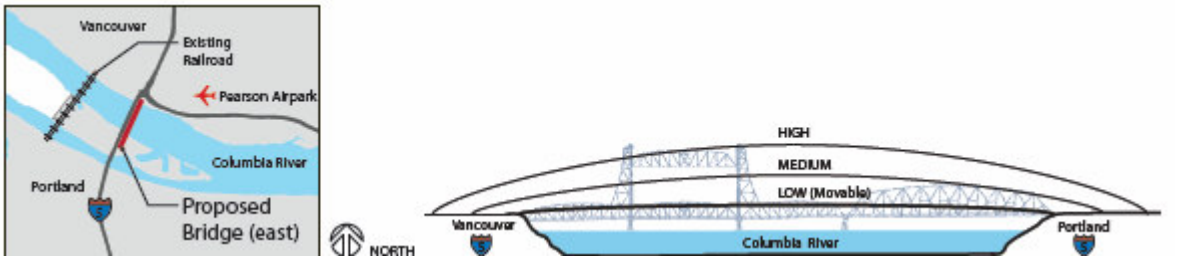
RC-1 Replacement Bridge Downstream/Low Level/Movable: This crossing represents a bridge that would be located immediately west (downstream) of the existing I-5 bridges. The existing I-5 bridges would be removed. The proposed replacement bridge is a low level bridge that would provide approximately 65 feet of vertical clearance for traffic traveling down the Columbia River. Because this vertical channel clearance does not pass 100 percent of the marine traffic operating on the river, a portion or span of the bridge would need to be opened to allow traffic taller than 65 feet to pass through the channel. This is called a moveable span, of which the exact type has not been defined. Types of moveable spans could include, but are not necessarily limited to, a lift span, a swing span, or a draw bridge. **Figure 5-1** shows this component.

Figure 5-1. Replacement Bridge Downstream/Low Level/Movable



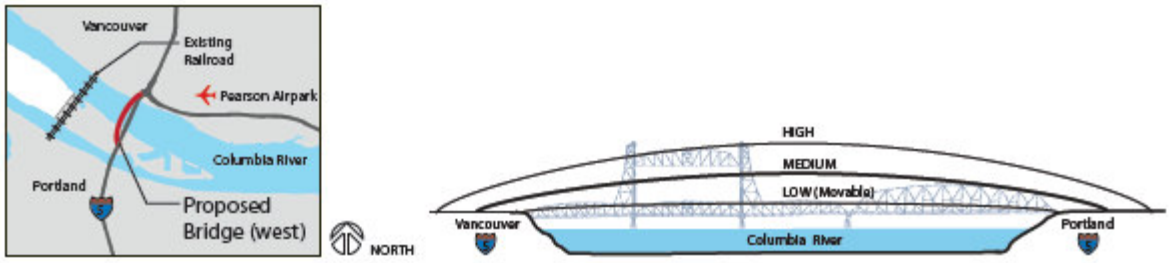
RC-2 Replacement Bridge Upstream/Low Level/Movable: This crossing represents a bridge that would be located immediately east (upstream) of the existing I-5 bridges. The existing I-5 bridges would be removed. The proposed replacement bridge is a low level bridge that would provide approximately 65 feet of vertical clearance for traffic traveling down the Columbia River. Because this vertical channel clearance does not pass 100 percent of the marine traffic operating on the river, a portion of the bridge would need to be opened to allow traffic taller than 65 feet to pass through the channel. This is called a moveable span, of which the exact type has not been defined. Types of moveable spans could include, but are not necessarily limited to, a lift span, a swing span, or a draw bridge. **Figure 5-2** shows this component.

Figure 5-2. Replacement Bridge Upstream/Low Level/Movable



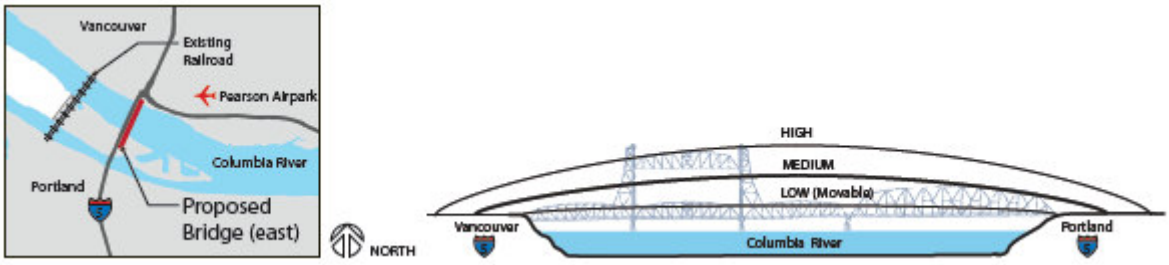
RC-3 Replacement Bridge Downstream/Mid Level: This crossing represents a bridge that would be located immediately west (downstream) of the existing I-5 bridges. The existing I-5 bridges would be removed. The proposed replacement bridge is a mid level bridge that would provide approximately 110 feet of vertical clearance for marine traffic traveling down the Columbia River. Because this vertical channel clearance would allow 100 percent of the traffic operating on the river to fit under the bridge, the entire bridge would be fixed and therefore no portion of the bridge would require any openings. **Figure 5-3** shows this component.

Figure 5-3. Replacement Bridge Downstream/Mid Level



RC -4 Replacement Bridge Upstream/Mid Level: This crossing represents a bridge that would be located immediately east (upstream) of the existing I-5 bridges. The existing I-5 bridges would be removed. The proposed replacement bridge is a mid level bridge that would provide approximately 110 feet of vertical clearance for marine traffic traveling down the Columbia River. Because this vertical channel clearance would allow 100 percent of the traffic operating on the river to fit under the bridge, the entire bridge would be fixed and therefore no portion of the bridge would require any openings. **Figure 5-4** shows this component.

Figure 5-4. Replacement Bridge Upstream/Mid Level



These components, which replace the existing I-5 bridges, pass the Step A questions because:

1. They would increase vehicular capacity in the Bridge Influence Area by providing approximately ten lanes of capacity for vehicular traffic.

2. The bridge configurations could also be used to carry transit, and thus could allow for an increase in transit capacity.

3. Freight mobility would be improved because of the increase in capacity and because the vertical alignment would be flatter and more conducive to truck movements.

4. All components that replace the existing bridges would be built to modern standards including full shoulders and a design speed of 70 mph, and they would not encroach into Pearson Airpark airspace.

5. All of these components would also allow for a separated bike/pedestrian lane designed to modern standards in each direction.

6. They would also reduce seismic vulnerability, as the new bridges would be brought up to current seismic standards.

5.2.2 RC-7 Through RC-9 (Supplemental Bridge Variations)

Descriptions:

RC-7 Supplemental Bridge Downstream/Low Level/Movable: This crossing represents a new bridge that would be located immediately west (downstream) of the existing I-5 bridges. Either one or both of the existing I-5 bridges would remain in place as they are today. The proposed bridge is a low level bridge that would provide approximately 65 feet of vertical clearance for traffic traveling down the Columbia River. Because this vertical channel clearance does not pass 100 percent of the marine traffic operating on the river, a portion of the bridge would need to be opened to allow marine traffic taller than 65 feet to pass through the channel. This is called a moveable span, of which the exact type has not been defined. Types of moveable spans could include, but are not necessarily limited to, a lift span, a swing span, or a draw bridge type opening. The opening of the new bridge would have to line up with the lift span of the existing I-5 bridges. **Figure 5-5** shows this component.

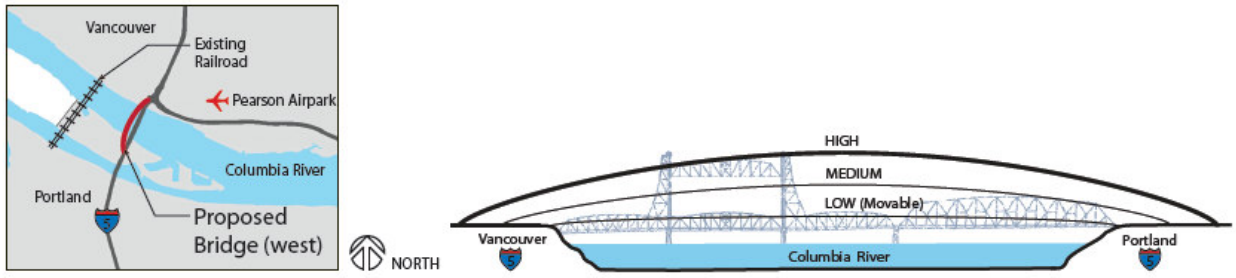
- The component does not address I-5 bicycle and pedestrian deficiencies

5.3.1 RC-5, RC-6, RC-11, and RC-12 (High Level Bridge Components)

Descriptions:

RC-5 Replacement Bridge Downstream/High Level: This crossing represents a bridge that would be located immediately west (downstream) of the existing I-5 bridges. The existing I-5 bridges would be removed. The proposed replacement bridge is a high level bridge that would provide approximately 130 feet of vertical clearance for marine traffic traveling down the Columbia River. This elevation was set based on the existing vertical clearance of the I-205 Columbia River Bridge. Because this vertical channel clearance would allow 100 percent of the marine traffic operating on the river to fit under the bridge, the entire bridge would be fixed and therefore no portion of the bridge would require any openings. **Figure 5-10** shows this component.

Figure 5-10. Replacement Bridge Downstream/High Level



RC-6 Replacement Bridge Upstream/High Level: This crossing represents a bridge that would be located immediately east (upstream) of the existing I-5 bridges. The existing I-5 bridges would be removed. The proposed replacement bridge is a high level bridge that would provide approximately 130 feet of vertical clearance for marine traffic traveling down the Columbia River. This elevation was set based on the existing clearance of the I-205 Columbia River Bridge. Because this vertical channel clearance would allow 100 percent of the marine traffic operating on the river to fit under the bridge, the entire bridge would be fixed and therefore no portion of the bridge would require any openings. **Figure 5-11** shows this component.