

MEMORANDUM

Date:	August 20, 2021
To:	Chris Regan, Environmental Manager, IBR program
From:	Emma Johnson, Environmental Coordinator, IBR program Angela Findley, Environmental Lead, IBR program
Subject:	Screening and Evaluation of Third and Supplemental Bridge options

1. INTRODUCTION

This memorandum summarizes the evaluation of a new, third bridge or new, supplemental bridge as a potential options to address the transportation problems in the Interstate Bridge corridor. Recently, many concepts for additional or supplemental crossings have been identified as possible solutions that should be considered by the Interstate Bridge Replacement (IBR) program. Multiple concepts of a supplemental bridge as well as five alternative corridors were evaluated as part of the alternatives screening process during the Columbia River Crossing (CRC) project Environmental Impact Statement (EIS) phase. Based on the analysis of alternatives, all alternative corridors and supplemental bridge concepts were ultimately dismissed from detailed study in the Draft EIS or were not selected as possible solutions to address the transportation problems with the Interstate Bridge.

The purpose of this memorandum is to summarize the previous work put in to evaluating a third or supplemental bridge, the results of that evaluation, and document why a third bridge does not meet the program's Purpose and Need statement and subsequently does not warrant further analysis.

2. PREVIOUS SCREENING OF A THIRD BRIDGE

Throughout the CRC's development, the project team worked in tandem with the CRC Task Force, which was a 39-member group of composed of leaders representing a broad cross section of Washington and Oregon communities.¹ The Task Force group met regularly to advise the CRC project team and provide guidance and recommendations at key decision points.

During the initial two-step screening process (detailed below), the CRC project team and Task Force reviewed various options for river crossing(s) and transit in order to narrow the range of alternatives. These options were known as river crossing components and transit components. The components were later combined

¹The Task Force included representatives from public agencies, businesses, civic organizations, neighborhoods, and freight, commuter, and environmental groups.

into multimodal alternatives that represented a reasonable range of combinations for further evaluation. The results of the evaluation of alternative corridors are described below.

Step A Screening Process

The initial screening effort in April 2006 (known as the Step A screening) evaluated river crossing and transit components using a pass/fail test designed to eliminate ideas beyond the scope of the project and/or that clearly could not address the project's Purpose and Need statement. During the Step A Screening analysis, components were evaluated on whether they met the six needs identified in the project's Purpose and Need statement by asking six pass/fail questions:

"Does the component..."

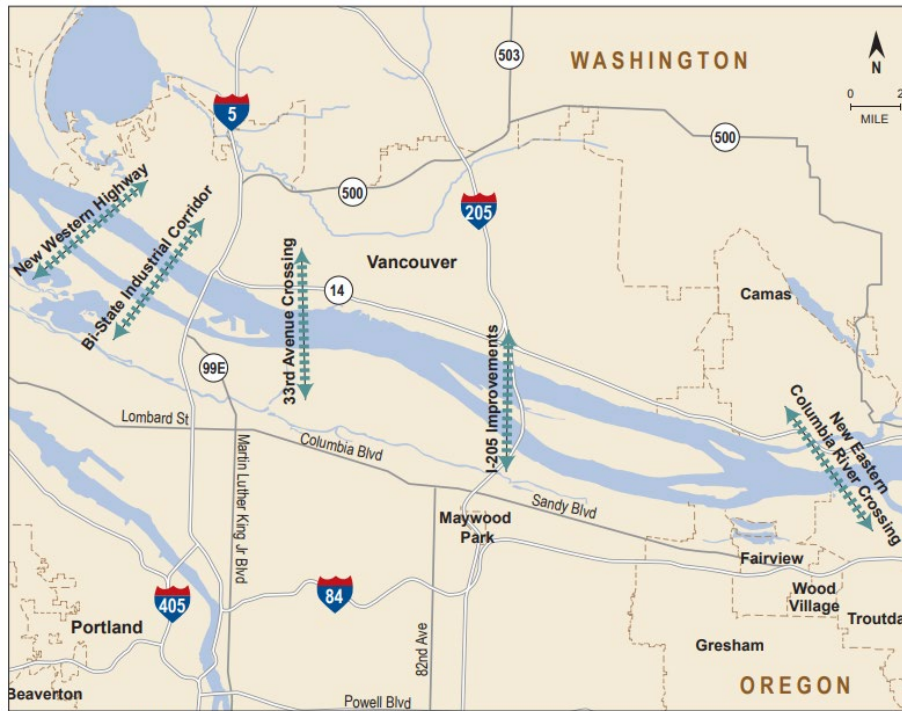
1. Increase vehicular capacity or decrease vehicular demand?
2. Improve transit performance?
3. Improve freight mobility?
4. Improve safety and decrease vulnerability to incidents?
5. Improve bicycle and pedestrian mobility?
6. Reduce seismic risk of the I-5 Columbia River Crossing?

As shown on Figure 1, five alternative corridors were evaluated during this screening process, located both west and east of the existing I-5 corridor:

- New Western Highway (2 to 3 miles west of I-5)
- Bi-State Industrial Corridor (near the BNSF railroad bridge 1 mile west of I-5)
- 33rd Avenue Crossing (2 to 3 miles east of I-5)
- I-205 Improvements (at the existing I-205 bridge)
- New Eastern Columbia River Crossing, (10 to 12 miles east of I-5)

August 20, 2021

Figure 1 – Alternative Corridors Evaluated During Initial Screening Process



Dimensions are approximate.

Source: CRC 2011

The Step A screening process concluded that while most of these corridors could provide some degree of regional transportation benefit, they did little or nothing to address the project’s Purpose and Need statement. The Bi-State Industrial Corridor was found to be the only alternative corridor with the potential for improving freight mobility on I-5, as it connects the industrial areas in Vancouver and Portland. An initial traffic analysis also indicated that the Bi-State Industrial Corridor and the New Western Highway would have potential for providing some congestion relief compared to the No-Build Alternative (CRC 2011).

However, the potential highway transportation benefits of these two alternative corridors would be limited and outweighed by the fact that they would fail to improve the stated needs related to transit performance and bicycle and pedestrian travel, and would do nothing to address the safety deficiencies and high crash rates on I-5 in the project area (CRC 2011).

Step B Screening Process and Subsequent Analysis

While the alternative corridors did not advance past the Step A screening, several supplemental bridge options did advance.² During Step B, components were scored on the project values, which were developed and formalized by the CRC Task Force in October 2005:

- Community livability and human resources
- Mobility, reliability, accessibility, congestion reduction, and efficiency
- Safety
- Regional economy, freight mobility
- Stewardship of natural resources
- Distribution of benefits and impacts

While all components passed Step B, additional analysis was being completed at the same time to further screen several components. The CRC project team prepared a memorandum summarizing the benefits and disadvantages of replacing versus keeping the existing I-5 bridge (CRC Project Team 2006). The project team found that alternatives that replace the existing bridge performed better on nearly all of the project values (listed above) than alternatives that supplement and reuse the existing bridge. Replacement options performed better for traffic, transit, navigation, community resources, natural resources, transportation equity, and seismic safety. The following are the key findings related to the supplemental crossing options (CRC Project Team 2006):

- **Traffic:** The existing interstate bridge safety issues would remain, thus not meeting the project's need related to traffic safety. Traffic on the existing bridge would continue to be affected by frequent bridge lifts.
- **Transit:** The bridge lifts would have substantial operational disadvantages for both Light Rail Transit (LRT) and/or Bus Rapid Transit (BRT), interrupting service and reliability.
- **Active transportation:** The lifecycle cost of using one or both of the existing bridge spans for bicycles and pedestrians would likely be substantially higher than the cost of accommodating bikes and pedestrians on a new highway and transit bridge.
- **Land use:** Adverse land use and right-of-way impacts would be greater for supplemental options.
- **Natural resources:** Impacts to natural resources are greater for supplemental versus replacement alternatives (for example, additional piers in the river), especially from a long-term perspective.
- **Marine navigation:** The supplemental options would result in nearly 3 times as many piers in the water (compared to the replacement options). This would result in impacts to river navigation as well as fish and wildlife habitat.

² Supplemental bridge components that advanced to Step B include Supplemental/Downstream/Low-Level/Moveable Bridge (RC-7), Supplemental/Upstream/Low-Level/Moveable Bridge (RC-8), Supplemental/Downstream/Mid-Level Bridge (RC-9).

- **Seismic:** All of the supplemental options would also require a major seismic upgrade to the existing bridge.

3. EVALUATION OF A SUPPLEMENTAL BRIDGE IN THE DRAFT EIS

Two alternatives that included a supplemental bridge were studied in the Draft EIS: Alternative 4 (Supplemental Crossing with Bus Rapid Transit) and Alternative 5 (Supplemental Crossing with Light Rail Transit). The two alternatives were similar except for the mode of high-capacity transit. Each alternative would retain both existing I-5 bridge spans and add one new bridge. The new bridge would be constructed downstream of the existing bridge and would include four southbound I-5 traffic lanes, safety shoulders and a Bus Rapid Transit or Light Rail Transit guideway (CRC 2011). The existing bridge would be re-striped to provide two northbound lanes on each bridge span and provide safety shoulders for disabled vehicles. A new, wider bicycle and pedestrian facility would be added to the east side of the existing northbound span.

Ultimately, a replacement bridge alternative (the Stacked Transit/Highway Bridge Design) was selected as the Locally Preferred Alternative for the Final EIS. The Draft EIS analysis showed that a replacement river crossing would provide a more efficient and safer movement of cars, trucks, transit, bicyclists and pedestrians compared to the supplemental bridge alternatives (CRC 2011).

4. SEISMIC RETROFITTING THE EXISTING BRIDGE

With any supplemental bridge concept, the seismic vulnerability of the existing bridge is called into question. Subsequent evaluations have determined that seismic retrofits would be prohibitively expensive and would incur additional impacts to the environment (due to the need for expansion in the Columbia River). In addition, seismic retrofits may not be sufficient to reliably ensure that the bridge could handle a 500-year earthquake (with little to no damage) or a 2,500-year earthquake (with no collapse). Therefore, any alternative that involves the seismic retrofitting of the existing bridge does not meet the program's Purpose and Need statement.

5. CONCLUSION

The CRC screening process evaluated five alternative corridors and multiple concepts for a supplemental bridge. The five alternative corridors would fail to improve the stated needs related to transit performance and bicycle and pedestrian travel and would do nothing to address the safety deficiencies and high crash rates in the I-5 corridor.

Two supplemental bridge alternatives adjacent to the existing Interstate Bridge were studied in the Draft EIS, but a replacement bridge alternative (referred to as the Stacked Transit/Highway Bridge Design) was ultimately selected as the Locally Preferred Alternative as it would provide a more efficient and safer movement of cars, trucks, transit, bicyclists and pedestrians compared to the supplemental bridge alternatives. In addition, a supplemental crossing would not address the need for seismic improvements at the existing bridge and would have negative impacts to marine traffic safety.

August 20, 2021

The evaluation conducted under CRC is still valid. The needs for the program have not changed and a third bridge would not meet the Purpose and Need statement. While the discussion of a third bridge is an important conversation for the region, it does not address the problems on I-5 associated with the Interstate Bridge. Any advancement of a third bridge would be an independent project from the IBR program and require a separate environmental compliance effort. The IBR program would not preclude a third bridge from being constructed over the Columbia River to connect the Vancouver and Portland areas.

For these reasons, no further consideration or study of a supplemental bridge outside the I-5 corridor is warranted as part of the IBR program.

6. REFERENCES

- Columbia River Crossing (CRC). 2011. Final Environmental Impact Statement and Final Section 4(f) Evaluation. September 2011. Chapter 2: Description of Alternatives. Available at: https://www.wsdot.wa.gov/accountability/ssb5806/docs/6_Project_Development/Environmental_Process_And_Permitting/FEIS_PDFs/CRC_FEIS_Chapter_2.pdf. Accessed on July 14, 2021.
- Columbia River Crossing (CRC). 2006a. Draft Components Step A Screening Report. March 22, 2006.
- Columbia River Crossing (CRC). 2006b. Draft Step A Component Fact Sheets. April 19, 2006. Available at: https://www.wsdot.wa.gov/accountability/ssb5806/docs/6_Project_Development/Alternative_Development/StepAScreening.pdf. Accessed on July 14, 2021.
- Columbia River Crossing (CRC) Project Team. 2006. Memo to Task Force. Subject: Update: Considerations for Replacing Versus Reusing the Existing Interstate 5 Bridges. November 21, 2006. Available at: https://www.wsdot.wa.gov/accountability/ssb5806/docs/6_Project_Development/Alternative_Development/ReplacingVsReuseExistingBridges.pdf. Accessed on July 14, 2021.