

## MEMORANDUM: CONTEXT FOR IMMERSED TUBE TUNNEL ANALYSIS

Date: *July 14, 2021*

The Interstate Bridge Replacement (IBR) program is committed to utilizing and updating past work as appropriate to maximize past investment and support efficient decision-making, while also taking into account changes that have occurred since previous planning efforts. Extensive stakeholder and community engagement confirmed there is widespread agreement that the six transportation problems previously identified with the existing Interstate Bridge still exist: growing travel demand and congestion, seismic vulnerability, safety and vulnerability to incidents, impaired freight movement, limited public transportation, and substandard bicycle and pedestrian facilities. These six problems are outlined in the Purpose and Need and must be addressed by any alternative.

Previous planning efforts spent decades identifying a number of environmental constraints within the corridor and negotiating how best to meet our transportation needs. Alternatives were identified, analyzed and the impacts associated with these alternatives were thoroughly understood. A replacement bridge was selected as the alternative that best addressed the six previously identified transportation problems associated with the Interstate Bridge area. As the program works to identify the IBR solution, we know that alternatives that were previously eliminated as being unable to address these six problems will not be reasonable options to consider, given the fact that the same six problems must be addressed.

In recent months, the program has heard from individuals urging consideration of an immersed tube tunnel (ITT) as a potential design solution. Both replacement and supplemental tunnel options were evaluated as part of the alternatives screening process during the Columbia River Crossing Environmental Impact Statement (EIS) phase and were ruled out due to their inability to address the six identified transportation problems and other considerations including significant cost, archeological and environmental impacts.

Recognizing that the previous planning effort assumed a different type of tunnel (bored), the IBR program assembled a group of engineers with international experience in tunnel design and construction to provide a comprehensive conceptual review of the suitability of an ITT. The following analysis is a fact-based, data-driven assessment of the technical considerations of designing, constructing, and operating an ITT. This analysis represents a good faith effort to evaluate an ITT option in the best possible light given the constraints and requirements of the project. It is not a comparative study with other bridge replacement alternatives, a corridor study, or part of the environmental review process.

While an ITT is shown to be technically feasible, numerous challenges demonstrate it is not a viable replacement solution for the IBR program that should receive further consideration. These challenges include significant out-of-direction travel for drivers, freight, transit users, bicyclists and pedestrians; the inability to

July 14, 2021

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tie in to existing connections such as SR 14, Vancouver City Center, and Hayden Island; safety concerns for bicyclists and pedestrians; and significant archeological, cultural, and environmental impacts. Additionally, cost estimates for the ITT would be approximately two times higher than cost estimates for a replacement bridge and approaches. This estimate does not include other highway, interchange, or high capacity transit improvements that would be necessary.