

PUBLIC COMMENTS FOR IBR PROGRAM EXECUTIVE STEERING GROUP

Received between September 13 – October 19, 2021

Bob Ortblad

9/15/21

I am Bob Ortblad, a Washington resident and Civil Engineer. I want to make three brief points this afternoon:

- First - A new I-5 bridge will be the steepest and most dangerous interstate bridge on the country.
- Second - The IBR Administration has made a serious error in its evaluation of a safer immersed tube tunnel option.
- Third - After a decade of study and debate, Vancouver BC has chosen to build a new immersed tube tunnel to under the Fraser River.

The I-5 and I-205 Bridges have frequent severe wind, rain, fog, and black ice. The I-205 Bridge is the 8th most accident-prone site in the country.

The IBR wants to build a more dangerous I-5 Bridge with extreme 4% grades, curvature, and limited sight distance.

To disqualify a safer immersed tube tunnel option the IBR Administration issued an inaccurate and misleading report. This report was prepared by 17 WSP consultants and located an proposed immersed tube tunnel under the wrong barge channel. This resulted in an overly steep, long, and costly design. A peer review of this report by an independent qualified immersed tube tunnel engineering firm should be done.

For over 60 years an immersed tube tunnel under the Fraser River has served Metro Vancouver BC. British Columbia studied and debated a new bridge or tunnel for over a decade. Last month British Columbia chose a new immersed tube tunnel.

Please study my supporting “Public Comment” on the IBR website.

Doug Allen

9/22/21

Please forward this email and the attached memorandum to the members of the IBRP Executive Steering Group.

At the ESG meeting a week ago on September 15, 2021, IBRP staff presented arguments why the Common Sense Alternative II (CSA-II) should not be included in the design options to be analyzed.

The attached memorandum explains how the IBRP arguments are invalid, and how the CSA-II could in fact help meet the stated IBRP goal that "[t]he goal is to identify the IBR solution that best meets the needs of the region by spring 2022 to move forward for further analysis and design."

The memorandum also clearly explains the fact that the CSA-II was never previously analyzed, nor was it discarded by the CRC process for not meeting the Purpose and Need of the project, and the claims that it was are false.

Jim Howell and I are Directors of AORTA-Association of Oregon Rail and Transit Advocates (aortarail.org), and participated in developing the Common Sense Alternative II.

Bob Ortblad

10/17/21

Interstate Bridge Replacement Program

Please accept the attached "ESG Public Comment"

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TO: IBRP Executive Steering Group
FROM: James Howell and Douglas R. Allen, AORTA Directors
DATE: September 22, 2021

SUBJECT: Rebuttal of Sept. 15 presentation to ESG regarding Common Sense Alternative II (CSA-II)

This memo rebuts the material presented at the Sept. 15, 2021 IBRP Executive Steering Group (ESG) meeting, which comprised a cover memo¹, a specific memo² about the CSA-II, and a slide presentation³.

To set the context for this rebuttal, we highlight the following declarations of the IBRP team (see pages 11-14 of slide presentation):

Purpose and Need:

An alternative must address the transportation needs of the I-5 corridor/bridge:

- Growing travel demand and congestion
- Impaired freight movement
- Limited public transportation operation, connectivity, and reliability
- Safety and vulnerability to incidents
- Substandard bicycle and pedestrian facilities
- Seismic vulnerability of the I-5 bridge

Key IBRP "findings":

Common Sense Alternative II

- Would not address safety and congestion in the I-5 corridor
- Transit, bikes, pedestrians, and local traffic would remain on existing bridge
- Bridge lifts would continue at the Interstate Bridge
- Seismic vulnerability would remain for the Interstate Bridge

This rebuttal memo assesses compliance with the Purpose and Need statement by comparison with the no-build option, but will use the "Locally Preferred Alternative" (LPA) selected by the prior CRC process for comparison where appropriate. We assume that the IBRP memos referenced above are making similar comparisons, although that is unclear.

What is the essence of the Common Sense Alternative II (CSA-II)?

(See <https://www.youtube.com/watch?v=gV0W5ApNiSo> for full narrated explanation.)

The primary component is a new 8-lane freeway bridge for I-5, replacing the I-5 motor vehicle travel functions of the existing Interstate Bridges. This is not a "supplemental" bridge, but is the primary constructed feature of the CSA-II. It would be located immediately upstream of the existing bridges, have a 72-foot river clearance at the highest point, in-line and with river clearance identical to the existing Interstate Bridges,

and would have a bascule opening span in line with the lift spans of the existing Interstate Bridges.

This new bridge would be built to current seismic standards, eliminating the risk of traffic disruption resulting from the most massive earthquake for which current design standards have been set.

The new bridge would have three standard freeway through lanes in each direction, plus a supplemental outside lane in each direction to reduce congestion caused by entering and exiting traffic in the vicinity of the bridge.

Another important component of the CSA-II eliminates the need for bridge lifts for commodity barge traffic. Currently, despite the 72-foot river clearance in the middle of the existing bridges, under which all commodity barge tows can fit, the opening in the downstream BNSF Railway bridge does not line up with that high point, so a significant amount of barge traffic requires the existing Interstate Bridges to be opened to allow for a safer direct path, especially in higher water conditions. To solve this problem, the CSA-II includes a new lift span on the BNSF Railway bridge.

Neither of these components is novel or un-vetted by experts. Well before the prior CRC process began, in order to reduce bridge lifts on I-5, the Columbia River Towboat Association and the business group Identity Clark County proposed installing a new lift span on the BNSF Railway bridge to line up with the high spans of the existing Interstate Bridges. This concept was vetted by the US Coast Guard, which declared the existing railroad swing span a hazard to navigation, and which has the authority to compel cooperation by the BNSF Railway in ameliorating the problem. In 1989, a swing span over the Willamette River (known as Bridge 5.1), on the same rail route, was replaced with a lift span, improving navigation as well as rail operation.

Also, during the CRC process, the Metro Council adopted a resolution asking the CRC to analyze options that included fixing the BNSF Railway bridge, but the resolution was ignored by CRC staff.

The other main component of the CSA-II is retention of the existing Interstate Bridges for local traffic, pedestrians, bicycles, and transit.

Note that with the CSA-II, bridge lifts would be minimal, and not occur during peak times. River traffic exceeding the 72-foot clearance occurs on rare occasions, and can be scheduled. Likewise, maintenance lifts can also be scheduled outside peak times. A new opening span on an Interstate highway has a clear precedent in the Woodrow Wilson bridge on I-95 (Capital Beltway) over the Potomac River.

Given this description of the CSA-II, it is disturbing that the IBRP team claims that the CSA-II "would not address safety and congestion in the I-5 corridor."

The following list of issues points out several places where the IBRP material has gone wrong in its attempt to discredit the CSA-II:

1. Bridge lifts do not violate the Purpose and Need Statement, per se. Safety, vulnerability to incidents, and impairment of freight movement can be addressed by multiple components of a project, including a reduction in bridge lifts from the current frequency. This was made explicit during the CRC process from which the current Purpose and Need Statement has been continued without change.

2. The lifecycle costs of maintaining the existing Interstate Bridges are unknown. Speculative claims, without analysis, don't help.

3. The CSA-II provides complete seismic safety for I-5 through construction of a new bridge. This new bridge could provide temporary transit, pedestrian, bicycle, and local traffic connections if needed after a seismic event. The wisdom of any seismic upgrades to the existing Interstate Bridges should be based on a competent economic analysis.

4. Land use - The footprint of the CSA-II is likely much smaller than the LPA.

5. Construction costs are not part of the Purpose and Need statement, and should be based on competent analysis of a comprehensive solution, not fragmentary speculation about the cost of individual components.

6. Natural Resources - The effect on natural resources is determined through an Environmental Impact Statement (EIS) or Supplemental Environmental Impact Statement (SEIS) governed by the National Environmental Policy Act (NEPA) and associated regulations. Given that any bridge piers in the CSA-II will be in alignment with the existing Interstate Bridge piers, the environmental significance of these, especially beyond the construction phase, will require competent analysis, not speculation. Neither the CSA-II nor the CRC option (RC-8) that the IBRP team seems to conflate with the CSA-II were analyzed in the EIS for the CRC.

7. While marine navigation is not part of the Purpose and Need, the CSA-II, as described above, significantly improves marine navigation and removes an identified hazard. In discussing the issue of replacing the railroad swing span, much of the IBRP team memo is simply a distraction from the basic question of whether the CSA-II meets the Purpose and Need statement. It makes the obvious statement that the rest of the BNSF Railway bridge may be seismically vulnerable. This fact is deserving of analysis, such as whether public investment in one component of that bridge makes economic sense or could help prevent the environmental disaster of a fuel barge crashing into one side of the narrow swing span channel. Blanket dismissal seems irresponsible, yet the memo argues that the Oregon and Washington Departments of Transportation might not want to pay for fixing the railroad bridge, and appears to argue for maintaining the existing hazardous narrow swing span channel on the railroad bridge.

8. The IBRP team material incorrectly represents the new I-5 freeway bridge component of the CSA-II. It is not a "supplemental" bridge, but is the actual I-5 crossing between Hayden Island and Vancouver, built to full Interstate Highway standards, with four lanes in each direction. It would carry C-Tran express buses, but not light rail or a bus connection to a light rail terminus on Hayden Island. In its discussion of re-purposing the existing Interstate Bridges, the IBRP team references arguments from CRC documents that assume continued use of the old bridges for I-5 traffic. That concept is not part of the CSA-II.

9. The IBRP team memo conflates the "RC-8" river crossing option from the prior CRC, with the new CSA-II bridge, yet suggests that it does not meet the project Purpose and Need, even though RC-8 was identified as meeting the Purpose and Need of the CRC, which is the same Purpose and Need Statement adopted by the IBRP.

Pages 3 and 4 of the specific memo² gloss over what happened in the CRC "Step A Screening" process. This memo implies that RC-8 is essentially the same as the new I-5 bridge proposed in the CSA-II. Later, on pages 6 and 7, the memo admits that RC-8 passed the Step A Screening process, meaning that it met the Purpose and Need of the project. The relevant CRC document declares: "Staff Recommendation: Advance RC-7 through RC-9".

See page 3-4 of

https://wsdot.wa.gov/accountability/ssb5806/docs/6_Project_Development/Alternative_Development/StepAScreening.pdf

Also see

https://wsdot.wa.gov/accountability/ssb5806/docs/6_Project_Development/Alternative_Development/AdditionalComponentScreening.pdf

During the CRC process, RC-8 inexplicably received scores of "unknown" for the question of whether it improved safety and vulnerability to incidents, and the question of whether it reduced the seismic risk of the I-5 Columbia River Crossing. Perhaps this is because RC-8 was understood to be a "supplemental" bridge, carrying only one direction of I-5. The CSA-II full I-5 new bridge obviously improves safety and reduces seismic risk of the I-5 crossing.

In any case, subsequent to the CRC Step A Screening process, CRC staff decided to jettison all movable-span options. By citing the "unknown" scores, and then comparing movable-span options to fixed-span options rather than to the "no-build" option, staff presented the no-brainer fact that a fixed span would have less impact from bridge openings than a movable span, however infrequent and off-peak those openings might be. They also claimed that all movable spans increase risk to marine navigation. This claim depends on their refusal to consider ameliorating the swing span on the BNSF Railway bridge. This information was presented by the CRC staff as conclusions, and supporting analysis has not been supplied.

Therefore, by fiat, CRC staff removed RC-8 after it passed the Step A Screening process, and before the Step B Screening process was undertaken. Given the significant differences between the CSA-II proposal for a new I-5 freeway bridge, and the previously

rejected RC-8, there is all the more reason to conduct an analysis of the CSA-II proposal under a NEPA SEIS or new EIS

Furthermore, RC-8 was designed with a 65-foot river clearance, seven feet lower than the existing Interstate Bridges, biasing the CRC analysis that RC-8 failed to reduce bridge lifts enough.

10. By eliminating a full Hayden Island Interchange, the CSA-II eliminates at least 6 lanes of roadway width and millions of dollars in construction cost, occupying far less total land on Hayden Island than the LPA. How is this accomplished? By re-using the existing Interstate Bridges for local traffic, in combination with a supplemental Portland Harbor Bridge for LRT and local traffic (as included in the CRC LPA). The IBRP team's statement that "...it is reasonable to assume that reuse alternatives generally consume considerably more land compared to replacement options..." is demonstrably false in the case of the CSA-II proposal.

11. The IBRP memo conclusions regarding re-use of the existing spans are mostly speculative, and misrepresent the CSA-II proposal. The IBRP memo states that "...any alternative that does not address the seismic deficiencies of the existing Interstate Bridge would not meet the program's Purpose and Need statement." This ignores the fact that the CSA-II does not use the existing Interstate Bridges for I-5. The new I-5 bridge envisioned in the CSA-II meets the requirement in the Purpose and Need Statement that "seismic vulnerability of the I-5 bridge" be addressed.

Also, notably, at the DEIS phase of the CRC, two options that re-used the existing Interstate Bridges for northbound I-5 traffic only, were included for analysis. These options included seismic upgrades to the existing bridges.

The CSA-II is agnostic regarding the economic value in retrofitting the existing Interstate Bridges, given that the new I-5 bridge would ensure transportation connectivity in the event of a major earthquake. Still, the memo's un-referenced claim that "Subsequent evaluations of seismic retrofitting have determined that seismic retrofits would be prohibitively expensive..." is suspect and speculative, given the previously published analysis of seismic retrofitting developed by the CRC. No analysis has been done regarding the actual extent of retrofitting that would make economic sense for the existing Interstate Bridges, given their re-purposing so they no longer carry I-5 traffic.

12. In doing a cost-benefit analysis, which we must point out is not a factor in meeting the requirements of the Purpose and Need statement, any life-cycle costs of retaining the existing Interstate Bridges must be weighed against both the demonstrable cost savings of the CSA-II compared with the LPA, as well as the intangible benefits of the CSA-II compared with the LPA.

13. The much lower profile of the CSA-II I-5 freeway bridge, as compared with the LPA, has huge benefits. On the Washington shore, for the high LPA bridge, the controlling

factor is the height of the BNSF Railway that runs parallel to the north shore of the Columbia. The existing I-5 lanes travel under the BNSF Railway, as they would also do under the CSA-II. Given that the railroad is on fill perhaps 20 feet above ground level, then adding the necessary 24 feet of clearance above the railroad, then perhaps 20 feet for the lower deck of the LPA (the CSA-II main I-5 bridge is a single deck), means that the LPA soars past downtown Vancouver at the height of a six-story building. The CSA-II would be at ground level, the same as the existing I-5, past downtown. Certainly the railroad is not going to be moved under any circumstances.

Despite this significant difference between the CSA-II river crossing and the LPA, the IBRP memo appears to rely on a CRC analysis of shore-side impacts on the Vancouver side of the river, that if applied to the CSA-II, is demonstrably false:

"One of the potential concerns when comparing river crossing options is that the higher elevation options could potentially have more significant impacts at the onshore bridge approaches in Vancouver and on Hayden Island when compared to lower elevation, moveable span options. However, the design development of the low- and mid-level options has resulted in a relatively minor difference of elevation of about 15 feet at mid-span (as noted above, the low-level bridge would be at about 80 ft above the water, and the mid-level span would be at about a 95 ft. elevation). The difference in elevation would generally be progressively less as you move away from the river, resulting in relatively minor differences in elevation at the Vancouver and Hayden Island approaches. As a result, the potential on-shore impacts can be viewed as approximately equivalent for the low and mid-level options." See page 3 of

https://wsdot.wa.gov/accountability/ssb5806/docs/6_Project_Development/Alternative_Development/AdditionalComponentScreening.pdf

While the CRC analysis concedes a potential advantage in having a movable span, it dismisses that advantage by stating that as a result of their "...design development..." "...the potential on-shore impacts can be viewed as approximately equivalent for the low [movable-span] and mid-level [fixed-span] options."

Let us be clear here: The CRC did not study the CSA-II option of a new I-5 bridge, but instead studied a range of "supplemental" bridges that would have carried only one direction of I-5, retaining the existing Interstate Bridges for the other direction. In no way would the CSA-II have on-shore impacts that are "approximately equivalent" to that of the CRC LPA, as shown above. What the CRC studies did clearly show was that a new upstream bridge with a movable span could be a component in meeting the Purpose and Need of the project.

14. The August 31 memo¹ from the IBRP team entitled "CONTEXT FOR REVIEW OF SOLUTIONS THAT DO NOT MEET THE PURPOSE AND NEED FOR AN INTERSTATE-5 REPLACEMENT [sic] BRIDGE" begins with this assertion: "When restarting the Interstate Bridge replacement work in 2019, there was clear direction from the governors of Oregon and Washington as well as the bi-state legislative committee that the program should utilize past work from the previous project **that remains valid**

[emphasis added] to maximize past investment and ensure efficient decision-making, while also taking into consideration changes since the previous planning effort."

15. The memo² specific to the CSA-II states: "The evaluation conducted under CRC of the group of components comprising the CSA II is still valid. The needs for the program have not changed, and the CSA II would not meet the program's Purpose and Need statement."

This is false. The CRC never conducted a valid evaluation of either all individual components of the CSA-II, or the functional grouping of components that the CSA-II comprises. Furthermore, the CSA-II demonstrably does meet the IBRP Purpose and Need statement.

16. The CRC LPA was a design failure: Too high past downtown Vancouver, too low over the Columbia River, too wide over Hayden Island, excessively steep for bicycles, pedestrians, and light rail, and too expensive. The current IBRP plans are based on past failure, and stubbornly sticking to that past failure seems like a recipe for future failure.

The CSA-II demonstrates that there are remedies for many of the problems of the LPA. If the IBRP team would consider an alternative based on the CSA-II components, and engage in a good-faith analysis and refinement, they might well achieve the sort of affordable success that this region is hoping for.

Footnotes:

1. Cover Memo:

https://www.interstatebridge.org/media/kqzlbxzb/solutions-cover-memo_remediated.pdf

2. Memo specific to CSA-II:

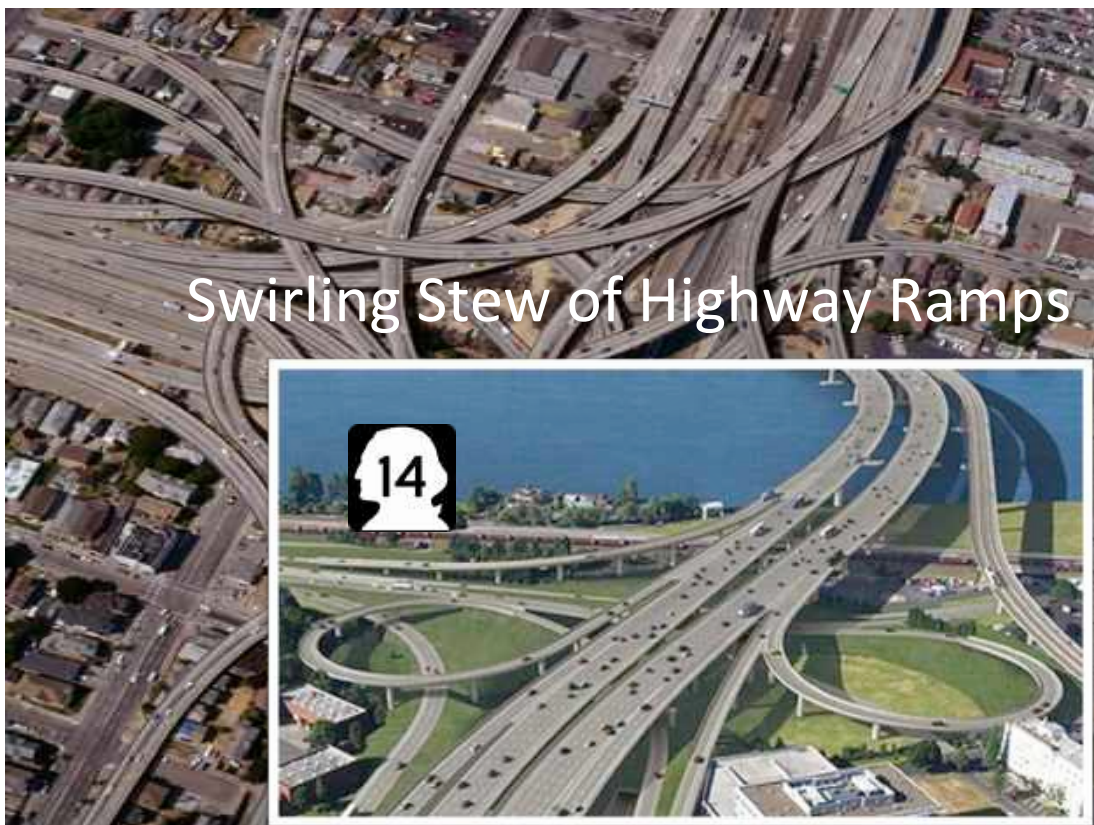
https://www.interstatebridge.org/media/qxwnqcnz/memo-csaii_remediated.pdf

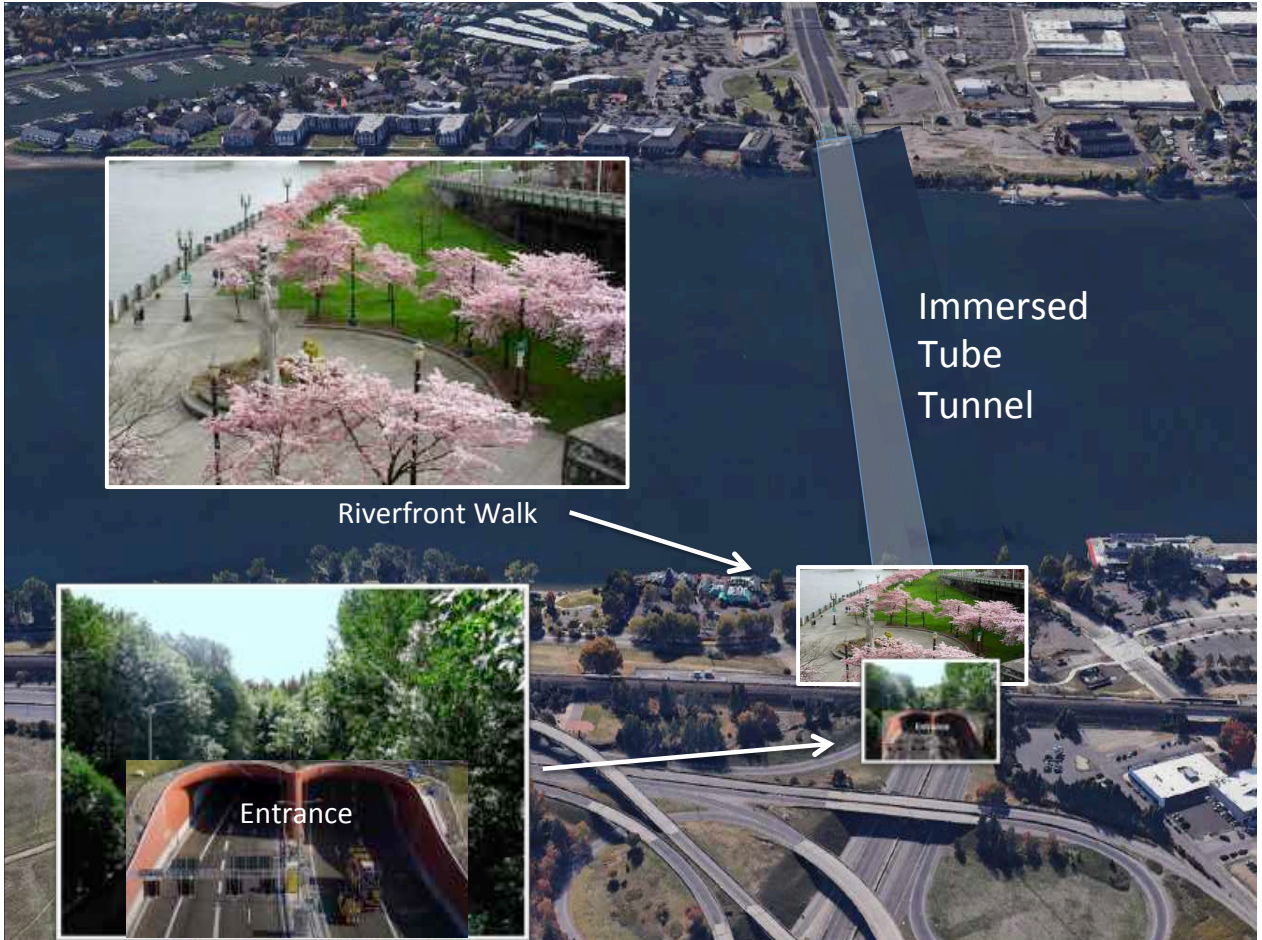
3. Slide presentation shown at Sept. 15, 2021 ESG meeting:

https://www.interstatebridge.org/media/5fkgfbkb/ibr-esg-presentation-9-15-21_remediated.pdf



Let's not end America's greatest scenic drive, the Lewis and Clark Trail, SR14 in an ugly swirling stew of highway ramps.





An immersed tube tunnel would be a more beautiful highway ending and give Vancouver a riverfront park.



An immersed tube tunnel would also protect both Vancouver and the Columbia River from bridge noise and pollution that would rain down on both the city and river.

Trelleborg - How to build an immersed tunnel
<https://www.youtube.com/watch?v=2Xkyvc9PIQA>

Trip through Tingstad Tunnel, Gothenburg
<https://www.youtube.com/watch?v=KoEBbmecd88>

Trip through Marieholm Tunnel before its Dec. 16 opening, Gothenburg
<https://www.youtube.com/watch?v=BT9s2Pf9Wms&feature=youtu.be>

Launch of the Marieholm Tunnel elements, Gothenburg
<https://www.youtube.com/watch?v=JC4mRlgwXU0>

Elizabeth River Tunnel, Norfolk, VA.
<https://www.youtube.com/watch?v=NsNBdPFMuQY>

George Massey Crossing Tunnel Concept, Vancouver, Canada
<https://www.youtube.com/watch?v=8At88ti-vFA>

Immersion Tunnel Coatzacoalcos by Volker Construction International, Mexico
<https://www.youtube.com/watch?v=VFwkoZMja0k>

DERSA - Santos Guarujá Immersed Tunnel Project, Brazil
<https://www.youtube.com/watch?v=du8KZob7Pkw>

Busan-Geoje Fixed Link in South Korea
<https://www.youtube.com/watch?v=-aykpUulHJo>



**Immersed Tube Tunnel
better than a
New High Bridge**

Letter: Retraction Required Oct. 6, 2021

As professional engineers, the Interstate Bridge Replacement Program (IBRP) administrators and WSP USA consultants are obligated to acknowledge an obvious error in their assessment of a Columbia River I-5 immersed tube tunnel (ITT).

The WSP's "Tunnel Concept Assessment" evaluated an ITT under the current primary barge channel at the bridge lift near the Vancouver riverbank. This resulted in an ITT design that is too steep, long, and costly. An ITT under a channel near the center of the river should have been evaluated.

WSP USA has a conflict of interest in evaluating an ITT. WSP USA is anticipating hundreds of millions in bridge design and construction management fees. An alternative ITT design from a competing ITT engineering firm is a threat to these fees. To restore public trust, WSP USA must retract its misleading report and refund its fee.

The IBRP administration should contract for two parallel competing design teams, a bridge vs. ITT team. Only then will an ITT get a fair evaluation.

Vancouver, British Columbia, had competing bridge and ITT designs for a new Fraser River crossing. Last month, Vancouver officials chose an eight-lane ITT with dedicated bus rapid transit lanes.

Bob Ortblad MSCE, MBA

WSP USA's "Tunnel Concept Assessment" link

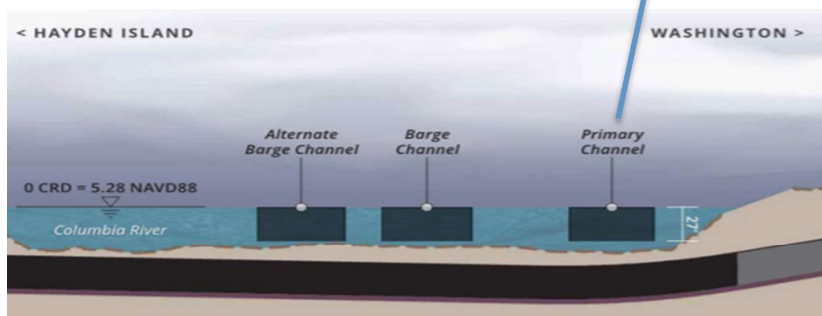
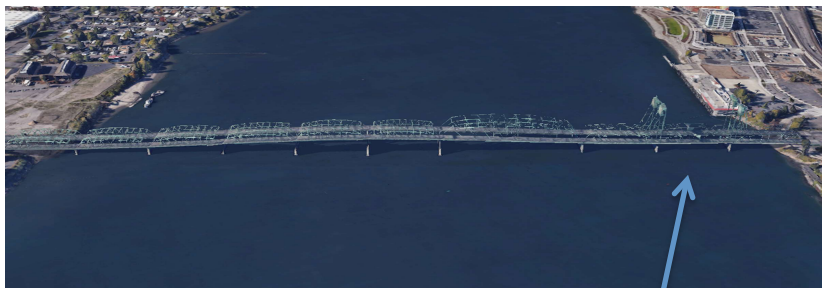
<https://www.interstatebridge.org/media/4ivnpz3n/2021-03-03-final-itt-v2-48-remediated.pdf>

"Vancouver, British Columbia" ITT link

<https://www.cbc.ca/news/canada/british-columbia/massey-tunnel-replacement-bridge-1.6145139#:~:text=280-An%20eight%20lane%20tunnel%20under%20the%20Fraser%20River%20will%20replace,t%20be%20complete%20until%202030.>

"Clark County Today letter" link

<https://www.clarkcountytoday.com/opinion/letter-retraction-required-due-to-conflict-of-interest/>



The IBR's "Stacked alignment option" has at least two major problems.

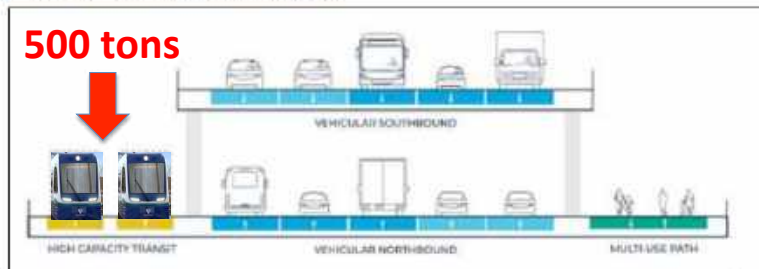
Bob Ortblad MSCE, MBA

1. Asymmetrical loading



asymmetrical loading

Figure 4. Stacked alignment option



asymmetric load

500-foot truss span

2. Weather and Noise exposure



Figure 4. Stacked alignment option

