Date: November 18, 2024

To: Interstate Bridge Replacement Project

From: Joe Cortright, *City Observatory*
Chris Smith, No More Freeways

Subject: **Supplemental Comments on IBR DSEIS**

"Some highway engineers have a mentality … that would run an eight-lane freeway through the Taj Mahal. That is our problem."
– Oregon Governor Tom McCall, 1970

The following specific Draft Supplemental Environmental Impact Statement (DSEIS) concerns supplement the No More Freeways letter dated November 11th.

1. Failed to take a hard look at alternatives, including the Common Sense Alternative in the scoping process. Failed to consider how changed circumstances will affect these alternatives. Relies on outdated analysis. The original scoping analysis for the IBR was undertaken in 2005-2007, more than 15 years ago. IBR relies on that now outdated analysis to exclude a wide range of options including retaining one or both of the existing bridges, evaluation of the Common Sense Alternative, and evaluation of a lower level bascule crossing. By relying on this outdated information, IBR failed to take the required hard look at reasonable alternatives as dictated by NEPA.

2. Failed to separately analyze different alternatives as required by NEPA. IBR has effectively created a "pig in a poke" Locally Preferred Alternative (LPA), including several different bridge designs (lift span or fixed span), several different river clearances (178' and 116'), several different widths (with and without a second auxiliary lane), and two different bridge configurations (stacked and single level). The DSEIS labels each of these as "design options" but they are actually significantly different alternatives. Each of these multiple alternatives has different environmental impacts. The purpose of an EIS is to present, separately, the impacts of each alternative. This EIS has failed to reveal these different impacts. It therefore thwarts the fundamental purpose of NEPA which is to inform the decision about which alternatives have the least impact on the

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environment. If this LPA is adopted, the public cannot know which of the many alternatives have been selected and on what basis.

3. Failed to accurately disclose visual impacts. The IBR LPA will be a massive bridge and elevated freeway towering as much as 80 and 100 feet over the Vancouver waterfront, and over downtown Vancouver and Hayden Island. The project has released only minimal and highly distorted computer generated images showing the visual impacts of the project. The perspective chosen for these images minimizes the apparent size of the bridge and conceals how it will affect people near and under the bridge and its approaches. IBR spent more than $1 million to create a "digital twin" of the proposed project, but has produced only highly selective and highly edited images designed to minimize the apparent impacts of the project. This selective approach violates NEPA's requirement to provide objective and scientific information about the project's impacts. The IBR's strategy here mirror's the approach Robert Moses used in his failed attempt to sell the proposed Brooklyn Battery Bridge with an illustration which his biographer Robert Caro characterized as being shown from the perspective of a high-flying and myopic pigeon.

4. Failed to accurately analyze an Immersed Tube Tunnel alternative. An immersed tube tunnel could be built with much smaller environmental impacts, could completely obviate the negative visual impacts of this project. Engineers have developed a representative model showing how an immersed tube tunnel could be connected to existing roadways, eliminating the need to rebuild existing interchanges, and reducing the project's environmental impacts. IBR conducted a flawed and biased engineering assessment that rejected an immersed tunnel on inaccurate cost estimates. Cost alone is not a valid basis for excluding a reasonable alternative from full consideration.

5. Failed to analyze alternatives that would maintain the I-5 freeway underneath the Burlington Northern railroad berm. Currently, the I-5 freeway goes under the railroad berm just north of the Columbia River. This underpass through the railroad berm minimizes the environmental effects of the roadway on adjacent properties. IBR has failed to consider any alignments which would retain this alignment, and instead is only considering alignments which would elevate the freeway and associated interchanges high above the Burlington Northern Railroad.

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6. Failed to analyze a lower level bascule bridge. The IBR LPA includes only lift span options with a 116 foot river clearance. These options necessitate a very high level roadway crossing, and cause the freeway to be elevated much higher over downtown Vancouver and Hayden Island, increasing the project's visual and environmental effects. The IBR designed a lift span with a minimum clearance (in the closed position) of 92 feet, about 20 feet higher than the current bridge. A lift span could have a much lower clearance if it were constructed with a bascule opening that allowed unlimited navigation height and a lower roadway. IBR failed to evaluate this reasonable alternative as part of the EIS. A lower level bascule bridge would have much lower grades for transit and vehicle traffic, as well as for bikes and pedestrians, and would have different and much smaller visual impacts.

7. Failed to consider retaining one or both bridges to limit impacts of the project. The DSEIS fails to evaluate the option of retaining one or both existing highway bridges as part of a project alternative. The newer of these bridges was built in the 1950s. Earlier work done for the project determined that the bridges could be seismically retrofitted to significantly reduce the danger of collapse. The DSEIS failed to revisit or update the analysis contained in the 2008 EIS which had partially analyzed the "supplemental" bridge alternatives. Retaining the existing bridges for some combination of pedestrian, bicycle, transit and local vehicle access would significantly reduce the size of any needed river crossing—whether a bridge or tunnel—and therefore lower the project's overall environmental impact. IBR erred by failing to advance this reasonable alternative to the DSEIS and update the analysis of this alternative.

8. Artificially widened roadway to convert to lanes. The DSEIS calls for constructing two bridge decks with a width of 79 feet each for a total width of 158 feet. This is sufficient width to be striped to include six 12 -foot travel lanes with 3.5-foot shoulders on either side of the freeway. Such narrow shoulders are common on major highway bridges in the Portland Metropolitan area and elsewhere. In addition, ODOT has 11-foot travel lanes on parts of the Interstate highway system. The DSEIS does not analyze the reasonably foreseeable possibility that the constructed roadway would be striped for six travel lanes in each direction. Because the DSEIS does not examine this possible level of capacity, the DSEIS does not accurately estimate the level of traffic and associated pollution that would be associated with this alternative.

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9. Raised vs. Embedded Rails to exclude transit use of LRT ROW. The alternate "design options" for the river crossing call for a portion of the bridge to be dedicated to light rail transit, and that the bridge be built to include 14-foot shoulders on the highway segment of the bridge to allow for so-called "bus-on-shoulder" transit operations. As noted above, the highway portion of the bridge crossing could easily be re-striped for general purpose traffic lanes, resulting in impacts not disclosed in the DSEIS. The light rail design calls for "raised" rails, where the rails are mounted on blocks on top of the roadway, making it impossible for this right of way to be used by non-rail vehicles, such as buses. The DSEIS fails to analyze the use of "embedded" rails for the light rail vehicles. Embedded rails are flush with the roadway, and allow other vehicles, such as buses, and also emergency vehicles--to use the transitway. If the DSEIS had incorporated embedded rather than raised rails, it would not be necessary to build over-wide shoulders on the highway portion of the project to accommodate "bus-on-shoulder" operations, because buses could use the LRT transitway. Furthermore, keeping buses on the transitway would avoid the potentially dangerous merges of traffic across buses operating on shoulders. The overall width of the highway portion of the project could be reduced if the project used embedded rails, thereby reducing the bridge's footprint and environmental impacts. The DSEIS erred by failing to analyze this reasonable alternative.

10. Failed to consider removing or not rebuilding interchanges. The DSEIS proposes to partially or entirely rebuild seven interchanges on I-5 between Vancouver and Portland. The DSEIS fails to analyze whether one or more of these interchanges could be eliminated. Outside experts hired by the Oregon and Washington Transportation Departments formally recommended that the project could be improved, and would be safer and have better traffic circulation if one or more interchanges were eliminated.

11. Impermissibly bundled transit, tolling and highway widening. The DSEIS consists of disparate parts, some of which encourage additional traffic, pollution and environmental impacts (like the provision of additional highway capacity), and others which reduce traffic and environmental impacts (i.e. pedestrian and bike improvements, transit and the imposition of tolls on vehicles using I-5). Some of these elements increase environmental degradation, while other elements decrease environmental impacts. The

single “build” alternative in the LPA impermissibly combines both the negative and positive elements of the project, when they ought to be presented separately. A transit only alternative that added light rail, or a toll-only alternative that added tolls to the existing bridge (or a new bridge with a similar capacity of three travel lanes in each direction) would have dramatically lower environmental impacts than the project which included all these elements. The DSEIS errs by failing to provide separate transit-only, toll-only and transit-plus-toll only alternatives that do no increase the roadway capacity of the I-5 crossing.

12. Didn’t consider safety and environmental effects of a high bridge. The high clearance required for a fixed span necessitates extremely high landings for the I-5 bridge on either side of the Columbia River. The Vancouver side will be approximately 80 to 90 feet tall and the Hayden Island side will be 60 feet tall. The very high bridge produces extremely steep grades on the bridge and approaches for vehicles, and an extremely steep climb for cyclists and pedestrians, especially those entering or exiting the bridge at the Vancouver waterfront. The steepness of the bridge and ramps is likely to create significant safety hazards for traffic, especially with slow trucks and transit vehicles climbing the high grade. These effects have not been fully analyzed in the DSEIS. The height of the bridge makes the crossing difficult or impassible for persons with limited mobility who are walking, cycling or taking transit.

13. Doesn’t analyze induced demand. In the scientific literature, the principle of induced travel is well established: expanding the capacity of roadways in urban areas prompts people to drive more, increasing traffic, congestion and pollution. The DSEIS uses a false “No-Build” projection to predict impossibly high traffic levels even if capacity is not expanded, even though its technical work concedes that the bridge already operates at capacity. These false “No-Build” projections effectively conceal the effects of induced travel from added capacity. By creating a “No-Build” scenario with falsely elevated levels of driving, the DSEIS claims that it will not have negative environmental effects because traffic will increase somewhat less than in its false and inflated No-Build scenario.

14. Assumes tolls will be permanent, when then may not be. The DSEIS assumes that tolling will be permanent on I-5. Future traffic levels, and associated environmental effects are based on the assumption that all traffic will be tolled indefinitely on I-5.

However, the Oregon and Washington Transportation Commissions, which would set the toll rates for the I-5 bridges have indicated that they would reduce or eliminate tolls once any bonds used to finance bridge construction are paid off. If tolls are reduced or eliminated compared to those shown in the DSEIS, the level of traffic will be different and the environmental impacts will be very different. The DSEIS fails to comply with NEPA because it does not disclose the level of traffic and pollution associated with a bridge with reduced or no tolls. Coupled with a re-striping of the proposed 158 foot wide roadway to include as many as twelve travel lanes, and reduced or eliminated tolls, there would be much more traffic and pollution associated with the bridge than disclosed in the DSEIS. Metro traffic modeling shows that in the absence of tolling, the project will produce vastly more driving than in the No-Build scenario.

15. Fails to undertake an investment grade analysis of actual traffic. The DSEIS traffic forecast is predicated on toll levels ranging from approximately $1.50 (off peak) to $3.00 peak for private vehicles, and higher tolls for trucks. But these are not the actual toll levels that are likely to be charged for the I-5 bridge. Instead, as conceded by IBR, tolls will be set based on the results of an "investment grade" traffic and revenue analysis. An "investment grade" analysis is an independent analysis, required by federal programs and private bond markets, that is more rigorous and more accurate than the models used by state highway departments. The previous investment grade analysis prepared for this project by CDM Smith found that in order to finance the project, much higher tolls were needed than had been modeled in the previous 2008 EIS. In fact, CDM Smith found that off-peak tolls would need to be almost doubled. These higher tolls that are required produce very different traffic impacts than those disclosed in the DSEIS. Given that Oregon and Washington are preparing a new Investment Grade Analysis for the IBR which should be completed in the next few months, the EIS should be based on this more reliable forecast, rather than the flawed and less accurate modeling developed earlier.

16. Adopted a false and flawed purpose and need statement. The project's purpose and need statement, originally promulgated in 2005, and only slightly changed since then offers a false claim that traffic levels will increase on I-5 at 1.5 percent or more per year indefinitely, and that because of these increases, all alternatives must be selected to accommodate this volume of traffic. The IBR asserted in its 2022 reassessment of the purpose and need that the original purpose and need statement was "still valid." In fact, traffic volumes on I-5 have increased at much lower rates: 0.1 percent per year from

2005 to 2023, and only 0.3 percent per year from 2005 to 2019 (the last pre-pandemic year). Because the DSEIS relies on this purpose and need statement to screen alternatives, it has incorrectly excluded multiple alternatives that would provide less traffic capacity--and which would have different and smaller environmental impacts. The two state transportation departments have used these false and exaggerated growth forecasts to design a project that is much larger than needed to accommodate actual travel flows on I-5, and which will have needlessly disruptive environmental effects. In addition, the DSEIS clings to its outdated purpose and need statement even in the face of data that shows that its claimed rate of traffic growth was simply wrong. NEPA requires agencies to base their purpose and need statement of valid and current information; the sponsoring agencies have willfully chosen to ignore the incorrect information contained in the original purpose and need statement.

17. Fails to disclose likely existence and location of historic cemeteries. A risk analysis prepared by the IBR project, and obtained via a public records request shows that the project team knows or has substantial reason to believe that there are historic burial grounds in or near to the project right of way that would be disturbed as a part of the project's construction.

> Risk #309: Post-Review Discoveries - Unknown Cemetery De-Dedication – There is a risk of discovering ancestral findings or encountering a cemetery during construction or excavation activities. Such discoveries can lead to complex legal and regulatory processes, in particular the de-dedication of a cemetery. The discovery may stop work, potentially resulting in significant project delays. The legal and court proceedings for cemetery de-dedication can take 2-3 years. Interstate Bridge Project, "RISK MANAGEMENT Date: July 8, 2024 Subject: Q2 2024 Quarterly Risk Update "

The DSEIS has failed to disclose any evidence that the agencies may have about the existence and location of these burial grounds. This would have an impact on historic resources that should be described in the DSEIS.

18. The Marshall Report shows that there are deep flaws in the IBR traffic modeling. The IBR traffic modeling relies on outdated and inaccurate "static assignment" methods which fail to accurately model the spillover of congestion between adjacent roadway

segments. The IBR traffic modeling fails to adopt the more accurate and valid "dynamic assignment" modeling techniques that have been shown to overcome the inadequacies of the static assignment models. The IBR presents detailed "operations modeling" projections which purport to show the location, level and duration of traffic congestion on different roadway segments, but as Marshall points out, these estimates rely entirely on the inaccurate "static assignment" regional travel demand model. As a result, these claimed operation projections are meaningless "garbage-in, garbage-out" modeling. Marshall's analysis also shows that the true traffic bottleneck on I-5 is not the I-5 bridge, and that in fact, the actual traffic bottleneck is outside the project area, and won't be addressed by the project. Marshall's analysis shows that increasing capacity on the I-5 bridge will actually worsen traffic congestion on adjacent segments of I-5, because it will funnel additional traffic into these unresolved bottlenecks outside the project area.

19. Traffic congestion impacts to I-205 near Portland International Airport (PDX). The IBR study fails to accurately describe the diversion of traffic from the I-5 bridges to the I-205 bridges as a result of tolling. Under the LPA, the I-5 bridge across the Columbia River would be tolled, but the parallel I-205 river crossing would not. The DSEIS projections fail to accurately reflect the effect of tolls on traveler behavior because they assume, without documentation, a very high value for travel time savings, prompting estimates that few travelers will divert in response to tolls. In contrast, more realistic estimates of the value of travel time savings used in the Stantec Level 2 study commissioned by IBR (but omitted from the DSEIS) and an earlier Level 3/Investment Grade Analysis performed by CDM Smith, commissioned by the Oregon and Washington Transportation Departments (and also omitted from the DSEIS) show that I-5 tolling would produce substantial diversion of traffic, on the order of as much as 50,000 vehicles per day, away from I-5 and toward I-205. This level of traffic would produce much more congestion on I-5, and higher levels of pollution. Because many travelers would take more circuitous routes to avoid tolls, the project would increase vehicle miles traveled in the region and also increase pollution. None of these effects are accurately revealed in the DSEIS. In addition, the diversion of traffic from I-5 to I-205 will significantly increase congestion and lead to longer and less predictable travel times on I-205. Because I-205 is the principal access route for trips to and from Portland International Airport, and because airport trips are more time-sensitive than other trips, this could have significant economic impacts.

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20. Significant problems with transportation modeling for the IBR. No More Freeways included in its comments all the issues raised by Joe Cortright of City Observatory in his critique of the transportation modeling prepared for the DSEIS. The transportation models used by IBR are deeply flawed, not calibrated to actual traffic counts, fail to account for capacity constraints, dramatically over-state truck traffic, fail to follow professional standards and agency guidelines, have been manually modified without documentation, are inconsistent with the region's adopted climate policies, and fail to incorporate the findings of more recent, more accurate and more rigorous travel demand models paid for by the project's sponsoring agencies.

21. The DSEIS does not contain the Health Impact Assessment that was a condition of approval by the Metro regional government. A lesser Health Analysis was to be provided as a comment on the DSEIS but as of this writing has not appeared. This leaves the public with no opportunity to comment on health impacts of the project based on the promised analysis.

22. The DSEIS fails to address the serious flaws and omissions in the traffic modeling identified by Federal Highway Administration technical experts in 2023, including failures to adequate document assumptions, to demonstrate that models are accurately calibrated, to justify toll responsiveness assumptions, to document whether peer review included critiques of the model, and basic questions about harmonizing macro- and micro-level modeling. See: Goldstein Email and FHWA Review.

No More Freeways was founded in 2017 to oppose the proposed Rose Quarter Freeway Expansion and to demand that our elected officials and government agencies begin to aggressively pursue alternatives to endless costly freeway widenings. The states of Oregon and Washington are in sore need of significant investment in transportation infrastructure across both states - decades of disinvestment have led to crumbling roads, nearly bankrupt state DOTs unable to afford and maintain snowplows, skyrocketing traffic fatalities, and a dearth of investment in meaningful public transportation alternatives to serve the 1 in 4 Oregonians and Washingtonians who can't or don't drive.

Our organization has closely watched the revival of the Columbia River Crossing as the rebranded Interstate Bridge Replacement over the past five years. We remain staunchly supportive of efforts to invest in the construction of a right-sized replacement of this seismically vulnerable facility in line with our region's adopted goals for cleaner air, reduced traffic

congestion, improved public transportation alternatives, safer streets and climate action. Yet as we articulate in this supplemental letter, this massive highway expansion masquerading as a mere "bridge replacement" deeply jeopardizes Oregon and Washington's budgets as well as our carbon pollution reduction targets.

We urge the federal government to deny the Interstate Bridge Program a Record of Decision under NEPA until these deficiencies are corrected and until ODOT and WSDOT right-size this megaproject.

Attachments

Federal Highway Administration, August 3, 2023, "FHWA Review 08/03/2023".

Goldstein, Thomas (FHWA), Email to Ryan LeProwse, RE: IBR - FHWA: Traffic Tech Report Comments Check-In, September 26, 2023

Interstate Bridge Replacement Project, RISK MANAGEMENT, Date: July 8, 2024,
Subject: Q2 2024 Quarterly Risk Update

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FHWA Review 08/03/2023

This review focuses on the IBR documentation provided on modeling methodology and model results. It includes the documents provided in the administrative draft SEIS and technical reports as well as the following:

- The IBR_History Transporation_Final.pdf,
- IBR-TRN-Methods-RevAv4.docx
- Transportation Data Storymap
- Overview of Travel Demand Modeling (story map)
- Transportation Modeling (story map).

The standard we use to assess the completeness of the documentation is based on answering this question: **Can an experienced professional reproduce your analysis given access to the documentation and input data?** Additional documentation is also requested (and identified below) regarding the ability of the analysis to capture changes in future travel in response to the project alternatives. Sensitivity testing may be appropriate, as well as other comparisons that will increase confidence in the predictive ability of the individual models and the overall analytic approach.

During this review, we found there are many reports existing in various places given the long history of the project. We recommend consolidating all these technical reports into one comprehensive travel forecasting and operational analysis methodology report (see below for possible structure of such a report). Including such a report is common practice for NEPA studies and is very beneficial to establish that the analysis is adequate. It is not necessary to reproduce the content of auxiliary technical reports in detail. However, the consolidated methodology report should explain what is to be found in the other documents, and how they support the methodology and analysis conducted for this study. Insufficient documentation is commonly cited as one of the weaknesses in NEPA study litigations.

In addition to reviewing the quality and completeness of the documentation, FHWA is also concerned that the methodology and analysis use the best available data and tools relative to the metrics that are used to support the decisions documented in the EIS. The documentation should demonstrate that the models can generate plausible and suitably responsive results based on input data that accurately reflect the project alternatives. While these questions are limited to the travel and traffic modeling, it is important to apply the same standards elsewhere in the study to other models used for impact analysis, including safety.

Summary of desired documentation organization

It is important for a study of this scope and complexity to clearly document the modeling methodology. There should be a structured discussion of methods and assumptions that walks the reader from the four-step regional travel demand forecasting with diversion based on tolling strategies, to operational modeling outputs that defines how the facilities are operating, and that includes documentation of feedback from the operational modeling to the four-step forecasting model (the feedback need is discussed below). There are many models that have been deployed for this project; we need to understand how they are deployed and how (or if) they are integrated with each other.

We suggest a hierarchical approach that links from a higher-level summary to increasingly detailed documentation. One such possible structure might look like this:

- Project modeling requirements
    - Establishing Purpose and Need (traffic/travel metrics identifying the need)
    - Evaluating Alternatives (traffic/travel metrics comparing alternatives)
    - Effects Assessment (traffic/travel metrics identifying effects, or relayed to resource models such as noise, air quality or safety)
    - Potential Mitigations (metrics to demonstrate need for or adequacy of mitigation)
- For each of the identified metrics:
    - What models are used to develop the metrics
    - If the same metric (e.g., "LOS") is developed at different points by different models or for different purposes (e.g., we discussed evaluation by local jurisdictions using their own preferred metrics), call those out
- Then, for each of the models identified as sources of information for the study, explain the following:
    - Summarize use of the model
    - Explain the starting point for developing the model:
        - E.g., Portland Metro Regional Model
        - Summarize technical methodology and validation: what does this model have that are useful to this study (pointers to external technical documents)
    - Explain the changes made to the model to ensure that it meets the needs of this study
        - Summarize elements of the model that were updated for the specific application to the study. That may include:
            - Unique land use assumptions (e.g., for Hayden Island and overall changes in the broader subarea that may affect productions and attractions)
            - Zone or network changes
            - Updates to toll methodology

          External detailed documents should explain and justify the changes made, relative to the modeling requirements for this study.
        - Summarize key assumptions used to establish baseline conditions (e.g., the toll rate and expected effects of regional congestion pricing – see elsewhere as those should not be a "variable" for this study)
        - Provide validation and sensitivity analysis reports for the model that was actually used to develop the results used in this study (that may pivot from a baseline validation). Summarize in the top-level document what tests were performed to validate the model and establish that it is responsive to the needs of the study.
- The top-level document should be relatively short. Intermediate level documents may be needed especially for model adjustments and re-validation. Pointers to the complete set of earlier model technical documentation, validation reports, and peer review can be included – if there are specific findings in any of those that are important to this study, those should be called out and summarized.
- The key is to be able to navigate the modeling documentation and establish that the modeling setups are correct, complete, and responsive without getting lost in the details (unreadable documentation is in itself a risk).

The remainder of this document drills down into detailed questions regarding the modeling methodology, model setups, model validation, etc.

For the regional 4-step model and models subsequently used on the project:

In our review, FHWA sought to answer the following questions for each model used:

- Has the model been adequately calibrated and validated?
- Can the model sufficiently reproduce observed metrics for the base year?
- Is the model suitably sensitive to the type of changes to be assessed in the EIS alternative analysis
- How were the base models adapted specifically to address the analysis needs of this study?
- Does each model suitably interact with other model components? (For example, is congestion identified in microsimulation model results represented consistently in travel demand estimates from the regional model?)

2008 Peer Review Report (applies to the regional 4-step model):

The peer review was conducted in November of 2008 and the Peer Review Panel members were nationally well known in travel demand forecasting, particularly in metropolitan model development and applications. The Peer Review concluded "**we strongly believe the travel demand model and project analysis are valid and comprehensive**." While this strong endorsement carries some weight, the peer review was conducted almost 15 years ago, many of key data sources used for model development and calibrations may not reflect current travel behavior and travel choices. Also, the peer review was assessing the model in a different policy context, and it is important to establish the performance of the model relative to current tolling assumptions. The model assessed by the peers was based on data sources that have new versions, including these:

- 2011 Household travel survey
- 1987 External Travel Survey and cordon survey
- Freight Model – FAF3, 2007 CFS and 2015

Questions: To evaluate the adequacy of the peer review to the needs of the IBR study, the following questions should be considered: What background material was provided to the Panel members in the "Travel Demand Model Review notebook" in advance of the peer review meeting? Were any of the considerations and discussions regarding model validity associated with the IBR study area validation statistics when making their conclusions? Were there any discussions related to a need for developing subarea or corridor forecasting model for the CRC study or for other project studies such as the IBR?

The goal of these questions is not just to clarify what the peers reviewed in 2008, but more importantly to establish the validity and utility of the model for the present IBR study, including areas that might warrant new detailed technical review. Being "valid and comprehensive" is inevitably a conclusion that is relative to the study area and to the specific characteristics of the project, including detailed performance of auxiliary lanes and interchange reconfiguration, as well as toll diversions between the two crossings, to different travel times, and to alternate destinations in the region.

Subarea or Corridor Model:

In a typical NEPA or EIS study, a project team would develop a subarea or corridor forecasting model from a corresponding regional or statewide model to understand in greater detail the study area socio-economic characteristics and travel patterns, such as population, households and employment

distribution patterns, travel markets, through traffic, trip purposes, trip length, etc. Most corridor study teams use smaller zones, add more detailed roadway networks, conduct land use inventories, and discuss with local governments their planned and proposed development projects in the study area. In most cases, the study team would update assumptions, refine regional model parameters, and conduct more detailed model validations in the study area than regional models would. The subarea model results would then feed into a corridor microsimulation model for operational analysis and for roadway capacity designs. Likewise, the safety analysis should be based on modeling tools that are documented to suitably respond to the project characteristics. For this study, we have not seen such a subarea or corridor model was developed and validated. We would like to understand the rationale behind this, and to review documentation regarding the adequacy of the level of detail in the full regional model that was applied in lieu of detailed sub-area analysis.

Perhaps due to the lack of the Traffic Subarea model, we found the screen line locations did not cover the entire traffic study area as shown on the following graphs. These locations focus on I-5 Freeway Analysis Area and while well suited for establishing growth rates they aren't as useful for understanding route changes. Because diversion from the I-5 crossing to or from the I-205 crossing is a significant consideration in this project, screen line locations need to be expanded to cover the entire Traffic Study Area to fully represent and evaluate potential diversions between I-5 and I-205.

Toll Modeling and Sensitivity Analysis

- The current tolling modeling approach is applied to internal passenger model, reflecting changes in destination, mode, and route choices. What about other model components, particularly the truck model? The current tolling approach does take the truck route choice into consideration via traffic assignment procedures, however it is unclear if there are impacts on destination choices.
- There are, inevitably, many modeling assumptions made for the different model components. These assumptions need to be clearly identified and supported with respect to their reasonableness overall and for their specific application to this project. Please list those relevant literature or data sources to back-up these assumptions. For example many factors are applied for both base and future years, such as value of time, transponder use rates, factors applied for mode choice (i.e. 75% of the toll when determining which travel mode to use); and destination choices (only 25% of the toll is used in determining trip distribution). Some of these factors might be suitable for the base year model, but will they be applicable for 2045 forecasting?

- As the coefficients of OR2WA and WA2OR (Columbia River crossing) used in the destination choice model were calibrated based on the 2011 household travel survey, were they examined to verify that they remain reasonable after introductions of toll and LRT service? These factors establish a fixed correction for destination likelihood across the river, and it is important to establish that the project is unlikely to alter those coefficients and the resulting corrections.
- For the Toll Sensitivity Analysis, we have questions about how the Congestion Pricing Alternative (pricing on I-205) is included in this project and the alternatives analysis. Cumulatively, there is certainly an effect, and we need to understand how this is considered in the decision making for the IBR project. As the congestion pricing alternative is not an alternative within this project, it is confusing to include it separately from other background traffic. One approach might be to establish a reasonable baseline assumption regarding other regional tolling that would be applied consistently just to the alternatives in the project. If the presence or absence of other regional tolls (or different approaches to how congestion pricing for the region might ultimately be implemented) may have an effect on the efficacy of certain alternatives or on the magnitude of effects that may require mitigation, those should be explored in a distinct evaluation of cumulative effects from regional congestion pricing.
- How are the auxiliary lane and other LPA options considered in the modeling and demand modeling? Full documentation of the representation of these alternatives in the models should be provided, as well as discussion of how microsimulation and regional demand models are ensured to be consistent. This is especially important given the ramp-ramp spacing and the heavy freeway movements.

Land Use Accessibility

- Changes were made to Hayden Island land use relative to the regional model; the specific changes and the motivation for them need to be clearly documented.
- Document changes to regional mobility that might influence future land use and development and assess whether those might merit adjusting future land use inputs to the model for one or more of the build scenarios. If there is no merit in adjusting future land use, please note the rationale (e.g., lack of developable land).

Freight Modeling:

- Freight movements as modeled deserve further discussion relative to generation, production and distribution (more so given tolling and differentials and expected differences in trip patterns). In particular, freight movements within the region (internal-internal), in and out of the region (internal-external) and across the region (external-external) should be considered with respect to tolling. Trips with an internal end should be considered with respect to possible impacts on trip generation and trip distribution, in addition to route assignment.

Transit Modeling

- Has the FTA STOPS modeling approach been used to check if the regional model replicates current transit travel conditions in the study corridor?
- Park & Ride (impact), based on the 2018 license plate survey, Delta Parkway had nearly 18% from Washington state. With toll and LRT, P&R locations in the model might need to be analyzed to see if they are reasonable.

Microsimulation

- There needs to be a discussion of how the VISSIM model was set up / coded.
- Does the model incorporate an adequate representation of the local facilities especially at the ramp terminals and along major routes to demonstrate the system function between the arterial and interstate system and to adequately address diversion magnitude and impacts.

Calibrating/Validating Models:

Have the travel forecasting and traffic microsimulation models used in this study been appropriately calibrated and validated?

- Reproduces metrics for the base year
- Is suitably sensitive to the type of changes to be assessed in the EIS alternative analysis
- Suitably addresses interactions between different model components
- Clearly documents how the model was adapted to support this project, including recalibration, redrawing zones, representing additional network features, or anticipated future developments, and validation against the most recent available observed data, including new counts or surveys.
- How have bi-state standards for microsimulation modeling been harmonized? Has that procedure been documented?
- What is the confidence level agreed to by the two states to determine the adequate number of microsimulation runs and what is the acceptable error target in the data (based on which MOE) for calculation of the number of runs

Scaling Models:

- Are models at different scales suitably linked in the technical analysis?
    - Is congestion identified in the microsimulation propagated back to inform in some fashion the destination/route choice in the demand model
    - Are destination/Route Diversions in response to tolls and congestion reasonable, including, for example, redistribution of trips that may cross the river to destinations that do not entail a river crossing.

Performance Metrics:

- Are the metrics required to support the decisions clearly identified and technically supported with suitable models? Having a summary table as described here will help establish the suitability of the analysis performed.

    - Which metrics are required and for what element of the study (P&N, Alternative Screening, Impact Evaluation)? It is desirable to include a table listing these metrics (in effect, all the numbers derived from modeling that are used to evaluate the alternatives and estimate project impacts)
    - The table and associated discussion should identify how each metric is generated technically (with pointers into existing technical documentation as needed). In the summary table, it should be explained which model is used to generate which metrics and (if relevant) at which point in the analysis. If, for example, an LOS value is reported in different places possibly using different modeling tools, that should be identified and any differences in the estimates explained and reconciled.
    - Metrics for IMAR and related Federal review and approval should be included in the list of required metrics and the models used to estimate them should be clearly identified.

IMAR metrics include those required to establish that the facility operates at an acceptable level with focus on ramp terminals, weave, and merge/diverge areas. Other Federal approval needs include traffic estimates required for noise and air quality analysis that may address speed, time period of analysis, anticipated fleet composition (including freight/trucks), congestion bottlenecks and so on.

- It is reasonable to develop “non-standard” performance metrics as long as the definition of the metric and estimation methodology are clearly explained, and the use of that metric in the study is well-motivated.

From: Goldstein, Thomas (FHWA) <Thomas.Goldstein@dot.gov>
Sent: Tuesday, September 26, 2023 8:34 AM
To: Ryan LeProwse <Ryan.LeProwse@interstatebridge.org>
Cc: Pavlik, Monica (FHWA) <Monica.Pavlik@dot.gov>; Casey Liles <casey.liles@interstatebridge.org>;
Jennifer John <Jennifer.John@interstatebridge.org>; Brian Woodburn <brian.woodburn@interstatebridge.org>; Chris Regan <Chris.Regan@interstatebridge.org>; Daryl Wendle <daryl.wendle@interstatebridge.org>; Gardner, Brian (FHWA) <Brian.Gardner@dot.gov>; Tran, Chung (FHWA) <Chung.Tran@dot.gov>; Yoder, Supin (FHWA) <Supin.Yoder@dot.gov>; Raw,
Jeremy (FHWA) <jeremy.raw@dot.gov>; Darden, Richard (FHWA) <richard.darden@dot.gov>; Horton, Jeff (FTA) <jeff.horton@dot.gov>; Fortey, Nick (FHWA) <Nick.Fortey@dot.gov>; Barnett, Joel
(FHWA) <joel.barnett@dot.gov>; Shilpa Mallem <shilpa.mallem@interstatebridge.org>; Agustin Castro <agustin.castro@interstatebridge.org>; Angela Findley <Angela.Findley@interstatebridge.org>

Subject: RE: IBR - FHWA: Traffic Tech Report Comments Check-In

Good morning all;

Below are some of our comments on the following documents:
Updated Transportation Methods Report
New VISSIM Validation/Calibration Report
New Travel Demand Model Methods Report

Chung Tran (please see first attachment for detailed comments):
I have gone through the IBR VISSIM calibration memo, the way this was calibrated we cannot accept
as calibrated (see details comments).

Monica Pavlik (see second attachment for comments):
Main methods and assumptions document: The documents don't discuss MOEs and the relationship to the questions that we need answered based on the purpose and need as well as the interstate access modification. It is also not explain how the MOEs that ODOT and Wash DOT use are translated from the model outputs.

Jeremy Raw:
I have been through the modeling methodology document and will be ready to discuss it tomorrow. There are competing notions of how the toll modeling was done and they need to be a lot clearer about what they did and why (the original CRC method was not good for reasons we can talk about). It will be very important to include an estimate of diversion between the bridges and associated congestion up and downstream. They included the recent I-205 document as an appendix (for the southern crossing EA from earlier this year) for some reason: that's actually a decent example of showing metrics and tools, and the toll methodology was a bit better than the original CRC approach.

Supin Yoder:
I still have concerns there are no study area validation statistics and market analysis. The consultant

team needs to explain why they skipped the state of practice step and they need to provide justifications that regional models are sufficient for the IBR NEPA study.

Joel Barnett:
The scope of the analysis needs include the local street network to the at least the first major intersection on either side of the proposed change in access (if the plan is to use this Methods document as the M and A for the IJR/IMR/ARR/IAMR). I point to lines Page 31, lines 17-20 and lines
32-33 which seem to suggest a historical discussion, but no analysis of the crossroads outside of the ramp terminals. I would expect that they clearly identify in sufficient detail on how they plan to analyze the impacts to safety on the crossroads up to at least the major intersection.
Like other comments, the MOEs are unclear and should be directly stated. Speaking to the WSDOT side of the river, the focus should be on fatal and serious injury crashes and the methods should support analyzing for those severities. I suspect this is probably the same for Oregon, but the fact that I cannot use this document to determine that is an indication of the lack of necessary information.
Regarding Page 32, Line 8-13. Like the operations analysis, the safety analysis should reflect the disaggregated impacts of the designs at each interchange to understand what is improving and what may be degraded within the study area. Assessing collectively will not suffice for an IJR/IMR/ARR/IAMR.

Thanks,
Tom

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RISK MANAGEMENT

Date: July 8, 2024

Subject: Q2 2024 Quarterly Risk Update

CONTENTS

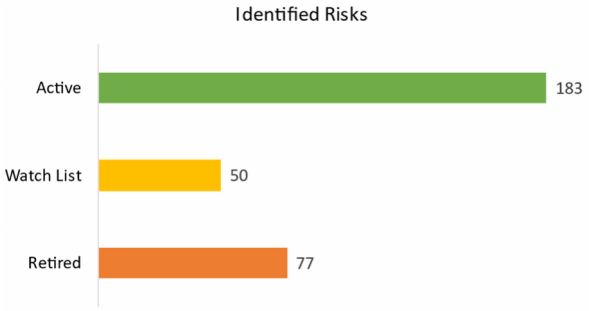
PURPOSE

Risk Management of the Interstate Bridge Replacement (IBR) Program is essential for timely decision making and to reduce the impacts of risks and uncertainties that may significantly impact the program's progression and cost. During June 2024, working sessions were coordinated and held with IBR leadership and technical leads to identify new risks, develop risk management strategies and action plans, re-evaluate the risk probabilities and cost/schedule impacts with information available at the time of the work sessions, and retire risks that were no longer relevant (e.g., realized, duplicate, had been mitigated, etc.). This memorandum highlights the status of the IBR program risk register, key risk management priorities, and the top program risks. Many of the risks facing the program are dependent upon actions that must be put into place or decisions needed by certain deadlines, as identified in the risk response strategies and action plans.

RISK REGISTER STATUS

During the working sessions the team identified 12 new risks that could impact the program; six were related to Contract Procurement, three to Environmental, two to Structures, and one to Finance. Key concerns addressed by the new risks include new Buy America/Buy American Act (BABAA) requirements, known and unknown cultural resource discoveries, the revised Preliminary Navigation Clearance Determination (PNCD) for the fixed span bridge, the approach fill north of Hayden Island Drive, the Evergreen Complex scope, and Bridge Investment Program (BIP)/Mega Grant agreement execution timelines. For more information on the new risks identified this quarter, please see the *New Risks* section of this memorandum.

The charts on the following page delineate both the total number of identified risks and the allocation of risk severity based on the relative severity in the risk managed state, for Engineering and Design, Construction, and Other Risks categories. Construction, including Contract Procurement and Delivery Method risks, accounts for 46% of the risk exposure currently identified, driven by the potential of material procurement delays, existing conditions and demolition, construction scheduling and staging, and uncertainties with contract packaging. Engineering and Design risks (e.g., Civil/Drainage, Environmental, Geotechnical, Structural, and Transit) represent 48% of the relative degree of risk exposure identified for the IBR program thus far, primarily driven by the risks categorized as Environmental. Key risk drivers in the Environmental category include cultural resource findings and natural resource conservation, delays to timelines for processes such as Section 106, 4(f), 6(f), and Federal Lands to Parks (FLP), and external agency review times for technical reports such as the Draft Supplemental Environmental Impact Statement (DSEIS) and NEPA analysis.



Watch List: Considered issues that will be addressed through normal project delivery circumstances. Items on the watch list are tracked throughout project delivery. If more information emerges that indicates that this could become a risk to the project, they are quantified in the Risk Register.

Risk Management and Priorities

It is imperative that the IBR program continues to engage in active risk management to minimize the threats, and maximize the opportunities, the program may be exposed to. Continuing to utilize the risk management process to identify, analyze, respond to, and monitor and control risk will support effective program management, as well as provide information for action in the proper handling of risk effects.

Risk management is a collaborative and continuous process that requires input from key program partners and interested parties. Future risk management activities will include focusing on risks with the highest relative risk severity identified and monitoring risks at consistent intervals. If risks begin to materialize, the execution of risk response strategies as early as possible is imperative. If risks fully materialize, it is recommended to identify and evaluate impacts and appropriate response mechanisms as documented in the program's risk register.

To facilitate the continuous application of proactive risk response planning, the IBR program technical leads will provide updates to the risk register monthly, and the IBR program team, with key interested parties, will meet quarterly. Routine risk monitoring and control will ensure timely decision making and aid in the continued acknowledgment of uncertainties that may significantly impact the program's progression and cost. If action to manage risk is not taken and decisions are not made in a timely fashion, the impacts of the risks may be incurred, particularly in the form of schedule delays; however, if the necessary risk response strategies and action plans are proactively deployed, the impacts of the associated risks can be minimized to the extent feasible.

Quarterly Risk Update

In June 2024, 14 working sessions were held with IBR leadership and technical leads to review and update key risks for the Q2 quarterly risk update. The teams reviewed risk descriptions and actions to be taken, adjusted cost and schedule impacts as appropriate, and noted timelines for revisiting risks. This memo summarizes major changes made and updates captured during this series of meetings. For the full details of all updates, please see the IBR Risk Register.

Key Themes

- The Environmental team has developed a high-level schedule called the "executive roadmap" in conjunction with the Federal Transit Administration (FTA) and Federal Highway Administration (FHWA) which contains milestones for key NEPA deliverables. The team is engaged in continuous check-ins and coordination with both agencies to ensure compliance with the roadmap.
- The Draft Supplemental Environmental Impact Statement (DSEIS) is moving forward now that the additional analysis identified in Q1 has been resolved. The DSEIS is expected to be released in September 2024.
- Utility coordination is ongoing, and the Subsurface Utility Engineering (SUE) is to be completed early summer 2024. Work has begun on the Utility Impact Matrix and utility notifications for early packages.
- The development of the Program Management Office (PMO)/Organizational Chart is underway and is anticipated to be completed by Q4 2024 which will support the mitigation of Program Management risks.
- The tolling authority has changed from Oregon Department of Transportation (ODOT) to Washington State Department of Transportation (WSDOT). A WSDOT tolling consultant will be coming on board in July of this year.
- Six new Contract Procurement risks were identified as a result of new BABAA requirements. These include concerns regarding obtaining waivers, conflicting requirements, and procurement of various BABAA-defined materials.
- Two new Environmental risks were identified for both known and unknown cemetery de-dedication.

Risk Updates

The following details the major risk updates made during the quarterly update meetings by discipline category. The risk number, title, and relevant management comments are listed below.

Civil/Drainage

Risk #1: Stormwater Facilities
Risk #2: Use of Existing Pipes
Risk #3: Lack of Downstream Conveyance Capacity

- For the three above risks, it was noted that the drainage process is still ongoing. The finalization of the footprint will influence the impact of these risks.

Risk #65: Modification of 60" Culvert Beneath I-5

- It has been determined that the segments toward the downstream end of I-5 will need to be lowered. Coordination with the Utility team will be continued throughout Q3 to decide potential impacts.

Construction

Risk #7: River Bridge Final Design/Mobilization Schedule too Aggressive

- The in-water work window is now expected in September 2027 (previously September 2026).

Risk #273: Trestle Connection to Hayden Island

- It has been determined that there may be room (30 feet) for access in the parcel parallel to the bridge within the ROW. It will need to be verified if this is adequate to place a trestle adjacent to the property.

Contract Procurement

Risk #102: Conflicts Among IBR Contracts (SR-14 Package A and Approaches)
Risk #282: Conflicts Among IBR Contracts (Mill Plain and Washington North)
Risk #283: Conflicts Among IBR Contracts (Other)

- These risks were re-classified from Maintenance of Traffic (MOT) risks to Contract Procurement risks.

Environmental

Risk #39: Section 106 – Analysis

- The Environmental team is currently working with federal partners on a constrained agreement document schedule to ensure execution prior to NEPA FEIS.

Risk #44: Supplemental EIS (SEIS)
Risk #47: FHWA and FTA NEPA Review/Participation

- Additional analysis identified in Q1 2024 has been resolved and the DSEIS is now moving forward. A high-level schedule called the "executive roadmap" has been developed in conjunction with the FTA and FHWA which contains milestone dates for key NEPA deliverables.
- Daily check-ins are now being held to ensure compliance with the roadmap, and executives from all three parties are now meeting bi-weekly. The DSEIS is now expected to go public in September 2024.

Risk #46: External Agency NEPA Reviews

- Agency reviews with the Army Corps of Engineers (USACE) are currently up to date; however, delays are still being experienced with the Coast Guard (USCG).
- Updates based on updated traffic analyses will need to be sent to cooperating agencies, which may result in further delays.

Risk #52: USACE Permitting Delays (Levee)

- Transit improvements will be requested to be separated from Highway improvements for the levee permitting.

Risk #53: USCG Bridge Permit Delay

- Meetings have been held with the USCG this quarter. The Navigation Impact Report is currently being revised, with the intent to submit by the end of summer 2024.
- Mitigation Action #3, to investigate the potential for two separate bridge permits, has been completed.

Risk #246: DSEIS Released Early Before Finalizing

- Given that some documents were released in Q1 2024 and there was no delay experienced, the likelihood for this risk was reduced from 10% to 5%.

Risk #285: Unanticipated Mitigations Needed

- Mitigations will include flood plain fill mitigation for the City of Portland (COP). COP will be requiring offset of net fill from the program, primarily from the pile caps for the new bridge.
- A likelihood of 75% was assigned, as well as a cost impact rating of $1-3M, most likely $2M.

Finance

Risk #67: FTA Approval Delayed for Entry into Engineering or FFGA

- At least six months of delay is currently expected; the likelihood of this risk was increased from 25% to 95%.

Risk #258: Pre-Completion Tolling

- It has been determined that civil construction needed for pre-completion tolling can be performed prior, but pre-completion tolling itself cannot start before the ROD. Currently, the ROD is expected before pre-completion tolling, so the risk is minor.

Risk #274: IBR Program Seeks Federal Funding – CIG

- The likelihood for this risk was reduced from 50% to 15% as the team does not see this as a large risk.

Geotechnical

Risk #78: Bridge Foundation Changes – Construction

- The Geotechnical Data Report was received last month and is currently under review.

Risk #79: Additional or Changed Method of Ground Improvement

- The Draft GI Demonstration Program has been submitted to ODOT, and ODOT has provided comments. An initial call was held to discuss ODOT's comments, and coordination will continue to resolve questions.

Other

Risk #122: Community Workforce Agreement (CWA) / PLA

- Currently engaging in monthly coordination and still awaiting decisions regarding agreements.

Program Management

Risk #115: Late Decisions on Program Elements (Other)

- The development of the Program Management Office (PMO)/Organizational Chart is underway and is anticipated to be completed by Q4 2024.

Risk #117: Contract Administration Issues

- Agency determination (Mitigation Action #3) has been completed.
- The governance agreement is anticipated to be executed in 2025. Review of the first draft will inform this risk.

Railroad

Risk #129: BNSF Agreement Delays
Risk #130: Railroad Agreement Term Sheets Delays

- The Agreements team met with BNSF in June 2024 and have gained clarity on expected timelines.

Right-of-Way (ROW)

Risk #135: ROW Cost Increases

- The real estate team has been updating cost calculations and identifying priority parcels. The team has begun developing an advanced acquisition approach.

Risk #136: Need for Additional ROW Acquisition Identified (Other)

- Coordination with Design and Geographic Information System (GIS) teams is underway to ensure all properties within the footprints are being captured.

Risk #145: Late Changes in Design - ROW Schedule (Other)

- Utility surveys and mapping are ongoing.
- A new mitigation action to be taken was added: *ROW engineering, survey, design, and real estate teams to work together to identify the ROW layout workflow process.*

Roadway Design

Risk #86: Partner Agency Design Review Processes - 30% Design Package

- A new mitigation action to be taken was added: *Begin working with internal PA team to develop a strategy to normalize the 30% CRBA design with partners.*

Risk #87: Partner Agency Design Review Processes - Subsequent Packages, 60%, 90%

- A new mitigation action to be taken was added: *Coordinate with Procurement team to inform RFP language with respect to partner review cycles.*

Traffic

Risk #189: Additional ATMS / Toll Infrastructure

- The tolling authority has changed from ODOT to WSDOT.
- A WSDOT tolling consultant will come on board in July 2024 and is anticipated to provide more clarity on requirements.

Transit

Risk #202: Evergreen Park-and-Ride Design/Scope Changes

- The likelihood for this risk was reduced from 60% to 25% because the Evergreen Park and Ride is needed for the Capital Investment Grant (CIG).

Risk #203: Waterfront Park-and-Ride Design/Scope Changes

- It has been determined for 30% design that a Waterfront Park and Ride may not be included for the Transit project. Once an official decision is made, this risk may be able to be retired.

Risk #218: Systems Testing or Start-Up Delays

- This risk was moved to the Watch List. It is considered to be part of a standard transit project and is a minor risk at this time.

Utilities Relocation

Risk #225: Delayed Completion of Utility Agreements and Permits
Risk #233: Unidentified Utilities Encountered During Construction

- Coordination between Utilities and Agreements groups is ongoing.
- The SUE is expected to be completed in June 2024.
- Utility Notifications for early packages have been started.

Risk #226: Utilities Take Longer Than Anticipated to Implement Relocation Plan (CRB)

- Outreach to private utilities is beginning, starting with introductory emails.
- An “early” SUE area was identified to accelerate working on early packages.

Risk #227: Utility Relocation Delays (Program-Wide)

- There was a coordination meeting with state Departments of Transportations (DOTs) to discuss format and requirements for Utility Notification Letters.
- Utility Notification Letters for Highway Improvements and Pre-Completion Tolling Packages have been started.

New Risks

12 new risks were identified during the quarterly risk update working sessions. These new risks and their descriptions are listed below.

Risk #299: Revised PNCD for Fixed-Span Bridge – The USCG may not issue a revised PNCD, which is needed for a fixed-span bridge. If a revised PNCD is not issued, the program will need to elevate the decision which may delay the program schedule.

Risk #300: Approach Fill North of Hayden Island Drive – There is a risk that the Approach fill north of Hayden Island Drive is converted to structure. The base currently assumes fill. This could be an opportunity or a threat; this risk will be monitored as design progresses.

Risk #301: Decision on Evergreen Complex – There is a threat or opportunity that Evergreen scope could change from what is in the base estimate. This risk will be monitored as design progresses.

Risk #302: Expiration of Manufactured Products Waiver – There is a risk that the FHWA allows its waiver for manufactured products to expire.

Risk #303: Conflicting BABAA Requirements – BABAA requirements may be in conflict due to concurrent FHWA and FTA funding for specific packages.

Risk #304: BABAA-Defined Steel & Iron Products – There is a risk of higher cost and lack of availability for BABAA-defined steel and iron products. Waivers must now be administered at the federal level, resulting in long delays for reviews and uncertain outcomes.

Risk #305: BABAA-Defined (Permanently Installed) Construction Materials – There is a risk of higher cost and lack of availability for BABAA-defined (permanently installed) construction materials. This requirement is new as of October 2023 and impacts are unclear at this time.

Risk #306: BABAA-Defined Fabricated Materials – There is a risk of higher cost and lack of availability for BABAA-defined fabricated materials.

Risk #307: Non-Domestic Materials Waivers – Contractors may depend on being able to obtain waivers for non-domestic materials. If waivers are not able to be obtained, this may cause delay to the project.

Risk #308: Post-Review Discoveries - Known Cemetery De-Dedication – The process for cemetery de-dedication may take longer than anticipated and could result in lengthy legal processes.

Risk #309: Post-Review Discoveries - Unknown Cemetery De-Dedication – There is a risk of discovering ancestral findings or encountering a cemetery during construction or excavation activities. Such discoveries can lead to complex legal and regulatory processes, in particular the de-dedication of a cemetery. The discovery may stop work, potentially resulting in significant project delays. The legal and court proceedings for cemetery de-dedication can take 2-3 years.

Risk #310: BIP/Mega Grant Agreement Execution – If the BIP and/or Mega Grant agreement(s) are not signed prior to January 20, 2025, there is a risk of delay to receipt of funding.

Retired Risks

2 risks were retired during the quarterly update working sessions. These risks and the rationale for why they were retired are listed below.

Risk #29: Impact of New Buy America / Buy American Act (BABAA) Requirements – New risks (#302-307) were identified that capture specific impacts of this risk in greater detail and replaced risk #29.

Risk #73: Changes to IBR Toll Operations (Administration) Assumptions – Both states have agreed to the tolling administration changes and this is no longer expected to be a risk. Additionally, the cost estimates were lower than expected with this risk.

Priority Watch List Items

Watch List risks are considered issues that should be monitored and tracked throughout project delivery, but that may not necessarily have a quantifiable cost or schedule impact. The following Watch List items have been noted as priority risks for tracking and monitoring. The risk number, title, and description for each priority Watch List item are listed below.

Risk #30: Claims Associated with Third Party Agreements – Agreements with utilities and other interested parties do not have enforceable provisions that clearly establish third-party requirements (i.e., design specs, notification requirements, etc.) and third-party commitments, especially for time-sensitive obligations (i.e., design review, construction inspection, self-performed work, etc.)

Risk #72: ODOT Toll Operations Schedule – Assuming the approach to toll implementation does not change (Risk 73), ODOT Toll Program toll operations schedule may not align with IBR toll schedule, either due to delays in toll procurements or due to Toll System contractor delays. This could result in delay to the start of tolling and reduce the overall toll funding contribution.

Risk #137: Additional Condemnation – Oregon – The base estimate and schedule include typical condemnation assumptions for ODOT. If condemnation rates exceed that assumption, then costs and schedule could be impacted.

Risk #138: Additional Condemnation – Washington – The base estimate and schedule include typical condemnation assumptions for WSDOT. If condemnation rates exceed that assumption, then costs and schedule could be impacted.

Risk #156: Community Connector Size Reduction – Potential opportunity to reduce the size of the Evergreen Community Connector through discussion with interested parties.

Risk #207: Added Aesthetics to Station Features – Hayden Island and City of Vancouver areas require more architectural improvements to stations than those provided in the base case, this could result in increased cost and delays to the program.

Risk #248: Work Package Sequencing Impacts Financial Plan – If there are changes in work package sequencing, then it may impact the financial plan and could impact the different types of funding sources.

Risk #260: Interim Marine Drive Design – There is a risk of not progressing enough of the Marine Drive interim interchange (west approach) as it relates to the transit design and having enough design around the levees to obtain permits. Risk of being unable to meet permit schedule and potentially missing permit window, causing delays.

Risk #269: Third Party Agreements Process – Delays to third-party agreements or the third-party agreements process results in procurement delays.

Risk #279: Critical Utilities – Critical utilities identified late in design might impact design or construction schedule and cost.

Top Risks

The top ten combined cost and schedule risks to the IBR Program (in the managed state) and their primary action plans are:

1. Risk #7: River Bridge Final Design/Mobilization Schedule too Aggressive

   The base schedule for river bridge final design, mobilization, and permitting has been compressed to show the contractor utilizing the first in-water work window (starting September 2026). This compression may not be feasible and additional time may be required to prepare for in-water work.

   - When preparing RFP, identify opportunities to facilitate Final Design process for contractor.
   - Identify permitting needs and requirements to mitigate risk (i.e., stormwater, USCG). Consider owner procurement of critical permits.
   - Perform industry outreach and engage early with contractors to highlight risk.
   - Consider transferring risk to contractor (potential for increased bid costs).
   - Proposing supplemental geotechnical investigations in Task AE to take advantage of the 2023-2024 and 2024-2025 IWWW to provide prerequisite information for proposers in advance of procurement.

2. Risk #39: Section 106 – Analysis

   Section 106 data collection, analysis, documentation, and approvals by SHPOs and tribes as well as a signed Programmatic Agreement needs to be completed prior to updated NEPA ROD (from Supplemental FEIS) being issued.

- Complete Programmatic Agreement mitigation updates as early as possible.
- Engage in early coordination and consultation with Tribes and other interested parties/agencies.
- Add resources for investigations (Task AD) to support Section 106 analysis.
- Add resource for consulting party communication.
- Investigate opportunities to define contracts, clearing specialty consultants, and sequencing activities to mitigate potential schedule constraints.
- Frequent coordination with federal co-leads to ensure timely review and turn-around of Section 106.
- Engage in ongoing coordination with sequencing and packaging to understand when analysis will occur.

3. Risk #78: Bridge Foundation Changes – Construction

   Unforeseen/differing site conditions result in deeper and/or different shafts/foundations than anticipated. This could result from changed conditions triggered by construction.

   - Consider supplemental subsurface investigations.
   - Agency to implement proposal requirement that Bidders demonstrate ability to install foundations of the sizes and depths in the contract with similar environmental constraints.
   - Consider requiring the contractor to include a test shaft.

4. Risk #275: Limited Bid Responses Result in Re-Procurement: Approaches Contract

   Limited bid responses result in a non-competitive procurement and possible need to rebid.

   - Proactively engage the industry early and often, especially through the systematic use of RFIs and follow-up meetings prior to initiation of formal procurement, and preferably prior to deciding on the contracting methods.
   - Ensure that risk transfer provisions are reasonable, and if risks are transferred to the contractor where the contractor has less than complete control, include an allowance or other cost-sharing mechanism. Regardless of delivery method, use a contractor selection process that maximizes ability to screen for quality.
   - Conduct workshop/analysis to determine optimal river bridge contract packaging and delivery methods.
   - Consider including consultant contractor SMEs in next workshop.
   - Early issuance of draft RFP.

5. Risk #47: FHWA and FTA NEPA Review/Participation

   Timely reviews and direction are needed from FHWA and FTA to support the NEPA documentation and process, including ESA, Section 106, Section 4(f), etc. compliance and legal sufficiency reviews.

   - Identify staff resource as a point of contact (139j, other) for FHWA and FTA to engage in communication and coordination throughout NEPA process.
   - Work with agencies to develop informal agreements to work on internal agreement process that IBR follows.
   - Coordinate with FHWA and FTA on their availability and schedule meetings/deliverables as to not overload their teams.
   - Continue executive focus on the schedule between the DOTs and federal partners.
   - USDOT requests to add program to executive roadmap.

6. Risk #67: FTA Approval Delayed for Entry into Engineering or FFGA

   FTA approvals for entry to engineering and/or FFGA may be delayed for procedural reasons. The most likely cause of delay is tied to completeness of the required deliverables to move through Engineering and FFGA. This could trigger additional delays to FTA approvals for Entry into Engineering and/or FFGA.

   - Monitor and track the status and completeness of required deliverables to move through Engineering and FFGA.
   - Engage in early coordination with Partner Transit Agencies and FTA.
   - Coordinate FTA approval activities with the program scheduling team.

7. Risk #68: Transit O&M Funding

   Transit O&M funding source has not been identified. Without a committed source of operating funds, transit elements of IBR will not be able to secure FTA FFGA capital funding. Lack of a comprehensive funding plan may delay construction contract procurement.

   - Transit O&M workgroup has been established and is meeting regularly to identify issues and assist with drafting scope of agreement.
   - Identify key milestone dates.
   - Coordinate early with Legislature to identify required statutory changes for transit O&M funding.
   - Fallback action is to engage working group/interested parties early to agree on a plan of action in case of delays in Transit O&M Funding and quantify required efforts.
   - Develop a 2025 legislative plan.

8. Risk #185: Changes to Travel Demand Modeling Parameters

   Changes to current travel demand modeling parameters (2045 time period) or changes to model standard practices lead to a new model runs required; pre-ROD leads to delays. Land use changes in the program year may trigger additional analysis (i.e., Hayden Island).

   - Ensure that incorporation of travel analysis numbers is not required at the DSEIS.
   - Continue to track policy changes that may impact travel demand modeling requirements.
   - Plan for updated Metro RTP model in 2023.
   - Confirm with RTC on cross river land use and forecast.
   - If changes could result in delays, do not use them.

9. Risk #250: IBR Program Seeks Federal Funding - Non-CIG

   The IBR program seeks $1.5B in federal discretionary funding (from the BIP and Mega Programs). Failure to secure federal funding may result in delays to and/or down-scoping of the IBR program. The BIL expires at the end of 2026.

   - Work toward a path that meets grant funding's project readiness criteria, including beginning construction as soon as possible.
   - Apply lessons learned from other applicants to make IBR's applications successful.
   - Look for ways to advocate through Congressional delegation to fully fund the BIL program.
   - Identify early work packages to secure funding (i.e., east/west walls, work associated with the river bridge).

10. Risk #261: Contract Interfaces

    There is a risk from including adequate contract interfacing between each work package. As work is broken down into more contracts, more schedule contingency may be needed between each one, potentially impacting the schedule.

    - Confirm the contract packaging strategy and approach.
    - Incorporate the approach into the master schedule and identify mitigations.

Risks to Manage

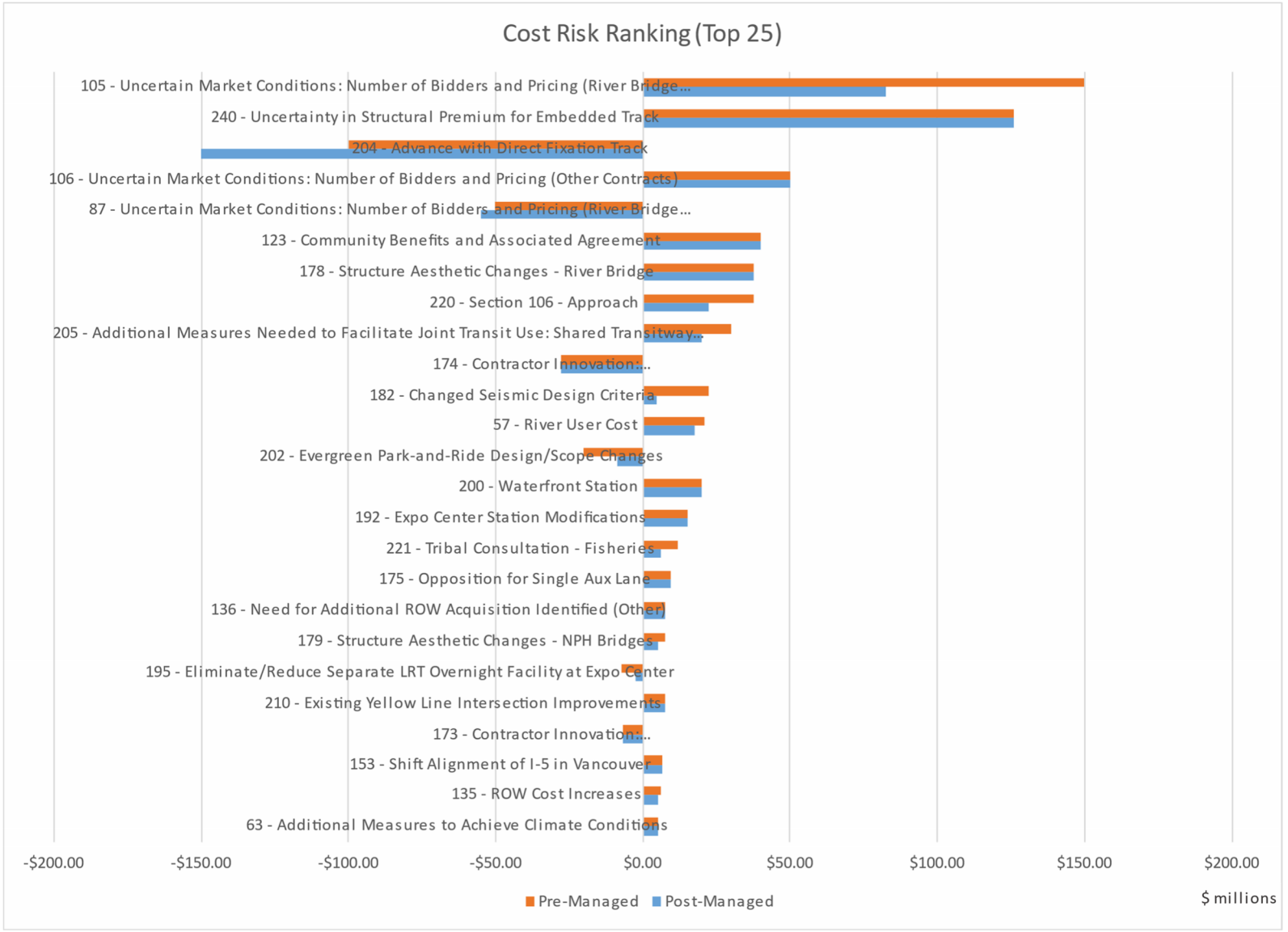
To identify the risks with the largest cost and schedule impacts, the Risk Management team has developed several plots referred to as Tornado Diagrams. In a Tornado Diagram, threats are plotted to the right of the central axis, while opportunities are plotted to the left. These diagrams present the relative degree of risk exposure from threats and the relative degree of benefits from opportunities.

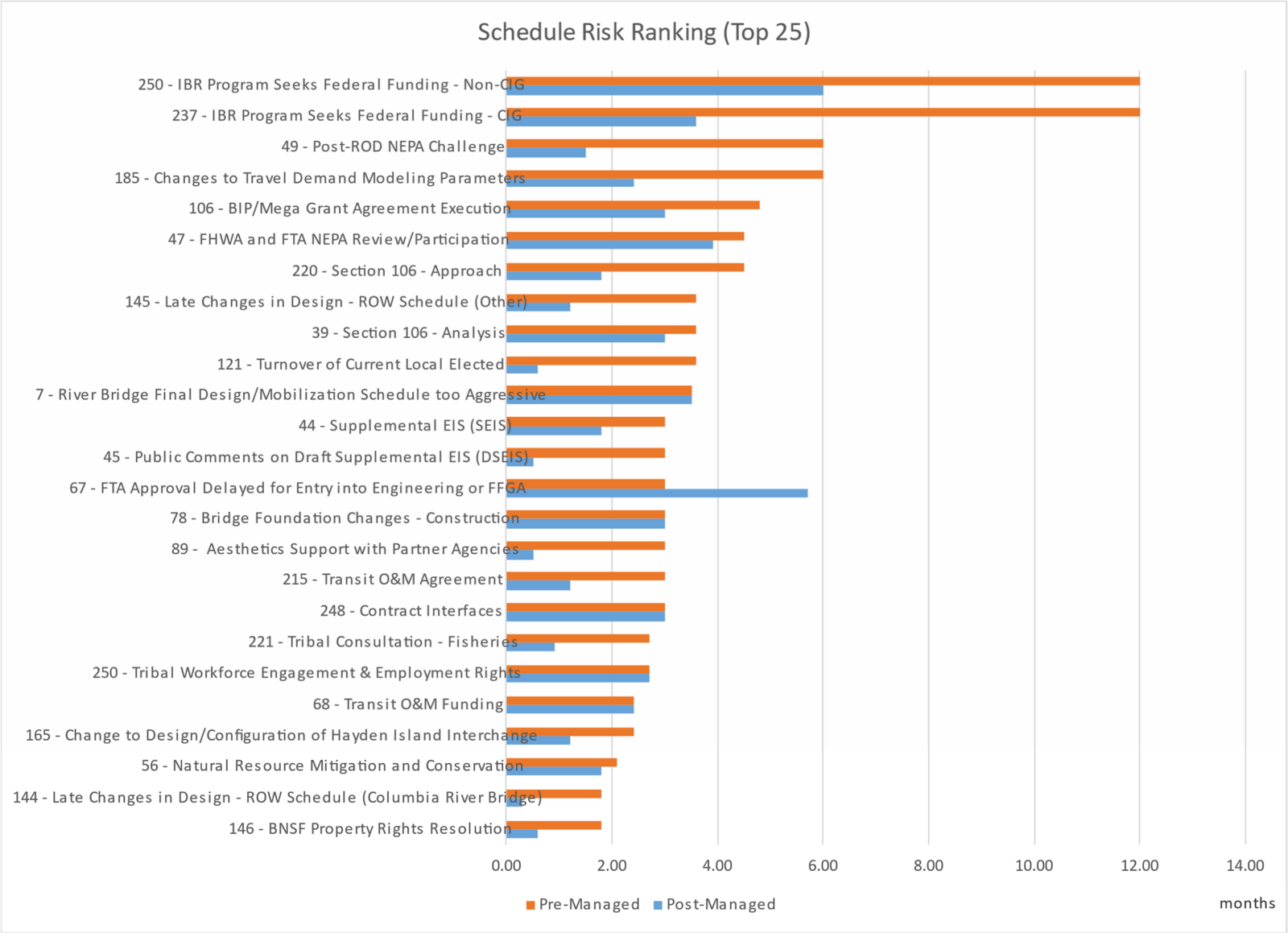
The highest relative impact risks are located at the top of the diagram, and the lowest relative impact risks are at the bottom. The highest risk threats require the most management and have the highest need for appropriate risk response. The risks at the bottom of the Tornado Diagram are not insignificant relative to project cost and schedule and will still require management and risk response strategies.

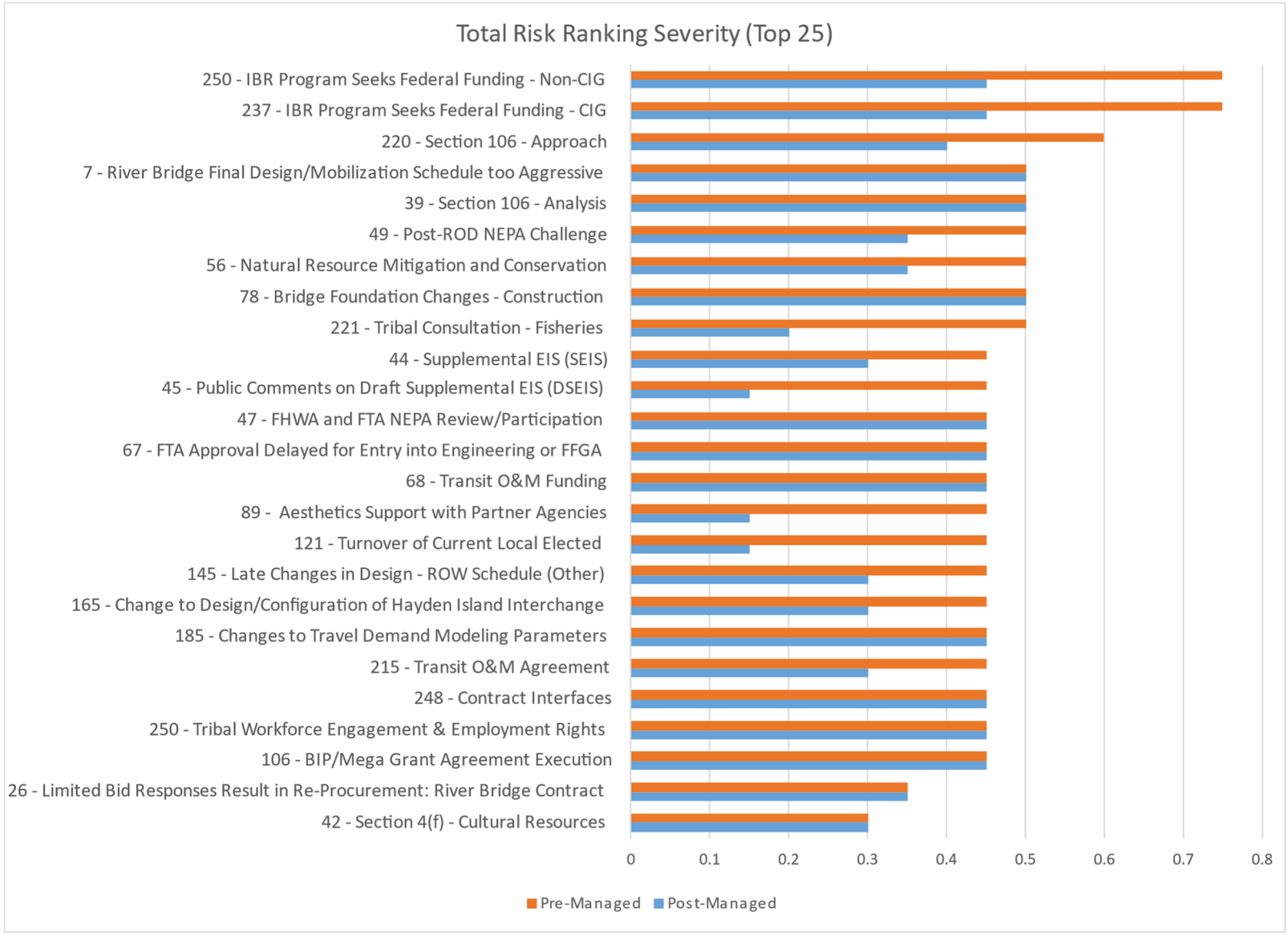
The degree of risk portrayed in the Tornado Diagram is based on a calculated value that determines relative risk by multiplying the probability of occurrence and the most likely impact to generate the expected value of impact. The **orange** bar of the two-bar pair shown below for each risk represents the degree of risk in the unmanaged state. The bottom half of the pair (the **blue** bar) represents the estimated change in risk severity when the risk is in a managed state. Four types of Tornado Diagrams have been developed. The first is the cost risk exposure (in dollars), the second is schedule delay risk exposure (in months), and the third is combined effect of cost and schedule risk exposure (in scalar values). It should be noted that the risk rankings in the first three diagrams are based on the pre-managed state, while the fourth tornado diagram shows the top 15 risks to the program based on the managed state only.

The information contained in the Tornado Diagram provides an idea of how much focus and attention is needed for managing individual risks and being able to continue to manage allocated contingency and schedule slack. Risks with a very high likelihood and very high impact will require continuous attention and review and may adversely impact pools of contingency reserves and schedule buffer if they are not managed proactively. In summary, the risks that need the most focus of management are the risks that pose the most relative threat to the project, which reside at the top of the chart.

If the proposed risk response strategies are fully implemented within the risk register. the potential impact of event risk to the IBR Program could be significantly reduced. Of these, it is essential that the response strategies for the topmost risks identified in the following tornado diagrams and throughout the report are pursued in order to manage the greatest risks to the project.


Cost Risk Ranking (Top 25)
105 - Uncertain Market Conditions: Number of Bidders and Pricing (River Bridge...
240 - Uncertainty in Structural Premium for Embedded Track
204 - Advance with Direct Fixation Track
106 - Uncertain Market Conditions: Number of Bidders and Pricing (Other Contracts)
87 - Uncertain Market Conditions: Number of Bidders and Pricing (River Bridge...
123 - Community Benefits and Associated Agreement
178 - Structure Aesthetic Changes - River Bridge
220 - Section 106 - Approach
205 - Additional Measures Needed to Facilitate Joint Transit Use: Shared Transitway...
174 - Contractor Innovation:...
182 - Changed Seismic Design Criteria
57 - River User Cost
202 - Evergreen Park-and-Ride Design/Scope Changes
200 - Waterfront Station
192 - Expo Center Station Modifications
221 - Tribal Consultation - Fisheries
175 - Opposition for Single Aux Lane
136 - Need for Additional ROW Acquisition Identified (Other)
179 - Structure Aesthetic Changes - NPH Bridges
195 - Eliminate/Reduce Separate LRT Overnight Facility at Expo Center
210 - Existing Yellow Line Intersection Improvements
173 - Contractor Innovation:...
153 - Shift Alignment of I-5 in Vancouver
135 - ROW Cost Increases
63 - Additional Measures to Achieve Climate Conditions
-$200.00
-$150.00
-$100.00
-$50.00
$0.00
$50.00
$100.00
$150.00
$200.00
Pre-Managed
Post-Managed
$ millions


Schedule Risk Ranking (Top 25)
250 - IBR Program Seeks Federal Funding - Non-CIG
237 - IBR Program Seeks Federal Funding - CIG
49 - Post-ROD NEPA Challenge
185 - Changes to Travel Demand Modeling Parameters
106 - BIP/Mega Grant Agreement Execution
47 - FHWA and FTA NEPA Review/Participation
220 - Section 106 - Approach
145 - Late Changes in Design - ROW Schedule (Other)
39 - Section 106 - Analysis
121 - Turnover of Current Local Elected
7 - River Bridge Final Design/Mobilization Schedule too Aggressive
44 - Supplemental EIS (SEIS)
45 - Public Comments on Draft Supplemental EIS (DSEIS)
67 - FTA Approval Delayed for Entry into Engineering or FFGA
78 - Bridge Foundation Changes - Construction
89 - Aesthetics Support with Partner Agencies
215 - Transit O&M Agreement
248 - Contract Interfaces
221 - Tribal Consultation - Fisheries
250 - Tribal Workforce Engagement & Employment Rights
68 - Transit O&M Funding
165 - Change to Design/Configuration of Hayden Island Interchange
56 - Natural Resource Mitigation and Conservation
144 - Late Changes in Design - ROW Schedule (Columbia River Bridge)
146 - BNSF Property Rights Resolution
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
Pre-Managed
Post-Managed
months


Total Risk Ranking Severity (Top 25)
250 - IBR Program Seeks Federal Funding - Non-CIG
237 - IBR Program Seeks Federal Funding - CIG
220 - Section 106 - Approach
7 - River Bridge Final Design/Mobilization Schedule too Aggressive
39 - Section 106 - Analysis
49 - Post-ROD NEPA Challenge
56 - Natural Resource Mitigation and Conservation
78 - Bridge Foundation Changes - Construction
221 - Tribal Consultation - Fisheries
44 - Supplemental EIS (SEIS)
45 - Public Comments on Draft Supplemental EIS (DSEIS)
47 - FHWA and FTA NEPA Review/Participation
67 - FTA Approval Delayed for Entry into Engineering or FFGA
68 - Transit O&M Funding
89 - Aesthetics Support with Partner Agencies
121 - Turnover of Current Local Elected
145 - Late Changes in Design - ROW Schedule (Other)
165 - Change to Design/Configuration of Hayden Island Interchange
185 - Changes to Travel Demand Modeling Parameters
215 - Transit O&M Agreement
248 - Contract Interfaces
250 - Tribal Workforce Engagement & Employment Rights
106 - BIP/Mega Grant Agreement Execution
26 - Limited Bid Responses Result in Re-Procurement: River Bridge Contract
42 - Section 4(f) - Cultural Resources
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0.1
0.2
0.3
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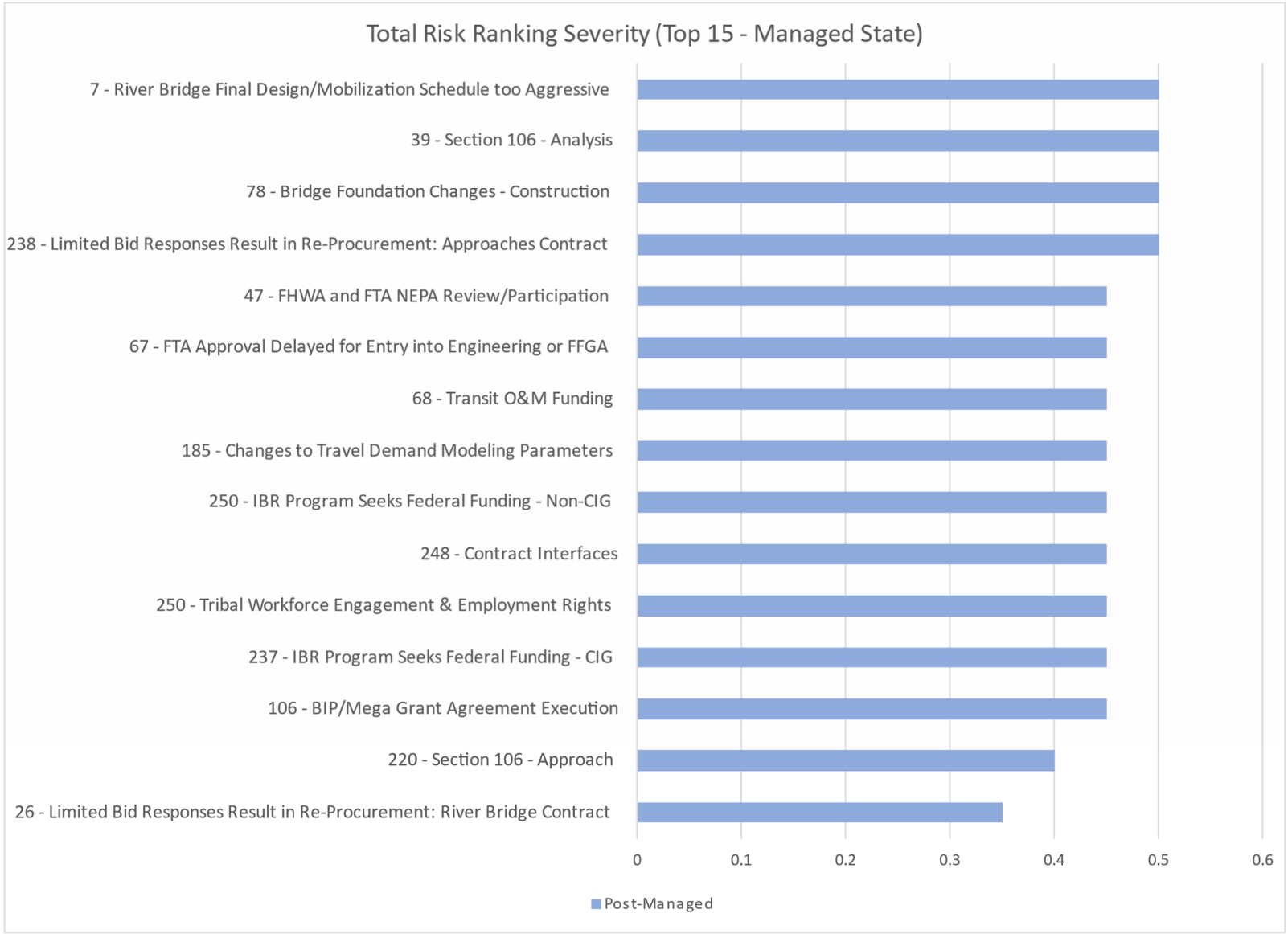
0.6
0.7
0.8
Pre-Managed
Post-Managed


Total Risk Ranking Severity (Top 15 - Managed State)
7 - River Bridge Final Design/Mobilization Schedule too Aggressive
39 - Section 106 - Analysis
78 - Bridge Foundation Changes - Construction
238 - Limited Bid Responses Result in Re-Procurement: Approaches Contract
47 - FHWA and FTA NEPA Review/Participation
67 - FTA Approval Delayed for Entry into Engineering or FFGA
68 - Transit O&M Funding
185 - Changes to Travel Demand Modeling Parameters
250 - IBR Program Seeks Federal Funding - Non-CIG
248 - Contract Interfaces
250 - Tribal Workforce Engagement & Employment Rights
237 - IBR Program Seeks Federal Funding - CIG
106 - BIP/Mega Grant Agreement Execution
220 - Section 106 - Approach
26 - Limited Bid Responses Result in Re-Procurement: River Bridge Contract
0
0.1
0.2
0.3
0.4
0.5
0.6
Post-Managed