RISK MANAGEMENT

Date: January 5, 2024

Subject: Q4 2023 Quarterly Risk Update

PURPOSE

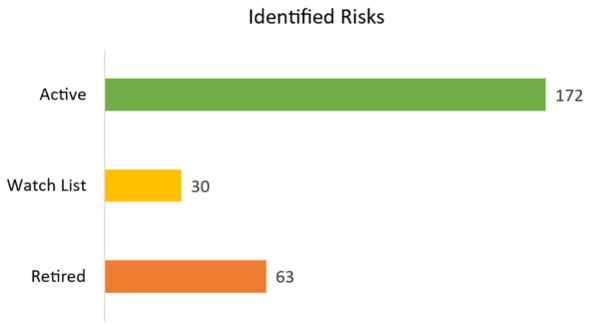
Risk Management of the Interstate Bridge Replacement (IBR) Program is essential for timely decision making and to reduce the impacts of risks and uncertainties that may significantly impact the program's progression and cost. During November and December 2023, working sessions were held with IBR leadership and technical leads to identify new risks, develop risk management strategies and action plans, re-evaluate the probabilities and cost/schedule impacts, and retire risks that were no longer relevant. 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 eight new risks that could impact the program, three of which were related to Transit, and one each for Environmental, Construction, Tribal Coordination, Interagency Coordination, and Contract Procurement. Of the eight new risks identified, the most notable and highest impact items were the three new Transit risks. Two of these risks are related to Ruby Junction – there is a risk that Ruby Junction delays other construction, vehicle delivery, and/or commissioning before it is operational. In addition, there is a chance that the ROW acquisition for Ruby Junction is delayed, which in turn may delay the start of construction. The third new Transit risk addresses track and systems construction, and captures risk associated with meeting quality and schedule metrics bound by the construction contract. For more information on the new risks identified this quarter, please see the *New Risks* section of this memorandum.

Construction, including Contract Procurement and Delivery Method risks, accounts for 47% of the risk exposure currently identified, driven by the potential of limited qualified bidder availability, existing conditions and demolition, construction scheduling and staging, and uncertainties with contract packaging. The Delivery Method plan will be finalized early this year, at which point risks related to Contract Procurement, Delivery Method, and Program Management will be revisited to incorporate pertinent updates.

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. Currently, Engineering and Design risks (e.g., Civil/Drainage, Environmental, Geotechnical, Structural, and Transit) represent 45% of the relative degree of risk exposure identified for the IBR program, primarily driven by the risks categorized as Environmental. Key risk themes discussed during the Environmental sessions included external agency and Federal review of technical reports such as the Draft Supplemental Environmental Impact Statement (DSEIS) and NEPA analysis, as well as delays that have been realized with the Section 4f analysis and the public comment period.



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 providing a source of 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 continued focus on risks with the highest relative risk severity identified and monitoring of the risks at consistent intervals. Should risks begin to materialize, execution of risk response strategies as early as possible is imperative. Should new risks materialize, it is recommended to go through the process of identification and evaluation to identify 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 on a monthly basis, 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

During the months of November and December, working sessions were held with IBR leadership and technical leads to review and update key risks for the Q4 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 program is continuing to experience delays relating to external agency and Federal review of technical reports such as the Draft Supplemental Environmental Impact Statement (DSEIS) and NEPA analysis.
    - Two months of delay were realized in Q3 related to the FTA and FHWA reviews of the DSEIS, and in Q4, an additional two months of delay occurred (Risk #44).
    - Two agencies required extra time for review of documents associated with the NEPA analysis this quarter (Risk #46).
    - The FTA and FHWA have provided two staff members to assist in the Section 106 and 4(f) processes, which has improved timelines; however, delays are still being experienced (Risk #47).
- Multiple authorizations (at least two) may be needed to complete USACE 408 authorization for the levee in order to support construction sequencing. This will rely on construction sequencing decisions and design needed to support (Risk #52).
- At the time of the risk update sessions, the Delivery Plan was still expected to be available by the end of 2023. Many Contract Procurement and Delivery Method risks will be have more information available to address likelihood and impact ratings in Q1 2024 following the distribution of the Delivery Plan.
- The 2024 CEVP workshop is set to take place during the first week of April, with analysis and results available in May. In preparation for the CEVP, the program estimate and schedule are currently being reviewed and refined. Once the base estimate and schedule are clearly defined and understood, it is expected that many risks will be able to be further refined and likelihood and impact ratings more accurately adjusted based on available information in Q1 2024.

Risk Updates

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

Civil/Drainage

Risk #1: Stormwater Facilities

- The risk description was modified slightly to include the risk that more stormwater facilities than anticipated may be needed, in addition to facilities of larger size.
- More information will be available when 30% design is underway.

Construction

Risk #4: Damage to Adjacent Structures (Other)

- The risk description was modified to include Normandy Apartments and new construction.
- An additional mitigation action to be taken was added to investigate ground improvements that reduce likelihood of construction techniques that would damage existing structures.
- This risk originally included potential impacts to the existing river bridge. A new risk (Risk #263) was created to capture risk relating to the existing river bridge, and this risk is now specific to all other adjacent structures.

Risk #20: Labor Disruptions

- Use of CWA or project labor agreement (PLA) is expected to be determined by Q1 2024, at which point the team will reevaluate this risk.

Contract Procurement

Risk #29: Buy American Provisions

- A mitigation action to be taken was added to review Buy American provisions to understand potential impacts.

Risk #30: Claims Associated with Third Party Agreements

- A work plan on the approach for third party agreements was submitted and finalized. The team is currently preparing the next SOW to develop agreements, which will aid in further identifying the risks and mitigation. More information is anticipated to be available in Q1 2024.

Risk #247: Contractor/Industry Bonding Capacities

- There has been a meeting with Travelers recently to improve understanding of bonding capacities.

- New mitigation actions to be taken were added:
  - #3: Explore a variety of work package sizes.
  - #4: Determine what bonding capacities are required and desired.
  - #5: Develop a draft RFP for industry outreach.

Delivery Method

Risk #32: Change in Project Delivery Method / Contract Packaging

- This risk was moved to the Watch List. It was noted this risk will continue to be monitored and tracked and will be revisited following the Delivery Method workshop.

Environmental

Risk #36: ESA Section 7 Delays
Risk #37: In-Water Work Windows are More Restrictive

- Recently confirmed the timeline for the consultation with National Marine and U.S. Fish & Wildlife for September 2024.

Risk #40: Inadvertent Discoveries

- This will continue to be a risk now and through construction. The team will continue to track and monitor this risk quarterly. Kassie Rippee (Tribal Coordination lead) has held meetings with the County coroners (action item #6) and is continuing to take steps and plan for education efforts.
- Added a new mitigation action to be taken to coordinate with FHWA and FTA on the inadvertent discovery plan.

Risk #41: Section 4(f) - Delta Park

- Meetings were held with the City of Portland for Delta Park in October 2023. The team will continue to look for ways to avoid and minimize impacts. If Delta Park can be avoided, the team will investigate retiring this risk. This risk will continue to be monitor quarterly.

Risk #42: Section 4(f) - Fort Vancouver

- Meetings were held with the National Parks service in October 2023. The team will continue to track and monitor this risk.

Risk #44: Supplemental EIS (SEIS)

- The program is currently experiencing an additional two-month delay this quarter from the FHWA and FTA reviews.

- The schedule impact ratings for this risk were updated from a low/most likely/high of 1/3/6 months to 3/6/12 months, respectively. This adjustment is to reflect months of delay already experienced and an increased amount of delay expected in the future.

Risk #46: External Agency NEPA Reviews

- A new mitigation action to be taken was added to identify a roadmap for reviewing and approving the MLPA and Final Supplemental Environmental Impact Statement (FSEIS).

Risk #47: FHWA and FTA NEPA Review/Participation

- FTA and FHWA provided two staff members to assist in the Section 106 and 4(f) process, which has improved timelines, but delays with NEPA reviews are still being experienced.

Risk #51: USACE Permitting Delays (Nav Channel)

- The first design package was submitted for review in November.

Risk #52: USACE Permitting Delays (Levee)

- Multiple authorizations (at least two) may be needed to support construction sequencing. This will rely on construction sequencing decisions and design needed to support. A meeting was held with USACE and the County to discuss in November.

Risk #57: River User Cost

- Discussions with affected river users are underway. More information is anticipated to be available in Q1 2024 on whether an agreement can be reached.

Risk #58: FEMA Flood Map Revisions

- Currently conducting hydrologic and hydraulic (H&H) modeling, which will provide information on potential flood rise. More information is anticipated to be available in Q1 2024.

Risk #251: NEPA Delays - Movable Bridge

- Continuing coordination with Coast Guard. So far, the team has not received indication that higher levels of analysis are needed.

Finance

Risk #258: Pre-Completion Tolling

- The risk description was updated for increased clarity and now reads as follows: “Construction of pre-completion tolling elements may need to start prior to the Record of Decision (ROD). Procurement needs to begin prior to the ROD to meet pre-completion tolling timeline.”

Geotechnical

Risk #78: Bridge Foundation Changes – Construction

- Geotechnical investigation started December 2023. The team will revisit this risk and the likelihood/impact once investigations are complete in Q1 2024.

Risk #79: Additional or Changed Method of Ground Improvement

- There is a FHWA grant to conduct a pilot program of ground improvement methods. Results will likely be available in the fall of 2024.

Interagency Coordination

Risk #90: Local Parking

- Park and ride sites to be narrowed for consideration in the FSEIS.
- Added new mitigation action to be taken to engage City of Vancouver in early scoping of Evergreen station area to maintain potential for park and ride spaces identified in SEIS.

Risk #93: Partner Requests - Data/Modeling

- This risk was split into two separate risks to create one specific to design/construction means and methods (risk 269).
- Currently in the process of negotiating and by the time of the next CEVP, this may be included in the base estimate.

Risk #256: Re-Endorse LPA

- The primary trigger for this risk would be the need for two auxiliary lanes, and the schedule impact of this risk is for the time that would be needed to work through this process.
- The schedule impact was adjusted from a low/most likely/high impact of 1/2/3 months to 2/2.5/3 months, respectively.

Market Conditions

Risk #104: Uncertainty in Construction Cost Inflation Rate
Risk #105: Uncertain Market Conditions: Number of Bidders and Pricing (River Bridge Contract)
Risk #107: Skilled Labor Availability

- Currently developing construction inflation index. A decision will be made in December/January whether this index, or WSDOT's index, will be applied to the estimate. Revisit these risks in Q1 2024 following the decision.

Public Affairs

Risk #124: Tolling Policies

- The likelihood of this risk was lowered from 50% to 10% and the cost impact removed.
- It was determined that this risk is not as likely to occur as previously thought. If it does occur, it will result in a schedule delay to acquire a new funding source and will not have a cost impact.
- The Finance team advised on the potential schedule impact and assigned a low/most likely/high impact of 1/3/6 months, respectively.

Railroad

Risk #132: BNSF Crew Change/Maintenance Access

- This risk is still active and will likely be included in the term sheet as well as the base cost of the program.
- The risk description was refined to now read "There is a risk that the BNSF crew change access/maintenance access and modifications are not acceptable, resulting in needing to identify new access."
- A likelihood rating of 10% was assigned. Impact ratings will be assigned in Q1 2024 with input from Megan McIntyre and Kat Halpenny.

Right-of-Way (ROW)

Risk #139: Lack of Appraisers

- An additional mitigation action to be taken was added to prioritize full acquisitions and potential relocations.

Roadway Design

Risk #157: Removal of C Street Ramps

- Additional mitigation actions to be taken were added:
  - #2 - Manage criteria and quantify trade-offs.
  - #3 - Coordinate with City of Vancouver.
  - #4 - Coordinate cross-discipline work plan.

Risk #160: Additional Full Depth Reconstruction

- This risk was placed on the Watch List for now. The quantity for rebuild will be confirmed in Q1 2024. Depending on the quantities, this risk may be re-evaluated as an Opportunity.

Structures

Risk #179: Structure Aesthetic Changes - NPH Bridges

- It was discussed that the cost impact may be too low to account for the breadth of possible Aesthetic changes so the team re-evaluated the cost impact and was adjusted from a low/most likely/high rating of $20/25/30M to $25/50/100M.

Traffic

Risk #185: Changes to Travel Demand Modeling Parameters

- RTP model is being adopted November 30th. The team is coordinating with ODOT Region 1 to determine the process for moving forward for the FEIS.

Risk #187: Detours and Closures – COP
Risk #188: Detours and Closures – COV

- A new mitigation action to be taken was added for both risks to coordinate the MOT with partners as part of the Traffic Management Plan (TMP).

Risk #190: Approval of ARR / Intersection Control Decisions

- Just began ARR process with FHWA and are working through a plan and schedule. Moved this risk off of the Watch List to be active.

Transit

Risk #216: Delay to FTA Letter of No Prejudice

- This risk was moved off of the Watch List and is now an active risk. Continue to review with both the Transit and Finance teams.

Utilities Relocation

Risk #227: Utility Relocation Delays: OR Transit

- Added likelihood of 20% and low/most likely/high schedule impact of 1/3/6 months to reflect other related utility relocation risks.

Risk #228: City of Vancouver Underground Utilities

- Added a new mitigation action to be taken to engage in early coordination with Utilities on the Utility Plan.

New Risks

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

Environmental

Risk #252: Section 6(f) - Delta Park - The 6(f) process at Delta Park could delay schedule or add unexpected scope. The team has met with Portland Parks & Recreation (PP&R) and is planning to meet with Oregon Parks & Recreation Department (OPRD).

Construction

Risk #263: Damage to Adjacent Structures (Existing Bridge) - Additional measures may be required to prevent damaging the existing bridge structure due to ground improvement. Impacts to adjacent structures are captured in Risk #4 and impacts to the Post Hospital are captured in Risk #84.

Transit

Risk #264: Ruby Junction Expansion - Ruby Junction delays other construction, vehicle delivery, and commissioning before it is operational.

Risk #265: Delays to Ruby Junction ROW Acquisitions - ROW acquisition for Ruby Junction is delayed and delays start of construction.

Risk #266: Track/Systems Construction - There is a risk to meeting the quality and schedule metrics bound by the construction contract. The risk lies in the contract interface points, which in turn affects the schedule.

Tribal Coordination

Risk #267: Tribal Workforce Engagement & Employment Rights - Tribal employment and hiring goals need to be incorporated into the program. OR has documentation/processes for these, but WA does not. If differences are not resolved in time for the RFP, it could delay the process and impact relationships with the tribes.

Interagency Coordination

Risk #268: Partner Requests – Design/Construction - Partner requests for revisions to design/construction means and methods result in delays. This is a minor risk and may be triggered by the project Delivery Plan. This risk is separate from Risk #93 which captures requests for additional data and modeling.

Contract Procurement

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

Retired Risks

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

Risk #22: Severe Weather Conditions – It was determined that this risk will be transferred to the contractor.

Risk #23: Workforce Transportation – It will be determined whether or not workforce transportation will be a requirement and will be either included or excluded from the estimate accordingly.

Risk #50: USACE Failure to Separate Nav Channel and Levee Permits – Authorization to split the permits has been obtained.

Risk #154: Changed Design/Configuration of SR-14 Interchange – It was determined that a re-configuration of the interchange is very unlikely.

Risk #155: Changed Design/Configuration of Fourth Plain Interchange – It was determined that a re-configuration of the interchange is very unlikely, and the bridge will not be replaced.

Risk #177: Three Bridge Cross Section – A three bridge option is not likely to be selected.

Risk #242: Indirect Cost of Project Delays (Contractor, Compensable) – If this were to occur, it would be an effect and the potential impacts are adequately captured elsewhere in the risk register.

Priority Watch List Items

Watch List risks are considered issues that should be monitored and tracked throughout project delivery, 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 #99: Expo Center Impacts - Construction at Expo Center, if required, could trigger additional cost and/or schedule impacts associated with impacts to Expo Center operations, coordination with Metro redevelopment plans, ROW acquisition, construction staging, code compliance for existing buildings, etc.

- 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 #255: Re-Endorse LPA - Following the DSEIS, there is a risk that the program may need to engage local government official to re-endorse the LPA. This could result in delays to the program schedule.

- Risk #257: Pre-Completion Tolling - Pre-completion Tolling may need to start construction prior to Record of Decision.

- Risk #259: 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.

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 #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 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.

2. 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 the contractor.

   - 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.

3. 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.

4. Risk #218: Systems Testing or Start-up Delays

   Complexities associated with sequencing and execution of system testing and start up (e.g., communications, training) result in delays to the IBR program.

   - Develop startup plan during project development, as early as possible.
   - Consider adding a start-up manager to the IBR implementation team during design (entry into engineering).
   - Startup manager to manage cross contract systems interface schedule.

5. 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.

6. Risk #220: Section 106 – Approach

   Early discussions with Tribes indicate the need to define an equitable mitigation approach that includes National Park Service (NPS) and impacted Tribes. Coordination and acceptance from federal agencies and tribal governments takes longer than anticipated. Additional risk could include length of time for legal reviews, especially if elements of the agreement become contentious.

   - Engage in early coordination and consultation with Tribes and other interested parties/agencies.
   - Continue to engage FPOs at FTA and FHWA.
   - Dedicate staff to liaise with necessary parties for agreements.
   - Dedicate funding within estimate/budget for 106 mitigations.

7. Risk #26: Limited Qualified Bidders Results in Re-Procurement: River Bridge Contract

   Few qualified bidders and/or limited responses, resulting 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.
- Determine what is an acceptable number of bidders.
- Conduct workshop/analysis to determine optimal river bridge contract packaging and delivery methods.
- Consider including consultant contractor SMEs in next workshop.

8. Risk #40: Inadvertent Discoveries

   There is a risk there could be significant cultural resource findings. Studies are initiating to identify any possible issues. This major trigger of this risk is due to extensive negotiations for extremely sensitive Tribal cultural resources that will involve multiple agencies which is likely to greatly increase costs and could significantly delay construction. This could incur additional mitigation costs and/or delays if there are discoveries of cultural resources.

   - Ensure there is an inadvertent / late discovery plan and contractor has an understanding of the plan requirements and provisions.
   - Enforce contract language which should include provisions to keep contractors working during construction.
   - Conduct earth moving in sensitive areas early in project timeframe, where possible, or seek archaeological permits to test areas of high probability, where possible.
   - Engage with interested Tribes early on and contract with qualified Tribal cultural resource experts to be on-site in areas of high probability to improve coordination when emergency archaeological permits and immediate decisions on eligibility may be needed.
   - Consider a programmatic agreement with WA and OR SHPOs to streamline review process on discovery of certain sites/artifacts.
   - Coordinate with Clark County coroner to integrate staff with onsite monitoring.
   - Leverage IBR professional expertise to work with DAHP to streamline process.
   - Investigate opportunities to shift working areas during construction.
   - Coordinate with FHWA and FTA on the inadvertent discovery plan.

9. Risk #49: Post-ROD NEPA Challenge

   The updated Record of Decision (ROD) from the Supplemental Final Environmental Impact Statement (FSEIS) is controversial and leads to Post-ROD NEPA challenge and delays the program.

   - Obtain separate legal sufficiency reviews by relevant lead agencies prior to publishing each major document.

- Consider an early legal review of process to date and develop recommendations to ensure outreach and process cannot be rationally questioned.
- Identify post-ROD actions to advance Program and start litigation timing as early as possible prior to large contract work.

10. Risk #56: Natural Resources Mitigation and Conservation

    Environmental mitigation sites have not yet been identified in terms of location and quantity. Includes habitat considerations from a number of groups with competing interests. There could be additional unanticipated wetland, floodplain, or other environmental mitigation required.

    - Conduct early investigations to determine likely impacts and mitigations required.
    - Continue outreach with Tribes and agencies.
    - Construct a general agreement document between interested parties.
    - Utilize an RFP approach to look for conservation proposals.

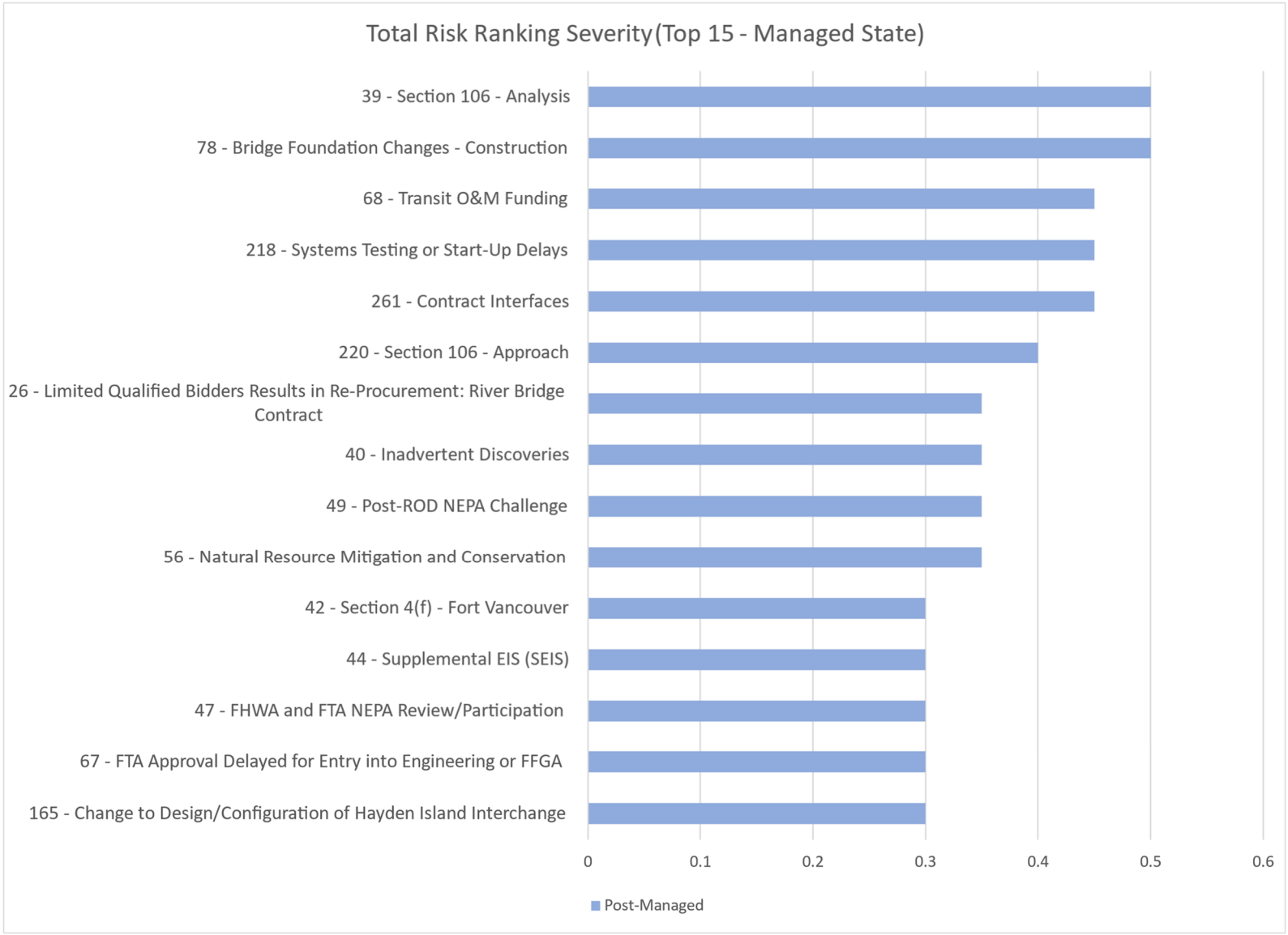
Risks to Manage

To identify the risks with the largest cost and schedule impacts, a plot referred to as a Tornado Diagram was developed. 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 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.

In summary, if the proposed risk response strategies are fully implemented within the risk register it could significantly reduce the potential impact of event risk to the IBR Program. 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.


Total Risk Ranking Severity(Top 15 - Managed State)
39 - Section 106 - Analysis
78 - Bridge Foundation Changes - Construction
68 - Transit O&M Funding
218 - Systems Testing or Start-Up Delays
261 - Contract Interfaces
220 - Section 106 - Approach
26 - Limited Qualified Bidders Results in Re-Procurement: River Bridge Contract
40 - Inadvertent Discoveries
49 - Post-ROD NEPA Challenge
56 - Natural Resource Mitigation and Conservation
42 - Section 4(f) - Fort Vancouver
44 - Supplemental EIS (SEIS)
47 - FHWA and FTA NEPA Review/Participation
67 - FTA Approval Delayed for Entry into Engineering or FFGA
165 - Change to Design/Configuration of Hayden Island Interchange
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Post-Managed

Appendix

IBR Risk Register last updated on 12/21/2023.

Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN

Risk Identification

Quantitative Analysis

Post-Managed State

Risk-Response Strategies

ID #	RBS Code	Discipline Category	Risk Event Title	Risk Description	Additional Notes	Threat or Opportunity	Direct Cost Impact ($M) Low (10% CI)	Direct Cost Impact ($M) Most Likely	Direct Cost Impact ($M) High (90% CI)	Schedule Impact (months) Low (10% CI)	Schedule Impact (months) Most Likely3	Schedule Impact (months) High (90% CI)	Likelihood of Impact Occurring	Risk Owner	Strategy	Actions to be Taken	Management Status
1	DES 40.2	Civil / Drainage	Stormwater Facilities	If stormwater facilities need to be larger or if more are needed than anticipated, it may result in additional costs and ROW acquisition.	Base Cost: 2% of Const Cost Stormwater Treatment: OR&WA $47.1M Conveyance $45M (2% conveyance not calculated in CBR & Removal, $45M to be all inclusive of all conveyance)	Threat	$5 M	$10 M	$15 M				10%	Shawn Ellis	Mitigate	1) Conduct a stormwater facilities size evaluation in July 2023, and advance stormwater design (evaluate cost assumptions).	Q4 2023: Refined risk description. Revisit in Q1 2024 when 30% design is underway. Q3 2023: Revisit in Q4 2023. Q2 2023: Revisit in Q3 2023. The updated information will be included in the DSEIS. Q1 2023: Stormwater catchment areas are being revisited now for the NEPA document. Revisit risk Q2 2023, should have more information from data reports.
2	DES 40.3	Civil / Drainage	Use of Existing Pipes	USACE must approve use of pipes through levees during construction. If not approved then a utilization of a two pump stations to route stormwater to the outfall would be required.	This risk is specific to the levees and avoiding putting pipes through the levees.	Threat								Shawn Ellis	Mitigate	1) Engage in early coordination with USACE/MCDD to garner approval for use of pipes through levees during construction. 2) Coordinate with overall USACE Section 408 application(s) process for N Portland Harbor structure and Transit Structure work (pier location, size…).	Q4 2023: Revisit in Q1 2024 when 30% design is underway.
3	DES 40.4	Civil / Drainage	Lack Of Downstream Conveyance Capacity	Downstream conveyance has not been analyzed for pipe capacity with added flows from new pavement areas.	Base: Critical Infrastructure Re-Location ($1.5M includes storm & sanitary) above the $45M conveyance Outfall modifications would require Port, City coordination; applies to both OR and WA	Threat				1.0	3.0	6.0	25%	Shawn Ellis	Mitigate	1) Conduct the downstream capacity investigation as early as possible.	Q4 2023: Revisit in Q1 2024 when 30% design is underway. October 2023: Revisit in Q4 2023. Q1 2023: To be conducted as part of the AE scope.
4	STG 20.5.2	Construction	Damage to Adjacent Structures (Other)	Additional measures (design modifications, construction means/methods) may be required to prevent damage to adjacent structures such as the cinema, Normandy Apartments, and any new construction.	Post Hospital and existing river bridge captured separately (risks 84 and 262).	Threat								Rob Turton / Martijn Bolster	Mitigate	1) Agency to consider performing supplemental analyses to define applicable design criteria. 2) Agency to consider requiring a work plan submittal in the applicable specifications detailing the Contractor's means and methods of protecting adjacent structures. 3) Contractor to conduct settlement and other applicable damage monitoring/control in the construction areas. 4) Investigate ground improvements that reduce likelihood of construction techniques that would damage existing structures	Q4 2023: Split this risk out and create a new one specific to the existing river bridge. Revisit on a quarterly basis.
7	CNS 40.1	Construction	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. *Schedule has 6 months between NTP to Mob.*	Base duration was compressed from 12 months to 6 months.	Threat	$10 M	$20 M	$30 M	1.0	3.0	6.0	15%	Robert Turton	Mitigate	1) When preparing RFP identify opportunities to facilitate Final Design process for contractor. 2) Identify permitting needs and requirements to mitigate risk (i.e., stormwater, USCG). Consider owner procurement of critical permits. 3) Perform industry outreach / engage early with contractors to highlight risk. 4) Consider transferring risk to contractor (potential for increased bid costs). 5) 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.	Q2 2023: This is still a risk. Funding for the Bridge project has not been finalized, and is 3-6 months behind schedule. Expected to impact availability of resources in 2025-2026. Q1 2023: Revisit risk in June 2023.
8	CNS 10.1	Construction	Complex Bridge Staging and MOT	Constructability of the river bridge on the WA side is more challenging than anticipated (more constrained area), resulting in additional costs and delays. Additionally, elements of the corridor improvement will be performed under heavy traffic additional MOT (vehicular and river users), temporary structures, etc.	Need to consider existing I-5 bridge, railroad, C St ramps, potential temporary bridges, proximity to existing port buildings. - North River Shore - MOT to move all SB traffic to new east side bridge to allow the existing SB River Crossing Bridge to be deconstructed and the new SB crossing constructed while the existing SB roadway and structures are active. Similar issue with subsequent NB shift. - The structures under the North River Shore elevated I-5 structures will be difficult particularly without significant roadway closures. - The South River Shore structures have similar MOT issues.	Threat	$10 M	$30 M	$50 M				50%	Rob Turton / Martijn Bolster	Mitigate	1) Consider including in RFP, a contractor requirement to propose additive alternative or deductive bid item for their proposed staging/laydown area. 2) Incorporate allowance in estimate to account for contractor staging/laydown.	Q1 2023: Revisit risk in Q4 2023.

Risk Identification							Quantitative Analysis (Post-Managed State)							Risk-Response Strategies			
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9	CNS 10.3	Construction	Arterial Bridge Sequencing	Sequencing of the arterial bridge prior to the demolition of the NPH bridge may result in impacts to properties. Worst case scenario is this would result in the need for acquisition of additional property.	Base assumes arterial bridge will follow existing I-5 bridge demo. Project will entertain options to improve access where possible. Potential for escalation savings if bridge can be accelerated.	Threat								Rob Turton / Martijn Bolster	Exploit	1) Develop preliminary sequencing of the arterial bridge to evaluate potential property impacts.	Q4 2023: This risk is still being explored. It will be kept on the watchlist for monitoring. Changed from opportunity to threat.
10	CNS 50.1	Construction	River Conditions Impact In-Water Construction	There is a risk that in-water construction challenges arise, particularly with the foundation elements and construction of the river crossing. High water levels and/or velocity may result in reduced productivity.	Assume 2-4 week potential impact per work window unrecoverable lost time.	Threat				0.5	0.5	0.5	5%	Martijn Bolster	Transfer	1) Conduct studies to determine typical high water levels and plan around them. 2) Contractor to create a contingency plan for high-level water windows.	Q4 2023: Confirm during the CEVP that this is included in the bid.
11	CNS 50.2	Construction	River Traffic Accidents	During construction river traffic accidents such as ships colliding with construction equipment or temporary structures, coffer dams, etc., lead to schedule delay and associated costs.		Threat									Mitigate	1) Engage interested parties early to garner agreement for traffic hazard control plans, congestion mitigation, and extreme weather plans.	
12	CNS 50.3	Construction	Existing Bridge Demolition	Demolition of the existing bridge over the river is more complex than anticipated, increasing costs and delaying construction.	Base schedule assumption: 2 in-water work periods. Potential need for removal of existing piles	Threat								Rob Turton / Martijn Bolster	Mitigate	1) To quantify the required action plan, conduct a River bridge demolition plan evaluation early as possible. 2) Ongoing communication and coordination with USACE and USCG. 3) Evaluate alternative delivery methods. 4) Evaluate if foundations of the existing SB structure need to be taken out before construction of the new NB structure.	Q4 2023: One method of demolotion has been explored and documented.
13	CNS 10.5	Construction	MOT Cost Reduction opportunity	MoT cost may be overestimated on more straightforward work elements in the current base estimate.	8.5% MOT premium is likely excessive on OMF, WA/OR LRT, and OR roadway work; could be reduced by up to 50% in these areas.	Opportunity								Steve Katko	Exploit	1) Evaluate cost estimate and validate MoT premium.	Q4 2023: Need to confirm with cost estimate review. Revisit Q1 2024. Addressed in base quantity uncertainty; and updated estimate.
14	CNS 10.2	Construction	Staging and Phasing Among Contracts: NPH Bridges and Connections	NPH I-5 bridge replacements were not included in the scope of CRC, and the base schedule has not been adjusted pending completion of detailed staging plans. Additional time may be needed to complete this work. Includes concerns related to access, etc. If transit is constructed first over North Portland Harbor (prior to highway), then the cost of the building infrastructure will be greater than currently anticipated.	Direct cost e.g., for temporary bridges, special equipment, etc. assumed to be captured in the base MOT item and design allowance. Additional direct cost related to special equipment, but minor compared with time delay.	Threat				3.0	6.0	12.0	15%	Robert Turton	Mitigate	1) Coordinate with Industry Specific to determine assumptions and basis of CRC schedule and risk. 2) Review the CRC construction schedule in November 2022, determine assumptions and sequencing, and how it was incorporated into current schedule. 3) Revise base schedule to include Staging and Phasing for NPH bridges and connections to support identification of project interface points and possible solutions to sequencing and packaging of work.	Q3 2023: The schedule and cost estimate is started, so there will be more information available at the Q4 update. Q2 2023: No change so far. There will be a meeting held next week (June 2023) to discuss Contract Packaging, but it may not occur to ensure that correct participants are available. Expected to have more information closer to AE. Q1 2023: Revisit risk in June 2023.
15	CTR 50.2.1	Construction	Material Procurement Delays: Roadway	There is a risk that there are delays in obtaining key construction materials for the project. This could include steel, concrete, among other key inputs to production.	Roadway elements with delay potential include steel girders, fiber optic cable, duct bank, etc. Probability of critical path delay is very low.	Threat				0.0	1.0	2.0	5%	Steve Katko	Mitigate	1) Consider early (owner provided) material procurements where it makes sense to do so without introducing potential conflict with contractor design or approach.	Q4 2023: Revisit Q1 2024.
16	CTR 50.2.2	Construction	Material Procurement Delays: Transit	There is a risk that there are delays in obtaining key construction materials for the project. This could include steel, concrete, among other key inputs to production.	Transit elements with delay potential include special track for turnouts, TPSS, network equipment, signaling, etc.). Potential for longer delay than for roadway materials.	Threat				0.0	1.0	2.0	5%	Steve Katko	Mitigate	1) Consider early (owner provided) material procurements where it makes sense to do so without introducing potential conflict with contractor design or approach (e.g., track).	Q4 2023: Revisit Q1 2024.
17	CTR 50.3	Construction	Limited Availability of Critical Equipment: Roadway	If there is limited availability of critical equipment and lead times are longer than anticipated, the project could experience delays.	Marine and Landside major equipment (ex. Cranes).	Threat									Mitigate	1) Consider early equipment procurements where it makes sense without introducing potential conflict with contractor design or approach.	Q4 2023: Revisit Q1 2024.
18	CNS 60.1	Construction	Differing Site Conditions	If significant differing site conditions are encountered then there is risk of high cost change orders.	Conflicts with foundations (STG 20.3), hazardous materials (ENV 50.1), cultural resources (ENV 40.4), unknown utilities (UTL 20.2) captured separately. Minor risk (below threshold) of unknown ground conditions on landside and transit contracts.	Threat									Mitigate	1) Engage in proactive site condition investigation (borings, survey and divers) as needed to more fully determine site conditions.	Q4 2023: Revisit Q1 2024.

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19	CNS 20.1	Construction	Construction Noise and Vibration	Excessive complaints about noise and/or vibration generated by the contractor's activities may necessitate additional temporary noise/vibration mitigation than planned, resulting in an increase in project costs and potentially extending the duration of construction.		Threat								Rob Turton / Martijn Bolster	Mitigate	1) Conduct early site noise evaluation to determine noise acceptability levels.	Q4 2023: Confirm that this is included in the estimate.
20	CTR 70.1	Construction	Labor Disruptions	Labor disruptions (strikes) may result in construction schedule delay.	Base assumes use of a PLA, which will be crafted to cover all trades and should effectively mitigate the risk of labor stoppage. Neither WA or OR currently has Right to Work provisions.	Threat								Shannon Singleton	Mitigate	1) Base assumes use of a PLA, which will be crafted to cover all trades and should effectively mitigate the risk of labor stoppage.	Q4 2023: Re-confirm where this effort is at the time of the CEVP. Use of CWA or PLA will be determined by Q1 2024.
21	CNS 60.2	Construction	Construction Staging	Availability of construction staging (access, laydown, storage, field offices, etc.) is limited and leads to reduced productivities and/or site utilization conflicts for contractor, resulting in cost and schedule impacts.		Threat								Martijn Bolster	Mitigate	1) Demonstrate potential staging areas in drawings for each area of construction. 2) Discuss temporary access with the ROW team. 3) Evaluate timing of park and rides and timing for ROW for park and rides. 4) Evaluate city development plans and timing. 5) Evaluate timing of property acquisition.	Q4 2023: Revisit in Q1 2024 following coordination with ROW.
25	CNS 10.6	Construction	Civil and Systems Contractor Interface / Coordination	Interface issues between civil and systems contractors results in delays, re-work, and/or redesign efforts.	Greatest risk believed to exist at Interstate Bridge and North Portland Harbor (NPH) bridges. Still to determine sequence and potential overlap, program intends to open transit as soon as possible.	Threat				1.0	2.0	3.0	10%	Steve Katko / Sarah Touey	Mitigate	1) Ensure design coordination between civil and systems teams to mitigate construction coordination risk. 2) Consider potential coordination opportunities when making packaging and delivery method selections for transit elements. 3) Coordinate with TriMet to understand technical requirements.	Q4 2023: Revisit in Q1 2024.
26	CTR 40.2.1	Contract Procurement	Limited Qualified Bidders Results in Re-Procurement: River Bridge Contract	Few qualified bidders and/or limited responses, resulting in a non-competitive procurement and possible need to rebid.	Direct cost for additional stipends. Assumption would be few bidders would be 0-2 bidders, 3-4 would be acceptable. The cost impact captures the direct cost of $2M per month.	Threat	$16 M	$20 M	$24 M	8.0	10.0	12.0	20%	Rob Turton	Mitigate	1) 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. 2) 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. 3) Determine what is an acceptable number of bidders. 4) Conduct workshop/analysis to determine optimal river bridge contract packaging and delivery methods. 5) Consider including consultant contractor SMEs in next workshop.	Q4 2023: Continuing to engage in industry outreach and considering alternative delivery methods. Still on track to have a decision on delivery method at the end of the year. Q3 2023: Updated likelihood as well as schedule and cost impacts. In process of developing Project Delivery Management report, which is due by December 31st. Revisit this risk at the end of the year.
27	CTR 40.2.2	Contract Procurement	Limited Qualified Bidders Results in Re-Procurement: Other Contracts	Few qualified bidders and/or limited responses, resulting in a non-competitive procurement and possible need to rebid.		Threat								Rob Turton	Mitigate	1) 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. 2) 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. 3) Determine what is an acceptable number of bidders. 4) Conduct workshop/analysis to determine optimal river bridge contract packaging and delivery methods. 5) Consider including consultant contractor SMEs in next workshop.	Q4 2023: Continuing to engage in industry outreach and considering alternative delivery methods. Still on track to have a decision on delivery method at the end of the year. Q3 2023: Engage in more discussion to quantify this risk after the Project Delivery Recommendation has been developed (end of 2023).
28	CTR 30.1	Contract Procurement	Bid Protest	If there is a contractor bid protest it may result in the delay of contract award.	ODOT has experienced protests on several recent large contracts, e.g., related to review of DBE justification, TERO, etc.	Threat				0.5	1.0	2.0	50%	Rob Turton	Mitigate	1) Consider including time for protest into the procurement schedule. 2) Develop clear contracting documents and evaluation criteria. 3) Ensure quick responses in bid review process.	Q4 2023: Revisit contract-specific mitigations following selection of delivery method.

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29	CTR 50.1	Contract Procurement	Buy American Provisions	Buy American' provisions will likely be adopted by FHWA prior to the initial contract procurement, and will include additional requirements for domestic material sourcing which could impact material cost and availability.	Limited impact on steel manufacturers, may affect other elements e.g., machinery, systems (e.g., P-T). Buy American requirements are not expected to change materially for transit systems; TriMet has extensive experience complying with existing Buy America requirements.	Threat								Martijn Bolster	Accept	1) Review Buy American provisions to understand potential impacts.	
30	CTR 20.4	Contract Procurement	Claims Associated with Third Party Agreements	Agreements with utilities and other interested parties don't have enforceable provisions that clearly establish 3rd-party requirements (i.e., design specs, notification requirements, etc.) and 3rd-party commitments, especially for time-sensitive obligations (i.e., design review, construction inspection, self-performed work, etc.).		Threat								Kate Elliott	Mitigate	1) Include necessary substantive provisions in the agreements, as well as "flow-down" language for activity-specific "sub-agreements" (often MUAs and UAs, respectively); incorporate allowances, other cost-sharing mechanisms in the contract to the degree problematic 3rd-party agreement provisions are unavoidable. Do not simply transfer the risk via contract. This will discourage good contractors from proposing, and the provisions are often unenforceable in court.	Q4 2023: Work plan was submit and finalized. Currently preparing next SOW to develop agreements, which will aid in further identifying the risks and mitigation. More information will be available in Q1 2024. Q3 2023: A lead has been identified for third party agreements. Initial identifications have occured, and a work plan on the approach will be delivered on October 31st. Consider splitting this risk out by package next quarter. Revisit this risk in Q4 2023.
32	CTR 10.1	Delivery Method	Change in Project Delivery Method / Contract Packaging	Changes to the project delivery method and/or contract packaging may impact project cost and delivery timeline. Changes may result in changes in cost and/or schedule.	Base Assumptions: DBB: MI+MD Base LRT, Vanc LRT, HI+MD Hwy, OR OMF DB: Vanc Hwy, River Bridge, IB Demo HI+MD Base LRT, Vanc LRT, and OR OMF are potential candidates for CM/GC Risk cannot be adequately quantified at this time. Revisit in future CEVPs.	Threat								Rob Turton	Mitigate	1) Conduct Project Delivery Method / Contract Packaging workshops/analysis to determine packaging early, scheduled for December 2023.	Q4 2023: This risk was moved to the Watchlist. Continue to monitor and track, and revisit following the Delivery Method workshop. Q3 2023: More information will be available with the Delivery Method Recommendation at the end of 2023.
36	ENV 20.1	Environmental	ESA Section 7 Delays	Biological opinion from the National Marine Fisheries Service (NMFS) and/or biological assessment takes longer than anticipated.	Larger issue is Biological Opinion. See risk #221 for related Tribal Coordination risk.	Threat				0.5	1.5	3.0	25%	Chris Regan	Mitigate	1) Work closely with NMFS and the ESA working group and coordinate regular check-in meetings throughout consultation process. 2) Utilize Director to Director level coordination/communication.	Q4 2023: Recently confirmed the timeline for the consultation with National Marine and US Fish & Wildlife for September 2024. Q3 2023: BA has been completed. Q2 2023: On track to submit BA Aug 31 2023; BO is prepared by the Agency. Revisit risk in Q3 2023.

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37	CNS 30.1	Environmental	In-Water Work Windows are More Restrictive	Section 7 consultation in-water work windows are more restrictive than the base schedule assumes. ESA consultation will be required to determine in-water pile driving windows. Includes potential jeopardy listing for salmon.	Base schedule for River Bridge construction assumes 4 in-water work windows. - In-water work assumed to be allowable September 15-April 15 each year. - Debris removal with a bucket dredge will only be conducted between November 1 and February 28 of each year. This is the standard published work window for this reach of the river, and will appropriately avoid impacts to each ESU/DPS of ESA-listed fish in the river. However, limited, diver-assisted removal of specific individual pieces of debris or large riprap necessary to place a drilled shaft may be conducted at any time of year.	Threat				2.0	3.0	4.0	5%	Chris Regan	Mitigate	1) Ensure contractual requirements and validated construction schedule based on biddable means and methods is fully vetted.	Q4 2023: Recently confirmed the timeline for the consultation with National Marine and US Fish & Wildlife in September 2024. Q3 2023: Have submit BA with proposed in-water work windows. Lowered likelihood of occurring to 5%. Q2 2023: Currently working to propose what work can be performed in and out of the work windows. Continuing to submit drafts of the BA to external agencies for review. Review risk in Q3 2023.
38	ENV 20.2	Environmental	Environmental Regulations Change	Environmental regulations change (or interpretation of) during project development and require redesign and impact cost/schedule.	e.g., Endangered Species.	Threat	$0 M	$0 M	$0 M	0.0	3.0	6.0	10%	Chris Regan	Mitigate	1) Conduct continuous and thorough surveying throughout project development. 2) Designate a liaison as part of the project team to ensure coordination and communications with regulatory agencies. 3) Ensure coordination and communications to obtain early notice of any potential status changes regarding sensitive and/or endangered species.	Q4 2023: This is dynamic and will continue to be a risk; continue to track and monitor quarterly.
39	ENV 40.2	Environmental	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.	Will require buy-off from several external agencies. Impact to schedule and cost (e.g., for data collection, expanded legal fees, accommodate design changes), mitigations to Programmatic Agreement need significant modifications from CRC. NEPA schedule is compressed; resource constraints.	Threat	$1 M	$4 M	$8 M	3.0	6.0	9.0	50%	Hayli Reff	Mitigate	1) Complete Programmatic Agreement mitigation updates as early as possible. 2) Engage in early coordination and consultation with Tribes and other interested parties/agencies. 3) Add resources for investigations (Task AD) to support 106 analysis. 4) Add resource for consulting party communication. 5) Investigate opportunities to define contracts, clearing specialty consultants, and sequencing activities to mitigate potential schedule constraints. 6) Frequent coordination with federal co-leads to ensure timely review and turn-around of Section 106.	Q3 2023: Currently updating programmatic agreement schedule. The deliverables tracker is helping to increase efficiency of reviews. Q1 2023: There is an updated programmatic agreement schedule. Due to federal delays, scheduled to sign when the ROD is due (assuming ROD is end of 2024).
40	ENV 40.4	Environmental	Inadvertent Discoveries	There is a risk there could be significant cultural resource findings. Studies are initiating to identify any possible issues. This major trigger of this risk is due to extensive negotiations for extremely sensitive Tribal cultural resources that will involve multiple agencies which is likely to greatly increase costs and could significantly delay construction. This could incur additional mitigation costs and/or delays if there are discoveries of cultural resources.	Construction phase risk. Assessed to be independent of specific design/scope change risks. Correlated to Risk 39 (Section 106 - Analysis)	Threat	$5 M	$10 M	$35 M	1.0	3.0	18.0	45%	Hayli Reff	Mitigate	1) Ensure there is an inadvertent / late discovery plan and contractor has an understanding of the plan requirements and provisions. 2) Enforce contract language which should include provisions to keep contractors working during construction. 3) Conduct earth moving in sensitive areas early in project timeframe, where possible, or seek archaeological permits to test areas of high probability, where possible. 4) Engage with interested Tribes early on and contract with qualified Tribal cultural resource experts to be on-site in areas of high probability to improve coordination when emergency archaeological permits and immediate decisions on eligibility may be needed. 5) Consider a programmatic agreement with WA and OR SHPOs to streamline review process on discovery of certain sites/artifacts. 6) Coordinate with Clark County coroner to integrate staff with onsite monitoring. 7) Leverage IBR professional expertise to work with DAHP to streamline process. 8) Investigate opportunities to shift working areas during construction. 9) Coordinate with FHWA and FTA on the inadvertent discovery plan.	Q4 2023: This will continue to be a risk now and through construction. Continue to track and monitor quarterly. Kassie Rippee (Tribal Coordination lead) has held meetings with the County coroners (action item #6) and continuing to take steps and plan for education efforts. Added new action to be taken #9.

Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN

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41	ENV 10.1	Environmental	Section 4(f) - Delta Park	The 4(f) process at Delta Park could delay schedule or add unexpected scope.	Marine Drive interchange is located very close to Delta Park.	Threat				1.0	2.0	6.0	5%	Hayli Reff	Mitigate	1) Engage in early coordination with Portland Parks and Recreation (PP&R).	Q4 2023: In October 2023, had meetings with City of Portland for Delta Park. Continuing to look for ways to avoid and minimize impacts. If Delta Park can be avoided, investigate retiring this risk. Continue to monitor quarterly. Q1 2023: Revisit risk when the bridge footprint has been determined (end of 2023).
42	ENV 10.2	Environmental	Section 4(f) - Fort Vancouver	The 4(f) process at Fort Vancouver could delay schedule or add unexpected scope. Delay related to legal challenges.	Risk assessed to be independent of potential I-5 alignment shift to the west (DES 10.1).	Threat				6.0	12.0	18.0	10%	Hayli Reff	Mitigate	1) Engage early and maintain timely contact with NPS. 2) Coordinate with all four legal teams to advance 4(f) strategy.	Q4 2023: In October 2023, had meetings with National Parks service. Continue to track and monitor. Q1 2023: Revisit risk when the bridge footprint has been determined (end of
43	ENV 10.3	Environmental	Section 4(f) - Steel Bridge	The 4(f) process at the Steel Bridge could present delays to the schedule or add unexpected scope if impacts to the historic bridge and approaches are required. Could be triggered by analysis or partner conditions.	The Steel Bridge is on the national register. Need to verify overlap with RQ, coordinate with UMO (Not part of base - Watch List)	Threat				6.0	9.0	18.0	40%	Hayli Reff	Mitigate	1) Coordinate construction planning and activities with the Rose Quarter as early as possible. 2) Confirm as early as possible if there are impacts to 4(f). 3) Maintain timely contact with resource agencies and SHPO.	
44	ENV 10.4	Environmental	Supplemental EIS (SEIS)	The SEIS may require a substantial amount of new and updated analysis that requires longer than anticipated to complete.		Threat				3.0	6.0	12.0	30%	Angela Findley	Mitigate	1) Conduct/maintain periodic meetings with agencies during preparation of the SEIS to identify required analyses as early as possible. 2) Consider internal direction and coordination regarding change management.	Q4 2023: Experiencing an additional 2-month delay this quarter from the FHWA and FTA. Updated schedule impact ratings. Q3 2023: Recently experienced 2-month delay due to issues with the Section 4F analysis. The IBR team has established new contracting goals due to updated information. Q2 2023: The program schedule includes the option of the movable span. The DSEIS includes the movable options as well, no other major items have been identified to include at this time.
45	ENV 10.5	Environmental	Public Comments on Draft Supplemental EIS (DSEIS)	Extensive number and magnitude of comments are expected to be submitted on the DSEIS during the public comment period that may result in additional construction costs or delays to the project.	Tied to Studies & Coordination with various agencies. This risk also includes public's perception of the program not reducing enough GHG emissions or overall responsiveness to climate change.	Threat				1.0	2.0	3.0	25%	Angela Findley	Mitigate	1) Continue robust public involvement process, emphasizing the Purpose and Need of the project being met. 2) Ensure training and utilization of software to track comments. 3) Consider hiring additional resources. 4) Appropriately brief Public Affairs/Government Relations (PA/GR) team on the contents of the DEIS.	Q3 2023: Public Comment Period delayed to start in early 2024. Revisit in Q1 2024. Q1 2023: No update until public comment period (Q4 2023)
46	ENV 10.7	Environmental	External Agency NEPA Reviews	External agency reviews take longer than forecasted. To complete NEPA, timely document reviews and approvals must be obtained from external agencies (joint and cooperating agencies, et al.)		Threat				1.0	3.0	6.0	30%	Angela Findley	Mitigate	1) Maintain ongoing communication and coordination with various approving agencies to keep reviewers engaged. 2) Develop a highly detailed schedule of permit deliverables and review times for review by design team, partners, and regulatory agencies. 3) Make use of Portland's permit streamlining committee (as a template to create one for this program) for projects, or establish a separate re-occurring meeting with specialists from each agency's regional office due to complexity and size of project. 4) Identify roadmap to reviewing and approving the MLPA and FSEIS.	Q4 2023: In Q4, two agencies required extra time, which impacted risk #44. Added new action to be taken. Q3 2023: Currently, receiving comments in a timely manner is still a concern, primarily from FHWA and FTA (captured in risk #47). Potential government shut-downs could impact review periods, which could begin as early as October 1 2023. Q2 2023: Draft NEPA document submitted June 2023. Should have a better update in Q3 2023 as reviews are underway.

Risk Identification							Quantitative Analysis (Post-Managed State)							Risk-Response Strategies			
							Direct Cost Impact ($M)			Schedule Impact (months)							
ID #	RBS Code	Discipline Category	Risk Event Title	Risk Description	Additional Notes	Threat or Opportunity	Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely3	High (90% CI)	Likelihood of Impact Occurring	Risk Owner	Strategy	Actions to be Taken	Management Status
47	ENV 10.8	Environmental	FHWA and FTA NEPA Review/Participation	Timely reviews and direction is 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.	Challenges with responsiveness. Lead Federal agencies.	Threat				1.0	3.0	6.0	50%	Chris Regan	Mitigate	1) Identify staff resource as a point of contact (139j, other) for FHWA and FTA to engage in communication and coordination throughout NEPA process. 2) Work with agencies to develop informal agreements to work on internal agreement process that IBR follows. 3) Coordinate with FHWA and FTA on their availability and schedule meetings/deliverables as to not overload their teams. 4) Continue executive focus on the schedule between the DOTs and federal partners.	Q4 2023: FTA and FHWA provided 2 staff members to assist in Section 106 and 4(f) process, which has improved timelines, but still experiencing delays with NEPA reviews. Q3 2023: FHWA has not been meeting recent deadlines. A meeting was held to discuss issues with timely reviews mid-September. Q2 2023: FHWA is indicating they will meet the deadline for documents out for review.
49	ENV 10.10	Environmental	Post-ROD NEPA Challenge	The updated Record of Decision (ROD) from the Supplemental Final Environmental Impact Statement (FSEIS) is controversial and leads to Post-ROD NEPA challenge and delays the program.	There could be actions and/or legal challenges following issuance of updated ROD and/or challenges to permits. Direct Cost: legal fees, additional mitigations, etc.	Threat	$1 M	$5 M	$10 M	3.0	6.0	18.0	25%	Angela Findley	Mitigate	1) Obtain separate legal sufficiency reviews by relevant lead agencies prior to publishing each major document. 2) Consider an early legal review of process to date and develop recommendations to ensure outreach and process cannot be rationally questioned. 3) Identify post-ROD actions to advance Program and start litigation timing as early as possible prior to large contract work.	
51	ENV 30.2	Environmental	USACE Permitting Delays (Nav Channel)	Completion of USACE 404 navigation channel permit reviews / 408 authorization take longer than anticipated.		Threat				1.0	3.0	6.0	10%	Chris Regan	Mitigate	1) Designate a point of contact to engage in early coordination with USACE. 2) Continue to engage with staff at all levels within at USACE, and engage federal leads resources to help. 3)Work with USACE to develop agreement on process to secure the 408 authorization.	Q4 2023: Submit first design package for review in November 2023.
52	ENV 30.3	Environmental	USACE Permitting Delays (Levee)	Completion of USACE 404 levee permit reviews / 408 authorization take longer than anticipated.	Clarify the distinction between the North Portland Harbor (NPH) and Transit NPH. Include this risk in Transit monthly and quarterly updates.	Threat				3.0	6.0	9.0	15%	Chris Regan	Mitigate	1) Designate a point of contact to engage in early coordination with USACE. 2) Continue to engage with staff at all levels within at USACE, and engage federal leads resources to help. 3) Work with USACE to develop agreement on process to secure the 408 authorization.	Q4 2023: May need to ask for multiple authorizations (at least 2) to support construction sequencing. This will rely on construction sequencing decisions and design needed to support. A meeting was held with USACE and County in November. Split risk to capture Transit impacts.
53	ENV 30.4	Environmental	USCG Bridge Permit Delay	USCG bridge permit may not align with the program schedule (which is dependent on the assumptions/determination of construction delivery methods for each package) resulting in delays to the program.	Inclusive of all bridge permits (IBR, NPH).	Threat				1.0	3.0	6.0	10%	Chris Regan	Mitigate	1) Engage in early and frequent communication with USCG during permit process. 2) Further develop the bridge options before submitting the bridge application to ensure the best potential outcome and to mitigate delay. 3) Investigate the potential for two separate bridge permits (CRB and NPH).	Q3 2023: Currently waiting to hear from affected users to determine if the fixed-span bridge can move forward. Revisit this risk in Q1 2024.
54	ENV 30.5	Environmental	Local/State Agency Land Use Permit Delays	Local conditions, including coordination with multiple local agencies, could influence the land use permits. Includes local and state agency permits (e.g., 401).	Contractor will be responsible for permits under alternative delivery methods.	Threat				3.0	4.5	6.0	10%	Chris Regan	Mitigate	1) Obtain LUFO modification for project-specific facilities. 2) File for pre-application conferences to obtain best information on upcoming review processes and criteria. 3) Submit for land use reviews as soon as possible since staff often fail to recognize applicable requirements during pre-application conferences. 4) Request completeness reviews to end once reasonable requirements have been met, as allowed by state law.	Q4 2023: There has been discussion about starting this process, particularly for the approaches to the CRB. Expect more progress in Q1 2024.
56	ENV 60.1	Environmental	Natural Resource Mitigation and Conservation	Environmental mitigation sites have not yet been identified in terms of location and quantity. Includes habitat considerations from a number of groups with competing interests. There could be additional unanticipated wetland, floodplain, or other environmental mitigation required. This risk is related to Tribal Coordination risk #221.	Potential schedule and/or cost impacts.	Threat	$10 M	$25 M	$50 M	3.0	6.0	9.0	20%	Chris Regan	Mitigate	1) Conduct early investigations to determine likely impacts and mitigations required 2) Continue outreach with Tribes and agencies. 3) Construct a general agreement document between interested parties. 4) Utilize an RFP approach to look for conservation proposals.	Q4 2023: More information will be available following the SEIS. Q3 2023: Some progress has been made, but the mitigation approach has not been fully determined. Q2 2023: Approach continues to include new ideas and in the process of making a decision mitigation and conservation approach, end of June 2023 should have a decision made on how to approach mitigation. Need to start communicating with Tribes as soon as possible to incorporate their feedback on the mitigation approach. This is tied to the BA. Revisit risk Q3 2023.

Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN

Risk Identification							Quantitative Analysis (Post-Managed State)							Risk-Response Strategies			
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57	ENV 60.2	Environmental	River User Cost	Impacts to river users are greater than anticipated and may result in increased program costs for mitigation.	This could also include additional river users that were not identified during CRC (CBC and others).	Threat	$25 M	$50 M	$75 M				35%	Chris Regan	Mitigate	1) Conduct early investigations to determine likely impacts and mitigations required. 2) Include mitigation efforts in the cost estimate once more information is known. 3) Negotiate appropriate settlements with affected users (the sooner the better). Start negotiations from previous work completed during CRC.	Q4 2023: Discussions with affected river users are underway. More information will be available in Q1 2024 on whether an agreement can be reached.
58	DES 40.1	Environmental	FEMA Flood Map Revisions	If IBR assumes lower river levels and does not adequately include higher river levels or larger lateral extents of flooding in the H&H analysis, then during permitting it could result in higher costs than anticipated in regards to: bridge height, frequency of bridge lifts, no-risk analysis, balanced cut/fill.	USACE is updating the flood modeling in the Lower Willamette River. Phase 1 which is an update of the bathymetry and digital terrain is completed, but Phase II is just getting started. Phase II will update the flow frequencies (10-year, 25-year, 100-year, 500-year and climate induced events), and will incorporate the results of the negotiations under the Columbia River Treaty. We expect initial results to trickle out next year, and for FEMA to adopt a new flood map in 2027ish. BES fully expects the base flood elevation and floodplain to increase in at least some of these scenarios.	Threat									Mitigate	1) Early coordination with USACE.	Q4 2023: Currently conducting H&H modeling, which will provide information on potential flood rise. More information will be available in Q1 2024.
59	ENV 20.3	Environmental	Fish Passage Improvements	Fish passable streams may be identified within the project limits and WSDOT by policy may determine that fish passage improvements are required.	No known or potential fish passable streams have been identified within the project limits.	Threat									Mitigate	1) Conduct field studies to identify possible areas of impact.	
60	ENV 50.1	Environmental	Hazardous Materials - Liability Associated with Property Acquisition	Hazardous materials are discovered within properties acquired. This could trigger delays and/or cost impacts from additional investigations or cleanups.	Project should conduct Phase I and II hazardous materials identification as early as possible prior to acquisition.	Threat	$10 M	$20 M	$30 M	1.0	2.0	3.0	20%	Chris Regan	Mitigate	1) Conduct Phase I and II hazardous materials identification as early as possible prior to acquisition.	
63	ENV 900.1	Environmental	Additional Measures to Achieve Climate Conditions	Discussions with partner agencies may result in increased scope and scale of measures to address climate change associated with IBR program.	Low-carbon concrete is in the base. Additional measures may include EVs, alternative fuels, fossil fuel free steel, purchase of carbon credits, etc. Risk of delay in reaching alignment with partners captured separately (see PSP 40.3, TRN 80.1).	Threat	$5 M	$15 M	$25 M				35%	Chris Regan	Mitigate	1) Engage in early communication with partner agencies. 2) Develop shared understanding and goals for climate with program partners (easier said than done and this work is underway). 3) Establish clear understanding of DOT sideboards for program commitments to address climate. 4) Engage in monthly IBR team-wide climate meetings to align program in delivering climate solutions.	Q4 2023: Continuing to have conversations with partners to further refine actions. Q3 2023: Revisit in Q4 2023.
65	DES 40.5	Environmental	Modification of 60" Culvert Beneath I-5	There is the risk of an existing 60" pipe beneath I-5 requiring modification. For example, this could be due to hydraulic concerns, among others.	Base: Critical Infrastructure Re-Location ($1.5M includes storm & sanitary) above the $45M conveyance. $780K base cost relocation Longitudinal to I-5	Threat									Mitigate	1) Conduct a Culvert suitability investigation as early as possible to quantify the required action plan. 2) Early engagement with partner agencies.	
67	TRN 80.2	Finance	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.	The program will consider and apply for all federal grants that may be available to provide funding. *The program intends to pursue a Capital Investment Grant through FTA.* This risk is dependent on the Delays to OR/WA Agreements and management capability and capacity. Consider splitting risk for Entry into Engineering and the FFGA negotiation process. This risk is correlated to risk 216 and the LONP.	Threat				0.0	6.0	12.0	25%	Leah Nagely Robbins	Mitigate	1) Monitor and track the status and completeness of required deliverables to move through Engineering and FFGA. 2) Engage in early coordination with Partner Transit Agencies and FTA. 3) Coordinate FTA approval activities with the program scheduling team.	Q3 2023: We have received approval into PD as of September 8. There is a plan moving forward to meet all milestones. Lowered likelihood to 25%. Q1 2023: The plan is to submit the preliminary rating in August 2024 and to move into Project Development (PD).

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68	TRN 80.3	Finance	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.	Working group has been formed to support decision-making on O&M funding. Funding grantee/operator relationships have yet to be fully defined. Delays in confirmation of O&M funding could impact completion of the finance plan. Transit O&M agreement captured separately in Risk 215.	Threat				3.0	6.0	12.0	40%	Ken Feldman	Mitigate	1) Transit O&M workgroup has been established and is meeting regularly to identify issues and assist with drafting scope of agreement. 2) Identify key milestone dates. 3) Coordinate early with Legislature to identify required statutory changes for transit O&M funding. 4) 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. 5) Develop a 2025 legislative plan.	Q3 2023: Increased likelihood to 40%. Currently making progress on an O&M agreement between the 2 transit agencies and DOTs. The funding source is still TBD, but have a few considerations. Deadline is prior to entry to engineering submittal in Summer 2025. Continue to monitor and track on a quarterly basis. Q1 2023: Plan for O&M funding sources needs to be developed prior to entry to engineering.
69	MGT 40.2	Finance	Delay to OR/WA Authorizations / Agreements	High-level coordination needed between WA, OR to provide adequate authorization by the respective states to effectively act as one entity. Impacts ability to issue and administer contracts. Current authorization is limited in scope and extends at the completion of preliminary design and NEPA.	Pertains to legislatures and treasurers of both states (OR/WA). WA/OR require bi-state agreements for O&M, transit, toll authorization, revenue sharing (OR), debt/financial structuring, etc. Weakens financial plan and impacts potential for federal funding. May delay start of tolling.	Threat							15%	Tiffany Bennett / Meghan Hodges / Charla Skaggs	Mitigate	1) Engage in ongoing communications and coordination with interested parties to avoid disruption to project. 2) Draft agreements early to allow sufficient time for parties to review and execute agreements. 2) Fallback action is to engage interested parties early to agree on a plan of action in case of delays in OR/WA Authorizations/ Agreements and quantify required efforts.	Q4 2023: Revisit in Q1 2024 and consider splitting into multiple risks. Discuss with Charla Skaggs and the Third Party Agreements team. Q3 2023: Bond authorization is relatively low risk. A related risk is delay in a bi-state agreement that extends into construction and contract procurement. Some procurement methods may require new state legislation. More information will be available in Q4 2023. Q2 2023: Have gotten tolling authorization from both states, but still do not have bonding authorization. Creating a new risk to capture the bonding authorization / tolling finance and separating it from this risk.
72	MGT 30.3b	Finance	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 the start of tolling and reduce the overall toll funding contribution.	•ODOT Tolling Program is delayed in releasing the Toll System (Back-office system and Roadside system) in time to support IBR tolling. This would be known by Q3 2022(#1) •ODOT Tolling Program Toll System contractors schedule is delayed and unable to install and operate by IBR Preconstruction tolling deadline. This would be known initially by Q1 2023 (#2) with a validation Q1 2024 (#3). Risk was assessed to have a high probability of delay to toll readiness of 12 to 36 months relative to the current assumed schedule.	Threat								Sean Nikkila / Jef Nazareno	Mitigate	1) WSDOT and ODOT would need to discuss if delaying IBR tolling or pivoting to WSDOT Tolling Program makes the most sense. 2) WSDOT and ODOT would need to assess and determine if expected implementation and opening timeframes warrant a change, and if WSDOT Tolling Program can assume IBR tolling operations.	

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73	MGT 30.3a	Finance	Changes to IBR Toll Operations (Administration) Assumptions	The current assumptions related to IBR toll implementation may need to be revisited for a variety of possible reasons including: - The ODOT toll program may not be supported by Oregon interested parties such that ODOT is unable to support the IBR program. Another solution for the IBR Toll Program would be needed (e.g., WSDOT taking ownership). - The two commissions cannot reach agreement on IBR toll policy, or the IBR toll policies are different than the planned ODOT Toll Program policies (which could delay BOS incorporation for IBR). Primarily a schedule risk. Circumstances could lead ODOT to be unable to pursue tolling on I-205 or implement Regional Mobility Pricing Project (RMPP). WSDOT Toll Program would likely need to assume the IBR Toll Administration if both referenced projects did not initiate tolling.	Current WSDOT toll contracts, customer services, the back-office system, and toll collection system would need to be modified to support Interstate Bridge tolling. Regional Customer service locations would need to be established is as part of the WSDOT toll contract or through separate contracts. ODOT Tolling Program could also determine to continue to assume the IBR tolling operations, supporting just this single project.	Threat								Sean Nikkila	Mitigate	1) WSDOT and ODOT would need to assess and determine if expected implementation and opening timeframes warrant a change, and if WSDOT Tolling Program can assume IBR tolling operations.	Q4 2023: Continue to track and monitor; revisit on a quarterly basis.
77	STG 20.1.1	Geotechnical	Bridge Foundation Changes - Design	As design advances, the DB may determine that longer and/or larger diameter shafts are required.	CRC project completed a test shaft. Bridge foundation changes are possible during design development following future seismic analyses; assumed to be captured in design allowance. Risk should be quantified in a future CEVP.	Threat								John Horne	Mitigate	1) Engage interested parties early to validate bridge foundation design criteria changes and quantify required actions.	Q3 2023: Investigation program will run from November-February. Revisit risk in Q1 2024.
78	STG 20.1.2	Geotechnical	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 the contractor.	Potential for direct cost impact for material/equipment related claims plus compensable time delays.	Threat	$5 M	$10 M	$15 M	3.0	6.0	12.0	50%	John Horne	Mitigate	1) Consider supplemental subsurface investigations. 2) Agency to implement proposal requirement that Bidders demonstrate ability to install foundations of the sizes and depths in the contract with similar environmental constraints. 3) Consider requiring the contractor to include a test shaft.	Q4 2023: Geotechnical investigation started last week. Revisit risk likelihood/impact once investigations are complete (Q1 2024). Q3 2023: Have not yet received results from sub-bottom profiling. Revisit this risk in Q4 2023. Q2 2023: Sub-bottom profiling will also be conducted and will provide more information for this risk. Revisit in Q3 2023. Supplemental geotechnical investigations are being proposed in Task AE to take advantage of the 2023-2024 and 2024-2025 IWWW's in
79	STG 20.2	Geotechnical	Additional or Changed Method of Ground Improvement	Ground improvements are assumed on Hayden Island and along Marine Drive and allowances have been included in the base estimate; however, minimal analysis has been completed. Pending future geotechnical investigation and structural design, area of GI may increase and/or more costly methods may be required.	Some potential impacts, based on current WSDOT thinking: Limiting work to the fish windows for stone columns, installing curtains, use air injection as preferred method and visually monitor. Potential for direct cost and time impacts (work windows, USACE permitting delays, etc.) Base Estimate includes ~$75M for GI plus design allowance. Risk should be quantified in a future CEVP.	Threat								John Horne	Mitigate	1) Conduct method of ground improvements evaluation as early as possible. 2) Conduct pilot program for evaluation of ground improvement methods prior to construction contract award. 3) Provide results/info to prospective bidders.	Q4 2023: There is a FHWA grant to conduct a pilot program of ground improvement methods. Results will likely be available in the fall of 2024.

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82	STG 20.3	Geotechnical	Conflicts With Existing Foundations - NPH	If the existing bridge (or previous bridge) foundations differ from anticipated locations, conflicts with new bridge foundation locations may result in change orders from the contractor(s). Includes potential conflict with existing timber piles in NPH.	Schedule impact will depend on how bridges are packaged and sequenced. The LRT bridge is likely less of a risk than other bridges.	Threat	$3 M	$5 M	$7 M	1.0	2.0	3.0	25%	John Horne	Mitigate	1) Conduct underwater GPR to confirm existing foundation locations. 2) Require Work Plan submittal in the applicable specifications detailing the Contractor's mitigation plan to deal with remnant foundations.	Q3 2023: Revisit in Q4 2023. Bathymetric studies including the use of GPR have been recently completed to locate any physical river bottom (and buried) items that could be impacted by construction.
83	STG 20.4	Geotechnical	Historic Landfill on Hayden Island	A historic landfill exists on Hayden Island, the extent of which is unknown, and may extend to the vicinity of transit bridge foundations.	Landfill is addressed in NEPA documents; deep foundations have been assumed for transit bridges.	Threat								John Horne			Q4 2023: Confirm what is included in the estimate. Move this risk to the Watchlist and continue to monitor.
84	STG 20.5.1	Geotechnical	Damage/Settlement of Post Hospital	The Post Hospital (historic building, not currently occupied) wall is approximately 5' to 6' from an assumed secant pile wall. Risks include: - Cost premium for settlement monitoring and careful means and methods of wall construction (assumed to be covered in the design allowance) - Re-stabilization of the hospital structure if settlement occurs - minor risk given assumed design and construction measures		Threat								Rob Turton / Martijn Bolster	Mitigate	1) Conduct settlement monitoring in the Post Hospital area vicinity. 2) Agency to consider performing supplemental analyses to define applicable design criteria. 3) Agency to consider requiring a work plan submittal in the applicable specifications detailing the Contractor's means and methods of protecting adjacent structures. 4) Contractor to conduct settlement and other applicable damage monitoring/control in the construction areas. 5) Investigate ground improvements that reduce likelihood of construction techniques that would damage existing structures	
85	STG 20.6	Geotechnical	Settlement of Fill Walls	Areas of soft ground exist along Marine Drive and there may be extended time needed for pre-consolidation to prevent settlement of embankment walls.	Characterized as a time risk. Mitigation measures to prevent time delay (e.g., lightweight fills if allowable) may increase project cost.	Threat				1.0	2.0	3.0	10%	John Horne	Mitigate	1) Consider supplemental subsurface investigations. 2) Consider lightweight fills if allowable. 3) Consider ground improvement or surcharge. 4) Consider use of wick drains. 5) Consider use of early work package.	Q4 2023: No additional geotechnical exploration is planned. Reduced high schedule impact to 3 months. Q3 2023: The team is currently compiling a geotechnical report that will inform the design criteria.
86	PSP 40.1.1	Interagency Coord.	Partner Agency Design Approval Processes - 30% Design Package	Partner agencies conduct design approval in house and they will conduct evaluations and follow up with discussions. Partner agency design reviews may result in design delays e.g., due to large number of reviewing agencies, availability of reviewers, etc.		Threat				1.0	3.0	6.0	20%	Katy Belokonny	Mitigate	1) Identify all agencies, and define purpose ("what") of reviews to help partner agencies to identify needed staff/reviewers. 2) Ensure that expectations and potential consequences of delays are clear to support negotiations and decisive decision making. 3) Establish a cadence of regular check-ins with partner agencies to facilitate design review process. 4) Ensure appropriate resource availability to address review comments and needed changes. 5) Ensure senior leadership is involved through the design review process.	Q4 2023: Will meet with Design Team to determine impact ratings. Q1 2023: Review risk Q1 2024 after release of DSEIS.
87	PSP 40.1.2	Interagency Coord.	Partner Agency Design Approval Processes - Subsequent Packages, 60%, 90%	Partner agencies conduct design approval in house and they will conduct evaluations and follow up with discussions. Partner agency design reviews may result in design delays e.g., due to large number of reviewing agencies, availability of reviewers, etc.		Threat				1.0	2.0	3.0	20%	Katy Belokonny	Mitigate	1) Identify all agencies, and define purpose ("what") of reviews to help partner agencies to identify needed staff/reviewers. 2) Ensure that expectations and potential consequences of delays are clear to support negotiations and decisive decision making. 3) Establish a cadence of regular check-ins with partner agencies to facilitate design review process. 4) Ensure appropriate resource availability to address review comments and needed changes. 5) Ensure senior leadership is involved through the design review process.	Q4 2023: Will meet with Design Team to determine impact ratings. Q1 2023: Review risk Q1 2024 after release of DSEIS.

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88	PSP 40.2	Interagency Coord.	Partner Agency Agreement Delays: Roadway	There is a risk of delays to completing agreements from all partner agencies required for ownership prior to procurement. Agreements may deviate from the mLPA and/or specific issues may require resolution e.g., ownership of arterial bridge.	Agreements include: ROW agreements; WSDOT/ODOT O&M agreements, Continuous control agreements, etc. Transit O&M agreement captured separately (see risk 215)	Threat				1.0	3.5	6.0	20%	Katy Belokonny	Mitigate	1) Ensure clear communication channels among partners and the Program. 2) Create protocols for documenting key interagency communications (i.e., technical and policy meeting notes). 3) Ensure that all divisions within IBRP are coordinated and that there is consistent, clear intra-Program communication. 4) Clear identification of asset ownership, operation and maintenance, and design authority prior to agreements	Q4 2023: Will meet with Design Team to determine impact ratings. Q1 2023: Follow up with Casey L. Review risk Q1 2024 after release of DSEIS.
89	PSP 30.1	Interagency Coord.	Aesthetics Agreements with Partner Agencies	Obtaining support on aesthetics with partner agencies could delay preliminary design completion. Primarily applies to River Bridge, but also include NPH bridges, land bridges, walls, etc.	Potential cost of additional aesthetics captured separately (see risks 178, 179, and 180)	Threat				1.0	2.0	4.0	25%	Katy Belokonny	Mitigate	1) Engage with partners and the community to clearly define the prioritization of aesthetics vs. traffic (or vice-versa). This is especially important once traffic modeling is further refined. 2) Define the range of possibilities to partner agencies and mediate requests from partner agencies	Q1 2023: Review risk Q1 2024 after release of DSEIS, aligns with Urban Design timeline.
90	PSP 30.2	Interagency Coord.	Local Parking	An analysis will be conducted during design to see how many City of Vancouver parking spaces are being replaced within the impacted corridors due to park and rides shared use opportunities.	Number of park and ride spaces in shared use facilities dependent on site selection and sizing of park and rides, to be determined by ROD. One site (existing garage near Evergreen) would impact existing spaces.	Threat	$5 M	$10 M	$20 M				25%	Jeb Doran	Mitigate	1) Engage interested parties early to validate affected parking spaces/locations and quantify required actions. 2) Engage City of Vancouver in early scoping of Evergreen station area to maintain potential for park and ride spaces identified in SEIS.	Q4 2023: Assigned likelihood and cost impact ratings; added additional notes and action to be taken. Park and ride sites to be narrowed for consideration in the Final SEIS.
91	PSP 40.3	Interagency Coord.	Loss of Alignment with Partner Agencies	There is the potential loss of partner support if there is an unraveling of previously agreed upon partner conditions.	Specific issues that are yet to be resolved are addressed through other risks (e.g., PSP 30.1, DES 10.6, etc.)	Threat								Katy Belokonny	Mitigate	1) Engage interested parties early to agree on a plan of action in case of Loss of Alignment with Partner Agencies and quantify required efforts.	Q4 2023: Continuing to work through the process. No new items have been identified. Continue to track and monitor.
92	PSP 30.3	Interagency Coord.	Betterments	Betterments that extend past the current project area limits are introduced into the project scope through discussion with partner agencies. Could result in need for supplemental NEPA analysis.	e.g., Tomahawk Island	Threat								Katy Belokonny	Mitigate	1) Engage interested parties early to validate betterments scope and area limits and quantify required actions.	Q4 2023: Potential impact depends on timing of decisions. October 2023: Reviewed by design team - no update.
93	PSP 40.4	Interagency Coord.	Partner Requests - Data/Modeling	Partner requests for additional data or modeling result in schedule delays.	Schedule impact would occur during planning. Post ROD traffic analysis captured separately (see risk 186). Concerns are around the Aux lane and NEPA EIS. This risk is linked to NEPA and will be an active risk through FEIS.	Threat				1.0	1.5	2.0	20%	Katy Belokonny	Mitigate	1) Engage interested parties early to validate partner requests and quantify required actions.	Q4 2023: Split this risk into 2 separate risks to create one specific to design/construction means and methods (risk 269). Currently in the process of negotiating and by the time of the next CEVP, this may be included in the base estimate. Q3 2023: This risk is approaching partner agreement deadlines so this risk was removed from the watchlist and added as an active risk. Partners have to deliver signatures by January 9th, 2024, making this a key risk to monitor over the next few months.
94	CTR	Interagency Coord.	Title VI Compliance	Need to ensure compliance with ODOT, WSDOT, TriMet, C-Tran Title VI Plans. There is a risk of disparity in benefits when comparing IBR LPA's.	Part of base, evaluate through Program	Threat									Mitigate	1) Conduct Title VI Compliance evaluation as early as possible to quantify the required action plan. 2) Early engagement with partner agencies.	November 2023: This risk has been mitigated by developing a Joint Agency Title VI Plan with ODOT, WSDOT, TriMet, and C-Tran. Federal partners will be reviewing and providing concurrence. October 2023: Need Equity team to advise.

Risk Identification							Quantitative Analysis (Post-Managed State)							Risk-Response Strategies			
							Direct Cost Impact ($M)			Schedule Impact (months)							
ID #	RBS Code	Discipline Category	Risk Event Title	Risk Description	Additional Notes	Threat or Opportunity	Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely3	High (90% CI)	Likelihood of Impact Occurring	Risk Owner	Strategy	Actions to be Taken	Management Status
99	TRN 30.3	Interagency Coord.	Expo Center Impacts	Construction at Expo Center, if required, could trigger additional cost and/or schedule impacts associated with impacts to Expo Center operations, coordination with Metro redevelopment plans, ROW acquisition, construction staging, code compliance for existing buildings, etc.	Keep as watch list item. Risk associated with Expo overnight facility captured in risk 192; Risk associated with 3rd party agreements and ROW acquisition captured in risk 136; Risk associated with staging needs/schedule captured in risk 21.	Threat											Q4 2023: Updated Additional Notes column. Keep as Watchlist item to track and monitor. Confirm other risk items and capture total $/time for this item.
101	CNS 10.4	Maint. Of Traffic	Maintenance of Traffic (MOT) Mitigation	Maintaining traffic on I-5 (mainline and ramps) during construction is more complex than anticipated and requires additional mitigation measures and/or stages of construction, increasing project costs and/or duration.	Includes challenges e.g., related to lowering of I-5 in Vancouver.	Threat									Mitigate	1) Develop preliminary construction staging and phasing concepts to evaluate schedule and potential MOT costs.	
102	CNS 80.1	Maint. Of Traffic	Conflicts Among IBR Contracts (other)	Lack of coordination between contracts for MOT could result in conflicts, leading to reduced productivities and delays. Conflicts and interfaces (which have not been defined) between contractors could lead to delays and contractor claims.	Coordination between contracts for MOT overlaps. Includes roadway-transit interfaces (e.g., WA and OR). In particular, Vancouver LRT construction will be in very close proximity to I-5 improvements in downtown Vancouver. Coordination between Oregon roadway and river bridge contracts associated with NPH bridges is captured in CNS 10.2.	Threat				0.0	1.0	3.0	15%	Steve Katko	Mitigate	1) Ensure early coordination of MOT contract discussions to mitigate potential execution conflicts. 2) Develop robust work zone transportation plans including interfaces between contracts. 3) Track overlapping contracts throughout construction.	Q4 2023: Coordinate with Steve Katko. Q3 2023: Still do not have enough information to properly assess. Revisit in Q4 2023 when the Delivery Plan is complete.
103	CNS 80.2	Maint. Of Traffic	Conflicts With Other Construction Projects	Conflicts and interfaces with other major construction projects in close proximity could lead to delays and contractor claims (e.g. related to MOT, unregulated utility/street work).	Potential impacts could be driven by items such as road closures. Includes I-5 Rose Quarter, local agency projects, etc.	Threat				0.0	1.0	3.0	15%	Steve Katko	Mitigate	1) Engage other agencies to coordinate a workable MOT construction schedule and quantify any mitigation actions required. 2) Develop robust work zone transportation plans including interfaces between contracts.	Q4 2023: Coordinate with Steve Katko. Q3 2023: Still do not have enough information to properly assess. Revisit in Q4 2023 when the Delivery Plan is complete.
104	CTR 900.1	Market Conditions	Uncertainty in Construction Cost Inflation Rate	Construction inflation and/or escalation rates (including material, labor, and equipment) are higher or lower than assumed due to uncertainty in future economic conditions.	Refer to baseline data from Finance team by FY: Base and (10th/90th percentile values). Assume high correlation among years (i.e., low/high values represent alternative "pathways" rather than uncertainty ranges within a given year). FY2022: Base: 11% FY2023: 5% (4% to 8%) FY2024+: 3.25% (2.2% to 4.4%)	**Uncertainty**										1) Continue to engage in proactive risk management to minimize delays and reduce potential construction escalation impacts.	Q4 2023: Currently developing construction inflation index. A decision will be made in December/January whether this index, or WSDOT's index, will be applied to the estimate. Revisit this risk in Q1 2024 following the decision.
105	CTR 40.1.1	Market Conditions	Uncertain Market Conditions: Number of Bidders and Pricing (River Bridge Contract)	Market conditions as related to the number of bidders, competition, and contractor pricing may differ from base assumptions. There is the risk that there are a limited number of interested bidders for the construction contracts, resulting in higher than anticipated costs. An opportunity for bid discount related to very strong competition, contractors needing work, etc. may also exist.	Note that the river crossing could be ~$1.5B (and DB delivery), which is the largest package. Will attract national attention; however, contractors are very busy regionally and nationally. Likely JV. Mutually-exclusive scenarios: A: market conditions at bid time are better than planned B: market conditions at bid time as as-planned (base) C: market conditions at bid time are worse than planned Inflation uncertainty captured in risk 104. Schedule delay risk addressed in risk 26.	Uncertainty	-$15 M	$150 M	$300 M				100%	Casey Liles	Mitigate	1) Engage in early outreach and coordination with construction contracting market. 2) Consider structuring contracts to reduce complexity and encourage bidders.	Q4 2023: Currently developing construction inflation index. A decision will be made in December/January whether this index, or WSDOT's index, will be applied to the estimate. Revisit this risk in Q1 2024 following the decision.

Risk Identification							Quantitative Analysis (Post-Managed State)							Risk-Response Strategies			
							Direct Cost Impact ($M)			Schedule Impact (months)							
ID #	RBS Code	Discipline Category	Risk Event Title	Risk Description	Additional Notes	Threat or Opportunity	Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely3	High (90% CI)	Likelihood of Impact Occurring	Risk Owner	Strategy	Actions to be Taken	Management Status
106	CTR 40.1.2	Market Conditions	Uncertain Market Conditions: Number of Bidders and Pricing (Other Contracts)	Market conditions as related to the number of bidders, competition, and contractor pricing may differ from base assumptions. There is the risk that there are a limited number of interested bidders for the construction contracts, resulting in higher than anticipated costs. An opportunity for bid discount related to very strong competition, contractors needing work, etc. may also exist.	Other contracts expected to be in the $500M range. Multiple projects in Oregon and Washington will be bid at similar times. Mutually-exclusive scenarios: A: market conditions at bid time are better than planned B: market conditions at bid time as as-planned (base) C: market conditions at bid time are worse than planned Inflation uncertainty captured in risk 104. Schedule delay risk addressed in risk 26.	Uncertainty	-$5 M	$50 M	$100 M				100%	Casey Liles	Mitigate	1) Engage in early outreach and coordination with construction contracting market. 2) Consider structuring contracts to reduce complexity and encourage bidders.	
107	CTR 70.2	Market Conditions	Skilled Labor Availability	There is a lack of skilled labor for specific construction trades, resulting in increased costs beyond expectations.	Contractors are reporting a need to import labor from different regions of the states (and outside of WA/OR) in order to perform construction projects and it is incurring construction bid premiums. Most likely to manifest as a cost increase (covered under inflation uncertainty, rather than schedule delay).	**Threat**									Transfer	1) Consider early coordination with interested parties to address skilled labor availability, and create any countermeasures as necessary.	Q4 2023: Currently developing construction inflation index. A decision will be made in December/January whether this index, or WSDOT's index, will be applied to the estimate. Revisit this risk in Q1 2024 following the decision.
108	CTR 20.1	Market Conditions	DBE Requirements	There is a risk that DBE requirements may result in construction bids greater than anticipated as a result of *limited numbers of qualified subcontractors and available resources.*	Federal funding requirements will apply. Assume 20% premium x DBE percentage (likely 6% to 20%) x labor percentage (assume 40%) based on prior experience. Time risk captured under bid protest (risk 28).	**Threat**	$50 M	$80 M	$160 M				75%	Aiden Gronauer	Mitigate	1) Perform outreach to prime and DBE contractor communities to better understand market conditions. 2) Review DBE percentages prior to RFP issuance and carefully consider goals. (Clarify requirements vs. aspirational goals) 3) Consider structuring contracts to reduce complexity and encourage bidders.	Q4 2023: Revisit this risk following the updated cost estimate (Q1 2024). Q3 2023: No change yet. Have begun conversations with equity team. Q2 2023: This will continue to be a risk. Continue to monitor; expected to have more information when the project is closer to AE. Q1 2023: Revisit risk in June 2023.
110	CTR 900.3	Program Management	Uncertainty in PE (Professional Services) Cost Inflation Rate	PE/Professional services inflation rates may be higher or lower than assumed due to uncertainty in future market conditions.	Refer to baseline data from Finance team by FY: Base and (10th/90th percentile values). Assume high correlation among years (i.e., low/high values represent alternative "pathways" rather than uncertainty ranges within a given year). FY2022: Base: 5.5% FY2023: 4.5% (3.5% to 5%) FY2024+: 3% (2% to 4%)	**Uncertainty**											
111	MGT 40.1	Program Management	Uncertainty with Legal Authority	There is uncertainty in what legal authority (OR/WA) will be administering the contract(s) that cross state lines and could result in delays to the program. The major program elements that require assignment to a legal contracting entity are the Interstate Bridge and transit. IBR (or WSDOT or ODOT, if contracting agency) may not have sufficient legal authority to enter into agreements with utilities, railroads and other 3rd parties and/or procure the bridge contractor and manage the contract.	50/50 split between OR and WA is in place for design, but not yet for construction. One consideration is self-performance percentage for prime contractor if bid GCCM. Ensure that there is not ambiguity in legal authority - depending on contracting agency Legislative authority / IGA ties to NEPA and preliminary design. Address through language in legislation if possible. By early spring 2023 - delivery methods workshop scheduled to make decisions on delivery method.	**Threat**				1.0	2.0	4.0	10%	Jim Ruddell / Chris Dunster	Mitigate	1) Immediately establish whether actions to date (i.e., via relevant legislation and agreements) have established the necessary authority. If not, immediately take the measures necessary to establish this authority. This authority must be established before the agency publicly presents itself as having the authority. ~~2) Conduct project contract packaging workshop to identify needs.~~ Completed 3) Engage in early communication OR DOJ. 4) Seek agreement that WSDOT and ODOT will hold and administer contracts that are within their respective jurisdictions. 5) Pursue a solution that would assign contracting authority to an existing legal entity through bi-state agreement.	Q3 2023: Management is currently engaging in packaging discussions. Hoping to have a plan to share early next year. Discuss with Third Party Agreements team. July 2023: Action #2 is complete. Q2 2023: Revisit risk in Q3 2023. Looking to conduct a Delivery Method decision-making exercise in Q2/Q3 2023. The Delivery Plan is due at the end of 2023. Q1 2023: Reduced schedule impact, able to manage authority between OR/WA.

Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN

Risk Identification

Quantitative Analysis

Post-Managed State

Risk-Response Strategies

ID #	RBS Code	Discipline Category	Risk Event Title	Risk Description	Additional Notes	Threat or Opportunity	Direct Cost Impact ($M) Low (10% CI)	Direct Cost Impact ($M) Most Likely	Direct Cost Impact ($M) High (90% CI)	Schedule Impact (months) Low (10% CI)	Schedule Impact (months) Most Likely3	Schedule Impact (months) High (90% CI)	Likelihood of Impact Occurring	Risk Owner	Strategy	Actions to be Taken	Management Status
112	CTR 20.5	Program Management	OCIP Opportunity	The IBR program may elect to implement an Owner Controlled Insurance Program (OCIP) to control costs and provide additional access for MBE/DBE firms, which may result in a net cost savings to the program.		Opportunity							30%	Chris Dunster / Michael Oborn	Exploit	1) Engage interested parties early to agree on the Owner Controlled Insurance Program (OCIP) action plan.	Q4 2023: No update so far. Assigned risk owner.
113	MGT 30.5	Program Management	Conditions Tied to Funding	There is a risk that legislators could tie certain conditions to the funding, thereby altering the scope of the project and triggering additional costs and/or delays.		Threat								Jim Ruddell / Kristen Leonard / Katy Belekonny	Mitigate	1) Consider early coordination with interested parties to garner agreement for funding constraints.	Q4 2023: OR funding not tied to project specifics. Need to confirm where specifically this is tied to. Risk was moved to the Watchlist to be re-introduced when specifics have been identified.
114	MGT 60.1	Program Management	Cash Flow/Program Administration Constraints	Changes to project delivery schedule due to cash flow constraints and/or capacity to administer several concurrent large contracts.		Threat								Jim Ruddell / David Smelser	Mitigate	1) Consider early coordination with interested parties to garner agreement for adverse cash flow/program administration constraints mitigation.	Q4 2023: Coordinate with Finance team.
115	MGT 20.1	Program Management	Late Decisions on Program Elements (other)	Late decisions on program design elements requiring a reevaluation could lead to new supplemental environmental analysis to address significant adverse impacts. Major changes between DEIS and FEIS that would require an additional DSEIS (in addition to redesign). "Late" decisions will be driven by the input received during the Public Comment Period (estimated for early 2024) and the influence that comments have on elected officials and agency leaders.	Coordination delay issues not specifically covered elsewhere: - embedded track - does not necessarily impact NEPA, but impacts FTA funding - other (internal program decisions) Decision making / partner alignment schedule risks addressed elsewhere include: Hayden Island interchange (risk 165), Aesthetics (risk 89), Roadway O&M / continuous control agreements (risk 88), Transit O&M agreement (risk 215); bridge configuration (risk 177; excluded)	Threat				1.0	4.0	12.0	5%	Jim Ruddell	Mitigate	~~1) Identify elements of work that may be introduced that would trigger an DSEIS (e.g., two aux lanes, hard running shoulder, movable bridge).~~ Done 2) Determine/set key decision milestones to reduce potential schedule impacts if major changes are required. 3) Establish PMO / org chart and systematic decision making model, by Q1 2023, recognizing that the potential design changes listed in 1) above will not be made at the project level. 4) Confer with Program Administrator and Government Relations staff to identify decision makers among the elected officials and agency leaders.	Q3 2023: No change for this quarter. Revisit in Q4. July 2023: Action #1 is complete. Q2 2023: Revisit this risk in Q4 2023. This risk is actively being managed; continue to track and monitor. April 2023: Two aux lanes and movable bridge options added. Continuing to pilot decision model. Q1 2023: Have already realized delays, due to Aux lanes, to the start of the public comment period. This is still a risk. Movable bridge option schedule impacts are under review for potential mitigation. Review includes schedule compression between FEIS and ROD.
117	CTR 60.1	Program Management	Contract Administration Issues	IBR must put in place the organization and processes to manage the construction program and other aspects of project implementation well in advance of award of the first contract, and in advance of preparation of the relevant procurement documents. High degree of complexity of this program presents incremental risk compared to other, more typical projects.	For example, from issues with joint Oregon/Washington AG review of the procurements; inadequate staffing causes delays such as in issuing RFP, approving Alternative Technical Concepts, or contractor design or submittals; or other delays from HQ. avoidable changes / mitigatable change orders (primarily time related), third party impacts, etc. Design reviews captured separately (risks 86 and 87).	Threat				1.0	2.0	3.0	15%	Jim Ruddell	Mitigate	~~1) Conduct project contract packaging workshop to identify needs.~~ Done 2) Develop programmatic guidance documents, establish program specifications and guidance for contract administration and procedures. 3) Identify contracting agency to manage the contractor and enforce 3rd party agreements immediately. Note that this specifically pertains to transit and associated systems. 3B) If it is the member agency that will do this, make sure, again immediately, that it has proper authority on both sides of the river and in all necessary jurisdictions to deliver its part of the IBR program, and ensure that other IBR implementing agencies have necessary (and reciprocal) authority to coordinate and deliver in their own right. 4) Once this authority is identified, prepare organizational guidance so that assigned staff and decision-makers can implement this authority. 5) Then the responsible parties must put in place the organizational structures and processes necessary to avoid and/or mitigate the impacts described. ~~6) Bring on a Deputy Project Manager for program delivery.~~ Done 7) Identify the organizational structure for construction contract administration, inspection, and program controls.	Q3 2023: Action #2 has been progressing - starting to outline scope of services for pre-procurement activities. Added Action #7. Need client feedback on provided options. More information will be available following the Delivery Method report and Third Party Agreements July 2023: Action #1 and #6 are complete.

Risk Identification							Quantitative Analysis (Post-Managed State)							Risk-Response Strategies			
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118	MGT 10.1	Program Management	Program Coordination Issues	Challenges in interdisciplinary communication across the program may result in delays and/or design omissions.	Technical tasks require interdisciplinary coordination and sequencing to support major deliverables; good communication and alignment across the program is essential to make schedule.	Threat								Jim Ruddell / Daryl Wendle / David Smelser	Mitigate	1) Conduct regular and frequent cross-departmental meetings for project status updates.	
119	MGT 10.2	Program Management	Succession Planning	There could be disruption in terms of leadership changes (GEC, ODOT, WSDOT, and partners) that results in delays and/or reopening of prior made decisions.	Turnover will occur during the project life. Program will plan for this to maintain ability to move the program forward. Make sure we have the right people in the right roles at the proper stage of the project. Develop the next generation of leadership at all levels, including disciplines.	Threat								David Smelser / Jim Ruddell / Daryl Wendle / Chris Dunster	Mitigate	1) Engage in frequent coordination with partnering agencies to solicit updates on agency leadership and expected changes.	
121	PSP 40.5	Public Affairs	Turnover of Current Elected	There is a risk that turnover of elected officials could impact the project in terms of endorsement, support, and/or addition of new conditions. The specific risk is delays due to lack of support from partner agency boards/councils.	This risk is correlated/tied to the Finance risks pertaining to obtaining of funding.	Threat				1.0	3.0	6.0	20%	Katy Belokonny	Mitigate	1) Engage in early and frequent communication with agencies, interested parties, and elected officials. 2) Seek to secure funding commitments and budget recommendations before the end of the current Presidential term.	Q4 2023: The next time period that will affect this risk will be the primary election season. Q3 2023: Continue to review risk every quarter and 6 month look ahead. Q2 2023: This risk is a higher priority during election seasons. Continue to track and monitor. Q1 2023 update: Following 2022 election, program team assumes improvement of political situation, reduced probability of delays. Current concerns are Congressional race in
122	CTR 20.2	Other	Community Workforce Agreement (CWA) / PLA	There is a need to ensure CWA/PLA does not exclude DBEs and non-union diverse workforce entities, or there may be limited available to meet the goals of the project. Also, include TERO and safe/welcoming worksites. Note that this requires time to secure the various agreements.	Potential for additional training, outreach. Done pre-procurement. Additional program investment to cultivate workforce.	Threat	$3 M	$5 M	$10 M				75%	Johnell Bell / Aidan Gronauer	Mitigate	1) Review CWA/PLA language to maximize participation.	Q4 2023: Revisit quarterly. Q2 2023: This risk was recategorized to "Other", updated from Public Affairs. Continue to discuss with the PA team.
123	CTR 20.3	Other	Community Benefits and Associated Agreement	The program has mentioned several times publicly that community benefits and the associated agreements will be developed during NEPA. Allowances for these agreements will be included in the base estimate; however, additional costs may result from demand/expectation from community.	Partner support may erode if not achieving consensus from community on what is included. Assume 1%-3% of labor (labor being ~40% of contract value) as potential cost premium. Schedule risk captured in agreements risks e.g., risk 88.	Threat	$40 M	$80 M	$120 M				50%	Johnell Bell / Aidan Gronauer	Mitigate	1) Coordinate and conduct ongoing public outreach. 2) Program is planning to create Community Benefits Advisory Group in 2023. 3) Create agreements sideboard for the Community Benefits Advisory Group to ensure appropriate and clear scope is included in the agreements.	Q4 2023: Continue to monitor while the Advisory Group is meeting over the next year. Q2 2023: This risk was recategorized to "Other", updated from Public Affairs. Continue to discuss with the PA team.
124	MGT 30.4	Public Affairs	Tolling Policies	Tolling policies are not supported and result in program delays and increased costs.	Considerations are low income discount programs, congestion management rates, etc. Includes potential non-alignment of public sentiment with program plans.	Threat				1.0	3.0	6.0	10%		Mitigate	1) Engage interested parties/partner agencies early to garner a Tolling policy agreement.	Q4 2023: The likelihood of this risk was lowered from 50% to 10% by the PA team and cost impact removed; it is not as likely to occur as previously thought, and will likely result in delay from finding a new funding source. Finance team advised on the impact and added schedule impact of 1-3-6 months.
127	PSP 20.1	Public Involvement	Additional Community Engagement	Program design or partner conversations get ahead of the community conversation, and due to timing or other constraints, it takes more time and/or cost to engage with the community beyond what was originally planned.		Threat				1.0	1.0	3.0	20%	Katy Belokonny	Mitigate	1) Coordinate and conduct ongoing public outreach. 2) Engage in frequent communication with technical/design leads. 3) Consider developing a workplan with technical and design milestones that informs a Community Engagement Plan.	Q3 2023: Continue to revisit risk on a quarterly basis. Q1 2023: Actively developing/refining Community Engagement Plan.

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129	RR 10.1	Railroad	BNSF Agreement Delays	Completion of BNSF Construction and Maintenance (C&M) agreement may require additional time relative to the current base schedule.	Will need C&M agreement to construct over BNSF ROW (to include specifications for flagging, how/when access for construction, fourth quarter construction moratorium, etc.) BNSF usually requires 100% plan approval prior to executing this agreement. Base schedule accounts for 12-24 month period typically required to complete C&M agreement (assuming negotiations begin soon), but delays to this timeline are possible due to resource limitations, technical issues, etc. BNSF ROW issue is independent and captured separately in ROW 10.3.	Threat				1.0	3.0	6.0	15%	Steve Katko	Mitigate	1) Engage in early and frequent coordination and communication with BNSF. 2) Coordinate with BNSF to execute IGA (required to start coordination). 3) Start coordination with BNSF during conceptual design (now). 4) Engage Jones Lang Lasalle for ROW coordination. 5) Request BNSF initial draft overpass agreement. 6) Review design guidelines early.	Q4 2023: No update this quarter. Agreement still in process, but still in Legal. Agreement is mostly "boiler-plat" but need to include language for bi-state agreement. Revisit in Q1 2024 and resolve whether or not a new risk for expenditure eligibility under FTA (engineering agreement) is needed. October 2023: The BNSF Preliminary Engineering Agreement is currently with BNSF legal after IBR legal made many recent changes that are unlikely to get accepted. Expect to be executed early 2024. Coordination with BNSF staff has already begun but there have been no plan reviews of site visits yet. Jones Lange Lasalle, BNSF's real estate
130	RR 10.2	Railroad	Railroad Agreement Term Sheets Delays	Delays in obtaining railroad term sheets (which are obtained prior to finalization of C&M agreement) could impact FTA approval for entry into engineering.	Identify/confirm what is needed with the Transit team. Tied to interagency agreements, BNSF agreement risks (see RR 10.1) Aerial easements included in term sheets.	Threat				1.0	3.0	6.0	25%	Steve Katko	Mitigate	1) Work closely with railroad partners to track status updates on railroad term sheets. 2) Ongoing coordination for status with FTA. 3) Develop clear and collaborative schedule for tracking term sheet targets and develop work plan (Megan McIntyre).	Q4 2023: Assigned likelihood and schedule impact. October 2023: Standard term sheets are on the BNSF website at BNSF's Public Projects team under Appendix A and B
131	RR 20.1	Railroad	BNSF Coordination Issues	BNSF will want to conduct plan reviews at 30%, 60%, 90%, and 100% design completion, and may cause delay to the DB and/or impose additional restrictions not covered in the grade separation agreement e.g., related to Q4 moratorium, access/flagging, etc.	This risk also includes coordination with BNSF for alignments over the tracks. BNSF has specific requirements for rail protection for infrastructure going over tracks. Requirements for flagging, access, Q4 moratorium will likely not change due to design	Threat								Steve Katko	Mitigate	1) Engage in early and frequent coordination and communication with BNSF. 2) Define an envelope at the 30% design. 3) Request to clearly define what is restricted prior to signing contract.	
132	RR 20.2	Railroad	BNSF Crew Change/Maintenance Access	There is a risk that the BNSF crew change access/maintenance access and modifications are not acceptable, resulting in needing to identify new access.	Improvements impact current crew change area access/maintenance access. Base assumption, will be negotiated into the BNSF agreement. Access road may need to be realigned.	Threat							10%	Steve Katko	Mitigate	1) Engage in early and frequent coordination and communication with BNSF. 2) Define design criteria/restrictions for crew change access. 3) Define requirements for temporary utilization impacts. 4) Obtain BNSF's needs/uses for this area after the PE agreement is executed so that we can get some guidance to DB contractor. If this access is effected during construction, some form of alternate access may be needed to built either temporarily or permanently.	Q4 2023: This is still an active risk. Likely will go into term sheet as well as base cost of program. Updated risk description and added likelihood rating. Follow up in Q1 2024, and ask Megan McIntyre (cc Kat Halpenny) to weigh in on impact ratings.
133	RR 10.3	Railroad	Union Pacific Property Coordination	Coordination and resolution with UPRR for property use may take longer than anticipated.	CEVP 2024 will assume that steel bridge is not part of the base. The risk will become active if the steel bridge is included in the base. Potential delay to start of work on steel bridge (if included).	Threat								Steve Katko	Mitigate	1) Establish property use needs early and communicate to UPRR. 2) Engage in early and frequent coordination with UPRR.	Q4 2023: Steel bridge will likely not be included in the base estimate and is not currently included.
135	ROW 20.1	Right-of-Way	Private Development	Unanticipated private development on required ROW prior to acquisition, or inability to acquire prior to private development may impact the program cost due to higher property/relocation costs. Pertains to design and ROW as well as partner comp plans.	Potential for significant cost impact due to ongoing waterfront development in Vancouver and Hayden Island. Risk is focused primarily on currently undeveloped properties.	Threat	$10 M	$20 M	$30 M				25%	Sharon Matlock	Mitigate	1) Track development plans around the project area, establish a cadence of regular check-ins with ROW (i.e., quarterly). 2) Develop an early acquisition approach for acquiring parcels and plan for costly acquisitions if necessary.	Q4 2023: Continue to track and monitor through ROW acquisition. Q2 2023: Coordinated with POV last week. Continue bi-monthly meeting with Academy. Anticipate potential change to impact ratings when more information is available in November (Q4) 2023. Q1 2023: Tracking development on the Academy site.
136	ROW 10.1	Right-of-Way	Need for Additional ROW Acquisition Identified (Other)	Additional property acquisition and/or easement needs may be identified e.g., due to ground improvements, tiebacks, drainage, business access impacts, construction access/staging needs, etc. Includes potential for full vs. partial acquisition, relocations, etc.	ROW impacts to cinemas, apartments due to potential shift of I-5 alignment in Vancouver is captured separately (see risk 153). Delays due to late changes captured separately (see risks 144 and 145).	Threat	$10 M	$30 M	$50 M				25%	Sharon Matlock	Mitigate	1) Identify potentially impacted properties as early as possible. 2) Develop an early acquisition approach for acquiring parcels. 3) Update ROW Acquisition costs in 2023.	Q4 2023: Continue to track and monitor through development of 30% plans. Revisit following the delivery plan. Q3 2023: Team is currently confirming parcels within the NEPA footprint. Continue to monitor on a quarterly basis.

Risk Identification							Quantitative Analysis (Post-Managed State)							Risk-Response Strategies			
							Direct Cost Impact ($M)			Schedule Impact (months)							
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137	ROW 50.1.1	Right-of-Way	Additional Condemnation - Oregon	There may be more condemnations than anticipated and results in additional ROW costs.	Primarily a schedule risk; cost premium for condemnations assumed to be captured in the base estimate.	Threat				3.0	4.5	6.0	5%	Sharon Matlock	Mitigate	1) Identify potentially impacted properties as early as possible. 2) Prioritize ROW acquisitions by evaluating the potential cost and schedule impact. 3) Ensure there is a schedule activity to account for the condemnation process. 4) Early engagement with property owners.	Q3 2023: IBR ROW manager starts 10/1/23. Q2 2023: Expected to be increasing dedicated staff in Q3 2023 (Agency)
138	ROW 50.1.2	Right-of-Way	Additional Condemnation - Washington	There may be more condemnations than anticipated and results in additional ROW costs.	Potential delays are greater in WA vs. OR due to changes in law regarding possession and backlog in WA AG's office. Cost premium for condemnation assumed to be captured in the base estimate.	Threat				6.0	12.0	18.0	5%	Sharon Matlock	Mitigate	1) Identify potentially impacted properties as early as possible. 2) Prioritize ROW acquisitions by evaluating the potential cost and schedule impact. 3) Ensure there is a schedule activity to account for the condemnation process. 4) Early engagement with property owners.	Q4 2023: Revisit in Q1 2024. Q3 2023: IBR ROW manager starts 10/1/23. Q2 2023: Expected to be increasing dedicated staff in Q3 2023 (Agency)
139	ROW 50.2	Right-of-Way	Lack of Appraisers	There is a short timeline on the project for acquisition. There is a limited pool of appraisers which may result in delays to the program. Other projects will compete for appraisers.		Threat				1.0	1.5	2.0	25%	Sharon Matlock	Mitigate	1) Prioritize appraisals based on acquisition approach to coincide with the Delivery Plan in Q1 2024. 2) Contract with appraisers early. 3) Prioritize full acquisitions and potential relocations.	Q4 2023: Added additional action to be taken. Q3 2023: Revisit quarterly. IBR ROW manager starts 10/1/23. Q2 2023: Expected to be increasing dedicated staff in Q3 2023 (Agency)
140	ROW 50.3	Right-of-Way	Relocation delays - Oregon	If property owners delay acquisition through legal channels then this could result in additional costs and delays. This may be driven by design changes; likelihood of significant design changes is low.	This is a risk because project is currently not yet into the acquisition process; haven't talked to property owners. Includes complex multi-family and business relocations.	Threat				1.0	2.0	3.0	10%	Sharon Matlock	Mitigate	1) Identify potentially impacted properties as early as possible. 2) Early engagement with property owners.	Q3 2023: IBR ROW manager starts 10/1/23. Q2 2023: Expected to be increasing dedicated staff in Q3 2023 (Agency)
141	ROW	Right-of-Way	Relocation delays - Washington	If property owners delay acquisition through legal channels then this could result in additional costs and delays. This may be driven by design changes; likelihood of significant design changes is low.	This is a risk because project is currently not yet into the acquisition process; haven't talked to property owners. Includes complex multi-family and business relocations.	Threat				1.0	2.0	3.0	10%	Sharon Matlock	Mitigate	1) Consider providing protective rent payments to property owners. 2) Identify potentially impacted properties as early as possible. 3) Early engagement with property owners.	Q3 2023: IBR ROW manager starts 10/1/23. Q2 2023: Expected to be increasing dedicated staff in Q3 2023 (Agency)
144	ROW 10.2.1	Right-of-Way	Late Changes in Design - ROW Schedule (Columbia River Bridge)	If there are late changes in design required, easements or new property for relocation may be required (i.e., for utility relocation), then this could impact ROW requirements prior to design-build.	Biggest risk to ROW is design changes. Design changes will re-trigger ROW acquisition process. Probability of delay assessed to be lower on IBR package relative to other locations.	Threat				1.0	2.0	3.0	20%	Sharon Matlock	Mitigate	1) Conduct utility surveys as early as possible as major design changes are realized. 2) Coordinate with contractor mitigate schedule risk.	Q4 2023: Revisit following the delivery plan. Q3 2023: IBR ROW manager starts 10/1/23. Revisit risk in Q3 2023.
145	ROW 10.2.2	Right-of-Way	Late Changes in Design - ROW Schedule (Other)	If there are late changes in design required, easements or new property for relocation may be required (i.e., for utility relocation), then this could impact ROW requirements prior to construction award.	The risk is likely higher on Hayden Island (and elsewhere). Could happen before or during D/B. Changes may be triggered by input from partner agencies. Biggest risk to ROW is design changes. Design changes will re-trigger ROW acquisition process.	Threat				1.0	2.0	3.0	20%	Sharon Matlock	Mitigate	1) Conduct utility surveys as early as possible as major design changes are realized. 2) Coordinate with contractor mitigate schedule risk.	Q4 2023: Revisit Q1 2024. Q3 2023: IBR ROW manager starts 10/1/23. Need more information from Utility Updates. Revisit risk in Q3 2023.

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146	ROW 10.3	Right-of-Way	BNSF Property Rights Resolution	IBR program needs to coordinate with BNSF, NPS, War Department (DOD), and WSDOT to correctly record ROW ownership in the SR-14 vicinity. Coordination and resolution may take longer than anticipated.	BNSF would not want any construction activities near tracks or on properties owned or perceived to be owned. Property needed for River Bridge approach work. Clarification of boundaries in legal documents; potential for property swap. Survey work has been done by WSDOT to delineate property lines. BNSF grade separation agreement delay is independent and addressed separately in risk 129.	Threat				0.0	6.0	12.0	10%	Casey Liles Steve Katko	Mitigate	1) Plan early discussions and establish regular check-in meetings with ROW and vested parties (BNSF,NPS, DOD & WSDOT).	August 2023: Two coordination meetings have been held with BNSF ROW staff. Our survey team is in the process of developing an updated topographic map of the parcels in question. Q2 2023: Ask Meghan McIntyre to coordinate a date for the next collaborative discussion for current property rights and actions to be taken and responsible parties. Q1 2023: Follow-up BNSF meeting held 2/1, group and responsibilities were determined and information is being shared between parties. Tentatively planning a follow-up meeting for April 2023.
151	CTR 900.2	Right-of-Way	Uncertainty in ROW Cost Inflation Rate	ROW inflation and/or escalation rates may be higher or lower than assumed due to uncertainty in future real estate market conditions.	Refer to baseline data from Finance team by FY: Base and (10th/90th percentile values). Assume high correlation among years (i.e., low/high values represent alternative "pathways" rather than uncertainty ranges within a given year). FY2022: Base: 10% FY2023: 8% (6.5% to 9%) FY2024: 5% (4.5% to 6%) FY2025+: 4% (3.2% to 5%)	**Uncertainty**									Mitigate	1) Consider early acquisition of ROW.	
153	DES 10.1	Roadway Design	Shift Alignment of I-5 in Vancouver	The alignment of I-5 may be shifted to the west (Design Option 2). The current alignment of I-5 encroaches on Fort Vancouver Historical Park and a shift will require additional ROW acquisition and other coordination issues.	Cost impact of a shifted alignment would be primarily related to ROW (estimated at $23M+/-). Potential schedule impact captured separately in ROW risks ROW 10.2, ROW 50.1, ROW 50.2, etc.	Threat	$15 M	$17 M	$30 M				40%	Steve Katko	Mitigate	1) Conduct design impact investigation as early as possible as major design changes are realized to quantify required ROW action plan. 2) Engage in early communication and coordination with NPS.	Q4 2023: Follow-up with Environmental team (Hayli, Kassie, Bill, Chris) and ask if the likelihood has changed in Q1 2024. October 2023: NPS is now engaged via the OWJ meeting on 10/17 led by the NEPA 4(f) team to discuss potential impacts to National Parks properties. Q3 2023: Team is currently confirming the work plan. More information will be available in Q4 2023.
156	PSP 30.1	Roadway Design	Community Connector Size Reduction	Potential opportunity to reduce the size of the Evergreen Community Connector through discussion with interested parties.	Base Estimate: ~$61M	**Opportunity**								Steve Katko	Exploit	1) Engage interested parties early to garner design change agreements that will include reduced community connector size.	Q4 2023: Risk moved to Watchlist 12/13/23. Continue to manage and hold discussions. Removed impact ratings.
157	DES 10.4	Roadway Design	Removal of C Street Ramps	The base estimate assumes inclusion of the C Street Ramps, but there may be an opportunity to remove them from the project scope.	Cost reduction reflects anticipated net construction cost savings, considering compensating measures elsewhere (assume net savings of 80% to 90% of ramp cost).	**Opportunity**	$12 M	$20 M	$24 M				25%	Steve Katko	Enhance	1) Evaluate design with removal of C Street ramps. 2) Manage criteria and quantify trade-offs. 3) Coordinate with City of Vancouver. 4) Coordinate cross-discipline work plan.	Q4 2023: Added new mitigation actions to be taken #2-4. Continue to revisit quarterly. Q2 2023: Draft TTR is complete and the draft AAR is in process. Revisit risk in Q4 2023.
159	DES 20.1	Roadway Design	Non-Approval of Assumed Design Deviations/ Exceptions	Assumed design deviations/exceptions may not be approved, resulting in need for design modification and additional construction cost. This includes additional ROW and conscription costs.	The current design does not assume any significant deviations or exceptions that are not routinely approved by WSDOT and ODOT.	Threat								Steve Katko	Mitigate	1) Develop agreed-upon design criteria for all discipline areas with state DOTs. 2) Create a design deviation/exception register to keep track of design changes and approval status.	Q4 2023: Added new action to be taken #1. Adjusted risk description to include ROW.
160	DES 10.11	Roadway Design	Additional Full Depth Reconstruction	Planned pavement overlaying needs to be rebuilt instead of only overlaying.	Extent of full depth pavement reconstruction may be greater than currently assumed. Base estimate was updated; residual risk assessed to be minor.	Threat								Steve Katko	Mitigate	1) Evaluate areas for opportunity to overlay instead of full-depth.	Q4 2023: Confirm quantity for rebuild in Q1. Depending on quantities, this may be evaluated as an opportunity. Placed on the Watchlist for now.

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163	PSP 50.1.1	Roadway Design	Shared Use Path Extension (WA)	If the shared use path is extended to evergreen station, then there may be additional costs and delays and/or ROW acquisition.	Shared use path extension may require wider guideway structure. Base includes $31M ($630/sq ft)	Threat	$15 M	$20 M	$30 M				20%	Steve Katko	Mitigate	1) Conduct design impact investigation as early as possible as design changes are realized. 2) Identify potentially impacted properties along the pathway as early as possible. 3) Engage in early coordination with the City.	Q4 2023: No update this quarter. Revisit in Q1. Steve to follow up with previous discussions had with the City. Q3 2023: Continuing internal discussions and planning for responses to the City. Revisit in Q4 2023. Q2 2023: Discussions with the City began last week. Continue to track and monitor and revisit in Q3 2023.
164	DES 60.1	Roadway Design	Additional Features Added to Project within ROW	Additional features may be added within unused areas of project ROW e.g., under bridge improvements and enhancements. Includes OR & WA.	No costs in the base for waterfront improvement under bridges.	Threat								Steve Katko	Mitigate	1)Engage in communication with agencies and interested parties.	
165	DES 10.6	Roadway Design	Change to Design/Configuration of Hayden Island Interchange	Significant change in configuration of Hayden Island interchange may be required. Base assumes 1/2 interchange; may need to be upgraded to full interchange.	Construction cost difference is believed to be relatively minor (cost of additional I-5 ramps would be offset by ramp/arterial reductions elsewhere). Potential for time delay reaching alignment with partner agencies; would impact river crossing timeline.	Threat				3.0	6.0	9.0	20%	Steve Katko	Mitigate	1) Conduct design evaluation for potential major configuration changes of the Hayden Island interchange. 2) Engage partner agencies early to reach concurrence on configuration. 3) Analysis and documentation in Access Revision Report (ARR). 4) Engage in coordination with the FHWA in Q1 2024.	Q4 2023: Will require ongoing conversations with FHWA through the ROD process and beyond. Q1 2023: Beginning the ARR process in January 2023, with the draft available in the first half of 2024.
166	DES 10.7	Roadway Design	Alt. Interchange at Marine Drive	If an alternative interchange is selected at Marine Drive, there may be an opportunity to reduce program costs including retaining existing structures.		Opportunity	$10 M	$20 M	$30 M				25%	Steve Katko	Exploit	1) Evaluate alternatives for Marine Drive interchange. 2) Engage interested parties early to garner alternative design agreements.	Q4 2023: Currently engaging in ongoing work to determine likelihood. Revisit risk in Q4 2023.
167	DES 10.8	Roadway Design	Victory Braid Design Changes	Victory braid has tight/constrained spacing between highway and existing Expo LRT line and could result in redesign efforts due to complex design elements.		Threat								Steve Katko	Mitigate	1) Conduct design impact investigation as early as possible as design changes are realized to quantify required action plan.	Q4 2023: This risk was placed on the Watchlist. Confirm what is included in the base.
168	DES 10.9	Roadway Design	Cross Section Elements May Increase in Width - COP	City of Portland, cross section elements may increase in width - S/W, bike lanes, planters. Current draft SEIS assumes all local Portland streets meet city standards.	Primary concern is at Hayden Island. Likely elements will increase in width inward to the street.	Threat								Steve Katko	Mitigate	1) Conduct design impact investigation as early as possible. 2) Early engagement with COP. 3) Solidify city standards with the COP.	Q4 2023: This will continue to be a risk until buy-off is obtained from COP.
169	CNS 80.3	Roadway Design	USACE Levee Project Coordination	USACE is planning to raise the levee, if this project is not completed prior to the IBR program this may need to be addressed/incorporated into the program.	Coordination Risk related to schedule and sequencing. BL 2027-2028. This should not delay the ROD, but may be a threat to Transit. Related to the 408 permit.	Threat				1.0	2.0	3.0	10%	Steve Katko	Mitigate	1) Track Levee Project development plans around the project area, establish a cadence of regular check-ins with USACE. 2) Evaluate Levee Project status as early as possible to incorporate Levee design into IBR program if necessary.	Q4 2023: Continuing discussions on the 408 permit.
170	PSP 50.1.2	Roadway Design	Multi-Use Bike/Ped Path Design (OR)	Multi-use bike/ped path is longer than is shown in base design. Impacts may be to design and NEPA only, or may result in additional construction costs to the project/program.	Multi-use path may need to be extended in Oregon (Union Ct. / Expo Rd / Victory Blvd. / Schmeer Dr. vicinity). Cost impact range includes ROW, potential floodplain mitigation; cost impact low end for NEPA, high is construction on Expo Rd only. The schedule impact is to the NEPA schedule.	Threat	$1 M	$5 M	$10 M	1.0	2.0	3.0	20%	Steve Katko	Mitigate	1) Ensure clear list of involved interested parties/agencies and their role on the project to reach concurrence on scope. 2) Engage in early coordination and consultation with interested parties and other involved agencies.	Q4 2023: Expo Rd is now included in the base. This risk was moved to the Watchlist; the City may come back with mitigations. Re-confirm during the CEVP. Q3 2023: Continue discussion; series of meetings have been scheduled with the City of Portland. Revisit in Q4 2023.
171	DES 10.10.1	Roadway Design	Local Street Scope - Portland	Extents of roadway improvements on Marine Dr and MLK Blvd. may be greater than expected, may delay schedule or add unexpected scope.	Local street access to and from MLK Blvd. and Hayden Meadows connections. Potential for new bridge / more extensive roadway improvements.	Threat	$10 M	$15 M	$20 M				25%	Steve Katko	Mitigate	1) Engage in early coordination and consultation with City of Portland to reach agreement on scope for local street improvements. 2) Draft EIS will provide data needed for decision making.	Q4 2023: Cost impacts for new bridges and roadways will likely be higher. Revisit impact ratings in Q1.

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173	DES 80.1.1	Roadway Design	Contractor Innovation: River Bridge DB Package	Contractor innovation (e.g., in the form of accepted ATCs) may result in cost and/or schedule savings to the program.	River Bridge contract will be highly constrained by local agreements e.g., regarding bridge type, configuration, aesthetics, etc. Approaches and mean/methods hold primary potential for innovation. Separate from specific opportunities captured elsewhere.	Opportunity	-$10 M	-$20 M	-$30 M	-1.0	-3.0	-6.0	35%	Steve Katko	Exploit	1) Incentivize contractor innovations.	
174	DES 80.1.2	Roadway Design	Contractor Innovation: Other DB Packages	Contractor innovation (e.g., in the form of accepted ATCs) may result in cost and/or schedule savings to the program.	Separate from specific opportunities captured elsewhere.	Opportunity	-$60 M	-$80 M	-$120 M	-1.0	-3.0	-6.0	35%	Steve Katko	Exploit	1) Incentivize contractor innovations.	
175	DES 10.5.1	Roadway Design	Opposition for Single Aux Lane	There is a risk of opposition for one auxiliary lane and may result in design refinements to include a second auxiliary lane.		Threat	$80 M	$94 M	$110 M				10%	Steve Katko	Mitigate	1) Conduct study and analysis to determine/show that one auxiliary lane will be sufficient. 2) Engage in frequent and consistent communication with the freight communities.	Q4 2023: Revisit following the public comment period in spring of 2024. Looking at a second aux lane in the DSEIS. Q3 2023: No change. Revisit in Q4 2023. Q2 2023: They are studying the two auxiliary lane option as part of the DSEIS. Stakeholder discussion will occur over the next two quarters, followed by
176	STG 10.1	Structures	Navigational Clearance - Construction Impacts	If the Movable Span option is selected as the preferred alternative to meet the preliminary navigation clearance determination (PNCD) of 178-foot vertical clearance, then this would result in a construction delays and increased costs.	USCG desires 178 feet of clearance and the MLPA structure is at 116 feet. Confirmation needed prior to NEPA. Impacts based on Moveable Span Memo - $400M-$500M (only viable remedy to address navigation and aviation clearance envelopes).	Threat	$400 M	$500 M	$600 M	12.0	18.0	24.0	1%	Rob Turton	Mitigate	1) Early coordination with USCG to reach concurrence on navigational clearance. 2) Negotiation with impacted river users (in process).	Q2 2023: A decision will be made following the public comment period. Revisit in Q4 2023. A decision was made and direction provided to include a movable span option in the DSEIS.
178	STG 10.3.1	Structures	Structure Aesthetic Changes - River Bridge	Stakeholder desires for enhanced river bridge aesthetics could impact the structure design and increase bridge costs. While the 2-bridge arrangement is the MLPA, multiple bridge configurations are still being considered with associated cost variations.	Potential for late decisions captured separately in Risk 89.	Threat	$50 M	$75 M	$100 M				50%	Rob Turton	Mitigate	1) Engage interested parties early to garner aesthetic design agreement. 2) Continue to develop aesthetic design concepts.	Q4 2023: This may be more of an alternative than a risk. Confirm what is included in the estimate going into the CEVP. Q3 2023: Risk description was refined; revisit quarterly.
179	STG 10.3.2	Structures	Structure Aesthetic Changes - NPH Bridges	Interested parties have expressed a desire for aesthetic enhancements to other structures, including the arterial bridge over the North Portland Harbor.	Cost impact based on cable stay or tied arch bridge type for the NPH arterial structure at an additional $1000/sf. Aesthetic treatments on other structures, retaining walls, and elsewhere is assumed to be covered in the base estimate (design allowance). Risk of late design change captured separately (see Risk 89).	Threat	$25 M	$50 M	$100 M				10%	Michael Pyszka	Mitigate	1) Engage interested parties early to garner aesthetic design agreement. 2) Continue to develop aesthetic design concepts.	Q4 2023: Adjusted potential cost impact to 25-50-100M. Q3 2023: As the CDR advances it may provide more direction. Revisit quarterly.
180	DES 30.1	Structures	Additional Aesthetic Treatments: Other	Interested parties have expressed a desire for aesthetic enhancements throughout the corridor, including bridge structures, retaining walls, and elsewhere. The cost may exceed allowances in the base estimate.	River bridge (Risk 178) and NPH bridges (Risk 179) are captured separately. Cost of general aesthetic treatments / context sensitive solutions, and landscaping is assumed to be captured in the base estimate design allowance.	Threat							5%		Mitigate	1) Engage interested parties early to garner aesthetic design agreement.	

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182	STG 30.1	Structures	Changed Seismic Design Criteria	Future changes in seismic design criteria may impact bridge design. If additional seismic improvements are required it may result in additional program costs.	Future changes to the seismic design criteria could occur e.g., due to additional fault mapping or other reason to adopt site-specific seismic criteria. Additional seismic improvements (e.g., column, foundation) may be required for certain "lifeline" structures to reduce likelihood of collapse during a major seismic event. Assume 5% to 10% increase in base bridge costs.	Threat	$60 M	$90 M	$120 M				5%	John Horne	Mitigate	1) Continue to monitor and track changes to seismic design criteria.	Q4 2023: More information on design criteria will be available following conversations with the DOTs in 2024. Continue to monitor quarterly. Q3 2023: Continue to track and monitor; revisit Q4 2023. Q2 2023: These efforts will be initiated when AE is executed. Lowered the probability from 10% to 5% due to having a clear communication strategy and direction from the program on how to advance the design criteria; expect probability to continue to decrease as the project progresses. Continue to track and monitor this risk quarterly.
185	DES 50.1.1	Traffic	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)	Vancouver population employment forecast to be updated between DSEIS vs FSEIS. Could impact sizing of streets, etc.	Threat				1.0	2.0	3.0	20%	Ryan LeProwse	Mitigate	1) Ensure that incorporation of travel analysis numbers are not required at the DSEIS. 2) Continue to track policy changes that may impact travel demand modeling requirements. 3) Plan for updated Metro RTP model in 2023. 4) Confirm with RTC on cross river land use and forecast. 5) If changes could result in delays, do not use them.	Q4 2023: RTP model is being adopted November 30th. The team is coordinating with ODOT region 1 to determine the process for moving forward for the FEIS. Q3 2023: No change this quarter. Q1 2023: RTP model is expected between draft and final SEIS.
186	DES 50.1.2	Traffic	Travel Demand Modeling Post-ROD	Post-ROD analysis, beyond 2045 model. Add 5 years to forecast, would impact design. Impact would be to potential changes in land use. Land use changes in the program year may trigger additional analysis (i.e., Hayden Island)	Areas of concern: interchanges, intersection controls, aux lane (addressed as separate scenario) Land Use: potential Expo. Flyover at Expo related to land use change. Yellow Line intersections/signals captured separately (see TRN 50.2).	Threat	$0 M	$1 M	$70 M				5%	Ryan LeProwse	Mitigate	1) Continue to track land use changes that may impact travel demand modeling requirements. 2) Carry design allowances for changes/refinements to interchanges in estimate. 3) Evaluate other options/alternatives at Marine Drive to flyover.	Q4 2023: No change this quarter.
187	DES 50.2.1	Traffic	Detours and Closures - COP	If detours and closures are determined to be unacceptable then a redesign of elements may be required.		Threat								Steve Katko	Mitigate	1) Coordinate MOT with partners as part of the TMP.	Q4 2023: Added new action to be taken.
188	DES 50.2.2	Traffic	Detours and Closures - COV	If detours and closures are determined to be unacceptable then a redesign of elements may be required.	C Street would be impacted access.	Threat								Steve Katko	Mitigate	1) Coordinate MOT with partners as part of the TMP.	Q4 2023: Added new action to be taken.
189	DES 70.1	Traffic	Additional ATMS / Toll Infrastructure	Additional ATMS and/or toll infrastructure (including Backoffice) added to the project scope (e.g., due to technology changes, new requirements, etc.)	Base Estimate Tolling Infrastructure & ATS. Gordon to verify what's included in the base. Toll Facilities & Equipment & BOS $25.7M - OR $6.4M - WA Coordination with ODOT BOS/GTC will be required.	Threat								Steve Katko	Mitigate	1) Engage in communication with agencies and interested parties.	Q4 2023: Currently designing the pre-completion tolling as part of the 15% design. Coordinate with Steve Katko and consider moving off of the Watchlist.
190	DES 20.2	Traffic	Approval of ARR / Intersection Control Decisions	Review by FHWA of ARR / Intersection Control decisions may lead to approval delays and/or changes in access.	No specific concerns at this time - tracking for now.	Threat								Steve Katko	Mitigate	1) Engage in communication with agencies and interested parties.	Q4 2023: Just began ARR process with FHWA and are working through a plan and schedule. Moved this risk off of the Watchlist to be active.
191	TRN 50.1	Transit	Portland Transit Service Level	There is a risk that the service level in Portland triggers additional improvements beyond current plans at the Portland Transit Mall or Rose Quarter to accommodate capacity for express bus frequency. This could incur additional costs.	Additional capacity can lead to need for additional system improvement (e.g., signal modifications, raised CCS, additional ROW, etc.). Low likelihood but wide range of potential outcomes. Potential for additional LRVs captured separately in risk 213.	Threat	$2 M	$10 M	$50 M				10%	Jeb Doran	Mitigate	1) Conduct early Transit Service Level evaluation to determine service level adequacy, then quantify the required action plan. 2) Early engagement with partner agencies.	Q1 2023: Anticipate updates following submittal of DSEIS.

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192	TRN 30.1	Transit	Expo Center Station Modifications	Potential for modifications to the existing Expo Station to accommodate system extension.	Mutually exclusive scenarios: A: Station or track realignment at existing Expo Station. Captures modifications at grade. - see right B: new elevated station at Expo (potentially necessary if not standalone LRT structure in NPH; net cost increase likely in $50M to $150M range, but very low probability - minor risk)	Threat	$5 M	$20 M	$50 M				75%	Jeb Doran	Mitigate	1) Conduct design evaluation for potential modifications to the existing Expo Station and realignment. 2) Engage in early communication and coordination with Transit interested parties to confirm required modifications. 3) Conduct design evaluation of transit/marine drive ramp approach, considering construction sequence and interim interchange configuration.	Q4 2023: Revisit once the estimate has been developed. Q3 2023: The design profile and constructability of Marine Drive is of concern. Costs are still being developed and once they are this risk should be revisited to ensure that costs are not double-counted. July 2023: GEC analysis concluded track profiles can meet standards, but requires rebuilding EXPO station. Additional analysis for Impacts to Marine Dr needed. Likelihood increased from 50% to 75%. Q2 2023: Track profiles are above TriMet's design standards. Fixing this will likely require modifications to the station. The likelihood of this happening is higher than 25%. April 2023: GEC developed station sketch to explore station location and opportunities to reduce number of Bridges across harbor, and reduce house boat displacements. Design
193	TRN 20.1	Transit	Delta Park Station Removal	Cost of station removal at Delta Park may be higher than estimated.	Cost of closure is not currently itemized in the base; assumed to be covered in design allowance.	Threat								Eric Forsyth / Sarah Touey	Mitigate	1) Engage interested parties early to garner Delta Park Station closure or contingency plans agreement and quantify required actions.	Q4 2023: Continue to track until the estimate has been developed.
194	TRN 20.2	Transit	Hayden Island Station Scope/Design Changes	There is a risk that additional scope is required for the Hayden Island Station, resulting in additional costs	The City of Portland desires an iconic structure for the NPH station, which may result in increased cost for building structure and architectural treatments.	Threat	$5 M	$10 M	$15 M				25%		Mitigate	1) Engage interested parties early to acquire the Hayden Island Station design agreement and quantify required actions.	
195	TRN 30.2	Transit	Eliminate/Reduce Separate LRT Overnight Facility at Expo Center	The base includes an expansion of the Ruby Junction facility plus a separate LRT overnight facility at Expo Center. The separate overnight facility may not ultimately be required, or reduced in scope.	NEPA footprint assumption larger Ruby footprint and satellite facility at Expo. Confirm the APE is the Metro property boundary prior to publication of the SDEIS. Base cost estimate assumption was updated to $50M to reflect addition of the yard.	Opportunity	-$17 M	-$10 M	-$7 M				25%	Jeb Doran	Enhance	1) Engage design team for Ruby Junction facility to identify more efficient layout. 2) Engage TriMet early to acquire agreement on a path forward concerning design/requirement of separate LRT overnight facility at Expo Center.	Q4 2023: Increased likelihood to 25%. Agency partner discussions continue to coordinate with Metro site development. Q3 2023: Lowered probability to 10%. The analysis is showing likely best scenario is the Ruby Junction and overnight facility. Currently assembling matrix analysis. Q2 2023: Revisit risk in Q3 2023. April 2023: TriMet is developing a
197	STG 10.4	Transit	Rose Quarter Transit Center Modifications	The base estimate includes a grade separation for WB LRT in the Rose Quarter, which entails modifications to the existing steel bridge approach ramp.	Mutually exclusive scenarios: A: opportunity to work with partners to develop an alternate solution that reduces costs and avoids 4f impacts B: limited modifications to existing approach structure (base) C: Impacts to steel bridge east approach structure are more extensive than currently assumed e.g., due to condition of existing structure. Schedule risk associated with Section 4f evaluation is captured separately in risk 43.	Uncertainty	-$40 M	$0 M	$25 M				100%	Jeb Doran	Mitigate	1) Conduct rail traffic control model analysis to determine potential impact to TM On Time Performance (OTP). 2) Engage interested parties early to acquire the Rose Quarter Transit Center design modifications agreement and quantify required actions.	Q4 2023: RTC analysis is now expected to be completed in January 2024. Q3 2023: RTC analysis results are not yet available and are due in October. "Low" cost impact changed to -$40M (need to confirm) based on the estimate. August 2023: RTC analysis underway with results expected in September for review. Q1 2023: More information/discussion is anticipated by Q3 2023. Revisit risk
198	CNS 80.4	Transit	Coordination with I-5 Rose Quarter Project	If the Rose Quarter bridge is included in the project scope, coordination will be required with the I-5 Rose Quarter project potentially resulting in conflict.	Coordination risk assumed to be captured in risk CNS 80.2. Break out separately in future CEVP.	Threat									Mitigate	1) Consider early coordination with I-5 Rose Quarter Project to mitigate potential execution conflicts and quantify the required action plan. 2) Early engagement with interested parties.	

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199	CNS 80.5	Transit	Coordination with Burnside Bridge	If the Rose Quarter bridge is included in the project scope, coordination may be required with the Burnside Bridge project, potentially resulting in conflict.	Coordination risk assumed to be captured in risk CNS 80.2. Break out separately in future CEVP.	Threat									Mitigate	1) Consider early coordination with Burnside Bridge Project to mitigate potential execution conflicts and quantify the required action plan. 2) Early engagement with interested parties.	
200	TRN 30.5	Transit	Waterfront Station	There is a risk that additional scope is required for the Waterfront Station, resulting in additional costs. This is an elevated station that is approximately 70 ft. in the air and there could be significant costs for various vertical transportation components and additional station design elements (ex: mezzanine treatments, noise walls, more shelters, etc.)	Current Assumption Current Base Estimate: base station cost ($65.5M) + $40M (allowance for assumption that station is 70 ft in air) + 30% Design Allowance Risk should be quantified in a future CEVP.	Threat	$20 M	$40 M	$60 M				50%	Jeb Doran	Mitigate	1) Engage consultant team to determine optimal bridge structure configuration to lower risk. 2) Select station design for the current estimate.	April 2023: Draft station guidelines defined to guide station design development. Q1 2023: Revisit risk following the determination of assumed bridge type and re-evaluate cost impacts.
201	TRN 10.1	Transit	Evergreen LRT Grade Separation	Development at Evergreen may trigger a station grade separation, raising the station to an elevated station. Current assumptions are that the station is at-grade at Evergreen.	Developer(s) may come forward with plans that could leverage a grade separated station, involving 300' of additional structure and increased costs for an elevated station. Covered in a separate model run (about ~$50M delta)	Threat								Jeb Doran	Mitigate	1) Engage interested parties early to acquire the Evergreen LRT Grade Separation design agreement and quantify required actions.	Q1 2023: Revisit risk based on FEIS.
202	TRN 40.1	Transit	Evergreen Park-and-Ride Design/Scope Changes	Base assumes 700 space underground parking for the Evergreen Park-and-Ride ($106M direct cost), but may change through design development and coordination with interested parties.	Mutually-exclusive scenarios: A: Retain 700 space underground garage at $73m (base) B: Reduce costs e.g., through reduction in size and/or co-development C: Eliminate park & ride completely	Opportunity	$0 M	-$34 M	-$73 M				60%	Jeb Doran	Enhance	1) Engage interested parties early to acquire the Evergreen Park-and-Ride design/scope change agreement.	Q1 2023: Revisit Q4 2023 based on site selection following the DSEIS.
203	TRN 40.2	Transit	Waterfront Park-and-Ride Design/Scope Changes	Base assumes 570 spaces beneath proposed bridge ($43M direct cost), but may change through design development and coordination with interested parties.	Mutually-exclusive scenarios: A: Reduce or eliminate Waterfront Park-and-Ride B: 570 space facility beneath bridge (base) C: Increased cost for facility e.g., due to additional ROW/construction cost if moved to alternative location (e.g., Convention Center). May be underground or above ground.	Uncertainty	-$20 M	$0 M	$20 M				100%	Jeb Doran	Mitigate	1) Engage interested parties early to acquire the Waterfront Park-and-Ride design/scope change agreement and quantify required actions. 2) Determine basis of assumption before project development design as of November 2023.	Q3 2023: Team is assembling park-and-ride analysis matrix to potentially confirm the removal of the waterfront park-and-ride from the IBR scope. Confirm the cost estimate and update the low end cost impact accordingly. August 2023: Park and Ride siting analysis in progress considering site constraints and CIG rating. Q1 2023: Revisit Q4 2023 based on site selection following the DSEIS.
204	TRN 10.2	Transit	Advance with Direct Fixation Track	Opportunity as TriMet currently assumes embedded track. Potential to switch from t-rail to girder rail could save money.	Base assumes embedded track throughout corridor. Opportunity to revert back to direct fixation track.	Opportunity	-$240 M	-$200 M	-$160 M				75%	Jeb Doran	Enhance	1) Conduct design evaluation to select options. 2) Engage leadership from transit agencies in securing decision by March 2024.	Q4 2023: 2024 CEVP cost estimate will include direct fixation. With updated estimate, this risk would flip to be a "threat". August 2023: Completed initial analysis of emergency response with local
205	TRN 10.4	Transit	Additional Measures Needed to Facilitate Joint Transit Use: Shared Transitway with Joint Operations Concurrently	Additional measures may be needed to facilitate future joint use operational scenarios (interoperability for long term use) e.g., expanded station footprint, systems modifications, crash barrier, etc.		Threat	$40 M	$80 M	$120 M				25%	Jeb Doran	Mitigate	1) Engage interested parties early to agree on additional measures that foster design for Joint Transit use. 2) Determine the outcomes of the bridge type selection (single-level versus stacked). 3) Negotiate principles of agreement for Continuing Control agreement between WSDOT and CTran. 4) Determine basis of assumption before project development design as of November 2023.	Q4 2023: Revisit in Q1 2024. Q3 2023: Revisit this risk in Q4 2023. August 2023: Transit agencies do not anticipate designing for shared/joint use. Q2 2023: Have held more meetings with the Vancouver Fire Chief and there is a lower risk for the single level bridge and a higher risk for the decked bridge option. April 2023: An updated cost estimate has been generated based on more refined assumptions for structures and elevated station enhancements needed to implement embedded track. Total YOE costs for Structures only is $126M. With both station improvements and structural upgrades, costs increase to

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206	TRN 10.5	Transit	Additional Structure Width Needed to Facilitate Joint Transit Operations	Additional structure width throughout the corridor may be needed to provide adequate bus/LRT clearance for safe joint use operations.	34' width currently assumed on NPH transit bridge may be insufficient. Assume 8' additional width on Columbia River and NPH bridges (4' additional shoulder throughout corridor). Potential impact to stations including NPH, Waterfront. Assume 35% structural premium	Threat							25%	Jeb Doran	Mitigate	1) Engage interested parties early to agree on additional structures that foster design for Joint Transit use.	Q4 2023: Decreased likelihood to 25% to be consistent with risk 205. April 2023: An updated cost estimate has been generated based on more refined assumptions for structures and elevated station enhancements needed to implement embedded track. Total YOE costs for Structures only is $126M. With both station improvements and structural upgrades, costs increase to $181M
207	TRN 20.3	Transit	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.	This is a high risk. Note that the particularly higher risk components involve the waterfront station, urban design elements.	Threat									Mitigate	1) Consider early coordination with interested parties to garner agreement for added aesthetics to station features. 2) Early engagement with interested parties.	Q2 2023: Priority Watchlist item.
209	TRN 40.3	Transit	Express Bus Shoulder Improvements	There is a risk that Express Bus improvements on the shoulder of the roadway are more costly than anticipated. This could include signage, systems, and additional infrastructure improvements.	Part of the base scope; assumed to be captured in design allowance.	Threat									Mitigate	1) Engage interested parties early to agree on the Express Bus Shoulder Improvements.	
210	TRN 50.2	Transit	Yellow Line Intersection Improvements	The yellow line intersections may require signal changes that could require additional costs beyond expectations. The 2045 traffic analysis for NEPA could identify additional impacts and traffic management needs.	Mitigation for additional trains down Interstate Avenue. (2-3 miles) e.g. signals, turn lanes, etc. No analysis has been done regarding frequency changes for 2045 traffic conditions. Updates will likely be needed pending analysis. Separate from risk 185.	Threat	$5 M	$10 M	$15 M				75%	Jeb Doran	Mitigate	1) Engage interested parties early to agree on the Yellow Line Intersection Improvements. 2) Confirm the NEPA analysis is completed and if any necessary mitigations have been identified. 3) Determine basis of assumption before project development design as of November 2023.	April 2023: PBOT commented at TTR review meeting that analysis is needed prior to SDEIS submittal. IBR working with GEC and PBOT to understand changes proposed (Yellow line operations at 7.5 min vs 6.5 min), priority intersections of concern, level of analysis needed, and timing.
211	TRN 40.4	Transit	Active Transportation (AT) Scope at Stations	Extents of active transportation improvements related to the transit stations are more than anticipated, and add unexpected scope.	This could include additional considerations for items like bike parking. Assumed in base and 30% Design Allowance	Threat									Mitigate	1) Engage interested parties early to agree on the Active Transportation (AT) Scope at Stations and quantify required actions.	
212	TRN 70.1	Transit	TriMet LRT Vehicle Procurement Delays	Delayed availability of new LRT vehicles.	Base Schedule assumption: 48 months for procurement of new LRT vehicles. 2 years for ordering, fabrication, delivery for the first vehicle. Schedule should be adequate for the base assumption of 19 vehicles. Risk of additional vehicles captured in risk 213.	Threat								Eric Forsyth	Mitigate	1) Consider early equipment procurements where it makes sense. 2) Consider utilizing existing LRV contract procurement for IBR vehicles. 3) Early engagement with partner agencies.	Q4 2023: Risk moved to Watchlist.
213	TRN 70.2	Transit	Additional LRT Vehicles	TriMet may determine that additional LRT vehicles are necessary to achieve operational requirements for the system extension.	Base assumption includes 19 vehicles; up to 25 vehicles may ultimately be needed. Vehicle cost ~$6M/each. Assume 2 weeks additional time needed for fabrication/delivery for each additional vehicle beyond the current base schedule.	Threat	$0 M	$6 M	$12 M	1.0	2.0	3.0	5%	Jeb Doran	Mitigate	1) Conduct early study/investigation to best determine LRT vehicle needs to achieve operational requirements. 2) Engage in early and frequent coordination and communication with TriMet on expected LRT vehicle needs. 3) Finalize LRV total with rail fleet management plan at end of project development.	Q1 2023: Updates anticipated following FEIS. 11/30 - TriMet has confirmed 19 LRT vehicles, based on other opportunities, service needs may go down.
214	TRN 70.3	Transit	C-TRAN Express Bus Vehicle Procurement	C-TRAN express bus and storage facility needs may ultimately differ from the current base assumptions.	Bus Assumptions: The base estimate includes 13 new single-deck, 40', electric Express Bus vehicles @$1.2M each. There was initially uncertainty on the number of buses; it was determined that fewer buses are needed than what was originally assumed (8 double decker buses). Storage Facility Assumptions: An expansion of 3 bus bays will be necessary to accommodate the double decker buses.	Uncertainty	-$6 M	$0 M	$20.0 M				75%	Jeb Doran	Mitigate	1) Engage in early and frequent coordination and communication with appropriate partnering agency to track bus and storage facility needs. 2) Design and engage a cost effort for the redesign of the storage facility.	Q2 2023: We have confirmed 8 double deck buses are needed. Will need an expansion of 3 bays to house the buses. Increased cost impacts to $20M due to the expansion of the 3 bays. Revisit cost impacts once cost estimate has been done. April 2023: NEPA/GEC teams working with CTRAN to finalize description of improvements needed and identify location.

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215	TRN 80.1	Transit	Transit O&M Agreement	Parties fail to reach agreement on Transit O&M responsibilities and funding source before engineering phase. This could result in time delays for FTA CIG / FFGA award, which delays start of transit construction.	Transit O&M workgroup established and meeting regularly to identify issues and assist with drafting scope of agreement. WSDOT may not have ability to give this authority. Additionally, TriMet does not currently have authority to operate in Washington. C-TRAN may be unwilling to give TriMet authority to operate in WA. Transit O&M funding delays captured separately in risk 68.	Threat				3.0	6.0	9.0	20%	Jeb Doran	Mitigate	1) Assembly O&M workgroup to identify and secure funding sources. 2) Evaluate and finalize O&M costs (for WA and OR transit orgs). 3) Confirm Roles and Responsibilities between two transit agencies, and establish the deal points for the agreements.	July 2023: A CTRAN/TriMet work group has begun to confirm roles and responsibilities of each agency. Expect draft roles to be complete Q4 2023. Q2 2023: Revisit risk in Q3 2023. May 2023: Developing work plan to define roles and responsibilities to divide O&M costs into WA vs OR. Q1 2023: Have completed a draft of anticipated O&M costs and the O&M group has identified anticipated funding sources.
216	PSP 40.6	Transit	Delay to FTA Letter of No Prejudice	The IBR program currently assumes that a Letter of No Prejudice (LONP) will be provided by the FTA prior to initiate of river bridge construction. If this strategy is adhered to, delayed receipt of the LONP could impact the river bridge contract.	However, the IBR program is not dependent upon FTA funding for river bridge construction such that an automatic delay would not necessarily result under this scenario. Retain as watch list item.	Threat									Mitigate	1) Begin early coordination with the FTA on the LONP to track progress and ensure it is provided in a timely manner 2) Coordinate with Transit and Finance leads on discussion of impacts and confirmation of willingness to assume risk.	Q4 2023: This risk was moved off of the Watchlist and is now an active risk. Review with both the Transit and Finance teams.
217	TRN 30.4	Transit	Additional Elements Required to Facilitate Future Transit O&M	The extension of TriMet's yellow line across the river into WA requires the program to coordinate with the transit partners to determine the costs and potential revenue sources to fund O&M of transit.	If TriMet identifies design changes they desire for operations and maintenances considerations as part of coordination (interagency coordination), there could be delays and additional costs incurred. For example, non-revenue maintenance vehicles (e.g., Hi-Rail) may need to be included in the capital project budget.	Threat									Accept	1) Engage interested parties early to agree on additional elements for the Future Transit O&M and quantify required efforts.	
218	TRN 80.4	Transit	Systems Testing or Start-Up Delays	Complexities associated with sequencing and execution of system testing and start up (e.g. communications, training) result in delays to the IBR program.	Note that there are concerns with resource availability that have the specialty skills to conduct Systems Integration Testing (SIT) and Operational transition into pre-revenue and simulated service periods from construction. Shared transitway could exacerbate systems integration issues.	Threat				3.0	6.0	9.0	40%	Leah Robbins	Mitigate	1) Develop startup plan during project development, as early as possible. 2) Consider adding a start-up manager to the IBR implementation team during design (entry into engineering). 3) Startup manager to manage cross contract systems interface schedule.	Q3 2023: The development of the program Delivery Plan by the end of 2023 will validate where this will fit into contracts and expected schedule. August 2023: Schedule for Start Up Revenue and Operations Plan is included in Project Development work plan. Kick off in September 2023.
220	ENV 40.1	Tribal Coord.	Section 106 - Approach	Early discussions with Tribes indicates the need to define an equitable mitigation approach that includes National Park Service (NPS) and impacted Tribes. Coordination and acceptance from federal agencies and tribal governments takes longer than anticipated. Additional risk could include length of time for legal reviews, especially if elements of the agreement become contentious.	Note that the Tribes felt that prior mitigations identified for CRC were inadequate and expectations are similar to what was given to NPS. Direct cost includes analysis related to better facilitate risk and any outcome. Sensitivity of resources. Specific to Washington. Base Estimate has $110M, inclusive bucket for all mitigation categories. This risk is within WA.	Threat	$30 M	$50 M	$80 M	2.0	4.0	9.0	45%	Hayli Reff	Mitigate	1) Engage in early coordination and consultation with Tribes and other interested parties/agencies. 2) Continue to engage FPOs at FTA and FHWA. 3) Dedicate staff to liaise with necessary parties for agreements. 4) Dedicate funding within estimate/budget for 106 mitigation.	Nov 2023: Section 106 PA comments received, IBR is drafting first formal draft and will distribute to tribes in early 2024. October 2023: Section 106 PA concept draft is out to the tribes for review. Q1 2023: Revisit following the Findings of Effect Analysis (Q1 2024).

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221	ENV 40.3	Tribal Coord.	Tribal Consultation - Fisheries	Columbia River Inter-Tribal Fish Commission (CRITFC) and Tribes' may identify issues with the project that will need to be worked out. This could incur additional costs for mitigation and/or result in delays in obtaining approvals and buy-in.	The Tribes role as fisheries co-manager could add an additional layer of discussions for mitigations that was unanticipated. Tribal consultation efforts continue to be hampered by federal agencies not responding in timely manner and/or postponing consultation actions. Schedule impact could occur during ESA consultation (assumed), or potentially USACE 404 permit.	Threat	$10 M	$20 M	$40 M	1.0	3.0	6.0	30%	Bill Warncke	Mitigate	1) Engage in early coordination and consultation with Tribes and other interested parties/agencies. 2) Dedicate staff to liaise with necessary parties for agreements. 3) Dedicate funding within estimate/budget for fisheries mitigation. 4) Focus on upriver fisheries for mitigation efforts. 5) Share biological assessment with tribal partners as early as possible in process. 6) Utilize an RFP approach to look for conservation proposals. 7) Continue to update and engage the team on the deliverable tracker.	NOV 2023: ABA, CO issues sent request for consultation to tribes. Met with Confederated Tribes of Grand Route (CTGR) and are in process of scheduling with Yakama Nation (YN) as well. October 2023: The BA was submitted to the tribes this month. IBR has invited the tribes to formal consultation on their interests/concerns regarding Natural Resources as part of the ongoing consultation and coordination efforts. Q3 2023: The BA will go out this week. Have drafted a letter inviting the tribes to ongoing consultation around natural resource concerns, which has not been sent out yet. There is a meeting with the federal agencies scheduled for September 29 to build support for this concept. Q2 2023: Planning to share initial draft BA by end of Q2, still continuing ongoing communication with Tribes. Revisit risk Q3 2023.
223	UTL 10.1	Utilities Relocation	Uncertainty in Utility Costs	High degree of uncertainty in base utility costs associated with the conceptual level of design development. Lump sum percentage allowances have been established for high and low potential areas without consideration of ownership responsibility.	Assume +/-20% base uncertainty range for utility costs.	Uncertainty											
224	UTL 10.2	Utilities Relocation	Utility Service Connection Uncertainty	There is uncertainty of whether the utilities or the IBR program will pay for utility service connection to individual customers. This cost is currently captured in the base estimate, there is an opportunity this could be covered by utilities and result in cost savings for the program.	Other project experience shows utilities paid for service connections. Quantify in future CEVP.	Opportunity								Steve Katko	Exploit	1) Meet with PDOT and COV utility groups to initiate planning discussions.	Q4 2023: Revisit following the development of the base estimate to confirm if the cost to connect private individuals' utilities is included. Steve Katko to follow up.
225	UTL 10.3	Utilities Relocation	Delayed Completion of Utility Agreements	Completion of utility agreements may be delayed beyond the assumptions in the base schedule.	Prior relocation agreements prior to RFP. Include NDAs.	Threat								Steve Katko	Mitigate	1) Engage interested parties early to validate the utility relocation schedule.	Q4 2023: Follow up in Q1 2024.
226	UTL 20.1.1	Utilities Relocation	Utility Relocation Delays: River Bridge and Approach Landside features	Major third party private and public utilities could be delayed due to planning process or construction field conflicts. Insufficient early planning may delay the start of relocations and an insufficient relocation plan may miss major conflicts. Relocation of utilities suspended on the existing Columbia River Bridge onto the new IBR may be challenging and may require double moves. This includes problems with material sources for utility companies, which may cause delays.	Risk impact to the main IBR contract. Example areas include: - Hayden Island development area – relocations of private utilities in advance. - SR 14 - Inclusion of additional duct bank on river crossing/all elevated structures for future use. - Underwater Utility Crossings. - High security/undisclosable utility assets.	Threat				2.0	4.0	6.0	30%	Steve Katko	Mitigate	1) Engage in early and frequent coordination with third party utilities. 2) Research franchise agreements. 3) Considerations of possible early relocations. 4) Engage in monthly Utility coordination meetings	Q4 2023: Revisit in Q1 2024. Q3 2023: Need more information from Utility Updates. Q2 2023: Revisit quarterly. Expecting update Q4 2023. Q1 2023: Scope is being developed to advance SUE investigations. Anticipating starting work in the second half of 2023.

Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN

Risk Identification

Quantitative Analysis

Post-Managed State

Risk-Response Strategies

ID #	RBS Code	Discipline Category	Risk Event Title	Risk Description	Additional Notes	Threat or Opportunity	Direct Cost Impact ($M) Low (10% CI)	Direct Cost Impact ($M) Most Likely	Direct Cost Impact ($M) High (90% CI)	Schedule Impact (months) Low (10% CI)	Schedule Impact (months) Most Likely3	Schedule Impact (months) High (90% CI)	Likelihood of Impact Occurring	Risk Owner	Strategy	Actions to be Taken	Management Status
227	UTL 20.1.2	Utilities Relocation	Utility Relocation Delays: OR Transit	Relocation of utilities related to OR transit may be challenging, depending on the work sequence, and result in delay and/or additional cost.	Contract elements include bridges, structures from Expo to Hayden Island, and rail and systems.	Threat				1.0	3.0	6.0	20%	Steve Katko	Mitigate	1) Engage in early and frequent coordination with third party utilities. 2) Research franchise agreements. 3) Considerations of possible early relocations.	Q4 2023: Added likelihood and impact ratings to reflect other related utility relocation risks. Q3 2023: Need more information from Utility Updates. Q2 2023: Revisit quarterly. Expecting update Q4 2023. Q1 2023: Scope is being developed to advance SUE investigations. Anticipating starting work in the second half of 2023.
228	UTL 10.4	Utilities Relocation	City of Vancouver Underground Utilities	Undergrounding of utilities may be included on the cost pressures list or betterments from the City of Vancouver and are beyond what was anticipated, resulting in increased program costs.	Note: Should be addressed in agreements with COV. Need to make connections to each building if utilities are relocated underground. WSDOT agreements specify that the project is not responsible for betterments.	Threat								Steve Katko	Mitigate	1) Engage in early communication with City of Vancouver. 2) Enagage in early coordination with Utilities on the Utility Plan.	Q4 2023: Continue to track and monitor. Added additional action to be taken. Steve Katko to follow-up.
229	UTL 10.5	Utilities Relocation	Pump Station at Waterfront	Potential relocation of pump station near Waterfront Station due to conflict.		Threat								Steve Katko	Mitigate		Q4 2023: Confirm what is included in the base estimate.
231	UTL 20.1.3	Utilities Relocation	Utility Relocation Delays: WA Transit	Relocation of utilities related to WA transit may be challenging, depending on the work sequence, and result in delay and/or additional cost.	Contract elements include stations, park and rides, and rail and systems. Utility scheduling and finance. Third party utilities may not be compliant with new Buy American requirements. Includes potential conflict with Lumen lines in Vancouver, which could trigger significant delay if relocation is required.	Threat				1.0	3.0	6.0	20%	Steve Katko	Mitigate	1) Engage in early and frequent coordination with third party utilities. 2) Research franchise agreements. 3) Considerations of possible early relocations.	Q4 2023: Revisit in Q1 2024 and quarterly. Q1 2023: Scope is being developed to advance SUE investigations. Anticipating starting work in the second half of 2023.
232	UTL 20.1.4	Utilities Relocation	Utility Relocation Delays: WA North Highways	Relocation of utilities related to WA north highways may be challenging, depending on the work sequence, and result in delay and/or additional cost.	Contract elements include Mill Plain, Fourth Plain, and SR-500. High voltage transmission overhead near 39th St. / I-5. Includes utility approvals, resource limitations, etc. Third party utilities may not be compliant with new Buy American requirements.	Threat				1.0	3.0	6.0	10%	Steve Katko	Mitigate	1) Engage in early and frequent coordination with third party utilities. 2) Research franchise agreements. 3) Considerations of possible early relocations.	Q3 2023: Revisit following Delivery planning in Q1 2024 and quarterly. Q2 2023: Lowered probability to 10% to reflect more float for these sections; less likely impact to overall program schedule. Q1 2023: Scope is being developed to advance SUE investigations. Anticipating starting work in the second half of 2023.
233	UTL 20.2	Utilities Relocation	Unidentified Utilities Encountered During Construction	Subsurface utility engineering (SUE) was conducted for CRC; however, alignments have changed and new utilities have been installed. There is a risk that unidentified utilities are encountered during construction and result in schedule delays.		Threat				1.0	2.0	3.0	20%	Steve Katko	Mitigate	1) Engage in early and frequent coordination with third party utilities. 2) Conduct an update SUE evaluation within the construction area vicinity as early as possible. 3) Coordinate planned utility relocation schedule with utility owners and integrate into the master schedule.	Q4 2023: Currently getting permitting for SUE investigations. Revisit in Q1 2024. Q1 2023: Scope is being developed to advance SUE investigations. Anticipating starting work in the second half of 2023.
239	ROW 50.4	Right-of-Way	Uncertain ROW market conditions	The base estimate may not fully reflect current ROW market conditions.	35% allowance originally in the base estimate was removed following the CEVP workshop.	Threat	$17 M	$34 M	$59 M				50%				Review at next CEVP and confirm with cost estimate review

Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN

Risk Identification							Quantitative Analysis (Post-Managed State)							Risk-Response Strategies			
							Direct Cost Impact ($M)			Schedule Impact (months)							
ID #	RBS Code	Discipline Category	Risk Event Title	Risk Description	Additional Notes	Threat or Opportunity	Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely3	High (90% CI)	Likelihood of Impact Occurring	Risk Owner	Strategy	Actions to be Taken	Management Status
240	TRN 10.3	Transit	Uncertainty in Structural Premium for Embedded Track	A detailed design has not yet been developed to validate the estimated structural premium associated with embedded track necessary to support joint transit use; therefore, significant uncertainty is associated with this cost item.	The base estimate assumes a 20% structural premium associated with adding embedded track to the land and river bridges, in addition to the material quantities for 10" concrete slab and embedded rail. Structural premium is approximately $110M (direct cost) for all affected structures.	Threat	-$5 M	$126 M	$181 M				100%	Jeb Doran	Mitigate	1) Develop specific bridge design for joint transit use including additional structural slab for embedded track to support a more robust structure estimate to reduce this uncertainty.	Q2 2023: Revisit risk (specifically the risk likelihood) in Q3 2023. May 2023: Completed Fire assessment of comparable guideway in existing system and reviewed with CoV Fire. There is a high risk of embedded track with the stacked bridge configuration, and a low risk of embedded track with a single level bridge configuration as Emergency can access guideway from adjacent highway shoulder. April 2023: An updated cost estimate has been generated based on more refined assumptions for structures and elevated station enhancements needed to implement embedded track. Total YOE costs for Structures only is $126M. With both station improvements and structural upgrades, costs increase to $181M.
241	OTH 2.1	Other	Indirect Cost of Project Delays (Owner, PM)	Direct cost to the owner due to project delays in the form of extended staff time.	• Program Management: **$3.2M/mon** (~$500M in the base estimate for FY22-FY34) • Construction "burn rate" for owner: assumed to be included in the PM cost on a programmatic basis.	Threat									Mitigate		Discuss with Project Management group.
243	OTH 2.3	Other	Aggregate minor risks / opportunities	Allowance to cover the collective "minor" risks that were unquantified, but collectively may be significant.	48 minor risks were identified in the risk register but not quantified. Assume that 90+% of the aggregate risk was quantified and modeled (based on expected value).	Threat							50%		Accept		Revisit following Q4 update.
244	OTH 2.4	Other	Unidentified risks / opportunities	Allowance to cover the collective "minor" risks that were unquantified, but collectively may be significant.	Assume that 90+% of the aggregate risk was quantified and modeled (based on expected value). Due to the very thorough nature of the risk register development process, the unidentified percentage was reduced relative to typical CEVP assumptions.	Threat							50%		Accept		Revisit following Q4 update.
245	UTL 20.1.5	Utilities Relocation	Utility Relocation Delays: OR Marine Drive	Relocation of utilities related to OR Marine Drive may be challenging, depending on the work sequence, and result in delay and/or additional cost.		Threat				1.0	3.0	6.0	10%	Steve Katko	Mitigate	1) Engage in early and frequent coordination with third party utilities. 2) Research franchise agreements.	Q4 2023: Revisit following the delivery plan. Confirm specific locations of impact. Q2 2023: Lowered probability to 10% to reflect more float for these sections; less likely impact to overall program schedule. Q1 2023: Scope is being developed to advance SUE investigations. Anticipating starting work in the second half of 2023.

Risk Identification							Quantitative Analysis – Post-Managed State							Risk-Response Strategies			
							Direct Cost Impact ($M)			Schedule Impact (months)							
ID #	RBS Code	Discipline Category	Risk Event Title	Risk Description	Additional Notes	Threat or Opportunity	Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely3	High (90% CI)	Likelihood of Impact Occurring	Risk Owner	Strategy	Actions to be Taken	Management Status
246	ENV	Environmental	DSEIS Leaked	During the preparation of a draft Supplemental Environmental Impact Statement (DSEIS) admin drafts are shared outside of partner agencies and leaked to the public, resulting in negative public reaction and potentially hindering the decision-making process. The potential negative public reaction could lead to increased pressure on decision-makers to reject the proposal or make changes to it, which could ultimately delay or impact funding to the project.	Correlated to funding risk.	Threat				1.0	3.0	6.0	10%	Angela Findley	Mitigate	1) Ensure drafts are confidential and secure (e.g., utilizing password protected portals, marking documents with disclaimers). Consider the use of watermarks. 2) Work with partner agencies and communicate the legal implications of sharing drafts outside their agencies.	Q4 2023: No significant/unmanagable leaks identified so far. Q2 2023: Sent drafts to Agencies in early June 2023, have not heard of any leaks to date. Will continue to monitor throughout the end of the calendar year. Revisit risk Q3 2023.
247	CTR	Contract Procurement	Contractor/Industry Bonding Capacities	Contractor/industry bonding capacities may be insufficient as a standalone entity for the work packages identified.	Risk identified during the contract packaging workshop held the week of 2/20/2023. This risk is tied to limited number of bidders.	Threat								Rob Turton	Mitigate	1) Employ the use of RFIs. 2) Engage in a series of 1:1 proprietary meetings with contractors. 3) Explore a variety of work package sizes. 4) Determine what bonding capacities are required and desired. 5) Develop a draft RFP for industry outreach.	Q4 2023: Revisit in Q1 2024. There has been a meeting with Travellers recently to improve understanding. New actions to be taken added #s 3-5.
248	MGT	Finance	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.		Threat								Alex Prentiss	Mitigate	1) Engage in ongoing communications and coordination with interested parties. 2) Develop work package sequencing early and identify changes as soon as possible.	Q3 2023: Revisit following Delivery Plan (Q1 2024). Evaluate if this risk should be listed as a threat or an opportunity. Q2 2023: No changes at this time. Revisit in Q3 following the June 2023 workshop. Q1 2023: Revisit risk in June 2023. Risk identified during the contract packaging workshop held the week of 2/20/2023.
249	CNS	Construction	Work Package Interface	There is a significant interface risk of various work packages as they diverge into separate units of work via various delivery means. This includes considerations for constructor conflict, staging/laydown, and responsibilities on connections of interface points during construction.	Risk identified during the contract packaging workshop held the week of 2/20/2023. MOT impacts are captured under Risk 102.	Threat							75%	Martijn Bolster / Sarah Touey	Mitigate	1) Ensure early coordination of contract discussions to mitigate potential execution conflicts. 2) Develop robust work zone transportation plans including interfaces between contracts. 3) Track overlapping contracts throughout construction. 4) Confirm schedule delivery of construction packages. 5) Develop work package interface management.	Q4 2023: Revisit in Q1 2024. Q1 2023: Revisit risk in Q4 2023 as we approach the next CEVP.
250	MGT	Finance	IBR Program Seeks Federal Funding	The IBR program seeks $1.5B in federal discretionary funding (from the BIP and Mega Programs) as well as $1B in FTA CIG funding. 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.	This funding has been targeted early in the financial plan, to take advantage of the BIL's historical opportunity. However, funding becomes more competitive over time, and the longer this is delayed the more difficult it may be to realize our objectives.	Threat							80%	Brent Baker	Mitigate	1) Work toward a path that meets grant funding's project readiness criteria, including beginning construction as soon as possible. 2) Apply lessons learned from other applicants to make IBR's applications successful. 3) Look for ways to advocate through Congressional delegation to fully fund the BIL program. 4) Identify early work packages to secure funding (i.e., east/west walls, work associated with the river bridge).	Q3 2023: Revisit in Q1 2024. Have applied for Mega Programs grant and are going to apply for BIP. Q2 2023: Revisit risk Q3 2023.
251	ENV	Environmental	NEPA Delays - Movable Bridge	If the NEPA analysis is deemed insufficient by the agencies due to the proposed level of analysis for the movable bridge it would result in project delays and increased costs.	Need to carry it to the same level of analysis as the LPA.	Threat				1.0	3.0	4.0	10%	Angela Findley	Mitigate	1) Engage in early coordination and communication with agencies, esp. FHWA, FTA, and the USCG. 2) Ensure the agencies understand what is included in the analysis early; be transparent.	Q4 2023: Continuing coordination with Coast Guard. So far have not received indication that higher levels of analysis are needed. Coast Guard has approved moving forward with a movable span but not a fixed span. Q3 2023: When FHWA and FTA reviewed first draft, they requested additional work. Further delays still remain a concern. Expecting comments by end of October - revisit this risk in Q4 2023. Q2 2023: Distributed in April 2023, have not received comments that the analysis is insufficient. Will be incorporating comments from the first

Risk Identification							Quantitative Analysis (Post-Managed State)							Risk-Response Strategies			
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252	ENV	Environmental	Section 6(f) - Delta Park	The 6(f) process at Delta Park could delay schedule or add unexpected scope.	Marine Drive interchange is located very close to Delta Park.	Threat				1.0	2.0	6.0	5%	Bill Warncke	Mitigate	1) Engage in early coordination with Portland Parks and Recreation (PP&R) and Oregon Parks & Recreation Department (OPRD).	Q4 2023: Risk identified 11/30/23. Have spoken with Portland Parks and will be meeting with OPRD.
253	STG	Structures	Design Delays - Movable Bridge	If the Movable Span option is selected as the preferred alternative to meet the preliminary navigation clearance determination (PNCD) of 178-foot vertical clearance, then this would result in a project delays and increased costs related to re-design.	If the movable span pile caps at piers 5 or 6 are considerably larger than anticipated then it would require an increase the size of the movable span and require reconfiguring the spans of the movable bridge. Cost impact is for final design costs. Correlated to risk 176.	Threat	$10 M	$15 M	$20 M	3.0	6.0	9.0	1%	Rob Turton	Mitigate	1) Early engagement and communication with USCG. 2) Coordination with River Users/Env. *add actions from construction risk	Q2 2023: A decision will be made following the public comment period. Revisit in Q4 2023. Q1 2023: If a moveable span is selected there would be greater design time required due to increased complexity and a significant increase in construction and O&M costs.
254	CNS	Construction	FAA Notification (Fixed-Span Bridge)	There is a risk that either of the fixed-span bridge options may have some encroachments into Pearson Airfield.	Minor risk to track and will be designing to it.	Threat								Rob Turton	Mitigate	1) Follow up with additional preliminary FORMS 7460s to FAA for preliminary indications. 2) Follow up with DOTs and Legal on area intrusions.	Q4 2023: This will continue to be a risk until the bridge type is determined. Q1 2023: Revisit risk in Q4 2023 as we approach the next CEVP.
255	CNS	Construction	FAA Notification (Moveable Bridge)	There is a risk that FAA makes a determination regarding Northern tower encroachment into Pearson Airfield (VUO) which requires IBR to insure the area of intrusion.	FAA has indicated that as long as there is no encroachment on the 20:1 slope area in Part 77, it may be operationally acceptable.	Threat							15%	Chris Dunster	Mitigate	1) Follow up with additional preliminary FORMS 7460s to FAA for preliminary indications. 2) Follow up with DOTs and Legal on area intrusions.	Q1 2023: Revisit risk in Q4 2023. There should be a decision on structure configuration in November 2023. Preliminary conversations with FAA state no objections if towers are outside the 20:1 slope, reduced probability of
256	PSP	Interagency Coord.	Re-Endorse LPA	Following the DSEIS, there is a risk that the program may need to engage local government official to re-endorse the LPA. This could result in delays to the program schedule.	Watch list item to monitor.	Threat				2.0	2.5	3.0	10%	Katy Belokonny	Mitigate	1) Engage interested parties/partner agencies early to garner a design option agreement.	Q4 2023: Adjusted schedule impact to 2-2.5-3 months. The primary trigger impact would be 2 aux lanes. Schedule impact would be to work through the process. Discuss during Q4 update.
257	MGT	Finance	Delay to OR/WA Tolling Finance Agreement	High-level coordination needed between WA, OR to provide adequate authorization by the respective states to effectively act as one entity. If there are challenges getting agreements on the financial plan, particularly tolling finance and governance, then this could affect federal funding, including the FTA FFGA application.										Charla Skaggs	Mitigate	1) Engage in ongoing communications and coordination with interested parties to avoid disruption to project. 2) Draft tolling agreement early to allow sufficient time for parties to review and execute. 2) Fallback action is to engage interested parties early to agree on a plan of action in case of delays to the OR/WA Tolling Agreement and quantify required efforts.	Q3 2023: Engage with Charla Skaggs and revisit in Q1 2024. Risk may need to be split to address different agreements. Q2 2023: Risk identified; related to, but separate from, risk 69 Delay to OR/WA Authorizations / Approvals.
258	MGT	Finance	Pre-Completion Tolling	Construction of pre-completion tolling elements may need to start prior to the Record of Decision (ROD). Procurement needs to begin prior to the ROD in order to meet pre-completion tolling timeline.	Priority watch list item to monitor. Includes timeline of approvals for procurement of equipment needed for tolling such as signage, cameras, etc. Procurement is typically intiated after the ROD.	Threat								Sean Nikkila	Mitigate	1) Identify path to clear NEPA. 2) Coordinate with ODOT Toll Program.	Q4 2023: Updated risk description. Q2 2023: Risk identified; this is a watchlist item to continue to track.
259	STG	Geotechnical	Conflicts with Installed Shafts	Test pile program from CRC installed drilled shafts - determine if these installed shafts will conflict with any new structures/ground improvements, etc.	Locations are in Hayden Island permit center parking lot and Vancouver near the bridge maintenance parking area.	Threat								Steve Katko	Mitigate	1) Determine if CRC drilled shafts will conflict with structures or ground improvements.	Q4 2023: Continue to monitor as shaft locations are determined. Q3 2023: Risk added.
260	TRN	Transit	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.		Threat							10%	Leah Nagely Robbins / Matt Deml	Mitigate	1) Select the basis of design for interim Marine Drive. 2) Confirm 408 permit strategy for interim Marine Drive design for transit.	Q3 2023: Risk identified and placed on the Watchlist. This is a priority watchlist item to revisit on a quarterly basis.

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261	TRN	Transit	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.	Discuss with Delivery Method team.	Threat				3.0	6.0	12.0	50%	Leah Nagely Robbins	Mitigate	1) Confirm the contract packaging strategy and approach. 2) Incorporate the approach into the master schedule and identify mitigations.	Q3 2023: Risk identified. Revisit in more detail following the Delivery Plan.
262	MGT	Finance	State Funding Timing	There is a risk that funding from either OR or WA may be delayed relative to project needs and/or have use restrictions that are more restrictive than currently assumed.						3.0	12.0	24.0	10%	Tiffany Bennett / Meghan Hodges / Gaby Zhu	Mitigate	1) Ongoing communication of program funding needs with both state legislatures.	Q3 2023: Risk identified.
263	CNS	Construction	Damage to Adjacent Structures (existing bridge)	Additional measures may be required to prevent damaging the existing bridge structure due to ground improvement.	Impacts to other adjacent structures are captured in Risk 4 and the Post Hospital in Risk 84.	Threat								Rob Turton / Martijn Bolster	Mitigate	1) Investigate ground improvements that reduce likelihood of construction techniques that would damage existing structures. 2) Require monitoring of existing structure.	Q4 2023: Risk identified; related to but separate from risk #4.
264	TRN	Transit	Ruby Junction Expansion	Ruby Junction delays other construction, vehicle delivery, and commissioning before it is operational.		Threat				1.0	3.0	6.0	10%	Eric Forsyth	Mitigate	1) Confirm the contract packaging strategy and approach.	Q4 2023: Risk identified 11/17/23.
265	TRN	Transit	Delays to Ruby Junction ROW Acquisitions	ROW acquisition for Ruby Junction is delayed and delays start of construction.		Threat				3.0	6.0	9.0	20%	Nick Stewart / Kat Halpenny	Mitigate	1) Engage in early and frequent coordination with ROW.	Q4 2023: Risk identified 11/17/23.
266	TRN	Transit	Track / Systems Construction	There is a risk to meeting the quality and schedule metrics bound by the construction contract. The risk lies in the contract interface points, which in turn affects the schedule.		Threat				1.0	3.0	12.0	20%	Eric Forsyth	Mitigate	1) Confirm the contract packaging strategy and approach.	Q4 2023: Risk identified 11/17/23.
267	ENV 40	Tribal Coord.	Tribal Workforce Engagement & Employment Rights	Tribal employment and hiring goals need to be incorporated into the program. OR has documentation/processes for these, but WA does not. If differences are not resolved in time for the RFP, it could delay the process and impact relationships with the tribes.		Threat								Aiden Gronauer / Kassandra Rippee	Mitigate	1) Continue ongoing coordination with the tribes and with both states' legal teams and civil rights teams. 2) Develop agreement documents with appropriate tribes.	Q4 2023: Risk identified 11/17/23.
268	PSP	Interagency Coord.	Partner Requests - Design/Construction	Partner requests for revisions to design/construction means and methods result in delays.	Minor risk; this is separate from Risk 93 which captures requests for additional data/modeling. Partner requests for design/construction means and methods are captured as a minor risk and may be triggered by the project Delivery Plan.	Threat								Katy Belokonny	Mitigate	1) Engage interested parties early to validate partner requests and quantify required actions.	Q4 2023: Risk identified 11/20/23. This is related to but separate from risk 93.
269	CTR	Contract Procurement	Third Party Agreements Process	Delays to third party agreements or the third party agreements process results in procurement delays		Threat								Kate Elliott	Mitigate	1) Evaluate what third party agreements tied to procurement would have the largest impact. 2) Consider incorporating with GIS information, which may support tying agreements database to individual projects.	Q4 2023: Risk identified 11/28/23. Evaluate in Q1 2024 and consider breaking into multiple risks.