

# RISK MANAGEMENT

Date: April 12, 2024

Subject: Q1 2024 Quarterly Risk Update

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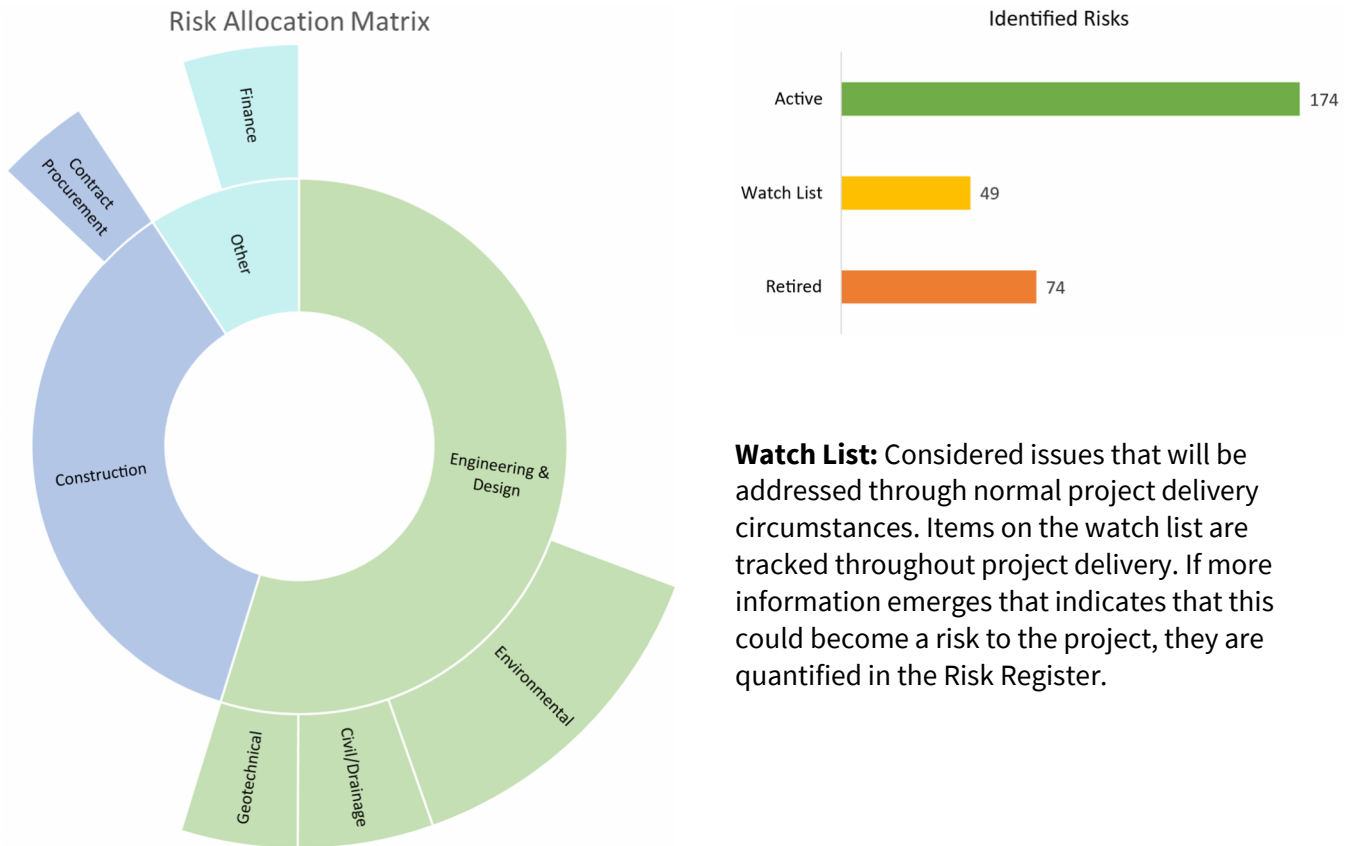
## PURPOSE

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 February through April 2024, working sessions were coordinated held with IBR leadership and technical leads to identify new risks, develop risk management strategies and action plans, re-evaluate the risk probabilities and cost/schedule impacts with information available at the time of the work sessions, and retire risks that were no longer relevant (e.g., realized, duplicate, had been mitigated, etc.). This memorandum highlights the status of the IBR program risk register, key risk management priorities, and the top program risks. Many of the risks facing the program are dependent upon actions that must be put into place or decisions needed by certain deadlines, as identified in the risk response strategies and action plans.

## RISK REGISTER STATUS

During the working sessions the team identified 24 new risks that could impact the program; five were related to Market Conditions, four to Utilities Relocation, and three to Right-of-Way (ROW). Other risk discipline categories for which one or two new risks were identified include Construction, Environmental, Contract Procurement, Transit, Finance, Traffic, Interagency Coordination, Maintenance of Traffic (MOT), and Roadway Design. Key concerns addressed by the new risks include relocation delays, for both utilities and property, as well as late design changes, late identification of critical utilities, and unexpected reimbursable work. In addition, many of the Uncertainties carried in the risk register were further broken down to distinguish between contracts, such as the Columbia River Bridge (CRB) and the Approaches. For more information on the new risks identified this quarter, please see the *New Risks* section of this memorandum.

The charts on the following page delineate both the total number of identified risks, and the allocation of risk severity, based on the relative severity in the risk managed state, for Engineering and Design, Construction, and Other Risks categories. Construction, including Contract Procurement and Delivery Method risks, accounts for 48% of the risk exposure currently identified, driven by the potential of material procurement delays, existing conditions and demolition, construction scheduling and staging, and uncertainties with contract packaging. Engineering and Design risks (e.g., Civil/Drainage, Environmental, Geotechnical, Structural, and Transit) represent 45% of the relative degree of risk exposure identified for the IBR program thus far, primarily driven by the risks categorized as Environmental. Key risk themes discussed during the Environmental sessions included cultural resource findings and natural resource conservation, delays to timelines for processes such as Section 106, 4(f), 6(f), and Federal Lands to Parks (FLP), and external agency review times for technical reports such as the Draft Supplemental Environmental Impact Statement (DSEIS) and NEPA analysis.



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

## Risk Management and Priorities

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

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

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

## Quarterly Risk Update

February through April, 22 working sessions were held with IBR leadership and technical leads to review and update all risks for the Q1 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

- Over 200 risks were reviewed during this quarterly update, and updates or edits were captured for over 140 existing risks. 26 new risks were identified, and 11 risks were retired. Eight risks were moved off the watch list and made Active, and 23 risks were paced on the watch list.
- This quarter, in addition to reviewing risks, risks were also mapped to the 27 contract packages that were identified at the time of the meetings, this was done to support preparation for the Cost Estimate Validation Process (CEVP) modeling. For each risk, participants considered which of the packages may be affected, and this was recorded in an additional column in the risk register for modeling purposes. Several of the new risks identified this quarter were developed as a result of these considerations, for risks which may have specific impacts for different packages.
- The 2024 CEVP workshop is anticipated to take place in Q2. In preparation for the CEVP, the program estimate and schedule are currently being reviewed and validated. 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.

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## Risk Updates

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

### Civil/Drainage

Risk #1: Stormwater Facilities

Risk #2: Use of Existing Pipes

Risk #3: Lack of Downstream Conveyance Capacity

- For the three above risks, it was noted that the drainage process has recently been started and is underway. The finalization of the footprint will influence how these risks will be advanced.

### Construction

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

- The cost impact (direct cost for remobilization/demobilization) was reduced from \$10-30M to a low of \$5M, a most likely of \$10M, and a high of \$0. The value of \$0 direct cost would occur if the schedule loss is twelve months; twelve months of escalation would be the biggest impact, which will be handled through the risk model. The most likely value of \$10M combined with a seven-month delay is much lower than the high likelihood with \$0 direct cost and a twelve-month delay.
- The schedule impact was increased from 1-6 months to 1-12 months (most likely 7 months).
- The risk likelihood was increased from 10% to 50%.

Risk #8: Complex Bridge Approach MOT & Staging

- The risk title was updated to be specific to the Approaches.
- The team is developing a proof of concept for MOT and this package is expected to be Design-Build (DB). Therefore, the risk likelihood was reduced from 50% to 25% and the cost impact decreased from \$10-50M to \$5-20M (most likely \$10M).

Risk #12: Existing Bridge Demolition

- This risk was previously not quantified. A likelihood of 25% was assigned and a cost impact of \$0-35M (most likely \$18M). The cost impact would be for the effort to extract piles and additional removal with clamshell bucket.

Risk #25: Civil and Systems Contractor Interface / Coordination

- The risk likelihood was increased from 10% to 50% and a cost impact of \$4-12M (most likely \$6M) was assigned. The increase in likelihood is due to the interfaces with many packages for the single systems contractor and the cost impacts would be for minor to medium rework for all elements carrying transit.

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- A new mitigation action to be taken was identified for the system integration project manager to manage a cross-contract systems interface schedule.

### **Contract Procurement**

Risk #26: Limited Bid Responses Result in Re-Procurement: River Bridge Contract

- The cost impact for this risk was reduced from \$16-24M to \$2M-\$8M (most likely \$4M) to be representative of the cost for stipends.
- A new mitigation action was added to ensure early issuance of the draft RFP.

### **Delivery Method**

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

- This risk was moved off the watch list and made Active.
- A new mitigation action was added to engage with ODOT, WSDOT, C-Tran, and/or TriMet (for respective contracts) in a formal delivery method process to gain consensus on delivery method.

### **Environmental**

Risk #39: Section 106 – Analysis

- The team has been experiencing an increase in materials requested for review. The team is updating the programmatic agreement schedule and have been utilizing a deliverables tracker that is helping to increase the efficiency of reviews. Coordination efforts are underway with sequencing to best understand how to align the Section 106 analysis with packaging.

Risk #41: Section 4(f), 6(f), and Federal Lands to Parks - Delta Park

- The risk title and description were updated to include the 6(f) and Federal Lands to Parks (FLP) processes in addition to the 4(f) process.
- A new mitigation action to be taken was added to continue coordination with partner agencies to ensure mitigations requested are consistent with impacts.
- A cost impact of \$1M-\$5M (most likely \$3M) was added and would be for items such as acquiring additional park land, active transportation, etc.

Risk #47: FHWA and FTA NEPA Review/Participation

- Delays have already been realized and additional delays are still a risk. The schedule impacts and likelihood for this risk were increased accordingly to a 3–9-month delay (most likely 6 months) at a 65% probability.
- An additional mitigation action to be taken was added to add the program to the executive roadmap per USDOT request.

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#### Risk #53: USCG Bridge Permit Delay

- The team is planning to hold in-person meetings with the USCG to work through matters relative to the revised navigation impact report.
- The likelihood for this risk was increased from 10% to 25%, and the schedule impacts increased from 1-3 months to 3-9 months (most likely 6 months), due to needed coordination efforts.

#### Risk #56: Natural Resource Mitigation and Conservation

- The risk description was updated to focus on the risk that mitigation sites may not be ready in time. A new risk, risk 285, was developed to address unanticipated mitigations that may be needed.
- The cost impacts for this risk were decreased from \$10M-\$50M to \$1M-3M (most likely \$2M) and the schedule impact was increased from 3-9 months to 3-12 months (most likely 6 months).
- The risk likelihood was increased from 20% to 30%.
- A new mitigation action to be taken was added to document the mitigation search and approach to share with project stakeholders.

### Finance

#### Risk #68: Transit O&M Funding

- Recent progress has been made on this risk item. Oregon/TriMet have proposed a funding source, Statewide Transportation Improvement Fund (STIF), however a Washington funding source still needs to be identified.

#### Risk #72: ODOT Toll Operations Schedule

- The RFP for roadside is near completion and Notice to Proceed (NTP) is anticipated for November 2024.
- The schedule has been compressed, but tolling is still expected to begin on schedule. The likelihood was reduced from 90% to 50%.
- This risk was moved to the watch list as it is not expected to impact the program schedule.

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

- The risk title and description were updated to focus this risk on non-CIG funding. A new risk, risk 274, was identified to address CIG funding. With the focus of this risk changing to non-CIG funding, the likelihood was reduced from 50% to 25%.

#### Risk #257: Delay to OR/WA Tolling Finance (Flow of Funds) Agreement

- A bi-state tolling committee has been established ahead of schedule and agreements are in process.
- The risk likelihood was lowered from 10% to 5%. It has been determined that WSDOT will lead the tolling and will look at funding/financing.

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## **Geotechnical**

Risk #78: Bridge Foundation Changes – Construction

- Completed geotechnical investigations last quarter for the CRB and the North Portland Harbor (NPH) Bridge, confirming ground conditions with findings of sand, cobbles, and possibly boulders. Main concerns are with the Portland side.

## **Maintenance of Traffic (MOT)**

Risk #101: Maintenance of Traffic (MOT) Mitigation

- A risk likelihood of 30% was assigned, as well as a cost impact of \$0-7M (most likely \$4M) and a schedule impact of 0-6 months (most likely 3 months).
- The first mitigation action to be taken, to develop preliminary staging and phasing concepts, has been completed.
- A new mitigation action to be taken was added to engage with the Mobility Team early.
- The risk was removed from the watch list and made Active.

Risk #102: Conflicts Among IBR Contracts (SR-14 Package A and Approaches)

- The risk title and description were updated to be specific to SR-14 Package A and the Approaches. Two new risks, risks 282 and 283, were identified to address the Mill Plain/Washington North interface and the overall program, respectively.
- The risk likelihood was increased from 15% to 20% and the schedule impact increased from 0-3 months to 1-6 months (most likely 3 months).

## **Market Conditions**

Risk #105: Uncertain Market Conditions: Number of Bidders and Pricing (River Bridge Contract)

- This risk was updated to be specific to the CRB and split into a Threat and Opportunity. The Opportunity for the CRB is captured in new risk 291.
- A similar Threat and Opportunity were also created to be specific to the Approaches, captured in new risks 292 and 293, respectively.
- The risk likelihood was reduced to 50%.
- As an Uncertainty, this risk previously carried a cost impact range that included both negative and positive values. The cost impacts were updated to a range of \$0-330M (most likely \$165M).

## **Other**

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

- Negotiations with headquarter offices are still underway.
- A new mitigation action to be taken was added to continue to engage with program leadership.



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- The time delay for this risk can be quantified once the schedule is updated.

Risk #123: Community Benefits and Associated Agreement

- The program is currently in the Community Benefits Advisory Group (CBAG) process with the Community Benefits group, and the first round of recommendations have been completed.

### **Program Management**

Risk #112: OCIP Opportunity

- No decision has been made thus far regarding the Owner Controlled Insurance Program (OCIP). The program is currently engaging in conversation with other mega-programs in the area.

### **Railroad**

Risk #129: BNSF Agreement Delays

- The schedule impact high end was increased from 6 months to 12 months based on team experience.
- A new mitigation action to be taken was added to continue to engage with the Third-Party Agreements team.
- The risk description was updated and now reads as follows: *Packages in the program will require one or more C&M agreements with BNSF. If agreement negotiations take longer than the base schedule estimate (18 months) then construction impacting BNSF property may be delayed.*

Risk #130: Railroad Agreement Term Sheets Delays

- The draft terms and conditions have been provided by the FHWA and the team is performing requirements extraction for the FHWA grant.
- The risk description was updated and now reads as follows: *FTA/FHWA could require railroad term sheets in order to approve entry into engineering. If railroad terms sheets are not completed by Q3 2025, entry into engineering could be delayed.*
- Two new mitigation actions to be taken were added:
  - Investigate FTA requirements.
  - Engage with the Transit team for coordination.

### **Right-of-Way (ROW)**

Risk #135: ROW Cost Increases

- Risk title was changed from “Private Development” to “ROW Cost Increases”.
- The risk description was updated and now reads as follows: *Prior to starting the ROW phase, development and market costs will be a moving target. If ROW acquisition and relocation rates increase relative to the inflated base estimate, ROW expenses could exceed what is budgeted.*

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- Continue to track and monitor through ROW acquisition in coordination with design team and continue to monitor ROW cost increases related to development and market increases.

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

- The risk description was updated and now reads as follows: *As project needs are further refined, the ROW footprint might change relative to what was assumed in the base estimate. If the project footprint changes after ROW acquisition is scheduled to start, then cost and schedule could be impacted.*
- Continue to track and monitor through development of the 30% plans and review any potential impacts related to early tolling and packaging.

#### Risk #139: Lack of Appraisers

- The risk description was updated and now reads as follows: *There is a limited pool of appraisers and internal DOT resources for setting Just Compensation that compete for resources with other regional and statewide projects. If resource scarcity or quality issues impact the project, ROW cost and schedule could increase relative to base assumptions.*
- Two new mitigation actions to be taken were added:
  - Develop appraisal plan early.
  - Identify specialty reports early as part of the plan.

#### Risk #141: Relocation Delays - Washington (Other)

- The ROW manager has been engaged.
- Two new risks related to this risk but specific to the Approaches (risk 287) and Hayden Island (risk 288) were identified; this risk title was updated to capture all others in Washington.

#### Risk #146: BNSF Property Rights Resolution

- Two new actions to be taken were added:
  - Coordinate with ROW Real Estate and confirm real estate process for BNSF.
  - Clarify if the program impacts intersect with legacy property area and which package that applies to.
- The risk description was updated to include that if ownership is not clarified prior to when legal descriptions are scheduled to be drafted then acquisition of railroad and NPS property could be delayed.

### Roadway Design

#### Risk #163: Shared Use Path Extension (WA)

- Conversations with the City regarding Evergreen Station are currently underway. Discussions on the Community Connector are to begin in the second half of 2024, but there has been no discussion on extending the shared use path (SUP) from Waterfront up to Evergreen.
- The likelihood of this risk was decreased from 20% to 5%.

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#### Risk #170: Shared-Use Bike/Ped Path Design (OR)

- This risk was removed from the Watch list and made Active.
- The schedule impacts for this risk were removed and the high-cost impact was increased from \$10M to \$20M to include ROW mitigation.
- The likelihood was reduced from 20% to 15%.
- The risk description was revised to the following: *Additional shared-use path (SUP) length in Oregon may be greater than what is in the base.*

#### Traffic

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

- This risk is currently being realized and is actively being managed.
- The schedule impact range was increased from 1-3 months to 6-18 months (most likely 12 months) to reflect the expected range of delay.

#### Transit

##### Risk #204: Advance with Direct Fixation Track

- The 2024 CEVP cost estimate will include direct fixation. With the updated estimate, this risk would flip to be a Threat instead of an Opportunity.

##### Risk #260: Interim Marine Drive Design

- The Section 408 permit has been developed, and the Section 408 permit team is coordinating with MCDD and USACE to align schedules.

##### Risk #266: Track / Systems Construction

- The risk likelihood was increased from 20% to 50% due to the complexity of contract interface points and potential impacts to the schedule.
- Three new mitigation actions to be taken were added:
  - Consider developing specific design criteria for contract interfaces.
  - Engage in early and frequent coordination with track and systems crew and contractor throughout design and during construction.
  - Assign a project manager specific to civil systems integration throughout Transit design and construction.

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## Tribal Coordination

Risk #220: Section 106 – Approach

- Intergovernmental agreements have been developed with three tribes so far and one more is in progress. This will help to identify resources, impacts, and mitigation actions.
- A new mitigation action to be taken was added to approach agreements with a phased structure so that parties can build trust for future management processes and responsibilities.

## Utilities Relocation

Risk #225: Delayed Completion of Utility Agreements and Permits

- The risk title was updated to include permits as well as agreements.
- The risk description was revised to the following: *Utility agreements and permits need to be executed before design and construction work can be started. If utility agreement identification or negotiation is delayed behind the assumption in the base, then there could be impacts to the design and construction schedule.*
- Three new mitigation actions to be taken were added:
  - Define early work to determine potential impacts to public and private utilities.
  - Initiate outreach.
  - Identify what existing utility agreements are already in place.
- Consider breaking into two separate risks for design and construction in the future when more information is available.

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

- The risk title was changed from “Utility Relocation Delays: River Bridge and Approach Landside features” to “Utilities Take Longer Than Anticipated to Implement Relocation Plan (CRB)”.
- The Utility Agreement group has been engaged and the subsurface utility engineering (SUE) is to be complete by the end of March 2024.
- The team is currently developing utilities schedule logic and a utility impact matrix to better track and identify impacts.
- Risk 228 “City of Vancouver Underground Utilities” was incorporated into this risk. As a result, two new mitigation actions to be taken were added:
  - Engage in early communication with City of Vancouver to determine City’s decision regarding underground and applied betterment as part of the relocation.
  - Engage in early coordination with Utilities on the Utility Plan.

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## New Risks

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

Risk #270: River User MOT During CRB Construction – Additional restrictions from stakeholders cause interruptions/delays to the contractor. Claims for additional stoppages; impacts from river user navigation. This risk was placed on the Watch list.

Risk #272: Federal Lands to Parks - The FLP processes at Old Apple Tree Park and Marshall Park could delay schedule or add unexpected scope.

Risk #273: Trestle Connection to Hayden Island – The trestle connection (work bridge) to Hayden Island may be delayed due to ROW. If the trestle cannot be built out from the property, more marine work may be needed and result in change to construction means and methods and may also require revisiting permitting.

Risk #274: IBR Program Seeks Federal Funding – CIG - The IBR program seeks \$1B in FTA CIG funding. Failure to secure federal funding may result in delays to and/or down scoping of the IBR program. This is related to risk 250 but is specific to CIG funding.

Risk #275: Limited Bid Responses Result in Re-Procurement: Approaches Contract - Limited bid responses result in a non-competitive procurement and possible need to rebid. This is related to risks 26 and 27, but specific to the Approaches.

Risk #276: Design Changes - Late design changes (after utility coordination efforts) initiated by owners might impact/delay utility relocation base schedule.

Risk #277: Reimbursable Work - If there is more reimbursable work than anticipated, then it might increase the project costs. The risk would occur if impacts are outside of DOT ROW.

Risk #279: Critical Utilities - Critical Utilities identified late in design might impact design or construction schedule and cost. Risk placed on the Watch list.

Risk #280: Utilities Relocation Delays - Double Moves - Relocation of utilities suspended on the existing CRB onto the new IBR may be challenging. With the double move of utilities, there is a higher likelihood of delays occurring. Related to risk 226 but specific to utilities requiring double moves.

Risk #282: Conflicts Among IBR Contracts (Mill Plain and Washington North) - Lack of coordination between the Mill Plain and Washington North 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. Related to but separate from risks 102 and 283.

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Risk #283: 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. Related to but separate from risks 102 and 282.

Risk #284: Detours and Closures - Marine Drive - If detours and closures are determined to be unacceptable then a redesign of elements may be required. Related to risk 187 but specific to impacts to Marine Drive.

Risk #285: Unanticipated Mitigations Needed - There could be additional unanticipated wetland, floodplain, or other environmental mitigation required.

Risk #286: Bridge Type Decision Leads to Procurement Delays - Risk of decision on bridge type after bid or into bid process leads to bid process delays to contract procurement, potentially resulting in higher costs and/or schedule impact. Risk related to but separate from risk 89, and specific to the CRB.

Risk #287: Relocation Delays - Washington (Approaches) - 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. Related to risk 141, but specific to Approaches.

Risk #288: Relocation Delays - Washington (Hayden Island) - 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. Related to risk 141, but specific to Hayden Island.

Risk #290: Uncertainty in Construction Cost Inflation Rate - Construction inflation and/or escalation rates (including material, labor, and equipment) are lower than assumed due to uncertainty in future economic conditions. This risk is the Opportunity counterpart to the Threat captured in risk 104.

Risk #289: Uncertainty in ROW Cost Inflation Rate - ROW inflation and/or escalation rates may be lower than assumed due to uncertainty in future real estate market conditions. This risk is the Opportunity counterpart to the Threat captured in risk 151.

Risk #291: 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. An opportunity for bid discount related to very strong competition, contractors needing work, etc. may also exist. This risk is the Opportunity counterpart to the Threat captured in risk 105.

Risk #292: Uncertain Market Conditions: Number of Bidders and Pricing (Approaches 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. This risk is the Threat counterpart to the Opportunity captured in risk 293.

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Risk #293: Uncertain Market Conditions: Number of Bidders and Pricing (Approaches Contract) - Market conditions as related to the number of bidders, competition, and contractor pricing may differ from base assumptions. An opportunity for bid discount related to very strong competition, contractors needing work, etc. may also exist. This risk is the Opportunity counterpart to the Threat captured in risk 292.

Risk #294: 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. This risk is the Opportunity counterpart to the Threat captured in risk 106.

Risk #295: Partner Agency Design Review Processes - 30% Design Package (River Bridge) - Partner agencies conduct design review 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. Risk related to risk 86 but specific to the CRB.

Risk #296: Partner Agency Design Review Processes - Subsequent Packages, 60%, 90% (River Bridge) - Partner agencies conduct design review 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. Risk related to risk 87 but specific to the CRB.

## Retired Risks

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

Risk #193: Delta Park Station Removal - Station removal is not assumed. Risk was originally identified for a way to improve the speed of the yellow line.

Risk #201: Evergreen LRT Grade Separation – The Transit team has confirmed the MLPA design assumptions for a three-track at-grade station.

Risk #213: Additional LRT Vehicles - When it comes to quantity of vehicles, it is not likely that more will be needed.

Risk #228: City of Vancouver Underground Utilities – Risk was combined with risk 226 “Utilities Take Longer Than Anticipated to Implement Relocation Plan (CRB)”.

Risk #229: Pump Station at Waterfront – Potential impacts for this risk are captured in risk 223 “Scope of Utilities Required is Greater than Anticipated”.

Risk #231: Utility Relocation Delays: WA Transit – Potential impacts for this risk are captured in risk 227 “Utility Relocation Delays (Program-Wide)”.

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Risk #232: Utility Relocation Delays: WA North Highways – Potential impacts for this risk are captured in risk 227 “Utility Relocation Delays (Program-Wide)”.

Risk #239: Uncertain ROW Market Conditions – This risk was merged with risk 135 “ROW Cost Increases”.

Risk #245: Utility Relocation Delays: OR Marine Drive – Potential impacts for this risk are captured in risk 227 “Utility Relocation Delays (Program-Wide)”.

Risk #278: Accuracy of Utility Information – This risk was originally identified during the quarterly update but was ultimately retired as it was determined to be captured in risk 233 “Unidentified Utilities Encountered During Construction”.

Risk #281: Uncertainty in Utility Costs - Lower Than Anticipated – This risk was originally identified during the Q1 quarterly update, but was ultimately retired as it was determined that there is not currently an opportunity.

### Priority Watch List Items

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

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

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

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

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

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



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

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

Risk #258: Pre-Completion Tolling – Construction of pre-completion tolling elements may need to start prior to the ROD. Procurement needs to begin prior to the ROD in order to meet pre-completion tolling timeline.

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

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

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

## Top Risks

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

1. Risk #274: IBR Program Seeks Federal Funding - CIG

The IBR program seeks \$1B in FTA CIG funding. Failure to secure federal funding may result in delays to and/or down-scoping of the IBR program.

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

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

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

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

3. Risk #39: Section 106 – Analysis

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

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

4. Risk #78: Bridge Foundation Changes – Construction

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

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

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

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

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

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

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

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

7. Risk #68: Transit O&M Funding

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

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

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

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

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

9. Risk #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.

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

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

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

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## Risks to Manage

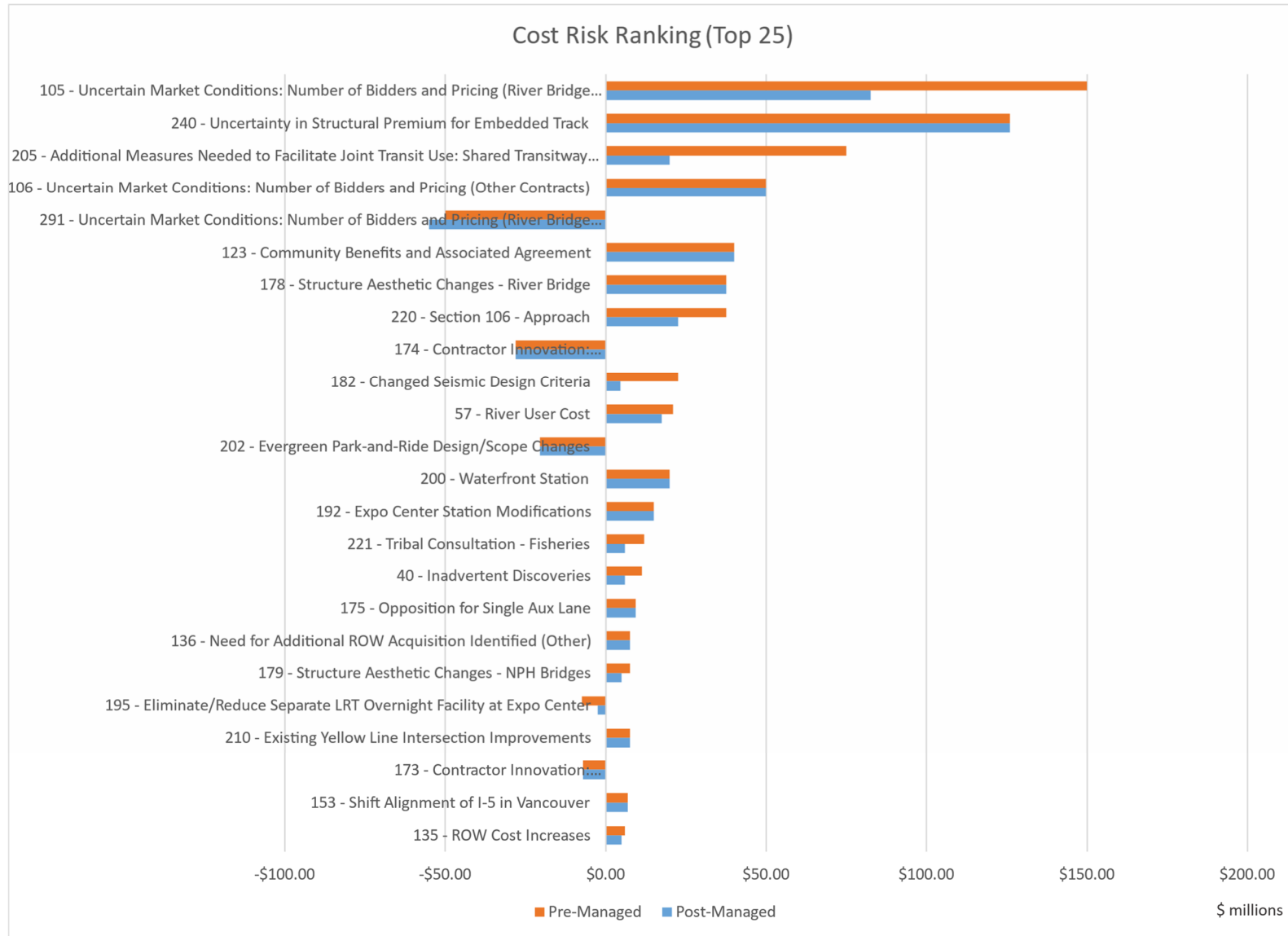
To identify the risks with the largest cost and schedule impacts, the Risk Management team has developed several plots referred to as a Tornado Diagrams. In a Tornado Diagram, threats are plotted to the right of the central axis, while opportunities are plotted to the left. These diagrams present the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

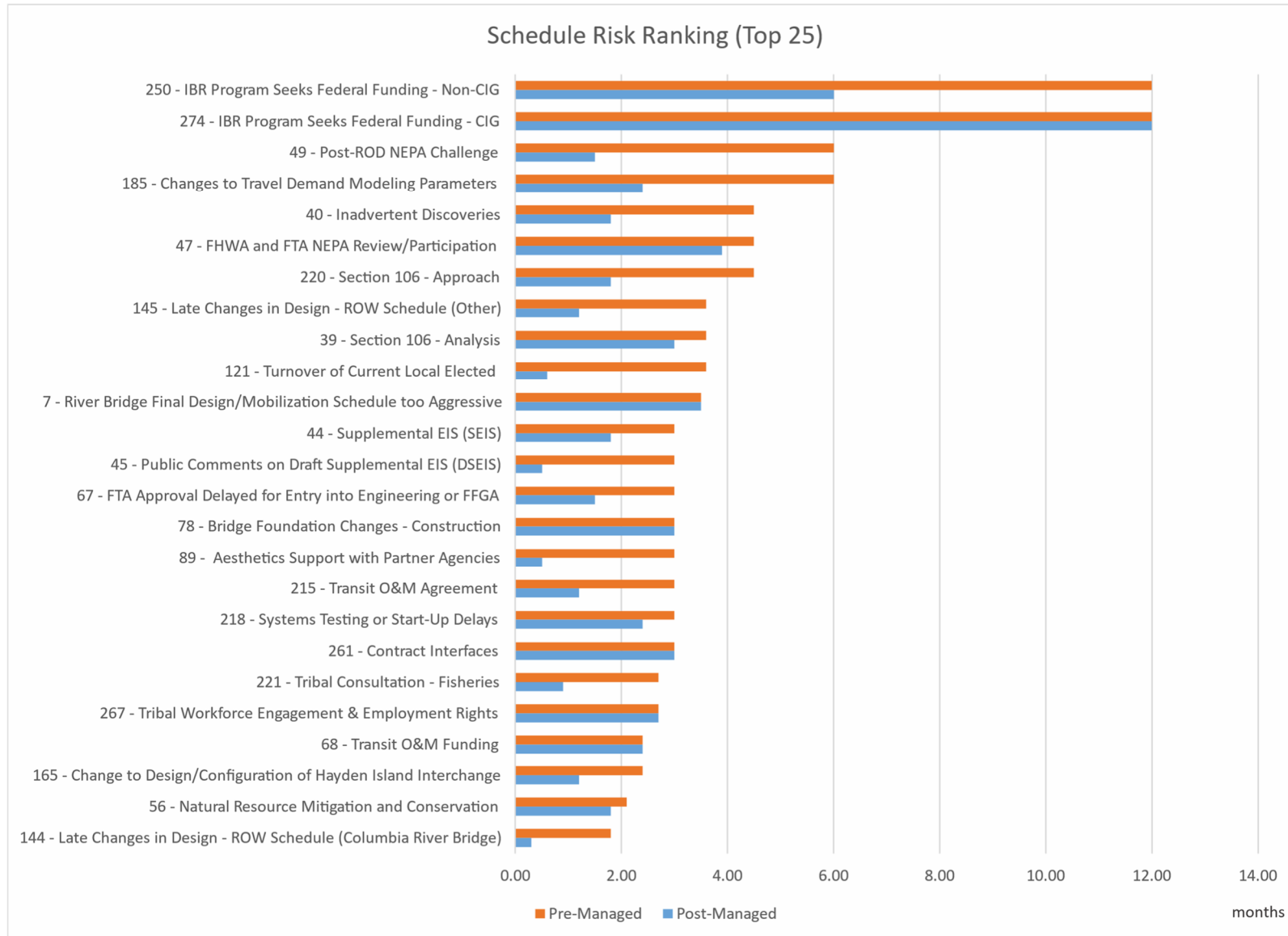
The highest relative impact risks are located at the top of the diagram, and the lowest relative impact risks are at the bottom. The highest risk threats require the most management and have the highest need for appropriate risk response. The risks at the bottom of the Tornado Diagram are not insignificant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

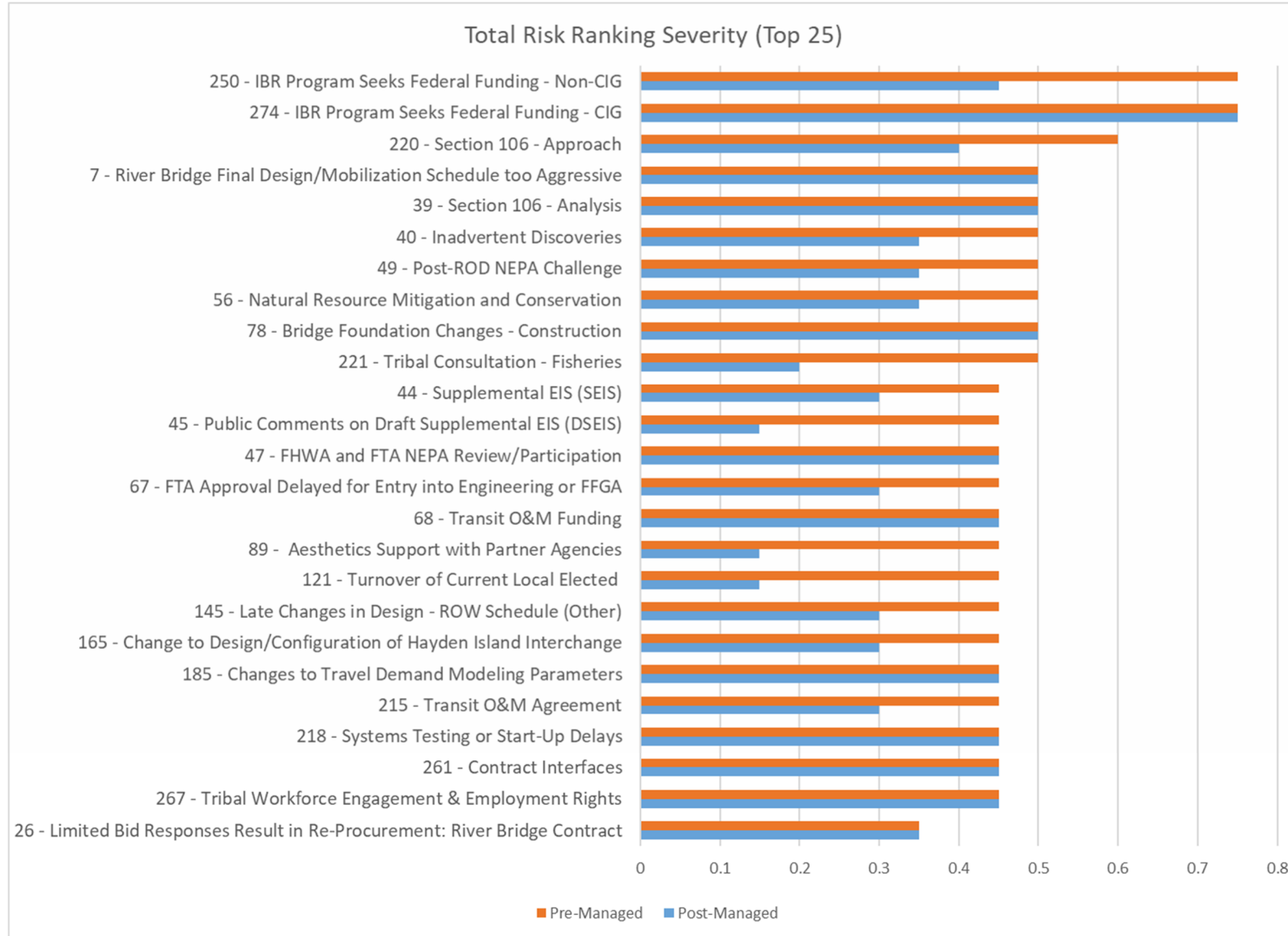
The degree of risk portrayed in the Tornado Diagram is based on a calculated value that determines relative risk by multiplying the probability of occurrence and the most likely impact to generate the expected value of impact. The **orange** bar of the two-bar pair shown below for each risk represents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

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

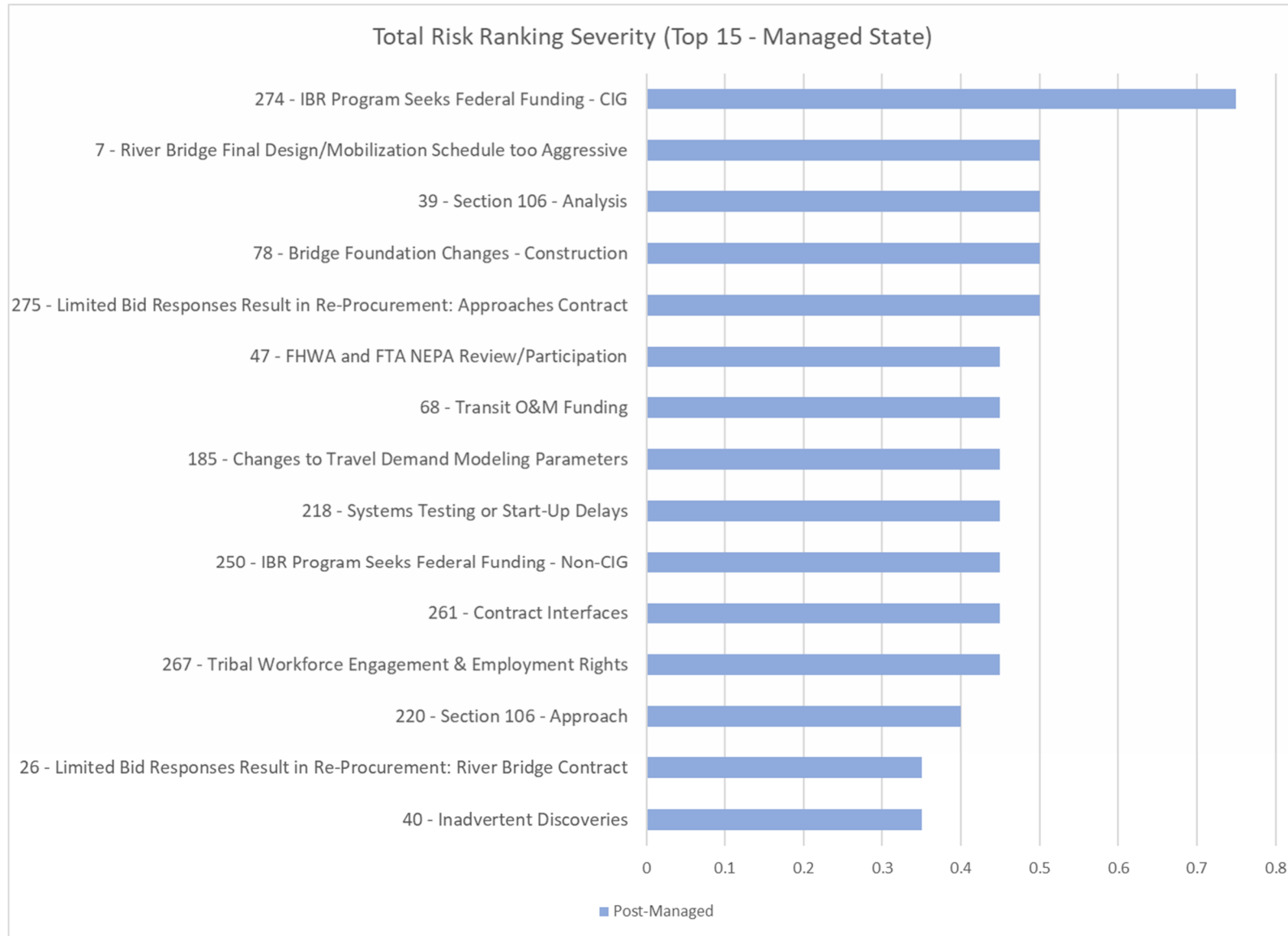
If the proposed risk response strategies are fully implemented within the risk register, the potential impact of event risk to the IBR Program could be significantly reduced. Of these, it is essential that the response strategies for the topmost risks identified in the following tornado diagrams and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











April 12, 2024

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## Appendix

IBR Risk Register last updated on 04/08/2024.

**Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN**

Risk Identification							Quantitative Analysis							Risk-Response Strategies						
ID #	RBS Code	Discipline Category	Risk Event Title	Risk Description	Additional Notes	Threat or Opportunity	Post-Managed State							Risk Owner	Strategy	Actions to be Taken	Management Status			
							Direct Cost Impact (\$M)			Schedule Impact (months)			Likelihood of Impact Occurring							
							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)								
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).	Q1 2024: Drainage process is beginning/underway. Waiting for footprint finalization to advance.  Q4 2023: Refined risk description.
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).	Q1 2024: Drainage process is beginning/underway. Waiting for footprint finalization to advance.  Coordination started with Portland Metro Levee System, Mult Co Drainage District and Corps for floodwall modifications.
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.	Q1 2024: Drainage process is beginning/underway. Waiting for footprint finalization to advance.
4	STG 20.5.2	Construction	Damage to Adjacent Structures (Other)	There is a risk of damage to adjacent structures during construction such as the cinema, Normandy Apartments, and any new construction.	Post Hospital and existing river bridge captured separately (risks 84 and 263).  Risk is that mitigation measures do not work and damage results to adjacent structures. May trigger environmental (SHPO).	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	Q1 2024: Updated risk description.  Q4 2023: Split this risk out and create a new one specific to the existing river bridge (263). 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. <i>Schedule has 6 months between NTP to Mob.</i>	Cost impact would be for remobilization/demobilization.  The value of \$0 direct cost would occur if the schedule loss is 12 months. Twelve months of escalation would be the biggest impact by far. The most likely value of \$10M combined with a 7-month delay is much lower than the high likelihood with \$0 direct cost and a 12-month delay.	Threat	\$5 M	\$10 M	\$0 M	1.0	7.0	12.0				50%	Robert Turton / Mathers Heuck	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.	Q1 2024: Need to re-evaluate depending on which schedule is used for CEVP. Cost impact reduced from 10-30M to 5-0M (most likely 10M). Schedule impact increased from 1-6 to 1-12 months. Likelihood increased from 15% to 50%.  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.

Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN

Risk Identification							Quantitative Analysis							Risk-Response Strategies						
ID #	RBS Code	Discipline Category	Risk Event Title	Risk Description	Additional Notes	Threat or Opportunity	Post-Managed State						Likelihood of Impact Occurring	Risk Owner	Strategy	Actions to be Taken	Management Status			
							Direct Cost Impact (\$M)			Schedule Impact (months)										
							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)								
8	CNS 10.1	Construction	Complex Bridge Approach MOT & Staging	Constructability of the river bridge approaches 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	\$5 M	\$10 M	\$20 M							25%	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 2024: The team is developing a proof of concept for MOT and this package is expected to be DB. Therefore, the risk impact and likelihood were lowered, the risk title was also updated to be specific to approaches.
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.	Q1 2024: This risk was changed from an Opportunity to a Threat. It is still being explored and will be kept on the watch list for monitoring.
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.  <i>Scenario: Act of god- contractor reimbursed for trestle repair (No TRO) and program schedule pushes.</i>	Threat	\$0 M	\$1 M	\$5 M	0.5	1.0	3.0				15%	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.	Q1 2024: Updated cost and schedule impact and increased likelihood from 5% to 15%. Rob Turton to follow up with hydraulics team on flood elevation.  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  <i>Scenario: Removal limits are more than assumption in estimate (cut off 2ft below grade) full removal of bell = \$18M, full removal of bell and pile (\$35 M).</i>	Threat	\$0 M	\$18 M	\$35 M							25%	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.	Q1 2024: Added cost impact and likelihood ratings.
13	CNS 10.5	Construction	Approach MOT Scope	Approach package MOT may be more complex than estimated.	Assumption is that this could be 10-20% more costly	Threat	\$0 M	\$3 M	\$6 M							25%	Steve Katko	Exploit	1) Evaluate cost estimate and validate MoT premium.	Q1 2024: Risk title and description updated to be specific to Approach MOT scope. Risk changed from an Opportunity to a Threat. Added cost impact and likelihood ratings.
14	CNS 10.2	Construction	Staging and Phasing Among Contracts: NPH Bridges and Connections	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.	Threat	\$0 M	\$5 M	\$10 M							20%	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.	Q1 2024: Added cost impacts, removed schedule impacts, and likelihood increased from 15% to 20%.  Q3 2023: The schedule and cost estimate is started, so there will be more information available at the Q4 update.

Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN

Risk Identification							Quantitative Analysis							Risk-Response Strategies			
ID #	RBS Code	Discipline Category	Risk Event Title	Risk Description	Additional Notes	Threat or Opportunity	Post-Managed State						Likelihood of Impact Occurring	Risk Owner	Strategy	Actions to be Taken	Management Status
							Direct Cost Impact (\$M)			Schedule Impact (months)							
							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)					
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 (supply chain).	Roadway elements with delay potential include steel girders, fiber optic cable, duct bank, etc. Probability of critical path delay is very low. This is in addition to regular escalation. Most Likely 5%, High 10%.	Threat	\$0 M	\$40 M	\$80 M	0.0	1.0	6.0	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.	Q1 2024: Added cost impacts and increased schedule impact from 0-2 to 0-6 months.
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.	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 M	\$5 M	\$10 M	0.0	1.0	4.0	20%	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).	Q1 2024: Increased likelihood and schedule impacts and added cost ratings.
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.	
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 (risk 82), hazardous materials (risk 60), cultural resources (risk 40), unknown utilities (risk 233) 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.	
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.	Minor risk	Threat								Rob Turton / Martijn Bolster	Mitigate	1) Conduct early site noise evaluation to determine noise acceptability levels.	Q1 2024: Confirmed 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.	Q1 2024: Base still assumes PLA. 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.) could be lower than assumed in the estimate.		Opportunity	-\$22 M	-\$5 M	\$0 M				25%	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.	Q1 2024: Risk changed from threat to opportunity. Added cost impact and likelihood ratings.
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.  This is the system integration risk for the transit systems and will result in minor re-work to move devices, add conduits, add conduit penetrations into system rooms, and perhaps require software updates. Cost impact are minor to medium rework for all elements carrying transit.	Threat	\$4 M	\$6 M	\$12 M	1.0	2.0	3.0	50%	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. 4) System Integration project manager to manage cross contract systems interface schedule.	Q1 2024: Added cost impacts, increased likelihood to 50%, and added new mitigation action #4.

Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN

Risk Identification							Quantitative Analysis							Risk-Response Strategies			
ID #	RBS Code	Discipline Category	Risk Event Title	Risk Description	Additional Notes	Threat or Opportunity	Post-Managed State							Risk Owner	Strategy	Actions to be Taken	Management Status
							Direct Cost Impact (\$M)			Schedule Impact (months)			Likelihood of Impact Occurring				
							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)					
26	CTR 40.2.1	Contract Procurement	Limited Bid Responses Result in Re-Procurement: River Bridge Contract	Limited bid responses result in a non-competitive procurement and possible need to rebid.	Direct cost for stipends. Verify cost for stipends and re-procurement included in the base.  Assumption would be few bidders would be 0-2 bidders.  Based on assumption of WSDOT Design-Build.	Threat	\$2 M	\$4 M	\$8 M	8.0	10.0	12.0	20%	Brad Cooper	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) Conduct workshop/analysis to determine optimal river bridge contract packaging and delivery methods. 4) Consider including consultant contractor SMEs in next workshop. 5) Early issuance of draft RFP.	Q1 2024: Reduced cost impact to be representative of cost for stipends - to be confirmed for CEVP. Current working assumption for delivery method is DB. Added mitigation action #5.  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.
27	CTR 40.2.2	Contract Procurement	Limited Bid Responses Result in Re-Procurement: Other Contracts	Limited bid responses result 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.	Q1 2024: No change this quarter.  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%	Brad Cooper	Mitigate	1) Consider including time for protest between selection and award in the procurement schedule. 2) Develop clear contracting documents and evaluation criteria. 3) Ensure quick responses in bid review process. 4) Engage in communication with state SMEs.	Q1 2024: Discuss at the CEVP. Mitigation action #4 added.  Q4 2023: Revisit contract-specific mitigations following selection of delivery method.
29	CTR 50.1	Contract Procurement	Buy America / Buy American Provisions	Buy America/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/Buy America provisions to understand potential impacts.	Q1 2024: Revisit quarterly.

Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN

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							Direct Cost Impact (\$M)			Schedule Impact (months)							
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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.).	Applies to pre-contract administration.	Threat										Q1 2024: Risk moved to Watch list. Added new mitigation actions #2 and #3.  January 2024: SOW is finalized, agreements team is stood up. Agreements team is working on updating agreement timelines by key program milestones including contracting packaging milestones. - Utilities lead: Michelle Reuss - Transit/Highway/Bridge lead: Steve Siegel, Michelle Reuss - ROW/Railroad lead: ZZ Lundburg - Comm Benefits/PLA lead: Kate Elliott - Toll lead: Kate Elliott	
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										Q1 2024: Risk moved off Watchlist and made Active again. Mitigation action #2 added.  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.	Q1 2024: Still on track for September 2024.  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.	

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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. 2) Ensure appropriate natural resource mitigation. 3) Look at other Biological Opinions issued in the area.	Q1 2024: Added mitigation strategies #2 and #3.  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%.
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 and/or Threatened Species.	Threat				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.	Q1 2024: One new species (western pond turtles) has been identified that may need to be listed as threatened species not included in BA. This risk 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. 7) Engage in ongoing coordination with sequencing and packaging to understand when analysis will occur.	Q1 2024: Currently seeing an increase in materials requested for review and updating programmatic agreement schedule. Coordinating with Sequencing to best understand how to align analysis with packaging. Added new mitigation action #7.  Q3 2023: Currently updating programmatic agreement schedule. The deliverables tracker is helping to increase efficiency of reviews.



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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.	Need to re-assess likelihood of occurrence and impact ratings for CEVP.  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	60%	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. 10) Engage in ongoing coordination with sequencing and packaging to understand timing. 11) Engage with federal partners to consider risk challenges with archaeological analysis timing. Current direction will not allow archaeological analysis prior to NEPA closeout, but will those delay early packages and how can we resolve in advance?	Q1 2024: This will continue to be a risk now and through construction. Currently coordinating with Sequencing to determine timing. Added mitigation actions #10 and #11; increased likelihood from 40% to 60%.  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.
41	ENV 10.1	Environmental	Section 4(f), 6(f), and Federal Lands to Parks - Delta Park	The 4(f), 6(f) and Federal Lands to Parks (FLP) processes at Delta Park and coordination with COP could delay schedule or add unexpected scope.	Marine Drive interchange is located very close to Delta Park.  Primarily impacts the ROD.  Cost impacts are for items such as acquiring additional park land, active transportation, etc.	Threat	\$1 M	\$3 M	\$5 M	1.0	2.0	6.0	5%	Hayli Reff / Bill Warncke	Mitigate	1) Engage in early coordination with Portland Parks and Recreation (PP&R). 2) Continue tight coordination/collaboration with partner agencies to ensure mitigation requested is consistent with impacts.	Q1 2024: Updated title and description to include 6(f) and Federal Lands to Parks processes. <b>Coordinate with Public Affairs team on a quarterly basis.</b> Added mitigation action #2 and added cost impacts.  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.
42	ENV 10.2	Environmental	Section 4(f) - Cultural Resources	The 4(f) process for historic resources could delay schedule, add unexpected scope, require additional consultation, and a high risk of delay due to legal challenges.	Risk assessed to be independent of potential I-5 alignment shift to the west (risk 153).	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.	Q1 2024: Unidentified 4(f) resource requires tribal consultation to meet timeline for NEPA. This risk was removed from the Watchlist and made Active.  Q4 2023: In October 2023, had meetings with National Parks service. Continue to track and monitor.
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.	Q1 2024: Will have a better understanding of resource boundaries by the end of the month.

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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.	Q1 2024: FTA/FHWA have asked for additional analysis on the Transit and Highway side. 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.
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.	Q1 2024: Public Comment Period now expected to begin mid-2024 (Q3).
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.	Q1 2024: Experiencing delays primarily from the Army Corps and the Coast Guard. 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.
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				3.0	6.0	9.0	65%	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. 5) USDOT requests to add program to executive roadmap.	Q1 2024: Delays have already been realized and additional delays are still a risk. Increased schedule impacts and likelihood accordingly. Additional mitigation strategy #5 added. February 2024: The FTA and FHWA have continued to raise issues to prevent advancing to legal review. This is delaying publishing the DSEIS until at least May 2024 (8 months past original target date).
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. 4) Coordination between state and federal attorney advisors to develop best practices to improve defensibility.	Q1 2024: There have been public records requests to obtain early copies of the DSEIS this quarter. Added new mitigation strategy #4.

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51	ENV 30.2	Environmental	USACE Permitting Delays (Nav Channel)	Completion of USACE 404 wetlands permit reviews / 408 navigation channel 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.	Q1 2024: First design package had few substantive changes requested.  February 2024: Part 2 of the first design package has been submit.
52	ENV 30.3	Environmental	USACE Permitting Delays (Levee)	Completion of USACE 404 wetlands permit reviews / 408 levee authorization take longer than anticipated.	Clarify the distinction between the North Portland Harbor (NPH) and Transit NPH.  Include this risk in Transit 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. 4) Engage in high-level relationship building with USACE and USCG leadership.	Q1 2024: Have begun coordination with Army Corps on the levee work and MCDD - Multnomah County drainage district. Added new mitigation strategy #4.  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.
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				3.0	6.0	9.0	25%	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).	Q1 2024: Planning on holding in-person meetings with USCG in Seattle to work through issues relative to revised navigation impact report. Increased schedule impact and likelihood.  February 2024: The Marine Mammal LOA is currently the longest lead time permit; the Program is investigating mitigation measures. Without mitigation, this could push the USCG permit to the end of 2025.
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).		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. 5) Develop permit plan and confirm with responsible parties.	Q1 2024: Have discussed engaging in conversation on local permitting with program partners. Added new mitigation action #5.  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 been confirmed and there is a risk they may not be ready in time to provide mitigation for the program. Includes habitat considerations from a number of groups with competing interests.  This risk is related to Tribal Coordination risk #221.	Potential schedule and/or cost impacts. Additional costs would be for additional work to identify new mitigation. Need to confirm what is included in the base.  There is risk with securing the Development permit with City of Portland based on natural resource mitigation requirements.  There is more concern with sites on the Oregon side.	Threat	\$1 M	\$2 M	\$3 M	3.0	6.0	12.0	30%	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. 5) Document mitigation search and approach to share with project stakeholders.	Q1 2024: Risk split into two separate risks. This risk will be more focused on mitigation sites not being ready in time. New risk 285 addresses unanticipated mitigations needed. Impact ratings and likelihood for this risk were updated and a new mitigation action #5 added.

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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).  Schedule impact is for delay to FSEIS preferred alternative.	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.	Q1 2024:  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.	Potential cost/time impact for additional ROW and cultural resource inventories.  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.	Q1 2024: Currently evaluating cut and fill for CRB and approaches. COP has new regulations around fill and functional flood plain. Will know what fill amount is by end of March 2024 which will dictate how this is addressed. The bridge type will also be a key factor. Additional follow-up is needed for quantification.  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.	Q1 2024: Risk moved to Watchlist as no issues have yet been identified.
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.	Q1 2024: Completed Phase I and currently doing Phase II. Will have more information in Q2 and Q3 2024.	
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 risks 91 and 215).	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.	Q1 2024: Continuing to have conversations with partners to further refine actions. Convening across disciplinary team to evaluate and refine potential measures for the program.	
65	DES 40.5	Civil / Drainage	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.	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.	<i>Suggest retiring, captured in risk 223 unless there is remaining risk.</i>  Q1 2024: Change to a Civil/Drainage risk.
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. <i>The program intends to pursue a Capital Investment Grant through FTA.</i>  This risk is dependent on the Delays to OR/WA Agreements and management capability and capacity.  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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							Direct Cost Impact (\$M)			Schedule Impact (months)							Likelihood of Impact Occurring
							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)					
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.	Q1 2024: Recent progress has been made. OR/TriMet has proposed a funding source (STIF). WSDOT/CTRAN still need to identify WA funding source. The likelihood is accurate.  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.
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.	<ul style="list-style-type: none"> <li>•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)</li> <li>•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).</li> </ul>	Threat			6.0	6.0	12.0	50%	Sean Nikkila / Ning Zhang	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.	Q1 2024: No change this quarter. RFP for roadside is near completion and NTP is anticipated for November. The schedule has been compressed and are expecting to begin tolling on schedule - reduced likelihood from 90% to 50%. Risk is not expected to impact program schedule - moved to Watchlist.  January 2024: Back-office and Roadside system procurements have been delayed. This leaves less time to develop, deploy, and test a new toll system. IBR is likely to be the first toll system out the gate (previous assumption was that RMPP or I-205 would be first), which also increases the risk to test full system functionality. If we cannot compress the schedule, then we will need to push out the go-live date for pre-completion tolling start date. If delay is realized, there will not be toll PAYGO revenues coming in during this time either, so that would introduce another revenue risk.	
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 not 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 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.  Cost impact is cost of starting up WSDOT toll administration to take over.	Threat	\$3 M	\$5 M	\$10 M				20%	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.	Q1 2024: Reduced likelihood from 50% to 20%. Not a risk to the overall program schedule.  January 2024: If IBR goes first, how does that impact the cost allocation between facilities if I-205 doesn't start up until 6-12 months after IBR? (Unknown) If IBR pre completion toll go-live is delayed due to Risk #72, but the I-205 schedule is on-time for Q3/Q4 2026 deployment, then this risk is mitigated because both systems may be starting at the same time. If both implementations slip, then we are back to realizing this risk again.

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							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)							
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.	Q1 2024: No update this quarter. Q3 2023: Investigation program will run from November-February.
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 construction.	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. Complete 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.	Q1 2024: Completed geotechnical investigations last quarter for the Columbia River Bridge and the North Portland Harbor Bridge, confirming ground conditions with findings of sand, cobbles, and possibly boulders. Main concerns are with the Portland side. Consider splitting into two separate risks.
79	STG 20.2	Geotechnical	Additional or Changed Method of Ground Improvement	Ground improvements are assumed on Hayden Island and along North Portland shoreline 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.	For example, installation rates prove not to be achievable, leading to claim for loss of production. Base assumes ground improvements at south end of transit structure and both SB highway ramps over the North Portland Harbor, as well as the west end of the Marine Drive (LRT) structure. Risk is that additional ground improvements may be necessary for wall. See risk 85.	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.	Q1 2024: Ground improvement evaluation is currently underway. Quantify risk following updated estimate. 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.
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 or precast concrete 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.	Q1 2024: No update this quarter. 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			Q1 2024: Environmental team is planning for subsurface work to better quantify limits of the landfill. 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	Primarily a schedule risk.	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	Q1 2024: No update this quarter.

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							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)					
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.	Q1 2024: Investigate if this is a potential risk to Expo Road as well. Revisit cost impacts following updated estimate.  Q4 2023: No additional geotechnical exploration is planned. Reduced high schedule impact to 3 months.
86	DES	Roadway Design	Partner Agency Design Review Processes - 30% Design Package	Partner agencies conduct design review 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.	Impacts to River Bridge captured in risk 295.	Threat				1.0	3.0	6.0	20%	Matt Deml	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.	Q1 2024: Continuing to monitor quarterly and mitigate. Risk re-categorized as Design risk. New risk 295 identified to capture River Bridge impacts.  Review risk after release of DSEIS.
87	DES	Roadway Design	Partner Agency Design Review Processes - Subsequent Packages, 60%, 90%	Partner agencies conduct design review 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.	Impacts to River Bridge captured in risk 296.	Threat				1.0	2.0	3.0	20%	Matt Deml	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.	Q1 2024: Continuing to monitor quarterly and mitigate. Risk re-categorized as Design risk. New risk 296 identified to capture River Bridge impacts.  Review risk after release of DSEIS.
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. If agreements deviate from the MLPA and/or specific issues arise requiring 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%	Kate Elliott	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	Q1 2024: TPA - Will set up a working session to review the agreements matrix.  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 Support with Partner Agencies	Obtaining support on aesthetics with partner agencies could delay preliminary design completion. Includes NPH bridges, land bridges, walls, etc.	Potential cost of additional aesthetics captured separately (see risks 178, 179, and 180).  Impacts to River Bridge captured in risk 268.	Threat				1.0	2.0	4.0	25%	Matt Deml / Steve Katko	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 2024: Split into two risks and have one specific to bridge type/river bridge aesthetics (new risk 286).  Q1 2023: Review risk Q1 2024 after release of DSEIS, aligns with Urban Design timeline.

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							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)							
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. If there are more replacements required than anticipated, this could increase project cost.	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 / Leah Nagely Robbins	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.	Q1 2024: More information will be available following DSEIS. Design team put together a design assumptions memo for the park and rides earlier this year. 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.
93	PSP 40.4	Interagency Coord.	Partner Requests - Data/Analysis	Partner requests for additional data, analysis, or information may result in schedule delays.	Schedule impact would occur during planning. Post ROD traffic analysis captured separately (see risk 186). Concerns are around the NEPA EIS. This risk is linked to NEPA and will be an active risk through FEIS.	Threat				1.0	1.5	2.0			10%	Katy Belokonny / Ryan LeProwse	Mitigate	1) Engage interested parties early to validate partner requests and quantify required actions.	Q1 2024: Carry through FSEIS. Risk likelihood lowered to 10% as all partners have reviewed list of analysis. Q4 2023: Split this risk into 2 separate risks to create one specific to design/construction means and methods (risk 268). Currently in the process of negotiating and by the time of the next CEVP, this may be included in the base estimate.
99	TRN 30.3	Transit	Additional Cost Associated with Expo Center Construction Impacts	Construction at and around Expo Center results in additional cost and/or schedule impacts that are greater than the base associated with impacts to Expo Center operations, coordination with Metro redevelopment plans, ROW acquisition, construction staging, code compliance for existing buildings, Marine Drive, 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										Coral Egnew / Eric Forsyth			Q1 2024: Risk re-categorized as Transit risk. 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.	Applies to Marine Drive Package A Example cost impacts include increased weekend work, more restrictions placed on the contractor such as restricted hours/lanes; contractor considers this a higher risk and increases bid. If closures are not allowable, etc, there may be a time impact as well.	Threat	\$0 M	\$4 M	\$7 M	0.0	3.0	6.0			30%	Steve Katko	Mitigate	1) <del>Develop preliminary construction staging and phasing concepts to evaluate schedule and potential MOT costs.</del> Complete 2) Consider developing MOT phasing plan and conducting traffic analysis for each phase. 3) Engage with the mobility team early.	Q1 2024: Added cost, schedule, and likelihood ratings. Mitigation action #1 is complete and added actions #3; risk moved from Watchlist to Active.
102	CNS 80.1	Maint. Of Traffic	Conflicts Among IBR Contracts (SR-14 Package A and Approaches)	Lack of coordination between the SR-14 Package A and Approaches 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.	Sequencing of contracts should be included in the base schedule to limit conflicts. Coordination between contracts for MOT overlaps.	Threat				1.0	3.0	6.0			20%	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.	Q1 2024: Added 2 additional risks to address Mill Plain Blvd and Washington North Interface and one for the overall program. Increased schedule impact and likelihood. Q3 2023: Still do not have enough information to properly assess. Revisit in Q4 2023 when the Delivery Plan is complete.



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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 local agency projects, POV dock project, 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.	Q1 2024: Risk moved to Watchlist. Not currently expecting to use Vancouver or Hayden Island local streets for detours. 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 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%)	Threat								Mitigate	1) Continue to engage in proactive risk management to minimize delays and reduce potential construction escalation impacts.	Q1 2024: Waiting on further direction for which forecasts/rates to utilize. Risk split to a Threat and Opportunity. Opportunity captured in risk 290. 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.	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. Opportunity captured in risk 291.	Threat	\$0 M	\$165 M	\$330 M				50%	Casey Liles	Mitigate	1) Engage in early outreach and coordination with construction contracting market. 2) Consider structuring contracts to reduce complexity and encourage bidders.	Q1 2024: Split into two risks to capture both the threat and opportunity based on having more or fewer bidders. Opportunity captured in risk 291. Approaches captured in risks 292/293. Updated cost and likelihood. 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.
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. Opportunity captured in risk 294.	Threat	-\$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.	Q1 2024: Risk split into Threat and Opportunity. Opportunity captured in risk 294.
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	\$0 M	\$10 M	\$19 M				20%		Transfer	1) Consider early coordination with interested parties to address skilled labor availability, and create any countermeasures as necessary.	Q1 2024: Cost impact and likelihood assigned. 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.

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							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)								
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 <i>limited numbers of qualified subcontractors and available resources</i> .	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	\$0 M	\$23 M	\$47 M							50%	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.	Q1 2024: Follow up with Equity team. Likelihood decreased from 75% to 50%. Cost impact range updated Q4 2023: Revisit this risk following the updated cost estimate (Q1 2024). Q3 2023: No change yet. Have begun conversations with equity team.
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												1) Continue to access forecasting data so that assumed inflation rates are reasonably selected and incorporated in estimate updates. Relative to construction cost uncertainty, the cost impact is minor.	Q1 2024: Decision on using IBR versus WSDOT rates will influence this. Assumed as opportunity and threat. January 2024: New action to be taken added.	
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, ODOT, or TriMet, if contracting agency) may not have sufficient legal authority (depending on the jurisdiction) to enter into agreements with utilities and other 3rd parties and/or procure the bridge contractor and manage the contract.	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.  Delivery method for program-wide transit is assumed CMGC with Tri-Met as contracting agency.  Delivery method for bridge is assumed DB with WSDOT as the contracting entity.	Threat				3.0	6.0	12.0				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. <del>2) Conduct project contract packaging workshop to identify needs.</del> 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.	Q1 2024: The schedule impact was increased to match the impact ratings from the previous CEVP. If legislative action is needed, it will result in a time delay. January 2024: Action item #4 is confirmed. 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.
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													1) Engage interested parties early to agree on the Owner Controlled Insurance Program (OCIP) action plan.	Q1 2024: No decision has been made so far regarding the OCIP but the program is currently engaging in conversation with other mega programs in the area. January 2024: Confirm that an OCIP is not under consideration.
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													1) Consider early coordination with interested parties to garner agreement for funding constraints.	Q1 2024: No update this quarter. 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													1) Consider early coordination with interested parties to garner agreement for adverse cash flow/program administration constraints mitigation. 2) Cash flow the contract packaging sequence by Spring 2024 to identify potential issues.	Q1 2024: No update this quarter. January 2024: Added new action to be taken #2.

Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN

Risk Identification							Quantitative Analysis							Risk-Response Strategies			
ID #	RBS Code	Discipline Category	Risk Event Title	Risk Description	Additional Notes	Threat or Opportunity	Post-Managed State						Risk Owner	Strategy	Actions to be Taken	Management Status	
							Direct Cost Impact (\$M)			Schedule Impact (months)							Likelihood of Impact Occurring
							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)					
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 Q2 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	<del>1) Identify elements of work that may be introduced that would trigger an DSEIS (e.g., two aux lanes, hard running shoulder, movable bridge).</del> 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.	Q1 2024: No update this quarter. Q3 2023: No change for this quarter. Revisit in Q4. July 2023: Action #1 is complete.
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	<del>1) Conduct project contract packaging workshop to identify needs.</del> 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. <del>6) Bring on a Deputy Project Manager for program delivery.</del> Done 7) Identify the organizational structure for construction contract administration, inspection, and program controls.	Q1 2024: No update this quarter. January 2024: Actions #5 and #7 are progressing. 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.
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.	Q1 2024: No update this quarter.
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. The departure window for the Program Administrator is forecast for ~Q3 2025.	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. 2) Recruitment for a successor program Administrator should commence by Q3 2024.	Q1 2024: No update this quarter. January 2024: Risk description updated and new action to be taken #2 added.

Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN

Risk Identification							Quantitative Analysis							Risk-Response Strategies			
ID #	RBS Code	Discipline Category	Risk Event Title	Risk Description	Additional Notes	Threat or Opportunity	Post-Managed State						Likelihood of Impact Occurring	Risk Owner	Strategy	Actions to be Taken	Management Status
							Direct Cost Impact (\$M)			Schedule Impact (months)							
							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)					
121	PSP 40.5	Public Affairs	Turnover of Current Local Elected	There is a risk that turnover of elected local 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.	Includes changes to local agency governance structures.	Threat				1.0	3.0	6.0	20%	Katy Belokony	Mitigate	1) Engage in early and frequent communication with agencies, interested parties, and local elected officials.	Q1 2024: Risk title and description modified to be specific to local government agencies. Have responded to conditions given from local agencies in the last quarter. Q4 2023: The next time period that will affect this risk will be the primary election season. Q2 2023: This risk is a higher priority during election seasons. Continue to track and monitor.
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. Cost impact results from delay of procurement.	Threat	\$3 M	\$5 M	\$10 M				75%	Johnell Bell / Aidan Gronauer	Mitigate	1) Review CWA/PLA language to maximize participation. 2) Continue to engage with program leadership.	Q1 2024: Still in the process of negotiations with headquarter offices. Added mitigation action #2. Quantify the time delay for this risk once the schedule is updated.
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. 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.	Q1 2024: Currently in CBAG process with Community Benefits group and have completed first round of recommendations. 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	Some tolling policies lack support and could result in delay of tolling implantation 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%	Meghan Hodges	Mitigate		Q1 2024: Currently monitoring a potential ballot measure in OR to ban tolling without local approval. 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 Belokony	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.	Q1 2024: Continue to revisit risk on a quarterly basis. Q1 2023: Actively developing/refining Community Engagement Plan.

Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN

Risk Identification							Quantitative Analysis							Risk-Response Strategies				
ID #	RBS Code	Discipline Category	Risk Event Title	Risk Description	Additional Notes	Threat or Opportunity	Post-Managed State						Likelihood of Impact Occurring	Risk Owner	Strategy	Actions to be Taken	Management Status	
							Direct Cost Impact (\$M)			Schedule Impact (months)								
							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)						
129	RR 10.1	Railroad	BNSF Agreement Delays	Packages in the program will require one or more C&M agreements with BNSF. If agreement negotiations take longer than the base schedule estimate (18 months) then construction impacting BNSF property may be delayed.	Will need C&M agreement to construct over BNSF ROW (to include specifications for flagging, how/when access for construction, fourth quarter construction moratorium, payment provisions, etc.) BNSF usually requires 100% plan approval prior to executing this agreement. BNSF may also need multiple agreements if the project is divided into separate packages due to timing of the design and construction.  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) 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. 7) Continue to engage with the Third Party Agreements Team.	Q1 2024: Increased high schedule impact to 12 months based on experience. Added new mitigation action #7. Updated risk description. <b>Discuss with Third Party Agreements team.</b>  February 2024: Preliminary Engineering Agreement still under negotiation between IBR and BNSF.  Q4 2023: Agreement still in process, but still in Legal. Agreement is mostly "boiler-plate" but need to include language for bi-state agreement.
130	RR 10.2	Railroad	Railroad Agreement Term Sheets Delays	FTA/FHWA could require railroad term sheets in order to approve entry into engineering. If railroad terms sheets are not completed by Q3 2025, entry into engineering could be delayed.	Identify/confirm what is needed with the Transit team. Tied to interagency agreements, BNSF agreement risks (see risk 129)  Aerial easements included in term sheets.	Threat											1) Work closely with railroad partners to track status updates on railroad term sheets. 2) Ongoing coordination for status with FTA and FHWA. 3) Develop clear and collaborative schedule for tracking term sheet targets and develop work plan (Megan McIntyre). 4) Investigate FTA Requirements. 5) Engage with the Transit team for coordination.	Q1 2024: Updated risk description and added mitigation actions #4 and #5. Have received the draft FHWA terms and conditions, performing requirements extraction out of the terms and conditions for the FHWA grant.
131	RR 20.1	Railroad	BNSF Construction 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, work windows, 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 but there will be further engineering submittals to BNSF between the C&M agreement and the contractor's right of entry into and above BNSF ROW.  Need to quantify for CEVP Cost impacts - TBD; estimating team is reviewing Schedule impact - could be 20% delay to construction related to RR	Threat											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.	Q1 2024: Awaiting preliminary agreement to start discussions with BNSF. Quantify for the CEVP.
132	RR 20.2	Railroad	BNSF Crew Change/Maintenance Access	A BNSF crew change area is in the program area and access to the site may be impacted. If proposed temporary or permanent modifications are not acceptable to BNSF then design changes or site relocation may be necessary.	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.  Schedule impact due to not being able to use crew change area and BNSF to find a new area. Cost impact would be reimbursement to BNSF.	Threat	\$0 M	\$1 M	\$2 M	0.0	6.0	30.0	10%	Megan McIntyre	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.	Q1 2024: Refined risk description. Added impact ratings for cost and schedule.  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.	
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											1) Establish property use needs early and communicate to UPRR. 2) Engage in early and frequent coordination with UPRR.	Q1 2024: No update this quarter.  Q4 2023: Steel bridge will likely not be included in the base estimate and is not currently included.

**Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN**

Risk Identification							Quantitative Analysis							Risk-Response Strategies							
ID #	RBS Code	Discipline Category	Risk Event Title	Risk Description	Additional Notes	Threat or Opportunity	Post-Managed State							Risk Owner	Strategy	Actions to be Taken	Management Status				
							Direct Cost Impact (\$M)			Schedule Impact (months)			Likelihood of Impact Occurring								
							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)									
135	ROW 20.1	Right-of-Way	ROW Cost Increases	Prior to starting the ROW phase, development and market costs will be a moving target. If ROW acquisition and relocation rates increase relative to the inflated base estimate, ROW expenses could exceed what is budgeted.	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.	Q1 2024: Continue to track and monitor through ROW acquisition in coordination with design team and continue to monitor ROW cost increases related to development and market increases. Risk title and description updated.  Q4 2023: Continue to track and monitor through ROW acquisition.	
136	ROW 10.1	Right-of-Way	Need for Additional ROW Acquisition Identified (Other)	As project needs are further refined, the ROW footprint might change relative to what was assumed in the base estimate. If the project footprint changes after ROW acquisition is scheduled to start then cost and schedule could be impacted.	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).  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.	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 2024.	Q1 2024: Continue to track and monitor through development of the 30% plans and review any potential impacts related to early tolling and packaging. Risk description updated.  Q4 2023: Continue to track and monitor through development of 30% plans. Revisit following the delivery plan.
137	ROW 50.1.1	Right-of-Way	Additional Condemnation - Oregon	The base estimate and schedule include typical condemnation assumptions for ODOT. If condemnation rates exceed that assumption then costs and schedule could be impacted.	Primarily a schedule risk; cost premium for condemnations assumed to be captured in the base estimate (confirm what is included in the base estimate during CEVP).	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.	Q1 2024: Developed ROW acquisition schedule based on parcel criteria. Identified parcels with longer acquisition timelines due to complexity. Risk description updated. Risk placed on Watchlist.  Q3 2023: IBR ROW manager starts 10/1/23.	
138	ROW 50.1.2	Right-of-Way	Additional Condemnation - Washington	The base estimate and schedule include typical condemnation assumptions for WSDOT. If condemnation rates exceed that assumption then costs and schedule could be impacted	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.	Q1 2024: Developed ROW acquisition schedule based on parcel criteria. Identified parcels with longer acquisition timelines due to complexity. Risk description updated. Risk placed on Watchlist.  Q4 2023: Revisit in Q1 2024.	
139	ROW 50.2	Right-of-Way	Lack of Appraisers	There is a limited pool of appraisers and internal DOT resources for setting Just Compensation that compete for resources with other regional and statewide projects. If resource scarcity or quality issues impact the project, ROW cost and schedule could increase relative to base assumptions.		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. 4) Develop appraisal plan early. 5) Identify specialty reports early as part of the plan.	Q1 2024: Added additional actions to be taken #4 and #5. Risk description updated. Revisit this risk quarterly.  Q4 2023: Added additional action to be taken.	
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.	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. 3) Consider providing protective rent payments to property owners.	Q1 2024: ROW manger engaged. Added action to be taken #3.  Q3 2023: IBR ROW manager starts 10/1/23.  Q2 2023: Expected to be increasing dedicated staff in Q3 2023 (Agency)	

Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN

Risk Identification							Quantitative Analysis							Risk-Response Strategies			
ID #	RBS Code	Discipline Category	Risk Event Title	Risk Description	Additional Notes	Threat or Opportunity	Post-Managed State						Likelihood of Impact Occurring	Risk Owner	Strategy	Actions to be Taken	Management Status
							Direct Cost Impact (\$M)			Schedule Impact (months)							
							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely3	High (90% CI)					
141	ROW	Right-of-Way	Relocation Delays - Washington (Other)	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.	Includes complex multi-family and business relocations.	Threat				1.0	2.0	6.0	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.	Q1 2024: IBR ROW manager engaged. New risks specific to Approaches (287) and Hayden Island (288) identified.  Q3 2023: IBR ROW manager starts 10/1/23.
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	6.0	12.0	5%	Sharon Matlock	Mitigate	1) Conduct utility surveys as early as possible as major design changes are realized. 2) Coordinate with contractor mitigate schedule risk. 3) Coordinate with Design and Legal Description team (Environmental) on the footprint.	Q1 2024: Coordinate review with design at 30% design review. Revisit with design team quarterly. Lowered likelihood to 5%, increased schedule impact, and added new mitigation action #3.  Q4 2023: Revisit following the delivery plan.
145	ROW 10.2.2	Right-of-Way	Late Changes in Design - ROW Schedule (Other)	If there are late changes (post-ROD) 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	6.0	12.0	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.	Q1 2024: Coordinate review with design review. Increased schedule impact.  Q4 2023: Revisit Q1 2024.
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. If ownership is not clarified prior to when legal descriptions are scheduled to be drafted then acquisition of railroad and NPS property could be delayed.	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). 2) Coordinate with Right of Way Real Estate and confirm real estate process for BNSF. 3) Clarify if the program impacts intersect with legacy property area and which package that applies to.	Q1 2024: Added actions to be taken #2 and #3. Risk description updated.  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.
151	CTR 900.2	Right-of-Way	Uncertainty in ROW Cost Inflation Rate	ROW inflation and/or escalation rates may be higher 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%)	Threat									Mitigate	1) Consider early acquisition of ROW.	Q1 2024: Decision on using IBR versus WSDOT rates will influence this. Assumed as opportunity and threat - this risk changed from Uncertainty to Threat. New risk 289 captured as Opportunity.

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153	DES 10.1	Roadway Design	Shift Alignment of I-5 in Vancouver	The alignment of I-5 may be shifted to the west. 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 137, 138, 139, 144, 145, 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.  Q1 2024: This is an option that is in NEPA right now. The decision will be made following the public comment period. <b>Review likelihood with Environmental / Cultural Resources (Bill and Hayli) and cost impacts with estimating team.</b>  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.
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.  Q1 2024: This is an option that is in NEPA right now. The decision will be made following the public comment period.  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	Currently assumed design deviations/exceptions may not be approved, resulting in need for design modification and additional construction cost. This includes additional ROW and construction costs.	The current design does not assume any significant deviations or exceptions that are not routinely approved by WSDOT, ODOT, TriMet, or C-Tran.  Plan is to have all drafts approved by owners.	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.  Q1 2024: Setting up meetings with DOT discipline leads to review and agree to design criteria. No issues specifically identified at this time; risk moved to Watchlist.  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. This risk will be based on the phasing / sequencing strategy.	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.  Q1 2024: Mill and overlay assumed at the north and south ends of the mainline for the ultimate build. In OR, the overlay limits from CRC were carried forward and that amounts to 3,277 alignment feet of mainline mill and overlay at the southern end of the project. In WA, we reduced the overlay limits from CRC due to super transitions and that amounts to 198 alignment feet of mainline mill and overlay at the northern end of the project. Move off Watchlist and make Active.  Q4 2023: Confirm quantity for rebuild in Q1. Depending on quantities, this may be evaluated as an opportunity. Placed on the Watchlist for now.
161	DES 10.10.2	Roadway Design	Local Street Scope, Vancouver	Extents of roadway improvements on Mill Plain and other downtown Vancouver streets (including additional improvements to support bus rerouting), may be greater than expected and result in additional costs.		Threat										25%	Steve Katko	Mitigate	1) Engage in coordination and consultation with City of Vancouver post-ROD to reach agreement on scope for local street improvements. 2) Draft EIS will provide data needed for decision making.  Q1 2024: Risk was un-retired and made active as it was determined this is still a risk.



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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.	Threat	\$15 M	\$20 M	\$30 M							5%	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.	Q1 2024: City expressed interest in some time ago. No engineering study conducted. Just very rough concepts. City lost interest because of the likelihood of additional property impacts along the west side of I-5. Currently discussing Evergreen Station with City. Community Connector discussions to be begin in 2nd half of '24. No discussions about extending SUP from Waterfront up to Evergreen. Decreased likelihood to 5%.
164	DES 60.1	Roadway Design	Additional Features Added to Project within ROW	Additional features may be proposed 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.	Q1 2024: Risk moved to Watchlist.
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 split 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 or roadway reductions elsewhere). Potential for time delay reaching alignment with partner agencies.	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.	Q1 2024: Currently engaging in coordination through ARR. 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.	Q1 2024: Currently engaging in ongoing work to determine likelihood.
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.	Q1 2024: We will design to the City's standard width. Move risk to the Watchlist. 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 require additional coordination with USACE.	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%	Matt Deml / Noreen Roster	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.	Q1 2024: Coordination started with Portland Metro Levee System, Mult Co Drainage District and Corps for floodwall modifications. Q4 2023: Continuing discussions on the 408 permit.

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170	PSP 50.1.2	Roadway Design	Shared-Use Bike/Ped Path Design (OR)	Additional shared-use path (SUP) length in OR may be greater than what is in the base.	Cost impact range would include ROW mitigation and potential floodplain mitigation.	Threat	\$1 M	\$5 M	\$20 M					15%	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.	Q1 2024: City asking for SUP in Delta Park based on 6(f) impacts. Removed schedule impacts, revised risk description, decreased likelihood from 20% to 15%, and increased high cost impact to \$20M. This risk was removed from the Watchlist and made Active.
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 coordination and consultation with City of Portland post-ROD to reach agreement on scope for local street improvements. 2) Draft EIS will provide data needed for decision making.	Q1 2024: Further discussion will occur after the ROD with some potential for early discussions for this package.  Q4 2023: Cost impacts for new bridges and roadways will likely be higher. Revisit impact ratings in Q1.
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%	Mathers Heuck / Brad Cooper	Exploit	1) Incentivize contractor innovations.	Q1 2024: Follow up in Construction session.
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%	Mathers Heuck / Brad Cooper	Exploit	1) Incentivize contractor innovations.	Q1 2024: Follow up in Construction session.
175	DES 10.5.1	Roadway Design	Opposition for Single Aux Lane	There is a risk of opposition for only one auxiliary lane and may result in design refinements to include a second auxiliary lane.	Highly schedule driven due to agreement between partners.	Threat	\$80 M	\$94 M	\$110 M	3.0	6.0	12.0		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.	Q1 2024: Revisit following the public comment period in spring of 2024. Looking at a second aux lane in the DSEIS. If moving forward with two aux lanes, this risk can be retired. Added schedule impact ratings.  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 a public comment period. Revisit this risk in Q3 2023.
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).  This risk does not address the Bascule Bridge option.	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).	Q1 2024: A decision will be made following the public comment period and potential revised PNCD.  A decision was made and direction provided to include a movable span option in the DSEIS.

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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.	Potential for late decisions captured separately in Risk 89.  There are three bridge configurations being studied in NEPA: single-level, two-level, and lift span.	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.	Q1 2024: Updated risk description.  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.	Q1 2024: This is still a risk. Continue to track and monitor.  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.	Q1 2024: Quantify during CEVP.
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. 2) Coordinate with DOTs on seismic design basis.	Q1 2024: Added mitigation strategy #2. Coordinate with Tim Moore (WSDOT).  Q4 2023: More information on design criteria will be available following conversations with the DOTs in 2024. Continue to monitor quarterly.  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				6.0	12.0	18.0		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.	Q1 2024: This risk is currently being realized and is actively being managed. Schedule impact increased to 6/12/18 months. Revisit following scheduling discussion to confirm schedule impacts and likelihood.  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.

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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 risk 210).	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.	Q1 2024: Risk moved to Watchlist, this is a minor risk.
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.	Includes active transportation and bus detours.	Threat											Steve Katko	Mitigate	1) Coordinate MOT with partners as part of the TMP. 2) Coordinate interim 30% design with Design team and Procurement for Approach contract.	Q1 2024: Added mitigation action #2. Create new risk 284 specific to Marine Dr. Risk moved to Watchlist.
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. 2) Coordinate interim 30% design with Design team and Procurement for SR-14 tie-ins.	Q1 2024: Added mitigation action #2. Risk moved to Watchlist.
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.)	Coordination with ODOT BOS/GTC will be required.  Approx \$20 M of direct cost in estimate.	Threat	\$0 M	\$2 M	\$4 M								Steve Katko	Mitigate	1) Engage in communication with agencies and interested parties.	Q1 2024: Cost impacts and likelihood assigned. Re-evaluate if this should be an active risk.  Q4 2023: Currently designing the pre-completion tolling as part of the 15% design.
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.	This risk will trigger the Environmental risk #47 (FHWA and FTA NEPA review).	Threat											Steve Katko	Mitigate	1) Engage in communication with agencies and interested parties. 2) Issue draft ARR that will include the MLPA. 3) Begin coordination between IBR and FHWA on partial interchanges as soon as possible.	Q1 2024: Added new mitigation actions 2 and 3.  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								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 2024: <b>Follow up with Jeb Doran</b> to capture work underway.  Q1 2023: Anticipate updates following submittal of DSEIS.
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								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.	Q1 2024: Anticipating reconstruction of the station. Revisit once the estimate has been developed and confirm what is included in the base.  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.
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 and/or NPH transit structure, resulting in additional costs	The City of Portland desires an iconic structure for the Hayden Island Station and the NPH transit structure, which may result in increased cost for building structure and architectural treatments.	Threat	\$5 M	\$10 M	\$15 M								Eric Forsyth	Mitigate	1) Engage interested parties early to acquire the Hayden Island Station design agreement and quantify required actions.	Q1 2024: Revisit impact ratings following the updated estimate. Take off of Watchlist and make Active risk.

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							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)							
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.	Q1 2024: It is more certain that we will be working towards an agreement for use of their space. Consider lowering likelihood.  Q4 2023: Increased likelihood to 25%. Agency partner discussions continue to coordinate with Metro site development.
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.	Q1 2024: Suggest retiring and replacing with a new risk based on the new estimate. Make a Watchlist item for now.  Q4 2023: RTC analysis is now expected to be completed in January 2024.
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.	Q1 2024: Make risk active and remove from Watchlist. Tied to new risk related to 197.
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.	Q1 2024: Make risk active and remove from Watchlist. Tied to new risk related to 197.
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 80 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.)	Cost impact could be due to reducing the long-term operating costs.  Current Base Estimate: base station cost (\$65.5M) + \$40M (allowance for assumption that station is 80 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. 3) Research City of Vancouver land use process.	Q1 2024: Added new mitigation strategy #3.  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.
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 2024: Tied to DSEIS and CIG.
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.	Q1 2024: Tied to DSEIS.  Q3 2023: 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.

Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN

Risk Identification							Quantitative Analysis						Risk-Response Strategies					
ID #	RBS Code	Discipline Category	Risk Event Title	Risk Description	Additional Notes	Threat or Opportunity	Post-Managed State						Risk Owner	Strategy	Actions to be Taken	Management Status		
							Direct Cost Impact (\$M)			Schedule Impact (months)							Likelihood of Impact Occurring	
							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)						
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.	Q1 2024: 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 agencies. Less risk with DF on single level bridge.  Q1 2023: Revisit risk Q4 2023.
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.	This risk is in addition to the risk of embedded track.	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) <del>Determine basis of assumption before project development design as of November 2023</del> -Complete	Q1 2024: Action #4 is complete - determined that direct fixation will be used.  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.
206	TRN 10.5	Transit	Additional Structure Width Needed to Facilitate Joint Transit Operations	Additional structure width throughout the corridor (primarily the CRB and NPH bridges) 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. Assume 35% structural premium  This risk is in addition to the risk of embedded track.	Threat								25%	Jeb Doran	Mitigate	1) Engage interested parties early to agree on additional structures that foster design for Joint Transit use.	Q1 2024: Consider decreasing likelihood to 10% after review of current estimate.  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 YOY 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									Jeb Doran	Mitigate	1) Consider early coordination with interested parties to garner agreement for added aesthetics to station features. 2) Early engagement with interested parties.	Q1 2024: No update this quarter.  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									Jeb Doran	Mitigate	1) Engage interested parties early to agree on the Express Bus Shoulder Improvements.	Q1 2024: No update this quarter.

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							Direct Cost Impact (\$M)			Schedule Impact (months)										
							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)								
210	TRN 50.2	Transit	Existing Yellow Line Intersection Improvements	The existing yellow line intersections may require signal changes that could result in additional costs. The 2045 traffic analysis for NEPA or AHJ TTR comments 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.	Q1 2024: Consider decreasing likelihood. Risk originally identified prior to completion of TTR.  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											Jeb Doran	Mitigate	1) Engage interested parties early to agree on the Active Transportation (AT) Scope at Stations and quantify required actions.	Q1 2024: Revisit this risk in June 2024 when there will be more clarity around these areas.
212	TRN 70.1	Transit	TriMet LRT Vehicle Procurement Delays	Delayed availability of new LRT vehicles.	Base Schedule assumption: 6-7 years until delivery for procurement of new LRT vehicles. 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) If utilizing existing LRV contract procurement for IBR vehicles, order would need to be placed by June 2026. 3) Early engagement with partner agencies.	Q1 2024: Updated mitigation action #2 to clarify order for existing LRVs needed by June 2026.  Q4 2023: Risk moved to Watchlist.
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: 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). New assumption is \$2.4M per bus.  Storage Facility Assumptions: An expansion of 3 bus bays will be necessary to accommodate the double decker buses.	Uncertainty											Randy Parker	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.	Q1 2024: Risk moved to Watchlist.  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.
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.	Q1 2024: Agreements work group is continuously meeting on a weekly basis.  January 2024: Agreements group will schedule kickoff in January with TriMet, C-TRAN, and GEC SMEs to begin coordination on agreement.  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.
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.	Threat											Jeb Doran	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. 3) Seek confirmation on CIG definition.	Q1 2024: Added new mitigation action #3.  Q4 2023: This risk was moved off of the Watchlist and is now an active risk. Review with both the Transit and Finance teams.

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							Direct Cost Impact (\$M)			Schedule Impact (months)			Likelihood of Impact Occurring				
							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)					
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								Jeb Doran	Accept	1) Engage interested parties early to agree on additional elements for the Future Transit O&M and quantify required efforts.	Q1 2024: No update this quarter. Keep on Watchlist and continue to monitor.
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.	Q1 2024: No update this quarter.  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. 5) Approach agreement with a phased structure so that parties can build trust for future management processes and responsibilities	Q1 2024: Now have intergovernmental agreements with three tribes and one more in progress which will help to identify resources, impacts, and mitigations. Added mitigation action #5.  February 2024: Received direction from co-leads to pause archaeological investigations until post-PA signature. New details emerging regarding construction sequencing raises additional concerns about timeliness of addressing sensitive resources as any delays in assessing sensitive resource areas could result in construction delays. Recommend investigations in sensitive areas begin in spring/summer 2024.
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.	Q1 2024: Continue to monitor quarterly/monthly.  February 2024: Met with Yakama Nation in January, and have received written comments from Cowlitz. A site visit is tentatively scheduled for one of the proposed mitigation banks for CTGR.  November 2023: IBR/Co-leads 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.



Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN

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							Direct Cost Impact (\$M)			Schedule Impact (months)			Likelihood of Impact Occurring								
							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)									
223	UTL 10.1	Utilities Relocation	Scope of Utilities Required is Greater than Anticipated	There is a high degree of uncertainty in base utility costs associated with the conceptual level of design development. If the scope of utilities required is greater than anticipated, it may result in cost increases to the program.	This risk includes items such as relocation of the COV sanitary sewer Pump Station at the Waterfront and the 60-in culvert pipe beneath I-5 that could require modifications.  <i>The previous 2022 CEVP assumed +/-20% base uncertainty range for utility costs. To be updated based on current 2024 estimate.</i>	Threat											Steve Katko	Accept	1) Engage in early communication with partners (such as City of Vancouver for the waterfront pump station).	Q1 2024: Coordinate with estimating team on what is carried in the estimate for utility costs. Risk updated to include COV pump station at Waterfront.	
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.	Opportunity												Steve Katko	Exploit	1) Meet with PDOT and COV utility groups to initiate planning discussions.	Q1 2024: Developing Utility Impact Matrix to track/identify impact. Need to confirm how this is captured in the base cost estimate to quantify this risk.  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 and Permits	Utility agreements and permits need to be executed before design and construction work can be started. If utility agreement identification or negotiation is delayed behind the assumption in the base then there could be impacts to the design and construction schedule.	Prior relocation agreements prior to RFP. Include NDAs.	Threat												Steve Katko	Mitigate	1) Engage interested parties early to validate the utility relocation schedule. 2) Define early work to determine potential impacts to public and private utilities. 3) Initiate outreach. 4) Identify what existing utility agreements are already in place.	Q1 2024: Utility Agreement group has been engaged. Capture impact ranges during the CEVP and determine which contracts will be impacted. Consider breaking into two separate risks for design and construction in the future when more information is available, agreement to leave as is for now. Risk title/description refined; added new mitigation actions 2, 3, and 4.
226	UTL 20.1.1	Utilities Relocation	Utilities Take Longer Than Anticipated to Implement Relocation Plan (CRB)	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. If utilities take longer than anticipated to implement relocation plans, then it could result in schedule delays.	This risk includes the COV underground utilities. COV decision to underground or apply betterments may impact the base construction schedule. This should be addressed in agreements with COV. WSDOT agreements specify that the project is not responsible for betterments.	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. 5) Engage in early communication with City of Vancouver to determine COV decision to underground and applied betterment as part of the relocation. 6) Engage in early coordination with Utilities on the Utility Plan.	Q1 2024: Utility Agreement group has been engaged. SUE to be complete end of March 2024. Developing Utility Schedule Logic and Utility Impact Matrix. Risk title/description updated. Additional notes and mitigation actions added to incorporate risk 228 and address COV.
227	UTL 20.1.2	Utilities Relocation	Utility Relocation Delays (Program-Wide)	Relocation of utilities may be challenging, depending on the work sequence, and result in delay and/or additional cost.	Applies to all packages except for the River Bridge, captured in risk 226.	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.	Q1 2024: Utility Agreement group has been engaged. Risk title/description updated to be catch-all for all packages except for the River Bridge.  Q4 2023: Added likelihood and impact ratings to reflect other related utility relocation risks.

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							Direct Cost Impact (\$M)			Schedule Impact (months)							Likelihood of Impact Occurring
							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)					
233	UTL 20.2	Utilities Relocation	Unidentified Utilities Encountered During Construction	The base schedule assumes that utility conflicts are identified and resolved prior to construction. If unidentified (underground) utility conflicts are encountered during construction then it could result in schedule delays.	Subsurface utility engineering (SUE) was conducted for CRC; however, alignments have changed and new utilities have been installed. Additional SUE to be complete end of March 2024.  Inaccurate or incomplete information about existing utilities is a trigger for this risk.  Schedule impact is primarily to the Approaches.	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. 4) Invest more resources in the front end for investigations.	Q1 2024: SUE to be completed end of March 2024. Risk description updated.  Q4 2023: Currently getting permitting for SUE investigations. Revisit in Q1 2024.
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.	Q1 2024: Revisit with estimating team to determine likelihood and clarify base assumptions.  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.
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.	<b>Previous CEVP Assumptions:</b> • 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		Q1 2024: No update this quarter.
243	OTH 2.3	Other	Aggregate minor risks / opportunities	Allowance to cover the collective "minor" risks that were unquantified, but collectively may be significant.		Threat							50%		Accept		
244	OTH 2.4	Other	Unidentified risks / opportunities	Allowance to cover the collective "minor" risks that were unquantified, but collectively may be significant.		Threat							50%		Accept		

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							Direct Cost Impact (\$M)			Schedule Impact (months)							
							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)					
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.	Q1 2024: Metro has released documents. Follow-up needed for quantification. February 2024: Release of some draft DSEIS documents is imminent. Metro and COP will be releasing some documents in their possession. Q4 2023: No significant/unmanageable leaks identified so far.
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 and is quantified under risks 26 and 27.	Threat								Mathers Heuck	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.	Q1 2024: Risk moved to Watchlist. Risk quantified under risks 26 and 27, which address limited bidders/bid responses. Q4 2023: Revisit in Q1 2024. There has been a meeting with Travelers 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.	Q1 2024: Still need to evaluate how the Delivery Plan impacts the cost estimate. This risk was placed on the Watchlist. Q3 2023: Revisit following Delivery Plan (Q1 2024). Evaluate if this risk should be listed as a threat or an opportunity.
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: Mario (KMC) to follow up.	

Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN

Risk Identification							Quantitative Analysis							Risk-Response Strategies			
ID #	RBS Code	Discipline Category	Risk Event Title	Risk Description	Additional Notes	Threat or Opportunity	Post-Managed State						Likelihood of Impact Occurring	Risk Owner	Strategy	Actions to be Taken	Management Status
							Direct Cost Impact (\$M)			Schedule Impact (months)							
							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)					
250	MGT	Finance	IBR Program Seeks Federal Funding - Non-CIG	The IBR program seeks \$1.5B in federal discretionary funding (from the BIP and Mega Programs). Failure to secure federal funding may result in delays to and/or down scoping of the IBR program. The BIL expires at the end of 2026.	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				12.0	24.0	72.0	25%	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).	Q1 2024: This risk is related to risk #67. Split this risk into two to address CIG (new risk 274) and non-CIG (250) funding risk. Likelihood for non-CIG funding reduced from 50% to 25%.  January 2024: Received \$600M Mega Grant Award. Likely to receive some BIP award in Q2 2024. Most of risk still lies in CIG process. While there is a high probability to receive the majority of grant money requested, if it is unsuccessful and scope is not changed accordingly, it may be years before another round of large infrastructure grant funding opportunities arise. Failure to secure the FTA CIG will likely result in completely redefining the transit project or removing it from the program.
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.
252	ENV	Environmental	Section 4(f) - All Parks (Except Delta Park)	The 4(f) process at parks could delay schedule or add unexpected scope.	Impacts to Delta Park captured in risk 41.	Threat				1.0	2.0	6.0	5%	Bill Warncke	Mitigate	1) Engage in early coordination with park officials.	Q1 2024: Risk updated to capture all parks except for Delta Park. Delta Park addressed in risk 41.  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.	Q1 2024: No update this quarter.  Q2 2023: A decision will be made following the public comment period.  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.

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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. 3) Ensure clarity in design specs for DB.	Q1 2024: Added new mitigation action #3.  Q4 2023: This will continue to be a risk until the bridge type is determined.
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 Regan / 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. 3) Ensure clarity in design specs for DB.	Q1 2024: Added new mitigation action #3.  Q1 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 this risk.
257	MGT	Finance	Delay to OR/WA Tolling Finance (Flow of Funds) Agreement	High-level coordination needed between WA and 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.					3.0	6.0	12.0	5%			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.	Q1 2024: Bi-state tolling committee has been established ahead of schedule and agreements are in process. Lowered likelihood from 10% to 5%. It has been determined that WSDOT will lead the tolling and will look at funding/finance.  January 2024: Agreements group will schedule kickoff in January with Tolling and GEC SMEs to begin coordination on agreement. Bi-state coordination meetings underway to discuss flow of funds.
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 initiated after the ROD.	Threat									Sean Nikkila	Mitigate	1) Identify path to clear NEPA. 2) Coordinate with ODOT Toll Program.	Q1 2024: Determined that the bridge can be used as a gantry. The ROD is not impacted and does not impact ability to do basic pre-completion tolling construction.
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.	Q1 2024: No update this quarter. 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.	Q1 2024: Have pulled together 408 permit and the 408 permit team is coordinating with MCDD and USACE to try and align schedules.  Q3 2023: Risk identified and placed on the Watchlist. This is a priority watchlist item to revisit on a quarterly basis.
261	TRN	Contract Procurement	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%			Brad Cooper	Mitigate	1) Confirm the contract packaging strategy and approach. 2) Incorporate the approach into the master schedule and identify mitigations.	Q1 2024: Changed risk category from Transit to Contract Procurement.  Q3 2023: Risk identified. Revisit in more detail following the Delivery Plan.

**Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN**

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							Direct Cost Impact (\$M)			Schedule Impact (months)							Likelihood of Impact Occurring
							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)					
262	MGT	Finance	State Funding Timing	There is a risk that funding from either OR WA may be delayed relative to project needs and/or have use restrictions that are more restrictive than currently assumed.		Threat				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.	Q1 2024: No update this quarter. 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.	Q1 2024: No change this quarter. 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.	Q1 2024: No update this quarter.
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.	Q1 2024: Risk moved to Watch list. Review with ROW team.
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.	Impacts to design captured in risk 297.	Threat				1.0	3.0	12.0	50%	Eric Forsyth	Mitigate	1) Confirm the contract packaging strategy and approach. 2) Consider developing specific design criteria for contract interfaces. 3) Engage in early and frequent coordination with track and systems crew and contractor throughout design and during construction. 4) Assign a project manager specific to civil systems integration throughout Transit design and construction.	Q1 2024: Risk likelihood increased to 50%. Added new mitigation actions #2, 3, and 4.
267	ENV 40	Tribal Coord.	Tribal Workforce Engagement & Employment Rights	Tribal employment and hiring goals need to be incorporated into the solicitations. 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.	Schedule impact is for obtaining signatures for agreement documents.  Cost impact would be due to associated fee (in Oregon, 0.25%). Confirm during CEVP.	Threat				6.0	9.0	12.0	30%	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. 3) Develop alternative approaches.	Q1 2024: Added schedule impact and likelihood. Added new mitigation action #3.  February 2024: Have developed Decision Document for WSDOT Secretary Millar's review. Pending meeting time.
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.	Q1 2024: Risk moved to Watchlist. This is a priority watch list item for continued tracking and monitoring. During the last couple of months the team has been mapping which agreements are needed for each package. The schedule will dictate sequencing that will tie into procurement.  January 2024: Agreements team is working with the procurement team to identify #1. This information will feed into the high priority agreements which are targeted to kickoff in Q1 2024. Once the team has updated data, they will work on addressing #2.
270	CNS	Construction	River User MOT During CRB Construction	Additional restrictions from stakeholders cause interruptions/delays to the contractor. Claims for additional stoppages; impacts from river user navigation.	Schedule risk during construction.  Assumption is no less than one corridor open during construction.	Threat								Matt Deml / Noreen Roster / Rob Turton	Mitigate	1) Coordinate with Coast Guard on permitting. 2) Develop construction requirements. 3) Engage in frequent coordination with the Captain of the Port. 4) Develop detailed construction schedule.	Q1 2024: Risk identified 2/27/24 and placed on the Watchlist.
272	ENV	Environmental	Federal Lands to Parks	The Federal Lands to Parks processes at Old Apple Tree Park and Marshall Park could delay schedule or add unexpected scope.		Threat				1.0	3.0	6.0	5%		Mitigate		Q1 2024: Risk identified 2/29/2024.

Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN

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							Direct Cost Impact (\$M)			Schedule Impact (months)							Likelihood of Impact Occurring
							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely <sup>3</sup>	High (90% CI)					
273	CNS	Construction	Trestle Connection to Hayden Island	Trestle connection (work bridge) to Hayden Island delayed due to ROW. If the trestle cannot be built out from the property, more marine work may be needed and result in change to construction means and methods. May also need to revisit permitting.	Schedule delay would result from change in construction means and methods.  There is not currently permitting for any dredging. Need to confirm if risk would be on the contractor to obtain permits.	Threat								Kat Halpenny / Brad Cooper	Mitigate	1) Coordinate with ROW team. 2) Coordinate with Procurement for contract requirements.	Q1 2024: Risk identified 3/4/2024. <b>Revisit with ROW and Environmental team.</b> Coordinate with ROW to determine overlap with NTP. <b>Mathers/KMC to quantify.</b>
274	MGT	Finance	IBR Program Seeks Federal Funding - CIG	The IBR program seeks \$1B in FTA CIG funding. Failure to secure federal funding may result in delays to and/or down scoping of the IBR program.	This risk may be able to be retired if awarded the BIP Grant.  Related to risk 250.	Threat				12.0	24.0	72.0	50%	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) Identify early work packages to secure funding (i.e., east/west walls, work associated with the river bridge).	Q1 2024: Risk identified 3/5/2024.
275	CTR	Contract Procurement	Limited Bid Responses Result in Re-Procurement Approaches Contract	Limited bid responses result in a non-competitive procurement and possible need to rebid.	Direct cost for stipends. Verify cost for stipends and re-procurement included in the base.  Assumption would be few bidders would be 0-2 bidders.  Based on assumption of WSDOT Design-Build.	Threat	\$2 M	\$4 M	\$8 M	8.0	10.0	12.0	25%	Brad Cooper	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) Conduct workshop/analysis to determine optimal river bridge contract packaging and delivery methods. 4) Consider including consultant contractor SMEs in next workshop. 5) Early issuance of draft RFP.	Q1 2024: Risk identified 3/5/2024; related to risks 26 and 27 but specific to Approaches.
276	UTL	Utilities Relocation	Design Changes	Late design changes (after utility coordination efforts) initiated by owners might impact/delay utility relocation base schedule.	The 20% likelihood captures the most likely impact of 3 months.  The 18-month schedule impact is the worst case scenario and has a lower likelihood of 5%. This scenario would be triggered by a utility not anticipated to have a conflict for arises and the utility has to procure materials.	Threat				0.0	3.0	18.0	20%	Steve Katko	Mitigate	1) Continue to engage with partners on design elements. 2) Engage in robust constructability conversations early in the project regarding utility conflicts.	Q1 2024: New risk identified 3/5/2024.
277	UTL	Utilities Relocation	Reimbursable Work	If there is an increased amount of reimbursable work than anticipated, then it might increase the project costs.  The risk would occur if impacts are outside of DOT ROW.	Base cost does not include reimbursable work.  Reimbursable utilities encountered typically result in cost impact of 5% of construction estimate. Discuss with estimating team on cost impact ranges.	Threat								Steve Katko	Mitigate	1) Avoid/minimize impacts to reimbursable utility facilities.	Q1 2024: New risk identified 3/5/2024. Follow up with estimating team on cost impact ranges.
280	UTL	Utilities Relocation	Utilities Relocation Delays - Double Moves	Relocation of utilities suspended on the existing Columbia River Bridge onto the new IBR may be challenging. With the double move of utilities, there is a higher likelihood of delays occurring.	An example trigger for this risk could be problems with material sources for utility companies, which may cause delays.	Threat				2.0	4.0	6.0	40%	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	Q1 2024: New risk identified 3/6/2024.
282	CNS	Maint. Of Traffic	Conflicts Among IBR Contracts (Mill Plain and Washington North)	Lack of coordination between the Mill Plain and Washington North 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.		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.	Q1 2024: Risk identified 3/11/24. Related to risk 102.

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							Direct Cost Impact (\$M)			Schedule Impact (months)							Likelihood of Impact Occurring
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283	CNS	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.		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.	Q1 2024: Risk identified 3/11/24. Related to risk 102.
284	CNS	Traffic	Detours and Closures - Marine Drive	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. 2) Coordinate interim 30% design with Design team and Procurement for Approach contract and Marine Dr Package A.	Q1 2024: Risk identified 3/11/24. Related to risk 187.
285	ENV	Environmental	Unanticipated Mitigations Needed	There could be additional unanticipated wetland, floodplain, or other environmental mitigation required.		Threat									Mitigate		Q1 2024: Risk identified 3/12/24 as separate risk from #56.
286	CTR	Interagency Coord.	Bridge Type Decision Leads to Procurement Delays	Risk of decision on bridge type after bid or into bid process leads to bid process delays to contract procurement, potentially resulting in higher costs and/or schedule impact (TBD). Discuss prior to CEVP.	Related to risk 89.	Threat								Kate Elliott	Mitigate		Q1 2024: Risk identified during Third Party Agreements session 3/15/24. Risk is related to but separate from risk 89.
287	ROW	Right-of-Way	Relocation Delays - Washington (Approaches)	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.	Includes complex multi-family and business relocations. Related to risk 141.	Threat				1.0	2.0	6.0	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.	Q1 2024: Risk identified 3/14/2024. Related to risk 141.
288	ROW	Right-of-Way	Relocation Delays - Washington (Hayden Island)	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.	Includes complex multi-family and business relocations. Related to risk 141.	Threat				1.0	2.0	6.0	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.	Q1 2024: Risk identified 3/14/2024. Related to risk 141.
289	CTR	Right-of-Way	Uncertainty in ROW Cost Inflation Rate	ROW inflation and/or escalation rates may be lower than assumed due to uncertainty in future real estate market conditions.	Related to risk 151 (threat). 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%)	Opportunity									Exploit	1) Consider early acquisition of ROW.	Q1 2024: Risk identified 3/14/2024. Risk 151 was split into a Threat and an Opportunity. 151 captures Threat and this risk captures Opportunity.
290	CTR	Market Conditions	Uncertainty in Construction Cost Inflation Rate	Construction inflation and/or escalation rates (including material, labor, and equipment) are 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%)	Opportunity									Exploit	1) Continue to engage in proactive risk management to minimize delays and reduce potential construction escalation impacts.	Q1 2024: Risk identified 3/7/24. Risk 104 was split into Threat and Opportunity.
291	CTR	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. 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. Threat captured in risk 105.	Opportunity	-\$220 M	-\$110 M	\$0 M				50%	Casey Liles	Exploit	1) Engage in early outreach and coordination with construction contracting market. 2) Consider structuring contracts to reduce complexity and encourage bidders.	Q1 2024: Risk identified 3/7/24. Risk 105 was split into Threat and Opportunity. Approaches captured in risks 292/293.



**Interstate Bridge Replacement (IBR) - PROJECT RISK MANAGEMENT PLAN**

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							Direct Cost Impact (\$M)			Schedule Impact (months)							Likelihood of Impact Occurring
							Low (10% CI)	Most Likely	High (90% CI)	Low (10% CI)	Most Likely3	High (90% CI)					
292	CTR	Market Conditions	Uncertain Market Conditions: Number of Bidders and Pricing (Approaches 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.	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.  Opportunity captured in risk 293.	Threat								Casey Liles	Mitigate	1) Engage in early outreach and coordination with construction contracting market. 2) Consider structuring contracts to reduce complexity and encourage bidders.	Q1 2024: Risk identified 3/7/24 as both threat and opportunity. Opportunity captured in risk 293. River Bridge Contract captured in risks 105 and 291.
293	CTR	Market Conditions	Uncertain Market Conditions: Number of Bidders and Pricing (Approaches Contract)	Market conditions as related to the number of bidders, competition, and contractor pricing may differ from base assumptions. 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.  Threat captured in risk 292.	Opportunity								Casey Liles	Exploit	1) Engage in early outreach and coordination with construction contracting market. 2) Consider structuring contracts to reduce complexity and encourage bidders.	Q1 2024: Risk identified 3/7/24 as both threat and opportunity. Threat captured in risk 292. River Bridge Contract captured in risks 105 and 291.
294	CTR	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.  Threat captured in risk 106.	Opportunity								Casey Liles	Exploit	1) Engage in early outreach and coordination with construction contracting market. 2) Consider structuring contracts to reduce complexity and encourage bidders.	Q1 2024: Risk identified 3/7/24. Risk 106 was split into a Threat and an Opportunity.
295	DES	Roadway Design	Partner Agency Design Review Processes - 30% Design Package (River Bridge)	Partner agencies conduct design review 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.	Impacts to other areas of the program captured in risk 86.	Threat								Matt Deml	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.	Q1 2024: Risk identified 3/18/2024. Risk related to risk 86 which captures impacts to other areas.
296	DES	Roadway Design	Partner Agency Design Review Processes - Subsequent Packages, 60%, 90% (River Bridge)	Partner agencies conduct design review 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.	Impacts to other areas of the program captured in risk 87.	Threat								Matt Deml	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.	Q1 2024: Risk identified 3/18/2024. Risk related to risk 87 which captures impacts to other areas.