Interstate BRIDGE Replacement Program

Bridge Investment Program Planning Grant – Ground Improvement Study

September 6, 2023

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IBR Structures

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IBR Structures

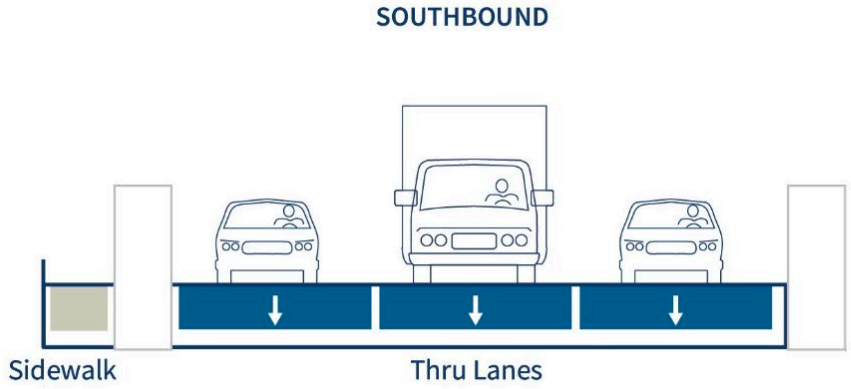
Presentation Overview

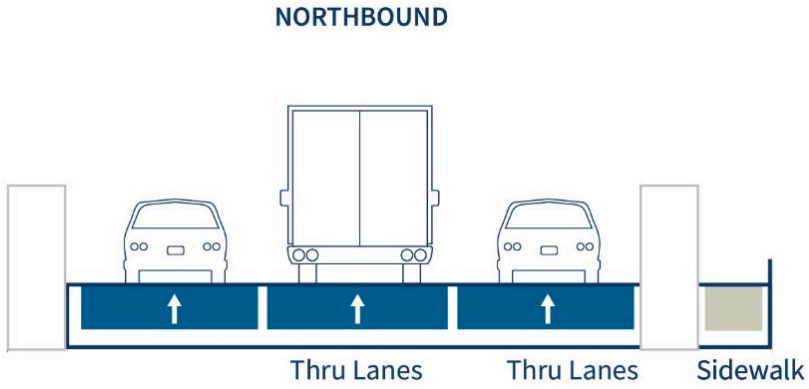
- IBR Program Background
- Proposed Improvements
- Seismic Vulnerability
- Ground Improvement Study

Existing I-5 Bridge over the Columbia River

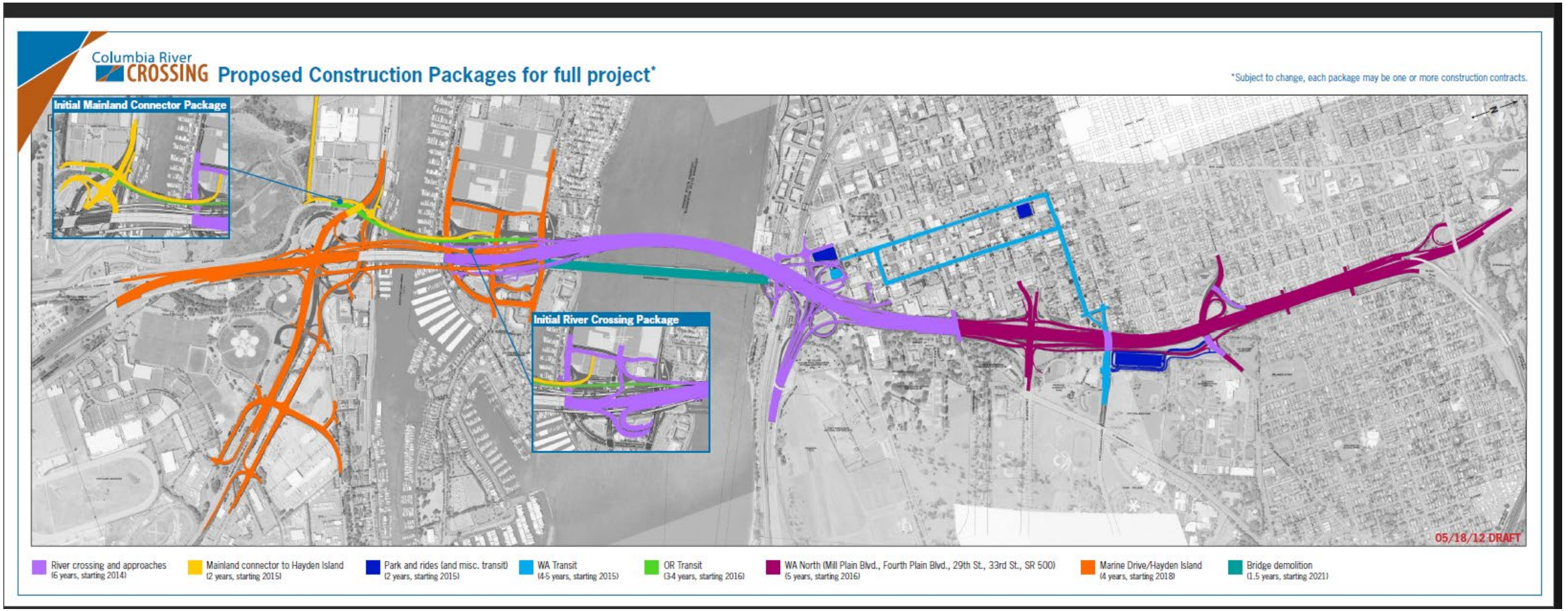
Interstate BRIDGE Replacement Program

Existing Interstate Bridge



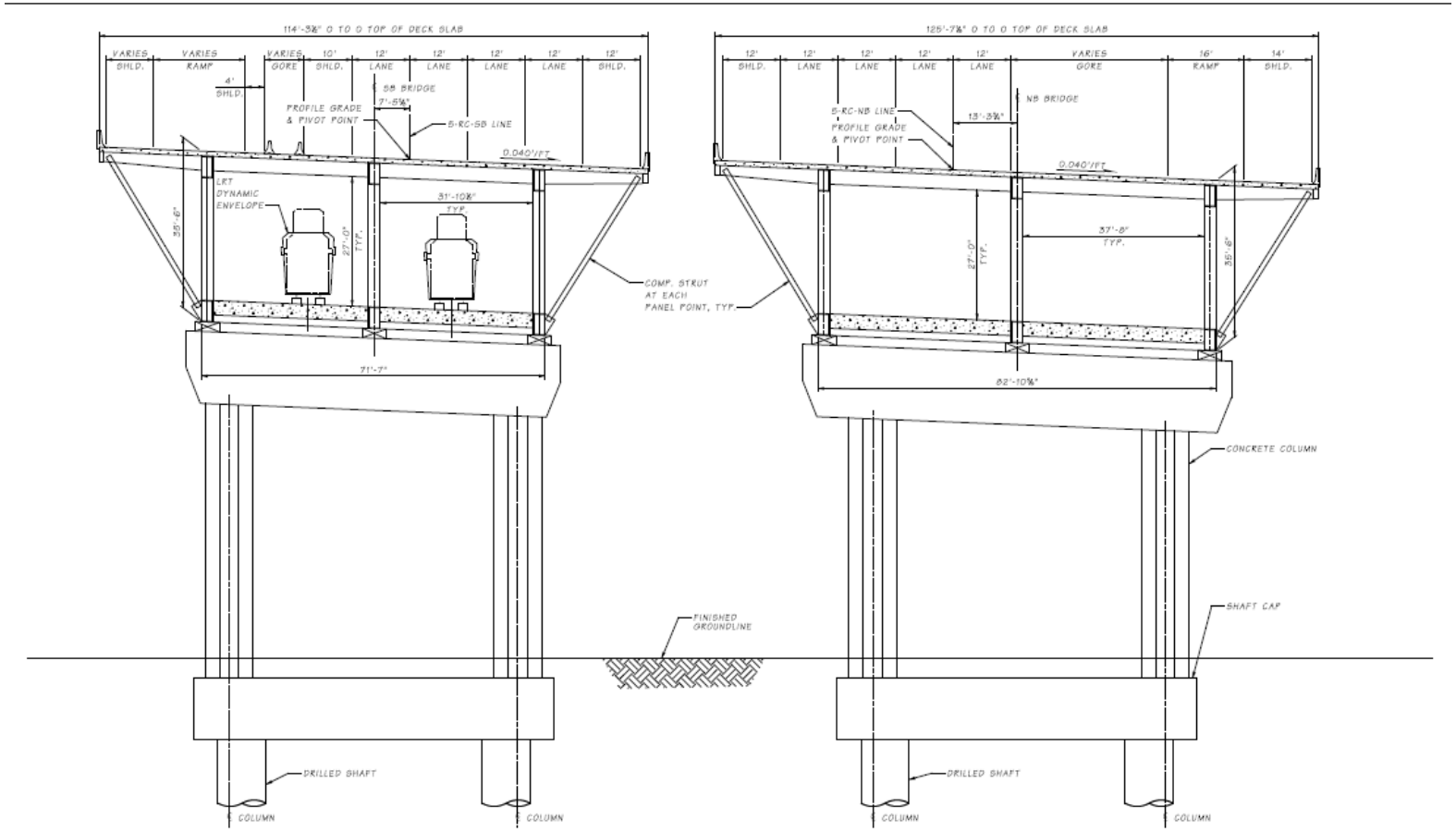


Columbia River Crossing



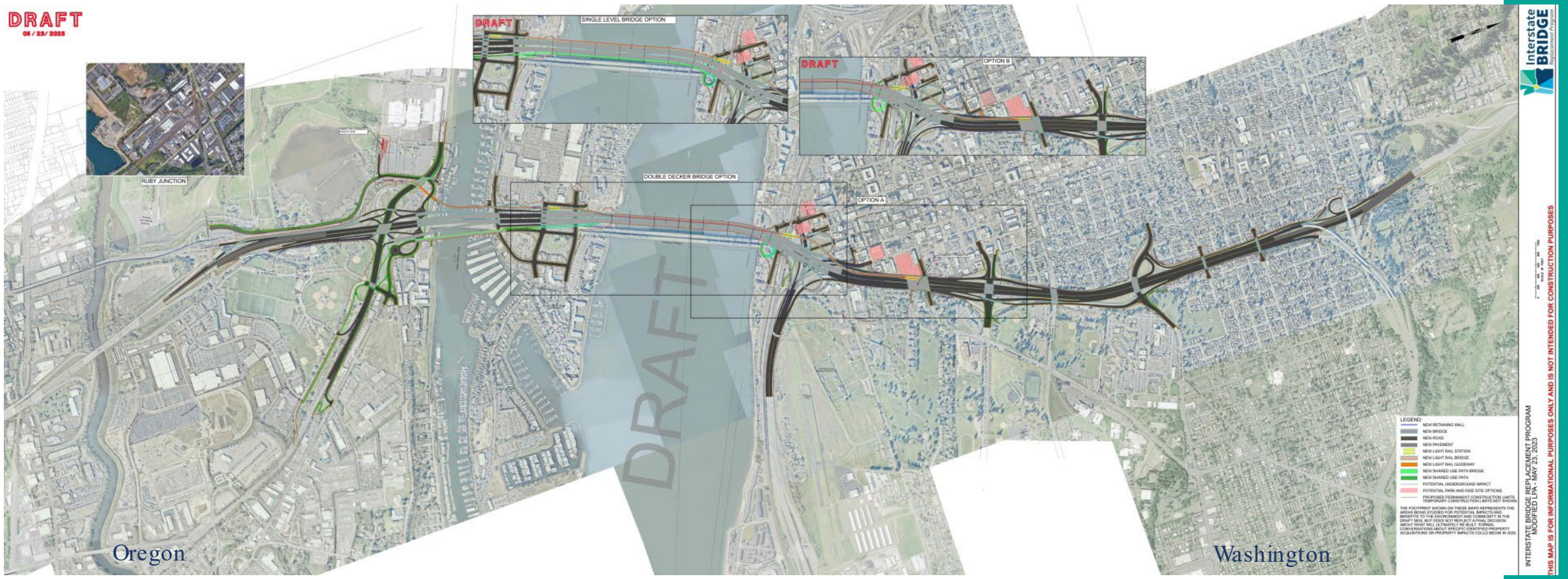
Columbia River Crossing

- Section from CRC concept plans for the composite truss



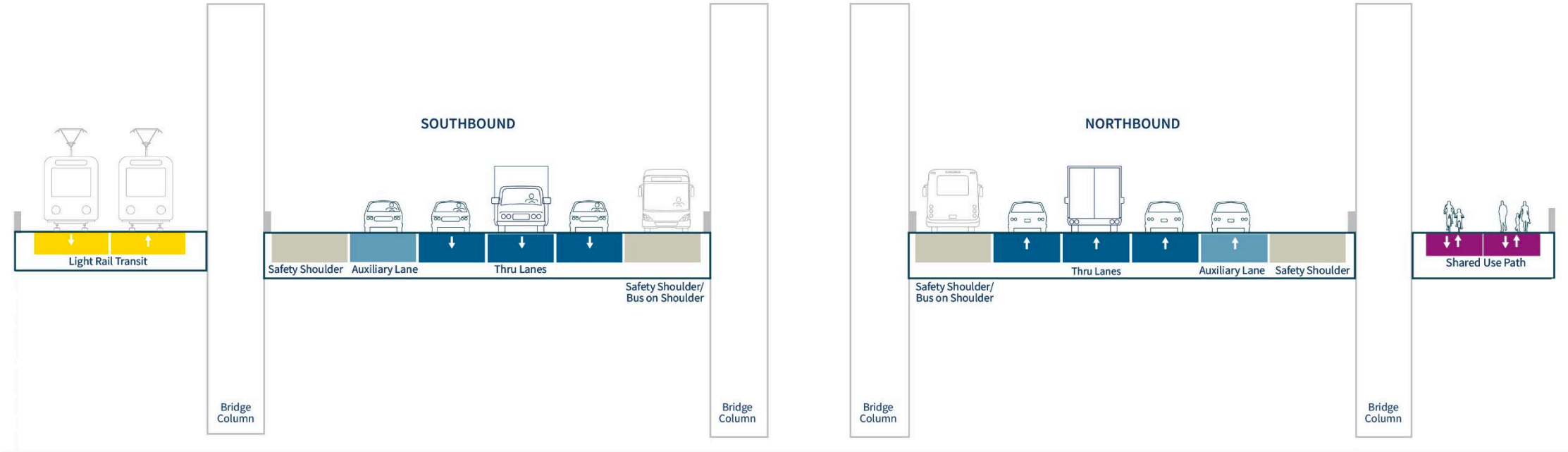
Interstate Bridge Replacement

- Investments shown represent the areas being studied for potential impacts and benefits, but do not reflect a final decision about what will be built



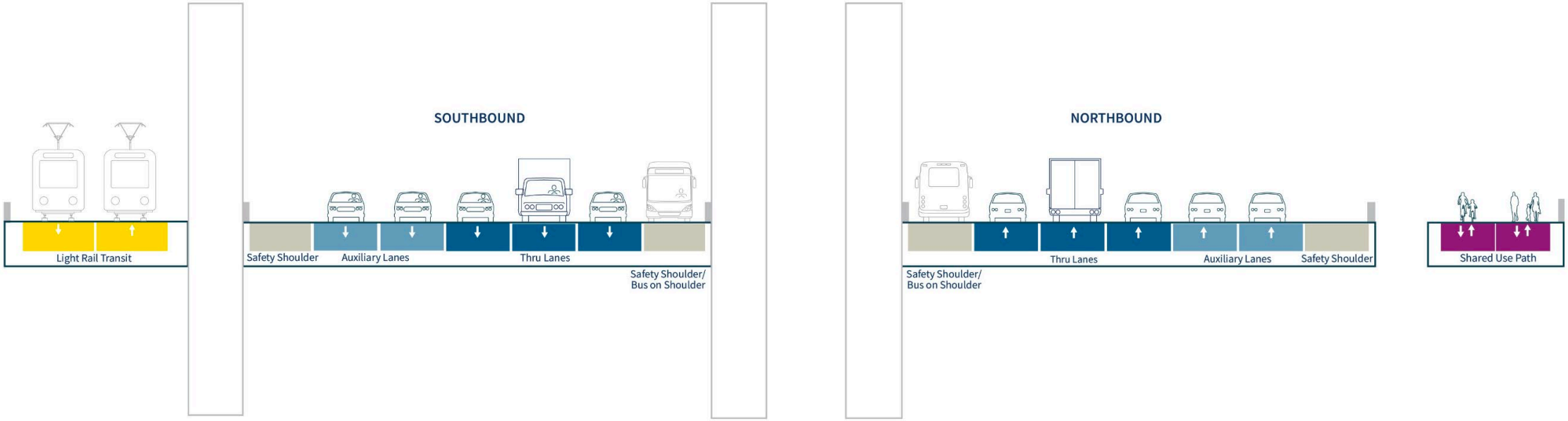
Program area map is available at: www.interstatebridge.org/media/fnjho04j/mlpa-roll-plot-5-25-23.pdf

Interstate Bridge Replacement



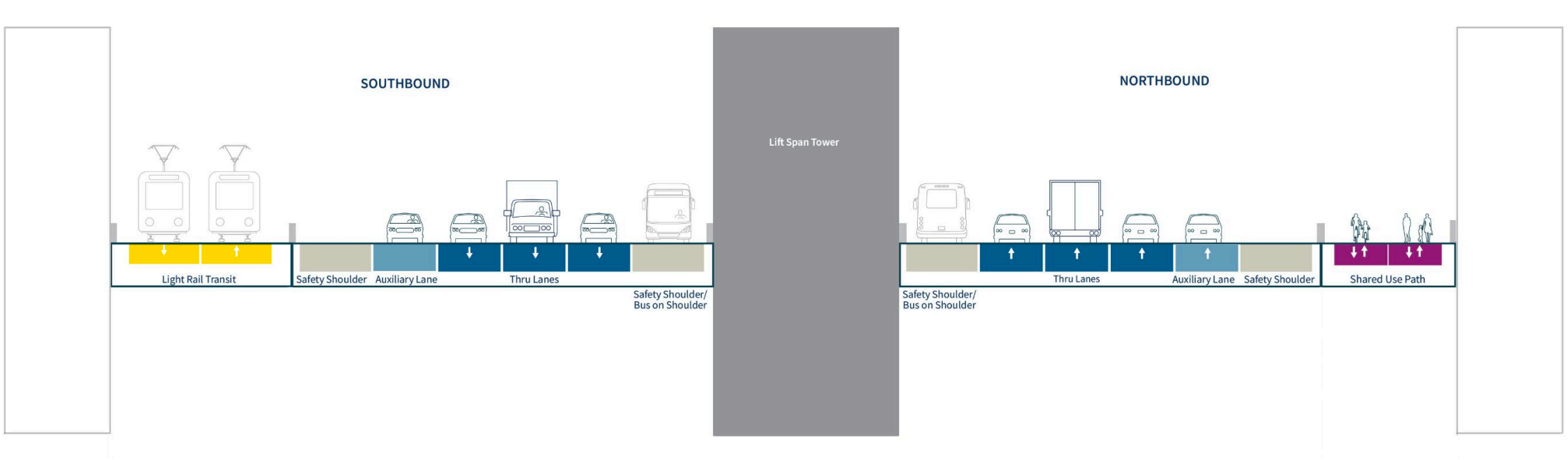
SINGLE-LEVEL CONFIGURATION + 1 AUX LANE

Interstate Bridge Replacement



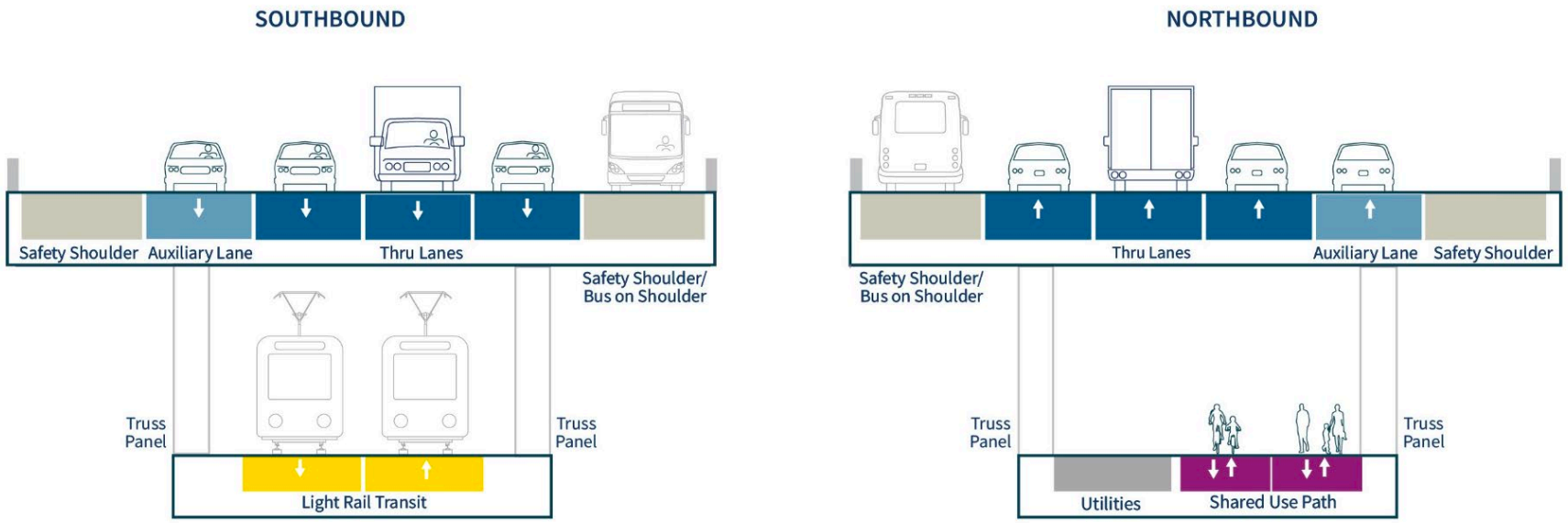
SINGLE-LEVEL CONFIGURATION + 2 AUX LANES

Interstate Bridge Replacement



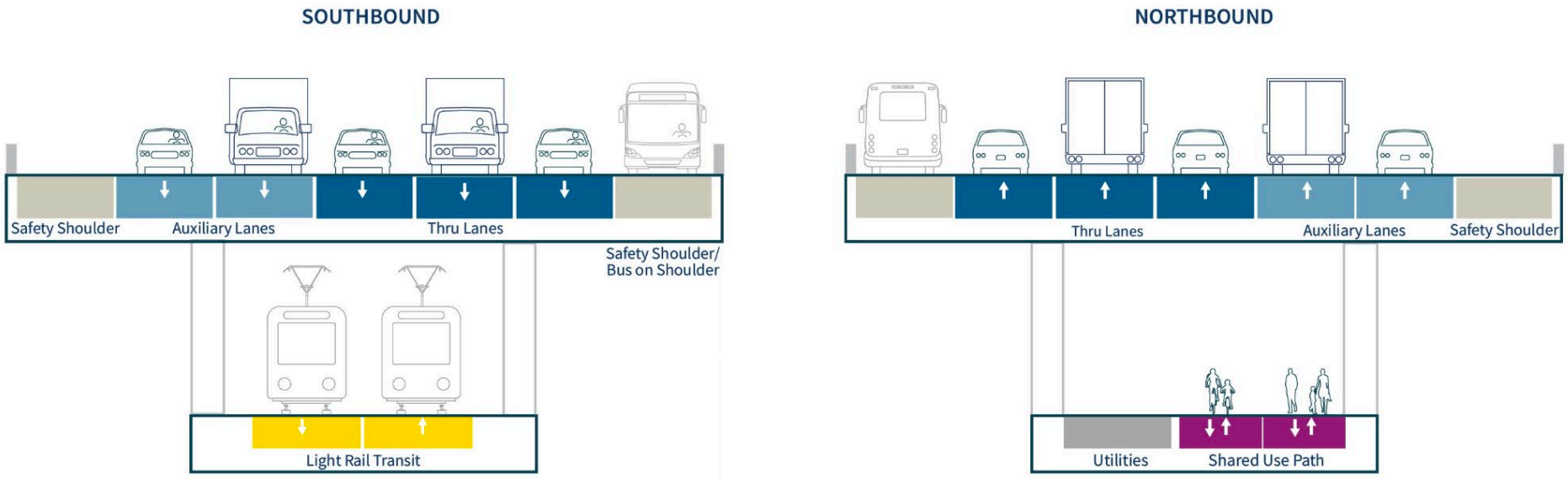
SINGLE-LEVEL CONFIGURATION + MOVABLE SPAN

Interstate Bridge Replacement



DOUBLE-DECK CONFIGURATION + 1 AUX LANE

Interstate Bridge Replacement



DOUBLE-DECK CONFIGURATION + 2 AUX LANES

River Crossing Visualizations

- Five different bridge types based upon the three configurations being studied (single-level, double-level, movable span)
  - The images are not meant for decision-making or narrowing of options at this stage
- Technical analysis will compare the trade-offs between the three bridge configurations.
  - The community will have an opportunity to review the analysis and provide input during the 60-day public comment period.
  - A decision regarding bridge configuration will be made in 2024 before the start of the Final SEIS and Amended Record of Decision.
  - Considerations to determine bridge type will occur once a decision on bridge configuration is made

Single-level Bridge - Extradosed

Vancouver Grant Street Pier, west of bridge

Interstate BRIDGE Replacement Program

Visualizations are for illustration purposes only. They do not reflect property impacts or represent final design.
Program impacts and benefits will be studied in the environmental process.

Single-level Bridge - Finback

Vancouver Grant Street Pier, west of bridge

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Single-level Bridge - Concrete

Vancouver Grant Street Pier, west of bridge

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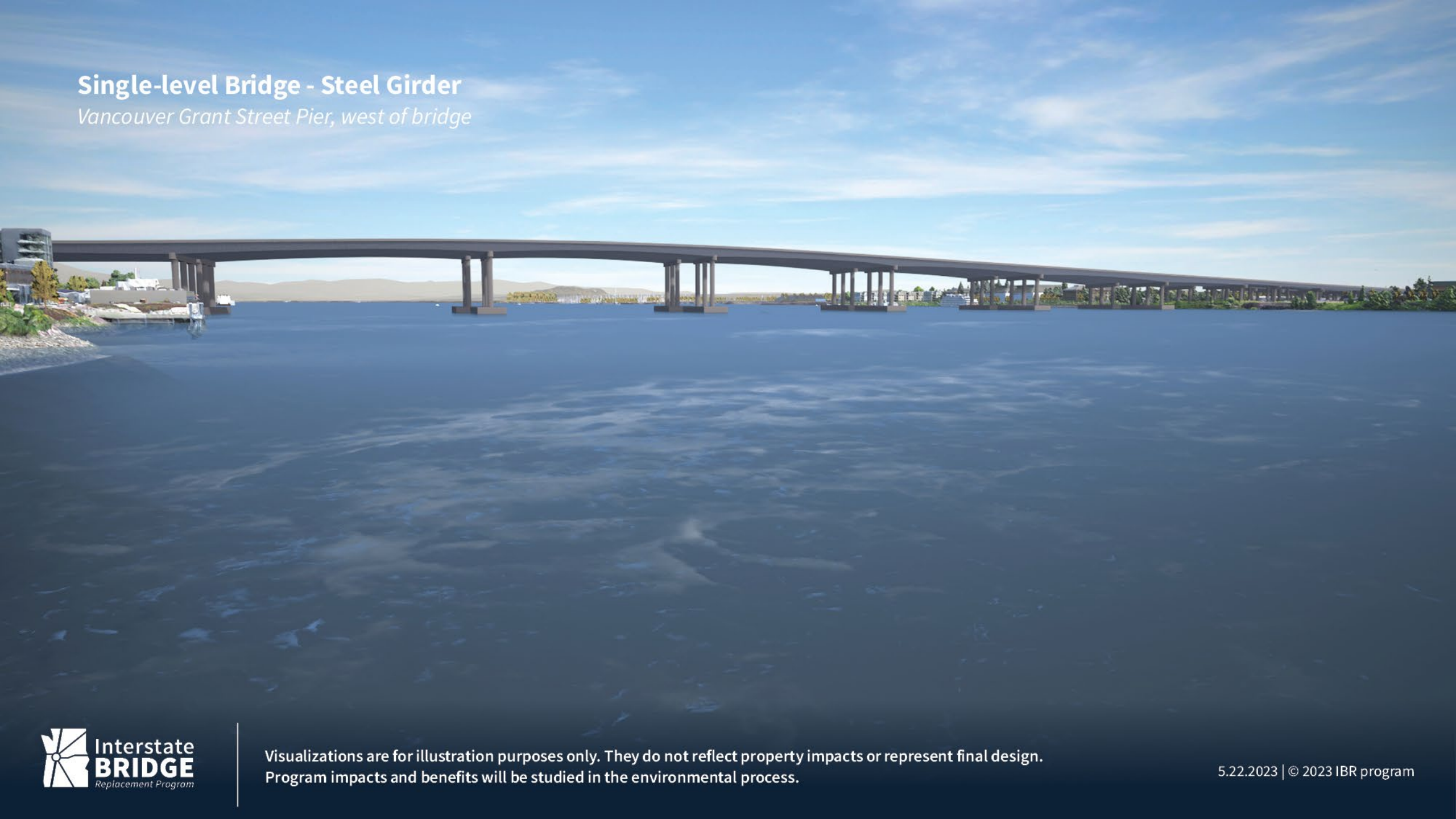
Single-level Bridge - Steel Girder

Vancouver Grant Street Pier, west of bridge



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Movable Bridge - Steel Girder - Open

Vancouver Grant Street Pier, west of bridge

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Double-level Bridge - Truss

Vancouver Grant Street Pier, west of bridge

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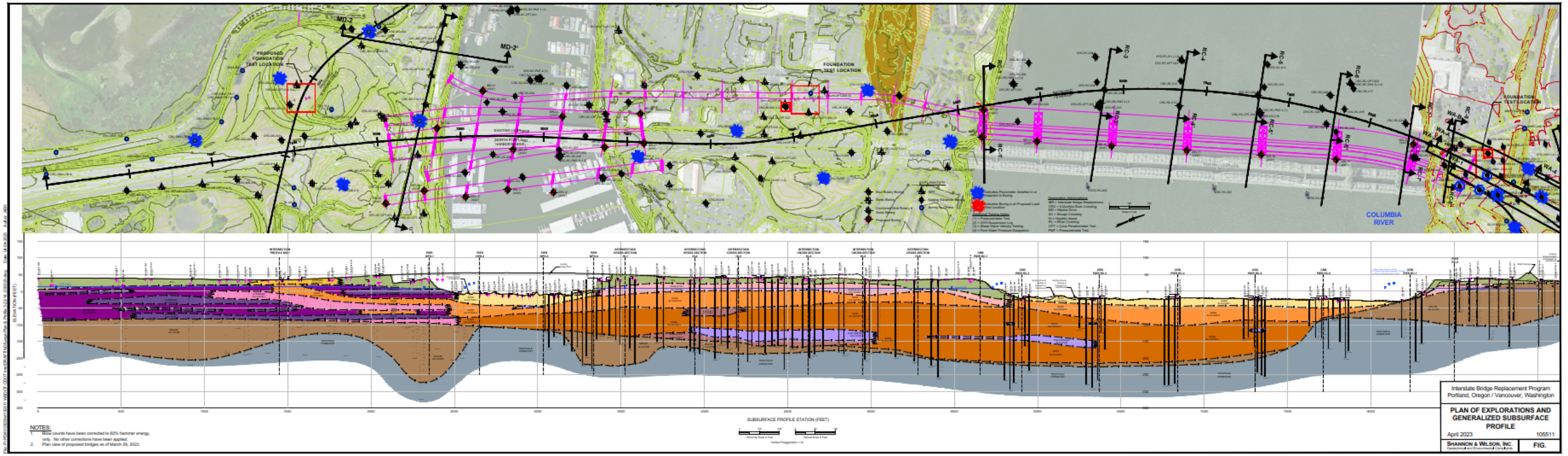
Geotechnical Investigation



Information from CRC

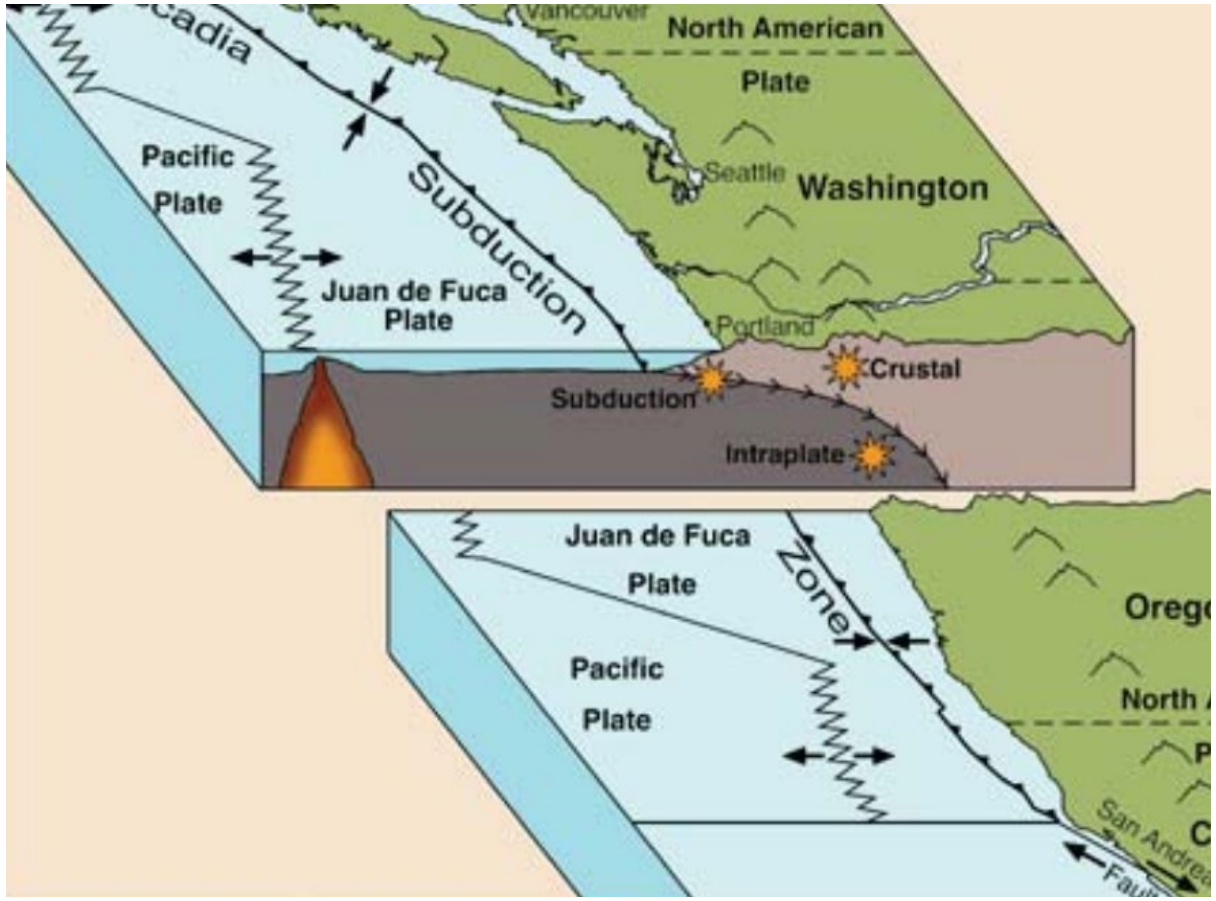
Why a Ground Improvement Study?

Earlier Full-Scale Test Program - Foundations

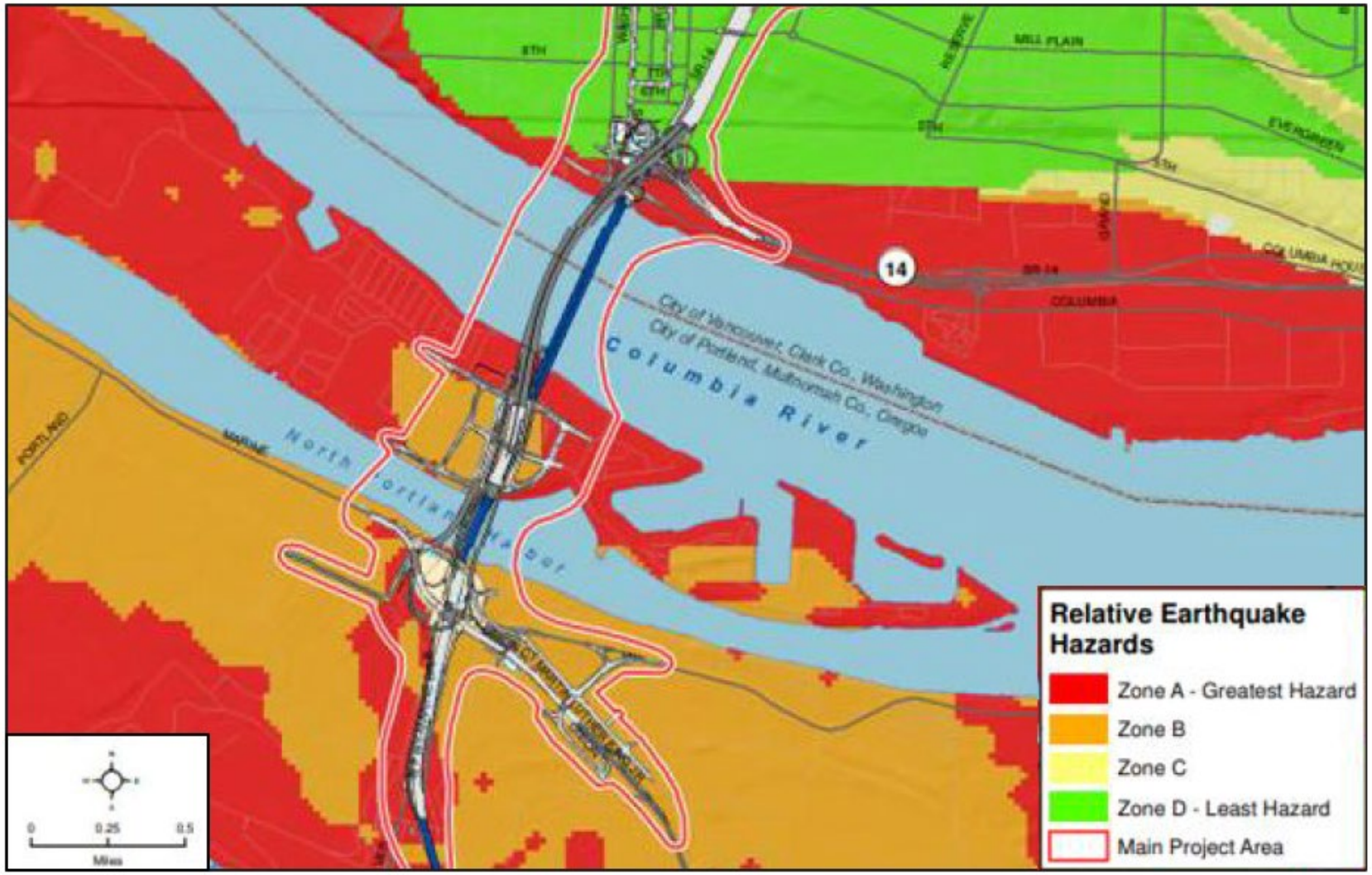
- Shafts – 10’ diameter, 230’ long
- Piles – 24” diameter, 130’ long
- Fully instrumented
- Confirmed constructability
- Determined soil resistance values

Seismic Setting

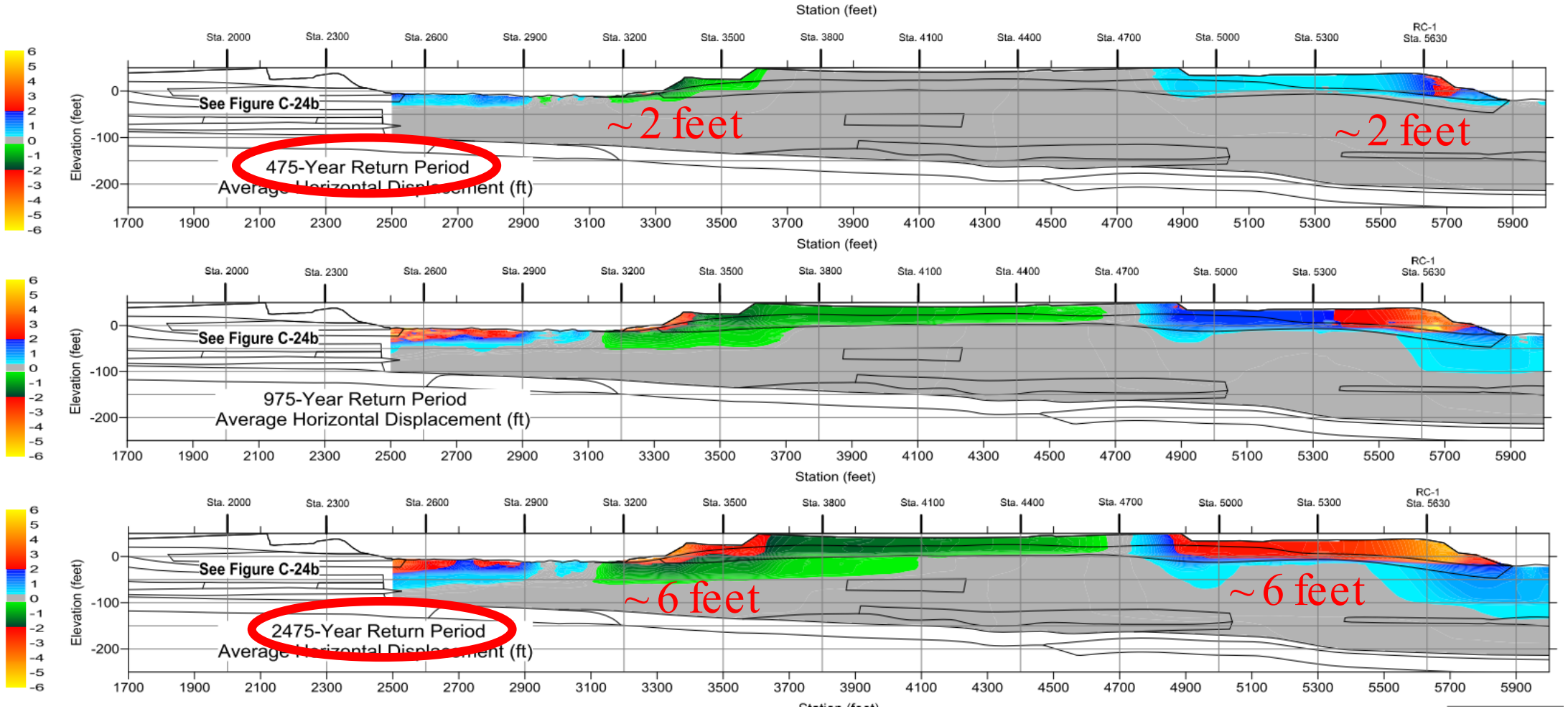
- Subduction
  - M9 500-600 year return period
- Intraplate
  - M7+ 30-50 year return period
- Crustal
  - M7+ inconclusive return period



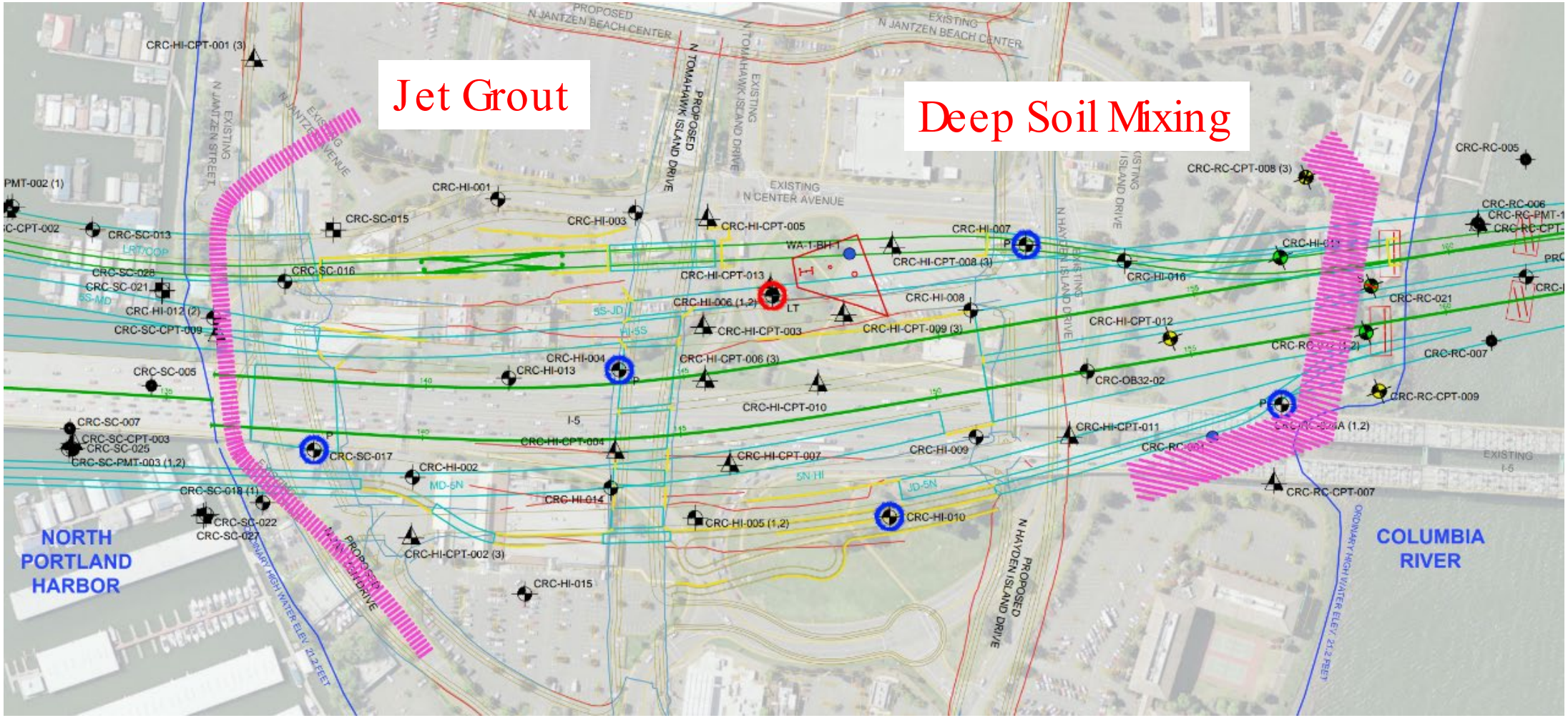
Relative Earthquake Hazards



Hayden Island Lateral Spreading Risk



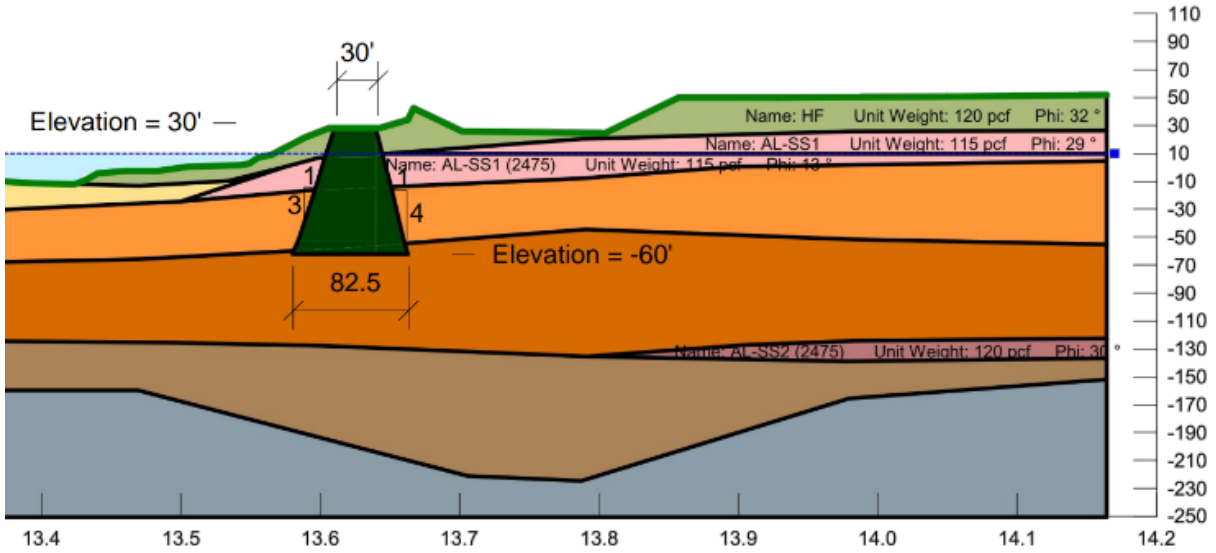
Conceptual Ground Improvement Plan



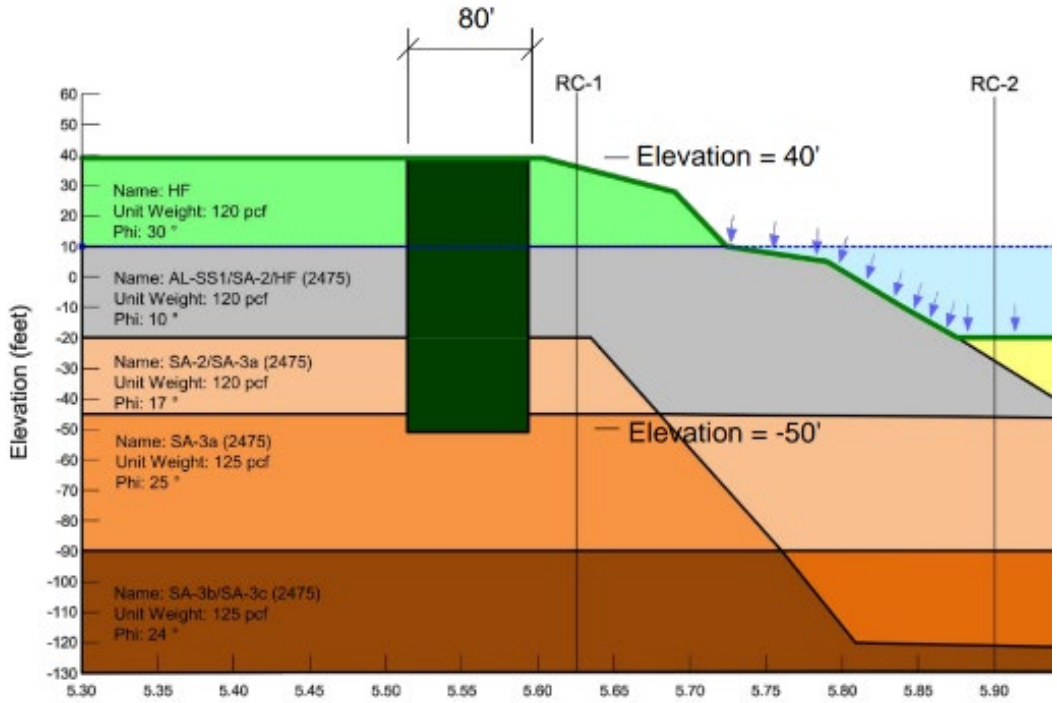
Information from CRC

Conceptual Ground Improvement Profile

Jet Grout



Deep Soil Mixing



Information from CRC

Bridge Investment Program Grant

- The IBR Hayden Island Ground Improvement Study will help the IBR program mitigate seismic risks by assessing soil stabilization techniques including soil mixing, compaction grouting, jet grouting, and the use of stone columns to minimize soil liquefaction during the preliminary engineering stage of the project.

Potential Site

Interstate BRIDGE Replacement Program

Ground Improvement Study Outcomes

- Confirm Space Requirements
- Understand Surface Disturbance
- Confirm Spoils/Material Containment
- Demonstrate Constructability
- Demonstrate Effectiveness
- Promote balanced pricing
- Reduce design schedule

Ground Improvement Methods

Deep Soil Mixing BART Warm Springs Extension Project

Jet Grouting BART Warm Springs Extension Project

Stone Columns WSDOT Ebey Slough Bridge Project

Draft Proposed Schedule

- Fall 2023 Plan Development
- Fall 2024 Advertise
- Summer 2025 Complete Field Study
- Winter 2025 Report

Interstate BRIDGE
Replacement Program

For more information contact:

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888-503-6735
https://www.interstatebridge.org

Follow us on social: @IBRprogram

Questions?

Thank you!

www.interstatebridge.org