Interstate
BRIDGE
Replacement Program

Interstate Bridge Replacement Program

FINAL Supplemental Environmental Impact Statement

Executive Summary

March 2026

Produced in partnership with:

Federal Transit Administration

FHWA

Oregon Department of Transportation

Washington State Department of Transportation

TRIMET

C-TRAN

Metro

Southwest Washington Regional Transportation Council

Interstate Bridge Replacement Program

Portland, Oregon and Vancouver, Washington

FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT AND SECTION 4(F) EVALUATION

Submitted Pursuant to:

The National Environmental Policy Act (42 U.S.C. § 4322(c)); 49 U.S.C. § 303 (formerly Department of Transportation Act of 1966 § 4(f); and the Washington State Environmental Policy Act (Ch. 43.21C RCW)

Submitted by:

Federal Highway Administration

Federal Transit Administration

and

Oregon Department of Transportation

Washington State Department of Transportation

Oregon Metro

Southwest Washington Regional Transportation Council

Tri-County Metropolitan Transportation District

Clark County Public Transportation Benefit Area

in cooperation with

National Oceanic and Atmospheric Administration National Marine Fisheries Service

National Park Service

U.S. Army Corps of Engineers

U.S. Coast Guard

U.S. Environmental Protection Agency

Washington State Department of Archaeology and Historic Preservation

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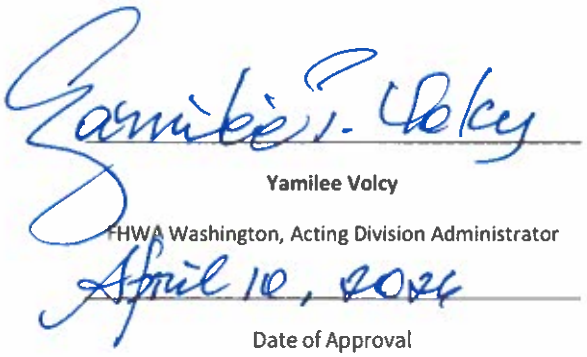

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For ADA (Americans with Disabilities Act) or Civil Rights Title VI accommodations, translation/interpretation services, or more information call 503-731-4128, TTY 800-735-2900 or Oregon Relay Service 7-1-1.

Washington

Accommodation requests for people with disabilities in Washington can be made by contacting the WSDOT ADA Affairs team at wsdotada@wsdot.wa.gov or by calling toll-free, 855-362-4ADA (4232). Persons who are deaf or hard of hearing may make a request by calling the Washington State Relay at 711.

ABSTRACT

The Interstate Bridge Replacement (IBR) Program is a bridge, transit, and highway improvement project to address safety and mobility in the Interstate 5 (I-5) corridor between Portland, Oregon, and Vancouver, Washington. I-5 is the main interstate corridor on the West Coast of the United States (U.S.) from Canada to Mexico and one of only two roadway crossings of the Columbia River in the Portland-Vancouver metropolitan area. The IBR Program focuses on a 5-mile segment of the I-5 corridor that extends from approximately Victory Boulevard in Portland to State Route (SR) 500 in Vancouver.

The IBR Program is proposed by the Oregon and Washington State Departments of Transportation (ODOT and WSDOT), Southwest Washington Regional Transportation Council (RTC), Oregon Metro (Metro), Clark County Public Transportation Benefit Area (C-TRAN), and Tri-County Metropolitan Transportation District (TriMet). The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) are the joint federal lead agencies for the IBR Program and are responsible for preparing the environmental documentation and overseeing the National Environmental Policy Act (NEPA) process.

The IBR Program is the renewal of the previously suspended I-5 Columbia River Crossing (CRC) project. The CRC project's NEPA process previously concluded with a 2011 Record of Decision and NEPA re-evaluations prepared in 2012 and 2013; however, the CRC project was suspended in 2014. In 2019, a bi-state legislative committee requested that ODOT and WSDOT reinitiate the CRC project, renaming it the IBR Program. In 2021, after the IBR Program was initiated, a third NEPA re-evaluation was prepared to evaluate the effect of changes in conditions and regulations since 2013, as well as potential design changes. The re-evaluation addressed changes in regulations, permits, and the affected environment that have occurred since 2011 and potential design changes or refinements proposed to be made through the IBR Program process. The review considered whether any new information, including design modifications or refinements, could result in potential adverse impacts not included in the previous CRC Final EIS. FHWA and FTA determined that a supplemental environmental impact statement (SEIS) would be necessary to identify and disclose potentially new adverse impacts and mitigation associated with the IBR Program.

This Final SEIS analyzes the transportation performance and potential impacts to the community and environment resulting from an updated No-Build Alternative and the proposed Modified Locally Preferred Alternative (Modified LPA). The IBR Program's Modified LPA is a modification of the CRC LPA and is the result of a multi-tiered screening process that included input from Program partners, tribes, and community members. The Modified LPA comprises a set of transportation components including a new pair of Columbia River bridges, a 1.9-mile light-rail transit (LRT) extension and associated LRT improvements from the Expo Center station in Portland to a new Evergreen Station in Vancouver, shoulders on I-5 from Victory/Interstate Boulevard in Portland to SR 500/39th Street in Vancouver, improvements to seven I-5 interchanges and I-5 mainline improvements, six new adjacent bridges across North Portland Harbor, active transportation

improvements, integration of local bus transit service, and variable-rate tolling. There are several design options under evaluation for the Modified LPA, including three bridge configurations (double-deck fixed-span, single-level fixed-span, and single-level movable-span), site options for park and rides, one or two auxiliary lanes, alignment of the I-5 mainline in Vancouver, and the removal or inclusion of C Street ramps in Vancouver. The components of the Modified LPA are responsive to local agency policies and community priorities to support the mobility for people who walk, bike, roll, and drive throughout the study area. Based on a 2026 IBR Program cost estimate, the various components of the Modified LPA are expected to cost between $13.5 billion to $15.2 billion in year-of-expenditure dollars (YOE$).

During preparation and following publication of the Draft SEIS, the Program solicited public, agency, and tribal feedback through public comments, hearings, and open houses to gather input and discuss the Modified LPA and design options. The 60-day public comment period was from September 20, 2024 through November 18, 2024. In-person public hearings and open houses were held in Vancouver, WA on October 15, 2024 and in Portland, OR on October 17, 2024. There were also two virtual public hearings on October 26 and October 30, 2024. The Final SEIS identifies the IBR Program Recommended Design Options. Following publication of the Final SEIS, the federal lead agencies would issue an Amended Record of Decision, which would amend the 2011 Record of Decision. The Amended Record of Decision would identify the selected alternative and design options that would advance for construction.

The following persons can be contacted for additional information regarding this document:

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FACT SHEET

Project Title

Interstate Bridge Replacement Program

Description

The Interstate Bridge Replacement (IBR) Program is a bridge, transit, and highway improvement project proposed by the Oregon and Washington State Departments of Transportation (ODOT and WSDOT), the Southwest Washington Regional Transportation Council (RTC), Oregon Metro (Metro), Clark County Public Transportation Benefit Area (C-TRAN), and Tri-County Metropolitan Transportation District (TriMet). The Program's purpose is to improve mobility in the Interstate (I-5) corridor by addressing present and future travel demand and mobility needs in the Program area. The Program area extends from approximately Victory Boulevard in Portland, Oregon, to State Route 500 in Vancouver, Washington, and includes the Interstate Bridge across the Columbia River. The Program is intended to address specific needs in the region through improvements to the following: travel safety and traffic operations on the Interstate Bridge and associated interchanges; highway freight mobility, interstate travel, and commerce; transit connectivity, reliability, and travel times; the availability of public transportation options in the study area; and the Interstate Bridge's structural integrity (seismic stability).

Date of Issue

Draft SEIS: September 20, 2024
Final SEIS: April 17, 2026

In accordance with NEPA (23 CFR § 771.127), the federal lead agencies will issue a decision no sooner than 30 days after publication of the Final SEIS notice in the Federal Register.

Notice of Document Availability

An electronic copy of the Final SEIS is available at no charge. Download an electronic copy here: www.interstatebridge.org

A printed and electronic copy of the Final SEIS are available for viewing at the IBR Program office by appointment. To schedule an appointment:

Visit: https://www.interstatebridge.org/get-involved-folder/office-hours/

Email: info@interstatebridge.org, or

Call: (888) 503-6735

Computers and internet access are available at various public libraries and meeting places throughout the Portland-Vancouver metropolitan area:

Washington Locations

- Fort Vancouver Regional Libraries
  Multiple locations - Please call to find a location near you. (360) 906-5000
- Clark College – Cannell Library
  1933 Fort Vancouver Way #112, Vancouver, WA 98663 (360) 992-2151
- Washington State University Vancouver Library
  14204 NE Salmon Creek Avenue, Vancouver, WA 98686 (360) 546-9680
- Camas Public Library
  625 NE 4th Ave, Camas, WA 98607 (360) 834-4692

Oregon Locations

- Multnomah County Library
  Multiple locations - Please call to find a location near you. (503) 988-5123
- Portland State University – Branford P. Millar Library
  1875 SW Park Avenue, Portland, OR 97201 (503) 725-5874
- Portland Community College Library
  Multiple locations - Please call to find a location near you. (971) 722-5322
- University of Portland Library – Wilson W. Clark Memorial Library
  5000 N. Willamette Boulevard, Portland, OR 97203 (503) 943-7111
- Clackamas Community College Library
  19600 Molalla Avenue, Oregon City, Oregon 97045 (503) 594-6042
- Mt. Hood Community College Library
  26000 SE Stark Street, Gresham, OR 97030 (503) 491-7161
- Oregon Health & Science University Library
  3181 SW Sam Jackson Park Road, Portland, OR 97239 (503) 494-3460
- Oregon State University – Portland Center
  555 SW Morrison Street, 2nd Floor, Portland, OR 97204 (503) 273-4301
- University of Oregon – Portland Library & Learning Center
  2800 NE Liberty St, 2nd Floor, Portland, OR 97211 (503) 412-3671

ANTICIPATED PERMITS AND APPROVALS

Anticipated Federal, State, and Local Permits and Approvals

Permit or Approval	Issuing Agency
Form 7460-1 permits for permanent and construction obstructions	FAA
23 U.S.C. § 129(a)(1)(E), Federal Tolling Authority	FHWA
Access revision report approval	FHWA
Design analysis approval	FHWA
Design approval	FHWA
Real estate acquisition review	FHWA
Right-of-way (interstate) approval	FHWA
Right-of-way (railroad) approval	BNSF Railway
Endangered Species Act Section 7 consultation	NOAA Fisheries, USFWS
Magnuson-Stevens Fishery Conservation Management Act	NOAA Protected Resources Division
Marine Mammal Protection Act	NOAA Fisheries
National Historic Preservation Act Section 106	FHWA, FTA, NPS, SHPO, and DAHP
Archaeological Resources Protection Act permit	NPS
Section 4(f) of the U.S. Department of Transportation Act of 1966 determination	FHWA, FTA
Section 6(f) of the Land and Water Conservation Fund Act documentation	FHWA, FTA, NPS
Bridge permit in accordance with the General Bridge Act of 1946	U.S. Coast Guard
Section 404 of the Clean Water Act (CWA)	USACE
Section 14 of the Rivers and Harbors Appropriation Act of 1899, as amended and codified in 33 U.S.C. § 408 (Section 408)	USACE
Section 10 of the Rivers and Harbors Appropriation Act of 1899, as amended and codified in 33 U.S.C. § 401 et seq.	USACE
Sole Source Aquifer Protection Act approval	U.S. Environmental Protection Agency
Migratory Bird Treaty Act	USFWS
Federal Lands to Parks program	U.S. General Services Administration, NPS
Approval of rail crossing, intersection, signals, and right of way encroachment permit	ODOT, WSDOT
Voluntary Cleanup Pathway approval	DEQ
CWA National Pollutant Discharge Elimination System construction stormwater permits	DEQ, Ecology
CWA Section 401 water quality certifications	DEQ, Ecology
Air quality permits	DEQ, Ecology
Removal-Fill Permit	DSL

Permit or Approval	Issuing Agency
Lease/Bridge Easement Permit	DSL
Oregon Fish Passage Act approval	Oregon Department of Fish and Wildlife
Archaeological Excavation Permit	SHPO
Aquatic Use Authorization	Washington Department of Natural Resources
Hydraulic Project Approval	Washington Department of Fish and Wildlife
Approval for removal of cemetery dedication as codified in RCW 68.24.090	Clark County Superior Court
Track Access Permit(s)	TriMet
City of Portland local permits and approvals (design review/land use review, historic resources review, noise variance, improvements in right of way, building permit – site development, sign permit, trade permits, non-park use permit)	City of Portland
City of Vancouver local permits and approvals (public facilities master plan [hybrid approach], transportation development review, traffic impact analysis, shoreline substantial development permit, critical areas permit, noise permit, waiver of certificate of appropriateness, building permit, trade permits, temporary use permit, access closure, sign permit [temporary])	City of Vancouver
Right-of-way permit for any encroaching in public right of way or City easements, tree permit, design review	City of Gresham

CWA = Clean Water Act; DAHP = Washington State Department of Archaeology and Historic Preservation; DEQ = Oregon Department of Environmental Quality; DSL = Oregon Department of State Lands; Ecology = Washington State Department of Ecology; FAA = Federal Aviation Administration; FHWA = Federal Highway Administration; FTA = Federal Transit Administration; NOAA Fisheries = National Oceanic and Atmospheric Administration National Marine Fisheries Service; NPS = National Park Service; ODOT = Oregon Department of Transportation; SHPO = Oregon State Historic Preservation Office; TriMet = Tri-County Metropolitan Transportation District; USACE = U.S. Army Corps of Engineers; USFWS = U.S. Fish and Wildlife Service; WSDOT = Washington State Department of Transportation.

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ABBREVIATIONS AND ACRONYMS

Abbreviation/Acronym	Definition
AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
AVE	Area of Visual Effect
BMP	best management practices
BUILDER	Building United States Infrastructure through Limited Delays and Efficient Reviews
C-TRAN	Clark County Public Transportation Benefit Area
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CIA	contributing impervious area
CRC	Columbia River Crossing
DEQ	Department of Environmental Quality
DOT	Departments of Transportation
EIS	Environmental Impact Statement
EMF	Electromagnetic Field
EO	Executive Order
ESA	Environmental Site Assessments
ESC	erosion and sediment control
ESCP	erosion and sediment control plan
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FLP	Federal Lands to Park
FRA	Federal Railroad Administration

Abbreviation/Acronym	Definition
FTA	Federal Transit Administration
GHG	Greenhouse Gas
HBMS	hazardous building materials surveys
HNC	Horizontal Navigation Clearance
I-5	Interstate 5
IBR	Interstate Bridge Replacement
IFR	Interim Final Rule
LPA	Locally Preferred Alternative
LRFD	Load-and-Resistance Fact Design
LRT	light-rail transit
LRV	Light-rail vehicle
LU	Landscape unit
MAX	Metropolitan Area Express
Metro	Oregon Metro
MSAT	Mobile Source Air Toxics
NCO	non-commissioned officer
NEPA	National Environmental Policy Act
NHS	National Historic Site
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
OCS	Obstacle Clearance Surface
ODFW	Oregon Department of Fish and Wildlife
ODOT	Oregon Department of Transportation
OHWM	ordinary high-water mark

Abbreviation/Acronym	Definition
OMF	Operations and Maintenance Facility
PCC	Portland City Code
PCP	pollution control plan
RCW	Revised Code of Washington
REC	Recognized Environmental Conditions
ROD	Record of Decision
RTC	Regional Transportation Council
RTDM	Regional Travel Demand Model
SEIS	Supplemental Environmental Impact Statement
SEPA	State Environmental Policy Act
SPCC	spill prevention, control, and countermeasure
SR	State Route
SWPPP	Stormwater Pollution Prevention Plan
TDM	transportation demand management
TPSS	Traction power substations
TriMet	Tri-County Metropolitan Transportation District
TSM	transportation system management
U.S.C.	United States Code
URA	Uniform Relocation Assistance
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service

Abbreviation/Acronym	Definition
USGS	U.S. Geological Survey
VdB	velocity of vibration in decibels
VHNR	Vancouver National Historic Reserve
VMC	Vancouver Municipal Code
VMT	vehicle miles traveled
VNC	vertical navigation clearance
VNHR	Vancouver National Historic Reserve
WDFW	Washington Department of Fish and Wildlife
WQMPP	Water Quality Monitoring and Protection Plan
WSDOT	Washington State Department of Transportation

SUMMARY

The following summarizes information from the Interstate Bridge Replacement (IBR) Program Final Supplemental Environmental Impact Statement (SEIS), including changes in legal requirements since the Draft SEIS, Program background, the transportation problems the Program seeks to fix, the Modified Locally Preferred Alternative (LPA), and the key benefits and reasonably foreseeable effects of the Modified LPA. It concludes with a brief discussion of the next steps and methods by which the public can continue to be involved in the IBR Program.

Changes in Legal Landscape since the Draft SEIS

Since publication of the Draft SEIS, President Trump signed Executive Order (EO) 14154 - Unleashing American Energy - which, among other things, required the Council on Environmental Quality (CEQ) to issue guidance on implementing the National Environmental Policy Act (NEPA) and propose rescinding its NEPA regulations at 40 Code of Federal Regulations (CFR) Part 1500 et seq. Subsequently, on February 25, 2025, CEQ published an Interim Final Rule (IFR) removing the CEQ NEPA implementing regulations, effective April 11, 2025 (90 Federal Register 10610). The U.S. Department of Transportation (USDOT) NEPA implementing regulations at 23 CFR Part 771, Environmental Impact and Related Procedures, were modified to remove cross-references to the defunct CEQ regulations through an IFR that became effective immediately upon its publication in the Federal Register on July 3, 2025.

Reasonably Foreseeable Effects

On February 19, 2025, CEQ issued a memorandum, "Implementation of the National Environmental Policy Act," which acknowledged that the amendments to NEPA in the Fiscal Responsibility Act of 2023, known as the Building United States Infrastructure through Limited Delays and Efficient Reviews (BUILDER) Act of 2023, directed that environmental impact statements must analyze and disclose the "reasonably foreseeable environmental effects of the proposed agency action." CEQ encouraged Federal agencies to "analyze the reasonably foreseeable effects of the proposed action consistent with section 102 of NEPA, which does not employ the term 'cumulative effects;' […and the agencies should consider] 'reasonably foreseeable' effects, regardless of whether or not those effects might be characterized as 'cumulative.'"

Further, since the publication of the Draft SEIS, the U.S. Supreme Court issued its decision in Seven County Infrastructure Coalition v. Eagle County, Colorado, which held the focus of NEPA is the project at hand, not other separate projects. 605 U.S. 168 (May 29, 2025). It also reinforced the "reasonably foreseeable" effects standard for measuring effects in NEPA, which was incorporated into the US DOT's NEPA implementing regulations at 23 CFR Part 771.

Accordingly, relying upon the NEPA requirements, as revised by the BUILDER Act of 2023, and 23 CFR Part 771, effective July 3, 2025, the Final SEIS analyzes reasonably foreseeable effects that result from the proposed action.[1] The IBR Program considers reasonably foreseeable effects to have a rational link to the IBR Program

[1] The Final SEIS does not categorize the reasonably foreseeable effects of the proposed action based upon types of effects. As a result of the changes discussed in this chapter, FHWA, FTA and the IBR Program reviewed the documentation supporting the NEPA analysis to determine whether the effects that had previously been characterized as direct, indirect, and cumulative were reasonably foreseeable. The appendices supporting the Final SEIS, which contain the terms "direct" and "indirect", were included in this review. The appendices contain these terms because the terms were required under the CEQ regulations in effect at the time the appendices were prepared. Although the terms "direct" and "indirect" have not been removed from the appendices, FHWA, FTA and the IBR Program reviewed the effects characterized (or categorized) as indirect in the appendices to determine whether such effects are reasonably foreseeable. Also included in this review was the former cumulative effects section. To the extent any effects in the former cumulative effects section were determined to be reasonably foreseeable, they were included in the Final SEIS along with the discussion of other reasonably foreseeable effects.

in terms of geographic and temporal proximity and must be sufficiently likely to occur. Reasonably foreseeable effects do not include effects that are speculative in nature or causally attenuated[2] from the IBR Program.

Reasonably foreseeable effects of the No-Build Alternative and Modified LPA on environmental and community resources are evaluated in the resource-specific sections of the Final SEIS (Section 3.1 through Section 3.22). The Final SEIS does not carry forward the former cumulative effects chapter of the Draft SEIS, Section 3.23. Unless otherwise defined in the resource-specific section of the Final SEIS, for the purposes of assessing reasonably foreseeable effects, the following parameters apply:

- Geographic proximity includes effects within or directly adjacent to the primary study area for the IBR Program, which is the area where most physical changes associated with the Modified LPA would occur. The primary study area is the proposed construction footprint (i.e., the proposed limits of permanent improvements), and it runs along a 5-mile stretch of the I-5 corridor that extends from approximately Victory Boulevard in Portland to SR 500 in Vancouver. It also includes the TriMet-owned Ruby Junction Light-Rail Operations and Maintenance Facility in Gresham, Oregon.
- Temporal scope includes long-term effects that are expected to occur between 2023 (the year the Notice to Prepare an SEIS was published) and 2045 (the design year of the IBR Program as developed by the Oregon Metro [Metro] and Southwest Washington Regional Transportation Council [RTC] regional travel demand model [RTDM])[3] and temporary effects that are expected to occur during construction, as described in Table 2-5 of Section 2.3, Modified LPA Construction. Construction of all components identified in the Modified LPA could last more than 10 years.
- Sufficiently likely to occur includes effects associated with projects for which funding has been committed, including, for example, projects included in the fiscally constrained list of projects in the Regional Transportation Plan with dedicated funding for construction.

Climate Change and Greenhouse Gas (GHG) Analysis

In addition to EO 14154, on January 20, 2025, President Trump signed EO 14148 – Initial Rescissions of Harmful Executive Orders and Actions. Together, EO 14154 and EO 14148 revoked EO 13990 - Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis (January 20, 2021) and EO 14008 -Tackling the Climate Crisis at Home and Abroad (January 27, 2021). Subsequently on January 29, 2025, Secretary Duffy signed a Memorandum for Secretarial Offices and Heads of Operating Administrations - "Implementation of Executive Orders Addressing Energy, Climate Change, Diversity, and Gender." As a result of these actions, coupled with CEQ's rescission of its NEPA implementing regulations, FHWA and FTA will not include GHG emissions and climate change analyses in the federal environmental review process. Any purported GHG emissions or climate change impacts, including comments on GHG emissions or climate change, will not be considered in the federal decision. Accordingly, no GHG emissions or climate change analyses are included in this Final SEIS.

Environmental Justice

EOs 14148 and 14154 also revoked EO 14096 - Revitalizing Our Nation's Commitment to Environmental Justice for All (April 21, 2023). Subsequently on January 21, 2025, President Trump signed EO 14173 - Ending Illegal

[2] "Causally attenuated" in this context means effects that are remote in time or place, or are the result of a lengthy causal chain (meaning intervening variables such as other actions may contribute or cause an effect), thereby making it difficult to establish a sufficiently close connection between the proposed action and a particular environmental impact. Generally, an outcome or effect is causally attenuated if it cannot be directly attributed to one particular action but rather may result from another action or series of actions.

[3] The RTDM is the Metro/RTC model based on the 2018 Regional Transportation Plan (RTP) with a forecast year of 2045 (see Appendix A of the Transportation Technical Report).

Discrimination and Restoring Merit-Based Opportunity. This EO revoked EO 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (February 11, 1994). As a result of these actions, coupled with CEQ's rescission of its NEPA implementing regulations, all federal environmental justice requirements are revoked and no longer apply to the federal environmental review process. The Federal Highway Administration (FHWA), Federal Transit Administration (FTA), and Federal Railroad Administration's (FRA's) joint NEPA regulations (23 CFR Part 771) and the agencies' Interim Final Guidance on "Section 139 Environmental Review Process: Efficient Environmental Reviews for Project Decisionmaking and One Federal Decision" (12/17/2024) do not require an environmental justice analysis. Accordingly, no analysis of environmental justice is included in this Final SEIS. Any purported environmental justice impacts, including comments on environmental justice or equity, will not be considered in the federal decision but social, economic, and community impacts will continue to be disclosed where applicable in accordance with 23 CFR Part 771.

State Requirements

To the extent the laws of the States of Washington or Oregon require the Washington State Department of Transportation (WSDOT) or Oregon Department of Transportation (ODOT) to consider the effects of GHG emissions, climate change, environmental justice, energy use of forecasted vehicle fleets, or cumulative impacts as part of the state environmental review, any such analysis is provided in the State Environmental Policy Act (SEPA) Addendum (which will be available on the IBR Program's website). Because the SEPA Addendum was developed by WSDOT and ODOT solely for the purpose of complying with State law, FHWA and FTA were not involved in the development of the SEPA Addendum. FHWA and FTA are not expressing agreement or concurrence through this reference to the SEPA Addendum and did not consider the document in the Final SEIS. This includes responding to comments related to GHG emissions, climate change, environmental justice, forecasted vehicle fleet energy use and state assumptions, or cumulative impacts. FHWA and FTA are not expressing agreement or concurrence through this reference to the SEPA Addendum.

What is the IBR Program?

The IBR Program updates and supplements the Interstate 5 (I-5) Columbia River Crossing (CRC) project (approved in 2011) and focuses on a 5-mile corridor that includes bridge, transit, active transportation, and highway improvements to address safety and mobility in the I-5 corridor between Portland, Oregon, and Vancouver, Washington (Figure 1).

I-5 is the main, and only continuous, north-south interstate highway on the west coast, linking the U.S., Canada, and Mexico. In the Vancouver-Portland metropolitan region, I-5 and I-205 are the only two roadway crossings of the Columbia River and the major north-south highways that provide interstate connectivity and mobility. While the I-205 crossing provides important connectivity for the region, I-5 directly connects the central cities of Vancouver and Portland.

The 5-mile section of I-5 between State Route (SR) 500/39th Street in Vancouver and Columbia Boulevard in Portland heavily influences the traffic conditions of I-5 crossing over the Columbia River. This section includes seven interchanges that connect three state highways and several major arterial roadways. These interchanges serve a variety of land uses and provide access to downtown Vancouver, two international marine ports, industrial centers, residential neighborhoods, retail centers, and recreational areas.

Highway users and transit service within the IBR Program study area are currently constrained by outdated, substandard highway design features, traffic congestion that increases travel times, and frequent crashes that reduce reliability for vehicles and buses traveling between Vancouver and Portland. Additionally, to access light-rail transit (LRT), users traveling to Portland from Hayden Island or Vancouver have to transfer from buses, or walk, bike or drive to nearby park and rides/transit centers at Expo or Delta Park.

Figure 1. IBR Program Area Map

Who is leading the IBR Program?

FHWA and FTA are the federal lead agencies for the IBR Program. Both agencies must comply with NEPA, including the publication of the Draft SEIS and Final SEIS, before they approve or provide funding to construct the improvements. Following the Final SEIS, FTA and FHWA will sign an Amended Record of Decision (ROD) that will identify the selected alternative. The Amended ROD for the IBR Program will replace the existing ROD for the CRC project that was signed in 2011 (CRC 2011). Depending on the alternative selected, the Amended ROD will include all required elements, including a description of the measures needed to mitigate any unavoidable environmental effects, as well as a monitoring and enforcement program to ensure that any and all mitigation measures are carried out effectively. The Amended ROD will be the NEPA final agency action for the IBR Program and will complete the NEPA process and requirements.

State transportation agencies and local governments in the Vancouver–Portland region have joined to develop a strategy for addressing highway, freight, transit, bicycle, and pedestrian needs, and to consider the

importance of marine navigation on the Columbia River and North Portland Harbor and protected airspace for Pearson Field and Portland International Airport. The nonfederal joint lead agencies include the Oregon Department of Transportation (ODOT); Washington State Department of Transportation (WSDOT); local transit agencies Tri-County Metropolitan Transportation District (TriMet) and Clark County Public Transportation Benefit Area (C-TRAN); and regional metropolitan planning organizations Metro and RTC. These nonfederal joint lead agencies, together with the Cities of Vancouver and Portland and Ports of Vancouver and Portland, comprise the state and local partner agencies that make up an Executive Steering Group leading the IBR Program. WSDOT also serves as the lead agency for the SEPA review process.

WSDOT and ODOT are leading the preliminary highway design and IBR Program management according to their respective Federal-State Stewardship & Oversight agreements with FHWA. TriMet and C-TRAN are leading the preliminary transit design and would operate the transit elements of the IBR Program. Metro and RTC maintain the regional and metropolitan transportation plans that include the Modified LPA for the IBR Program. The Modified LPA, including all design options, would be within the city limits of both Portland and Vancouver[4] and would connect to the local street networks in both cities. Therefore, the Cities of Portland and Vancouver have special expertise on city facilities and operations, as well as local permitting authority over some elements of the Modified LPA. The Ports of Portland and Vancouver provide special expertise on regional and local freight movement, in particular, along Marine Drive, Mill Plain Boulevard, and Fourth Plain Boulevard.

Other state and federal agencies, tribes, and community partners are also participating in technical, regulatory, or advisory roles and government-to-government consultation.

The IBR Program has worked with many other local, state, and federal agencies and tribes as well as many private and public community partners during the planning and development of this proposed Program. Details on agency coordination and public involvement can be found in Appendices A and B.

How does the proposed IBR Program build on prior studies and the CRC project?

Regional leaders identified the need to address the I-5 corridor, including the Interstate Bridge, through previous bistate, long-range planning studies. Transportation deficiencies in the IBR Program corridor have been evaluated for more than two decades. Prior studies identified a variety of transportation mobility and safety problems (for additional details on this work, see the CRC Final EIS (Appendix T). For additional details on prior studies and their findings, as well as the development of the Purpose and Need statement, see Chapter 1 of the *Interstate 5 Columbia River Crossing Project Final Environmental Impact Statement and Final Section 4(f) Evaluation* (Appendix T).

The CRC project was active between 2005 and 2014. The Purpose and Need statement for the CRC project was developed by the CRC Task Force[5] and the joint lead agencies.[6] During the screening process for the CRC project, over 70 transportation components were screened to identify those that could meet the Purpose and Need. The components that passed the screening were packaged into a range of alternatives and were evaluated in the CRC Draft EIS, with an LPA identified and evaluated in the 2011 Final EIS and selected in the 2011 ROD (Appendix U). Subsequently, the selected alternative was modified by two signed re-evaluations

[4] Improvements at the Ruby Junction Light-Rail Operations and Maintenance Facility would be located in the city of Gresham.

[5] The CRC Task Force was a 39-member group formed in 2005 comprising leaders that represented a broad cross section of Washington and Oregon communities. Public agencies, businesses, civic organizations, maritime industries, neighborhoods, and freight, commuter, and environmental groups were represented on the task force. The group met 23 times over the course of the project development phase to advise the CRC project team and provide guidance and recommendations at key decision points. The task force concluded its work in summer 2008 after making its recommendation on the locally preferred alternative.

[6] FHWA, FTA, ODOT, WSDOT, Metro, RTC, TriMet, and C-TRAN.

(one in 2012 that raised the maximum vertical navigation clearance of the bridge from 95 feet to 116 feet and a second in 2013 that evaluated a phased construction approach). The CRC Selected Alternative identified in the 2011 ROD, as revised by the 2012 and 2013 re-evaluations, is referred to in this Final SEIS as the "CRC LPA." While the CRC project successfully completed the NEPA environmental review process when FHWA and FTA issued the ROD in 2011, it did not secure adequate state funding to advance to construction and was discontinued in 2014.

Recognizing that regional transportation issues and necessary improvements to the Interstate Bridge remained unaddressed, on November 18, 2019, Oregon Governor Kate Brown and Washington Governor Jay Inslee signed the Oregon-Washington Memorandum of Intent on Replacing the I-5 Bridge over the Columbia River to express interest in restarting the project. Also in 2019, a bistate legislative committee requested that ODOT and WSDOT restart the CRC project, now called the IBR Program.

As part of the NEPA process, in early 2021 the IBR Program began working with regional and local partner agencies and the public to review the Purpose and Need that was adopted for the CRC project. The IBR Program brought the Purpose and Need statement to partner agencies and the Program's three advisory groups to discuss the transportation needs identified for the CRC project. These transportation needs were also brought to the public for comment during an online open house, virtual community briefings, and an online survey. In mid-2021, the IBR Program announced that these efforts validated that the six transportation needs identified in the CRC Purpose and Need statement still exist today. **Thus, the Purpose and Need statement for the IBR Program remains the same as documented in the 2011 Final EIS and 2011 ROD for the CRC project.**

After completing an evaluation of the Purpose and Need, as discussed in Chapter 1 of this Final EIS, the IBR Program began evaluating whether past design assumptions still addressed today's changed conditions, including physical environment, community priorities, and regulations, or whether updated proposals would be needed. Design modifications were identified to address the changed conditions, resulting in the IBR Program advancing a Modified LPA to construction. In 2021, the IBR Program prepared a NEPA re-evaluation to assess the extent of changes in conditions and determine whether the previously approved Final EIS and ROD were still valid for a federal action or needed to be updated with current conditions and changes in design proposals. FHWA and FTA determined that an SEIS should be prepared to identify and disclose new adverse impacts and mitigation associated with changes in conditions that occurred since 2013 (IBR 2021) and to present the new design proposals.

What problems does the proposed IBR Program seek to fix?

As noted above, the Purpose and Need statement for the proposed IBR Program, provided below, remains the same as documented in the 2011 Final EIS and 2011 ROD for the CRC project.

The text of the Purpose and Need has not been edited from its original wording, except for references to the name of the Program and more current terminology. More recent data and supplemental information are provided in sidebars and footnotes.[7]

[7] Transportation data provided in the sidebars are from Section 3.1, Transportation, and Chapter 3 of the IBR Transportation Technical Report. Due to the influence of the COVID-19 pandemic on travel patterns between 2020 and 2023, the IBR Program is following industry standards and using 2019 as the baseline year for the existing conditions section of this SEIS. The exception to using 2019 data is outputs from the Metro/RTC regional travel demand model which are from 2015. Metro and RTC had not yet updated their base-year model from 2015 to 2020 when this analysis was completed.

The **purpose** of the proposed action is to improve I-5 corridor mobility by addressing present and future travel demand and mobility needs in the Program area. The Program area extends from approximately Columbia Boulevard in the south to SR 500 in the north. Relative to the No-Build Alternative, the proposed action of the IBR Program is intended to achieve the following objectives: (a) improve travel safety and traffic operations on the I-5 river crossing and associated interchanges; (b) improve connectivity, reliability, travel times, and operations of public transportation modal alternatives in the Program area; (c) improve highway freight mobility and address interstate travel and commerce needs in the Program area; and (d) improve the I-5- river crossing's structural integrity (seismic stability).

The specific **needs** to be addressed by the proposed action of the IBR Program are addressed in the following subsections.

In 2005, 280,000 vehicle trips crossed the Columbia River daily (northbound and southbound) in the Portland-Vancouver metropolitan region, of which 134,000 used the Interstate Bridge. By 2019, the total number of vehicle trips that crossed the Columbia River had increased to 313,000 per day, of which 143,400 used the Interstate Bridge.

Vehicle trips include those made in single-occupancy vehicles, high-occupancy vehicles, trucks, and transit vehicles (buses).

Growing travel demand and congestion

The duration of congestion on the Interstate Bridge roughly doubled from 2005 to 2019. In 2019, the I-5 corridor experienced heavy congestion and delay in both directions lasting nearly 12 hours daily (compared with 4 to 6 hours daily in 2005).

Daily traffic demand over the I-5 Interstate Bridge is projected to increase by more than 25% by 2045.

Existing travel demand exceeds capacity on the Interstate Bridge and associated interchanges. This corridor experiences heavy congestion and delay lasting 4 to 6 hours daily[8] during the morning and afternoon peak travel periods and when traffic crashes, vehicle breakdowns, or bridge lifts occur. Due to excess travel demand and congestion in the I-5 corridor, many trips take the longer, alternative I-205 route across the Columbia River. Spillover traffic from I-5 onto parallel arterials such as Martin Luther King Jr. Boulevard and Interstate Avenue increases local congestion. In 2005, the two crossings[9] carried 280,000 vehicle trips across the Columbia River daily. Daily traffic demand over the Interstate Bridge is projected to increase by more than 35% during the next 20 years, with stop-and-go conditions increasing to approximately 15 hours daily if no improvements are made.

Impaired freight movement

I-5 is part of the National Truck Network, and the most important freight highway on the West Coast, linking international, national, and regional markets in Canada, Mexico, and the Pacific Rim with destinations throughout the western United States. In the center of the Program area, I-5 crosses over the Columbia River's deep-water shipping and barging channels and two river-level transcontinental rail lines. The Interstate Bridge provides direct and important highway connections to the Port of Vancouver and Port of Portland facilities located on the Columbia River, as well as the majority of the area's freight consolidation facilities and

[8]The hours of congestion refers to the total number of hours that the corridor experiences congestion. ODOT and WSDOT measure congestion as speeds below a certain threshold. ODOT and WSDOT have historically measured congestion as when travel speeds drop below 75% of the posted speed limit due to constrained conditions. In the CRC EIS analysis, congestion was measured as occurring when travel speeds were below 35 miles per hour. To develop a consistent threshold across the region, ODOT and WSDOT measure congestion at 45 miles per hour as most of the posted speed limits in the greater Portland Metro Region are 60 miles per hour (75% of 60 miles per hour is 45 miles per hour). This applies to all freeway locations even if the posted speed limits are lower than 60 miles per hour. This is current ODOT and WSDOT standard practice and is being completed for all projects across the Portland Metro Region. Therefore, the IBR Program measured congestion as speeds below 45 miles per hour. See the IBR Transportation Technical Report (Section 3.3.4) for additional information on measuring congestion.

[9] The two crossings are the I-5 Interstate Bridge and the I-205 Glenn L. Jackson Memorial Bridge.

distribution terminals. Freight volumes moved by truck to and from the area are projected to more than double over the next 25 years. Vehicle-hours of delay on truck routes in the Portland/Vancouver area are projected to increase by more than 90% over the next 20 years. Growing demand and congestion will result in increasing delay, costs, and uncertainty for all businesses that rely on this corridor for freight movement.

In 2019, more than 14,000 freight trips carrying over $132 million in commodities traveled across the I-5 Interstate Bridge each weekday. Freight volumes moved by truck, to and from the area, are projected to increase by 50 to 75% by year 2045.

Deficiencies such as narrow lanes and shoulders, as well as short merging, diverging, and weaving distances, reduce the efficiency and safety of freight truck movement.

Limited public transportation operation, connectivity, and reliability

Due to limited public transportation options, a number of transportation markets are not well served. [10] The key transit markets include trips between Portland Central City and the city of Vancouver and Clark County, trips between north/northeast Portland and the city of Vancouver and Clark County, and trips connecting the city of Vancouver and Clark County with the regional transit system in Oregon. Current congestion in the corridor adversely impacts public transportation service reliability and travel speed. Southbound bus travel times across the bridge are currently up to three times longer during parts of the AM peak compared to off-peak. Travel times for public transit using general purpose lanes on I-5 in the Program area are expected to increase substantially by 2030.

In 2005, southbound bus travel times across the bridges were up to three times longer during parts of the AM peak (i.e., morning high traffic period) than during off-peak times. As of 2019, bus travel times were four times longer during the AM peak.

If the bridges are not improved, travel times for public transit using general-purpose lanes on southbound I-5 during the AM peak are expected to increase by 2045 because of increased congestion.

Safety and vulnerability to incidents

The Interstate Bridge and its approach sections experience crash rates more than two times higher than statewide averages for comparable facilities. Incident evaluations generally attribute these crashes to traffic congestion and weaving movements associated with closely spaced interchanges and short merge distances. Without breakdown lanes or shoulders, even minor traffic accidents or stalls cause severe delay or more serious accidents (Figure 2).

In 2005, the Interstate Bridge and its approach sections experienced crash rates more than two times higher than statewide averages for comparable facilities. As of 2019, crash rates were three times higher than statewide averages for comparable facilities. Crashes in the IBR Program area could increase by almost 30% by 2045 if no improvements are made.

There were seven fatal crashes in the Program area between 2015 and 2019.

[10] This statement is specific to the Portland/Vancouver Metro region.

Figure 2. Crash Blocking the Interstate Bridge

Substandard bicycle and pedestrian facilities

The bicycle/pedestrian lanes on the Interstate Bridge are about 3.5 to 4 feet wide, narrower than the 10-foot standard, and are located extremely close to traffic lanes, thus impacting safety for pedestrians and bicyclists (Figure 3). Direct pedestrian and bicycle connectivity are poor in the Program area.

Figure 3. Bicycle and Pedestrian Path on the Interstate Bridge

Compliance with the Americans with Disabilities Act (ADA) varies for the existing shared-use paths. The paths comply with the maximum gradient (4.7%) and there are no objects that overhang or protrude into the paths. However, the paths do not comply with guidelines for curb ramps (both in number and design), width, passing spaces, cross slope, or railing height (FHWA 2001; U.S. Access Board 2013). The paths are also near traffic lanes; this increases bicyclist and pedestrian exposure to vehicular traffic, noise, and pollutants.

Seismic vulnerability

The existing Interstate Bridge is located in a seismically active zone. It does not meet current seismic standards and is vulnerable to failure in an earthquake.

All new federally funded highway bridges are required to be designed to the current edition of the American Association of State Highway and Transportation Officials Guide Specifications for Load-and-Resistance Factor Design (LRFD) Seismic Bridge Design (AASHTO 2022). In addition, State Departments of Transportation (DOTs) typically adopt local practices to address potential regional geologic hazards (e.g., the Cascadia Subduction Zone). State DOTs may also prescribe elevated levels of seismic performance based on the importance of the structure as it relates to public safety, national defense, and economic investment, as is the case for the Interstate Bridge.

The existing bridges were designed before modern seismic design codes were established. The foundations are likely to displace during a strong earthquake, resulting in the collapse of the bridge spans into the Columbia River. In addition, the movable span lift towers will be overstressed due to the inertia of the concrete counterweights and will collapse onto the bridge, causing the adjacent spans to fail. This collapse potential is due to the fact that hundreds of timber bridge support piles sit within loose sand that can liquefy during an earthquake.

How is the community engaged?

The IBR Program has been engaging with partner agencies, tribal governments, local communities and organizations, and the public since late 2020 and has been conducting formal, targeted community engagement since February 2021. Targeted engagement has included user-specific outreach to representatives from the following groups: residents; commuters; transit users; business and freight industry; neighborhood associations and community groups; minorities and limited English speakers; tribal governments; elected officials; and the maritime industry. The IBR Program considers all comments received across these engagement efforts and incorporates recommendations as appropriate. In effect, this engagement has helped shape the communications strategy and implementation, the environmental review process, and the design options that are part of the Modified LPA. More information about the IBR Program's public involvement efforts can be found in Appendix B, Public Involvement.

ODOT and WSDOT convened the 12-member Executive Steering Group to provide regional leadership recommendations on key program issues of importance to the community. Members of the Executive Steering Group include representatives from the 10 bistate partner agencies with a direct delivery or operational role in the integrated, multimodal transportation system around the Interstate Bridge, as well as a community representative from each state who serve on the Community Advisory Group.

The Draft SEIS was published on September 20, 2024, and a 60-day public comment period occurred from publication to November 18, 2024. An electronic copy of the Draft SEIS was available on the IBR Program's website. A printed copy and an electronic copy were also available for viewing at the IBR Program office by appointment.

There were multiple ways for the public and other interested parties to submit comments. Written comments were collected through an online comment form on the Program website, by email to a dedicated SEIS email

address, and by regular mail to the IBR Program office. Verbal comments were collected by voice message on the IBR Program's SEIS comment line.

Comments were also submitted at the public hearings for the Draft SEIS, which were held in Portland (October 17, 2024, at the Portland Expo Center) and Vancouver (October 15, 2024, at Clark College), as well as virtually (October 26 and October 30, 2024).

The Program received more than 3,600 public comment submissions that included over 9,000 individual comments.[11] While feedback covered a range of topics, the four topic areas with the most comments were transportation, design, tolling, and alternatives and bridge design options. The IBR Program considered all comments and incorporated feedback into the Final SEIS. Responses to comments on the Draft SEIS are provided in Appendix S, Draft SEIS Comments and Responses. The IBR Program will continue working with partners and the community during final design.

What is the Modified LPA?

The CRC LPA was updated in close coordination with federal, tribal, regional, and local partners to establish the Modified LPA, the foundational elements of which were endorsed by WSDOT, ODOT, and all eight local partner agencies in summer 2022.[12] The Modified LPA includes a variety of transportation improvements throughout the 5-mile corridor. Chapter 2, Description of Alternatives, contains a detailed IBR Program description. The basic proposed components of the Modified LPA[13] evaluated in the SEIS are:

- A new pair of Columbia River bridges—one for northbound and one for southbound travel—built west of the existing bridge. The new bridges would each include three through lanes, safety shoulders, and one auxiliary lane in each direction. When all highway, transit, and active transportation would be moved to the new Columbia River bridges, the existing Interstate Bridge (both spans) would be removed. The primary navigation channel would be relocated approximately 500 feet south (measured by the channel centerline) of its existing location near the Vancouver shoreline.
- A 1.9-mile LRT extension of the current Metropolitan Area Express (MAX) Yellow Line from the Expo Center MAX Station from the Expo Center MAX Station in North Portland, where it currently ends, to a terminus near Evergreen Boulevard in Vancouver. Improvements would include new stations at Hayden Island, downtown Vancouver (Waterfront Station), and near Evergreen Boulevard (Evergreen Station), as well as reconstruction of the existing Expo Center MAX Station. TriMet, which operates the MAX system, would also operate the Yellow Line extension.
- Associated LRT improvements such as traction power substations (TPSSs),[14] an overhead catenary system, signal and communications support facilities, an overnight light-rail vehicle (LRV) facility at the Expo Center, 19 new LRVs, and an expanded maintenance facility at TriMet's existing Ruby Junction Light-Rail Operations and Maintenance Facility (OMF).

[11] A submission refers to the entire document submitted, such as an email, letter, or comment form. Each submission was reviewed and separated into comments based on topic. A single submission can contain multiple comments.

[12] Th e "foundational elements" of the Modified LPA are based on what the local partner agencies endorsed through resolution and conditions in 2022. Endorsement by local partner agencies of these foundational elements did not preclude consideration of other reasonable design options. For example, since the endorsements occurred and the IBR Program advanced, details of the Modified LPA have progressed and evolved. As a result, several design options that were not included in the partners' endorsement are included and analyzed in this SEIS. The 2022 Modified LPA recommendations and each of the partners' resolutions and conditions regarding the Modified LPA that reflect the formalized partner process are found in Attachment F to Appendix D of this SEIS. The IBR Program partners' endorsement of the Modified LPA and conditions did not preclude consideration of other reasonable design options in the Draft or Final SEIS and will not influence the federal joint lead agencies' Amended Record of Decision.

[13] All transportation facilities would be designed to current AASHTO, WSDOT, and ODOT specifications.

[14] Each TPSS would be approximately 75 feet by 50 feet, including parking and access areas.

- Connections to local bus transit service, including bus rapid transit and express bus routes, in collaboration with C-TRAN, in addition to the proposed new LRT service.
- Shoulders on I-5 from Interstate Avenue/Victory Boulevard to SR 500/39th Street to accommodate express bus-on-shoulder service in each direction.
- Associated bus transit service improvements, including three additional bus bays for new buses at the existing C-TRAN OMF (see Section 2.2.7, Transit Operating Characteristics, for more information about this service).
- Improvements to seven I-5 interchanges and I-5 mainline improvements between Interstate Avenue/ Victory Boulevard in Portland and SR 500/39th Street in Vancouver. Some adjacent local streets would be reconfigured to complement the new interchange designs and improve local east-west connections.
- Six new adjacent bridges across North Portland Harbor: one on the east side of the existing I-5 North Portland Harbor bridge and five on the west side or overlapping with the existing bridge (which would be removed). The bridges would carry (from west to east) LRT tracks, southbound I-5 off-ramp to Marine Drive, southbound I-5 mainline, northbound I-5 mainline, northbound I-5 on-ramp from Marine Drive, and an arterial bridge for local traffic to Hayden Island with a shared-use path for pedestrians and bicyclists.
- A variety of improvements for people who walk, bike, and roll throughout the study area, including a system of shared-use paths, bicycle lanes, sidewalks, enhanced wayfinding, and facility improvements to comply with the Americans with Disabilities Act. These are referred to in this document as *active transportation* improvements.
- Variable-rate tolling, including signage and equipment, for motorists using the river crossing as a demand-management and financing tool.

In addition to the basic components described above, the Modified LPA includes five sets of design options. The design options are related to (1) the number of auxiliary lanes; (2) the bridge configuration; (3) the presence of the C Street ramps; (4) the I-5 alignment in downtown Vancouver; and (5) the park and rides. The Recommended Design Options are identified with bold text and an asterisk in Table 1.

- **Auxiliary Lanes.** Options for one or two auxiliary lanes. Auxiliary lanes are ramp-to-ramp connections on the highway that improve interchange safety by providing drivers with more space and time to merge, diverge, and weave at highway access points.
  - The one-auxiliary lane design option would extend across the Columbia River bridges between the Marine Drive interchange and the Mill Plain Boulevard interchange.
  - The two-auxiliary lane design option would extend a second auxiliary lane in each direction of I-5 in addition to the one auxiliary lane included in the Modified LPA. The second auxiliary lane would also extend across the Columbia River bridges in addition to and in combination with existing auxiliary lanes from approximately Interstate Avenue/Victory Boulevard to SR 500/39th Street.
- **Bridge Configurations.** Three bridge configurations are under consideration:
  - Double-deck fixed-span bridges: 116 feet of vertical navigation clearance over the primary navigation channel.
  - Single-level fixed-span bridges: 116 feet of vertical navigation clearance over the primary navigation channel.
  - Single-level movable-span bridges, with the movable spans over the primary navigation channel: 178 feet of vertical navigation clearance in the open position and 90 feet in the closed position (the north barge channel would have 99 feet of vertical navigation clearance and the south barge channel would have 90 feet of vertical navigation clearance).

- **C Street Ramps.** Options that retain or eliminate the existing C Street ramps in downtown Vancouver.
- **I-5 Alignment in Downtown Vancouver.** Options that maintain the I-5 mainline at its current location or shift the I-5 mainline up to 40 feet westward in downtown Vancouver between the SR 14 interchange and Mill Plain Boulevard interchange.
- **Park and Rides.** Options to provide parking capacity to accommodate 1,270 vehicles at designated park and rides near the Waterfront Station and Evergreen Station to serve LRT riders.

Table 1. Modified LPA Design Options Studied in the Draft and Final SEIS

Modified LPA Component	Design Options
Auxiliary lanes	• **One auxiliary lane in each direction on the new Columbia River bridges and nearby sections of I-5*** • Two auxiliary lanes in each direction of I-5 would extend across the Columbia River bridges in addition to, and in combination with, existing auxiliary lanes from approximately Interstate Avenue/Victory Boulevard to SR 500/39th Street
Bridge configuration	• Double-deck fixed-span bridge configuration • **Single-level fixed-span bridge configuration*** • Single-level movable-span bridge configuration
C Street ramps	• **With C Street ramps*** • Without C Street ramps
I-5 Alignment in downtown Vancouver	• **Centered I-5 alignment*** • Westward shift of I-5 alignment
Park and Rides	• Provide parking capacity to accommodate 1,270 vehicles distributed across two park and rides: one park and ride with 570 parking spaces near the Waterfront Station and another park and ride with 700 parking spaces near the Evergreen Station. The locations for park and rides that were evaluated include: – Potential Waterfront Station park and rides ▪ Columbia Way (below I-5) ▪ Columbia Street/SR 14 ▪ Columbia Street/Phil Arnold Way – Potential Evergreen Station park and rides ▪ Library Square ▪ Columbia Credit Union • **Provide parking capacity to accommodate 1,270 vehicles dispersed among up to five park and rides listed above[a]***

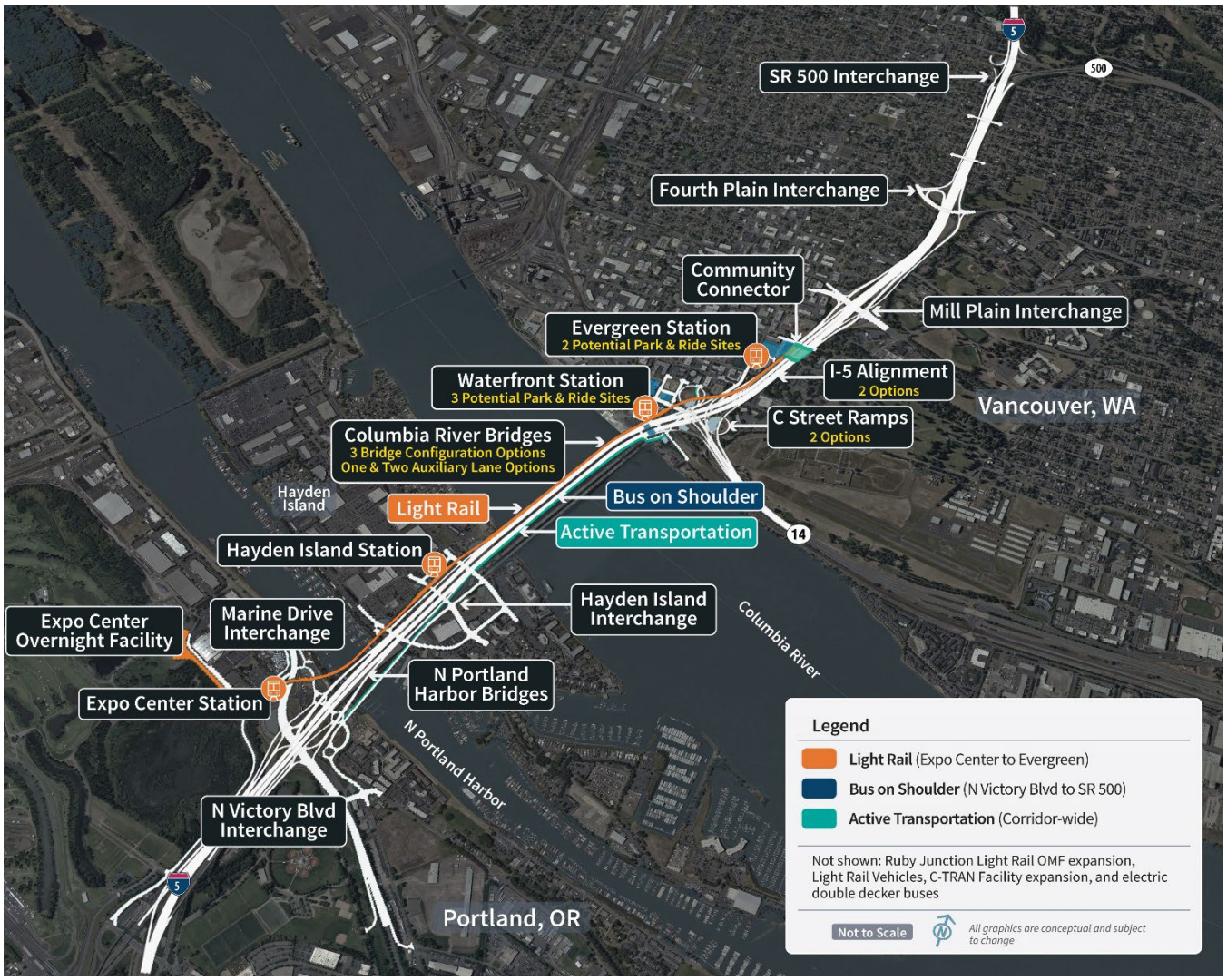
Notes:
* Recommended Design Options are in bold.
a Depending on final design considerations, the decision may be made to use fewer than the five sites. The analysis assumes all five sites as it encompasses all physical impacts.

In each resource section of Chapter 3, Existing Conditions and Environmental Consequences, different combinations of design options are analyzed to compare the differences in reasonably foreseeable environmental effects or benefits among the design options. All of these design options were identified and

evaluated in the Draft SEIS and continue to be fully evaluated in this Final SEIS. All design element decisions will be captured in the Amended Record of Decision as part of the selected alternative.

The transportation improvements proposed for the Modified LPA and design options are shown in Figure 4. Additional details (including differences between the IBR Modified LPA and the CRC LPA) are available in Chapter 2, Description of Alternatives.

Figure 4. Modified LPA Components



How would the Modified LPA be constructed?

Construction of the IBR Program would be sequenced in accordance with many factors, such as the scale of improvements, different types of infrastructure and associated construction specialties required, timing of funding received, maintenance of traffic on I-5, navigation on the Columbia River, seasonal and weather constraints, permit conditions, and other considerations. Multiple construction packages are anticipated to be developed and delivered by different agencies—WSDOT, ODOT, TriMet and C-TRAN—that will use various delivery methods (e.g., design-bid-build, design-build, progressive design-build, construction manager/ general contractor).

The first construction packages are anticipated to be the new Columbia River bridges and approaches. Subsequent construction packages would be sequenced throughout the Program area. Early construction

activities may occur in the Program area to prepare for the bridge replacement work. Demolition of the existing Interstate Bridge would take place after the new Columbia River bridges were opened to traffic. Construction of other components of the Modified LPA would be sequenced during and after the construction of the new Columbia River bridges begins.

Electronic tolling infrastructure for the existing Interstate Bridge would be constructed and operational near the start of construction on the new Columbia River bridges and would be constructed and operational for the new Columbia River bridges in time for their opening. The toll rates and policies for tolling (including pre-completion tolling) would be determined by the Oregon Transportation Commission and Washington State Transportation Commission. Refer to Section 2.2.8, Tolling, for additional information.

Table 2 lists the main construction components of the Modified LPA along with the estimated construction durations and descriptions of the associated work. These main construction components would be defined by some functional improvement to the Program corridor; for example, construction of the new bridges would be coordinated with construction of the connections to the existing I-5, enabling use of the new bridges while other components of the Program are constructed. Each listed component would require multiple construction packages—small and large, general and specialty. As construction progresses, interim connections may be in place while subsequent components are built and final connections and finishes are completed. This preliminary construction plan may change as the Program advances toward construction. Construction packages may further be combined or separated throughout delivery of the Program. Construction of all components identified in the Program could last more than 10 years.

The estimated durations are shown as ranges to reflect the potential for Program funding to be sequenced over time. In addition to funding, contractor schedules, regulatory restrictions on in-water work, river navigation considerations, permits and approvals, weather, materials, and equipment could all influence construction duration and overlap of construction of certain components. Certain work below the ordinary high-water mark of the Columbia River and North Portland Harbor would be restricted to minimize impacts to species listed under the Endangered Species Act and their designated critical habitat.

Throughout most periods of construction, three travel lanes in each direction on I-5 (accommodating personal vehicles, freight, and buses) would remain open during peak hours. Off-peak and weekend restrictions and closures could be required during construction. Active transportation connections would be maintained throughout construction. Advanced coordination and public notice would be given for restrictions, intermittent or longer-term closures, and detours for highway, local roadway, transit, and active transportation users via accessible facilities and wayfinding (refer to Section 3.1, Transportation, for additional information, including for local street and ramp or interstate access closures). At least one Columbia River navigation channel would remain open to shipping throughout construction. Advanced coordination and notice would be given for restrictions or intermittent closures to navigation channels as required (refer to Section 3.2, Navigation, for additional information).

Table 2. Preliminary Construction Packaging Plan

Component and General Location	Estimated Duration	Description	Construction Packages
Columbia River bridges, approaches, and demolition of Interstate Bridge *Hayden Island to Evergreen Boulevard*	6 to 8 years	• General sequence for new bridges would include initial preparation and installation of foundation piles, shaft caps, pier columns, superstructure, and deck elements, followed by systems and finish work. • SR 14 interchange would be constructed in a separate construction package and must be completed before all traffic could be transferred to the new Columbia River bridges. • Demolition of the existing Interstate Bridge could begin only after traffic is transferred to the new Columbia River bridges.	• Columbia River Bridges [a] • Approaches [a] • Pre-completion Tolling Signage and Equipment Installation • SR 14 A • Evergreen Bridge • Interstate Bridge Demolition
Light-rail and bus-on-shoulder transit *Expo Station to Evergreen Station; Ruby Junction*	4 to 7 years	• The light-rail alignment would be partially supported by the southbound Columbia River bridge and approach structure guideways. • Light-rail construction would include all infrastructure associated with light-rail elements of the Transit Packages construction package (e.g., overhead catenary system, tracks, stations, and park and rides). • Bus-on-shoulder would include corresponding bus elements of the Transit Packages construction package.	• North Portland Harbor Transit Bridge • Marine Drive A (supports transit improvements) • Hayden Island A (supports transit improvements) • Light-rail Overnight Facility • Transit Packages • Ruby Junction
Marine Drive and Hayden Island interchanges and North Portland Harbor bridges *Marine Drive to Hayden Island*	4 to 10 years	• Hayden Island interchange construction duration would not necessarily entail continuous active construction. • The North Portland Harbor bridges could include sequenced construction of southbound bridges, northbound bridges, and demolition of the existing North Portland Harbor bridge to maintain traffic mobility during construction. • Hayden Island and Marine Drive interchanges could be broken into several contracts, which could spread work over a longer duration.	• Hayden Island Surface Streets • Hayden Island Interchange • North Portland Harbor Bridges • Oregon I-5 Southbound • Oregon I-5 Northbound • North Portland Harbor Bridge Removal • Marine Drive Interchange • North Expo Road
Mill Plain Boulevard, Fourth Plain Boulevard, and SR 500/39th Street interchanges *Mill Plain Boulevard to SR 500*	3 to 4 years	• Construction of these interchanges could be independent from each other.	• Mill Plain Boulevard Interchange • Washington North

a The Columbia River Bridges and Approaches construction packages include light-rail guideway from the Hayden Island Bridge Approach, the Columbia River bridges, north to Evergreen.

What are the reasonably foreseeable effects of the Modified LPA and how do they compare to the No-Build Alternative?

This section highlights how the Modified LPA, including all design options, compares to the No-Build Alternative in terms of transportation performance and community and environmental effects. Table 3 summarizes the reasonably foreseeable transportation effects (surface transportation, navigation, and aviation), and Table 4 summarizes other reasonably foreseeable community and environmental effects.[15] The Modified LPA with the IBR Program Recommended Design Options is identified in column 2 of Table 3 and Table 4.

[15] All projections and forecasts in Table 3 and Table 4 are for the design year of 2045 unless otherwise stated. The description of reasonably foreseeable effects under the Modified LPA design options in columns 3 through 7 are in comparison to the Modified LPA with Recommended Design Options (single-level fixed-span configuration, one auxiliary Lane, C Street ramps, and centered I-5) in column 2 unless otherwise stated.

Table 3. Summary of Reasonably Foreseeable Transportation Effects for the No-Build Alternative and Modified LPA and Design Options[a]

0 Transportation Area	1 No-Build Alternative	2 *IBR Program Recommended Design Options* - Modified LPA with Single-Level Fixed-Span Configuration,[a] One Auxiliary Lane, with C Street Ramps, Centered I-5, and All Five Park and Rides	3 Modified LPA with Double-Deck Fixed-Span Configuration, One Auxiliary Lane, with C Street Ramps, Centered I-5, and All Five Park and Rides	4 Modified LPA with Single-Level Fixed-Span Configuration,[a] Two Auxiliary Lanes, with C Street Ramps, Centered I-5, and All Five Park and Rides	5 Modified LPA with Single-Level Fixed-Span Configuration,[a] One Auxiliary Lane, with C Street Ramps, I-5 Shifted West, and All Five Park and Rides	6 Modified LPA with Single-Level Movable-Span Configuration, One Auxiliary Lane, with C Street Ramps, Centered I-5, and All Five Park and Rides	7 Modified LPA with Single-Level Fixed-Span Configuration,[a] One Auxiliary Lane, without C Street Ramps,[b] Centered I-5, and All Five Park and Rides
Hours of congestion/day at Interstate Bridge *(See Section 3.1 for all vehicular, transit, and active transportation effects)*	SB: 16 hours. NB: 14 hours.	SB: 4.75 hours (70% reduction). NB: 9 hours (36% reduction).	SB: 4.75 hours (70% reduction). NB: 9 hours (36% reduction).	SB: 4.5 hours (72% reduction). NB: 6 hours (57% reduction).	SB: 4.75 hours (70% reduction). NB: 9 hours (36% reduction).	SB: 4.75 hours (70% reduction). NB: 9 hours (36% reduction).	SB: 4.75 hours (70% reduction). NB: 9 hours (36% reduction).
Southbound weekday peak 2-hour average travel times from I-205 to I-405 in North Portland	AM: 58 minutes. PM: 29 minutes.	AM: 54 minutes (7% reduction). PM: 14 minutes (52% reduction).	AM: 54 minutes (7% reduction). PM: 14 minutes (52% reduction).	AM: 50 minutes (14% reduction). PM: 14 minutes (52% reduction).	AM: 54 minutes (7% reduction). PM: 14 minutes (52% reduction).	AM: 54 minutes (7% reduction). PM: 14 minutes (52% reduction).	AM: 54 minutes (7% reduction). PM: 14 minutes (52% reduction).
Northbound weekday peak 2-hour average travel times from I-405 in North Portland to I-205	AM: 18 minutes. PM: 42 minutes.	AM: 13 minutes (28% reduction). PM: 26 minutes (38% reduction).	AM: 13 minutes (28% reduction). PM: 26 minutes (38% reduction).	AM: 13 minutes (28% reduction). PM: 14 minutes (67% reduction).	AM: 13 minutes (28% reduction). PM: 26 minutes (38% reduction).	AM: 13 minutes (28% reduction). PM: 26 minutes (38% reduction).	AM: 13 minutes (28% reduction) PM: 25 minutes (40% reduction).
Persons crossing over the Interstate Bridge per day	241,900 total: • 196,600 via general-purpose vehicles. • 30,100 via truck. • 14,800 via transit. • 400 via active transportation.	251,100 total: • 191,200 via general purpose vehicles. • 29,200 via truck. • 29,100 via transit. • 740 to 1,600 via active transportation.	251,100 total: • 191,200 via general purpose vehicles. • 29,200 via truck. • 29,100 via transit. • 740 to 1,600 via active transportation.	251,100 total: • 191,200 via general purpose vehicles. • 29,200 via truck. • 29,100 via transit. • 740 to 1,600 via active transportation.	251,100 total: • 191,200 via general purpose vehicles. • 29,200 via truck. • 29,100 via transit. • 740 to 1,600 via active transportation.	251,100 total: • 191,200 via general purpose vehicles. • 29,200 via truck. • 29,100 via transit. • 740 to 1,600 via active transportation.	251,100 total: • 191,200 via general purpose vehicles. • 29,200 via truck. • 29,100 via transit. • 740 to 1,600 via active transportation.
Vehicle trips over the I-5 bridge/day	180,000 (+26% compared to existing conditions).	175,000 (-3% compared to No-Build Alternative).	175,000 (-3% compared to No-Build Alternative).	175,000 (-3% compared to No-Build Alternative).	175,000 (-3% compared to No-Build Alternative).	175,000 (-3% compared to No-Build Alternative).	175,000 (-3% compared to No-Build Alternative).
Bridge trips by active transportation (walk, bicycle, roll)	410 trips per day (similar to existing conditions). No improvement to facilities or connections.	Between 740 and 1,600 trips per day. Improved capacity, access, safety, and user experience for trips across the bridge as well as along connecting facilities.	Between 740 and 1,600 trips per day. Improved capacity, access, safety, and user experience for trips across the bridge as well as along connecting facilities.	Between 740 and 1,600 trips per day. Improved capacity, access, safety, and user experience for trips across the bridge as well as along connecting facilities.	Between 740 and 1,600 trips per day. Improved capacity, access, safety, and user experience for trips across the bridge as well as along connecting facilities.	Between 740 and 1,600 trips per day. Improved capacity, access, safety, and user experience for trips across the bridge as well as along connecting facilities.	Between 740 and 1,600 trips per day. Improved capacity, access, safety, and user experience for trips across the bridge as well as along connecting facilities.
Total travel time by transit between downtown Vancouver and Hayden Island[c]	AM SB: 36 minutes.[d] PM NB: 21 minutes.	AM SB: 17 minutes. PM NB: 17 minutes.	AM SB: 17 minutes. PM NB: 17 minutes.	AM SB: 17 minutes. PM NB: 17 minutes.	AM SB: 17 minutes. PM NB: 17 minutes.	AM SB: 17 minutes. PM NB: 17 minutes.	AM SB: 17 minutes. PM NB: 17 minutes.

0 Transportation Area	1 No-Build Alternative	2 *IBR Program Recommended Design Options* - Modified LPA with Single-Level Fixed-Span Configuration, [a] One Auxiliary Lane, with C Street Ramps, Centered I-5, and All Five Park and Rides	3 Modified LPA with Double-Deck Fixed-Span Configuration, One Auxiliary Lane, with C Street Ramps, Centered I-5, and All Five Park and Rides	4 Modified LPA with Single-Level Fixed-Span Configuration, [a] Two Auxiliary Lanes, with C Street Ramps, Centered I-5, and All Five Park and Rides	5 Modified LPA with Single-Level Fixed-Span Configuration, [a] One Auxiliary Lane, with C Street Ramps, I-5 Shifted West, and All Five Park and Rides	6 Modified LPA with Single-Level Movable-Span Configuration, One Auxiliary Lane, with C Street Ramps, Centered I-5, and All Five Park and Rides	7 Modified LPA with Single-Level Fixed-Span Configuration, [a] One Auxiliary Lane, without C Street Ramps, [b] Centered I-5, and All Five Park and Rides
Total travel time by transit between downtown Vancouver and Lombard Transit Center [c]	AM SB: 43 minutes. [e] PM NB: 41 minutes. [e]	AM SB: 25 minutes. [f] PM NB: 25 minutes. [f]	AM SB: 25 minutes. [f] PM NB: 25 minutes. [f]	AM SB: 25 minutes. [f] PM NB: 25 minutes. [f]	AM SB: 25 minutes. [f] PM NB: 25 minutes. [f]	AM SB: 25 minutes. [f] PM NB: 25 minutes. [f]	AM SB: 25 minutes. [f] PM NB: 25 minutes. [f]
Total travel time by transit between downtown Vancouver and Rose Quarter [c, g]	Express Bus, AM SB: 43 minutes. Express Bus, PM NB: 62 minutes LRT: Service not available.	Express Bus, AM SB: 52 minutes. Express Bus, PM NB: 38 minutes. LRT: 37 minutes (both AM SB and PM NB).	Express Bus, AM SB: 52 minutes. Express Bus, PM NB: 38 minutes. LRT: 37 minutes (both AM SB and PM NB).	Express Bus, AM SB: 52 minutes. Express Bus, PM NB: 26 minutes. LRT: 37 minutes (both AM SB and PM NB).	Express Bus, AM SB: 52 minutes. Express Bus, PM NB: 38 minutes. LRT: 37 minutes (both AM SB and PM NB).	Express Bus, AM SB: 52 minutes. Express Bus, PM NB: 38 minutes. LRT: 37 minutes (both AM SB and PM NB).	Express Bus, AM SB: 52 minutes. Express Bus, PM NB: 38 minutes. LRT: 37 minutes (both AM SB and PM NB).
Total travel time by transit between downtown Vancouver and Pioneer Square [c, g, h]	Express Bus AM SB: 48 minutes Express Bus PM NB: 67 minutes LRT: Service not available.	Express Bus, AM SB: 59 minutes. Express Bus, PM NB: 45 minutes. LRT: 47 minutes (both AM SB and PM NB).	Express Bus, AM SB: 59 minutes. Express Bus, PM NB: 45 minutes. LRT: 47 minutes (both AM SB and PM NB).	Express Bus, AM SB: 59 minutes. Express Bus, PM NB: 33 minutes. LRT: 47 minutes (both AM SB and PM NB).	Express Bus, AM SB: 59 minutes. Express Bus, PM NB: 45 minutes. LRT: 47 minutes (both AM SB and PM NB).	Express Bus, AM SB: 59 minutes. Express Bus, PM NB: 45 minutes. LRT: 47 minutes (both AM SB and PM NB).	Express Bus, AM SB: 59 minutes. Express Bus, PM NB: 45 minutes. LRT: 47 minutes (both AM SB and PM NB).
Freight mobility and access	No improvement.	Improved access, mobility, and safety on the bridge and improved design at critical port access points at Mill Plain and Marine Drive.	Improved access, mobility, and safety on the bridge and improved design at critical port access points at Mill Plain and Marine Drive.	Improved access, mobility, and safety on the bridge and improved design at critical port access points at Mill Plain and Marine Drive. The Modified LPA with two auxiliary lanes would provide additional space on the I-5 mainline for trucks to get up to speed and merge and weave with through traffic on the I-5 mainline, reducing disruptions to flows on I-5 mainline compared to the Modified LPA with Recommended Design Options, as listed in Column 2.	Improved access, mobility, and safety on the bridge and improved design at critical port access points at Mill Plain and Marine Drive.	Improved access, mobility, and safety on the bridge and improved design at critical port access points at Mill Plain and Marine Drive.	The Modified LPA without C Street ramps design option would shift additional general-purpose traffic to the Mill Plain interchange, causing additional delay and congestion that could impact freight traffic traveling on the Mill Plain corridor compared to the Modified LPA with Recommended Design Options, as listed in Column 2.
Traffic safety	Crashes forecast to increase 28% for I-5 mainline, ramps, and ramp terminal intersections compared to existing conditions.	Crashes forecast to decrease 13% for I-5 mainline, ramps, and ramp terminal intersections compared to No-Build Alternative.	Crashes forecast to decrease 13% for I-5 mainline, ramps, and ramp terminal intersections compared to No-Build Alternative.	Crashes forecast to decrease 4% for I-5 mainline, ramps, and ramp terminal intersections compared to Column 2, and up to 17% compared to the No-Build Alternative.	Crashes forecast to decrease 13% for I-5 mainline, ramps, and ramp terminal intersections compared to No-Build Alternative.	The movable span configuration would perform worse (experience more crashes) than the fixed-span configurations but better (experience fewer crashes) than the No-Build Alternative.	Crashes forecast to decrease 13% for I-5 mainline, ramps, and ramp terminal intersections compared to No-Build Alternative.

0 Transportation Area	1 No-Build Alternative	2 *IBR Program Recommended Design Options* - Modified LPA with Single-Level Fixed-Span Configuration, [a] One Auxiliary Lane, with C Street Ramps, Centered I-5, and All Five Park and Rides	3 Modified LPA with Double-Deck Fixed-Span Configuration, One Auxiliary Lane, with C Street Ramps, Centered I-5, and All Five Park and Rides	4 Modified LPA with Single-Level Fixed-Span Configuration, [a] Two Auxiliary Lanes, with C Street Ramps, Centered I-5, and All Five Park and Rides	5 Modified LPA with Single-Level Fixed-Span Configuration, [a] One Auxiliary Lane, with C Street Ramps, I-5 Shifted West, and All Five Park and Rides	6 Modified LPA with Single-Level Movable-Span Configuration, One Auxiliary Lane, with C Street Ramps, Centered I-5, and All Five Park and Rides	7 Modified LPA with Single-Level Fixed-Span Configuration, [a] One Auxiliary Lane, without C Street Ramps, [b] Centered I-5, and All Five Park and Rides
Arterial and local street intersections operating below standards (AM/PM peaks)	10 intersections.	6 intersections.	6 intersections.	6 intersections.	6 intersections.	6 intersections.	13 intersections.
Transit safety and security	No improvement.	Light-rail stations provide a higher level of visibility and lighting than on-street bus stops. Stations would have additional safety measures incorporated into design.	Light-rail stations provide a higher level of visibility and lighting than on-street bus stops. Stations would have additional safety measures incorporated into design.	Light-rail stations provide a higher level of visibility and lighting than on-street bus stops. Stations would have additional safety measures incorporated into design.	Light-rail stations provide a higher level of visibility and lighting than on-street bus stops. Stations would have additional safety measures incorporated into design.	Light-rail stations provide a higher level of visibility and lighting than on-street bus stops. Stations would have additional safety measures incorporated into design.	Light-rail stations provide a higher level of visibility and lighting than on-street bus stops. Stations would have additional safety measures incorporated into design.
Effect on river navigation *(See Section 3.2)*	• Primary Navigation Channel: – Location: North – Width: 263 feet – Height: 39 feet (closed) to 178 feet (open) • North Barge Channel – Location: Center – Width: 511 feet – Height: 46–70 feet • South Barge Channel – Location: South – Width: 260 feet – Height: 72 feet • HNC for all navigation channels remain unchanged. • VNC remains unchanged. • Primary navigation channel (north location) would provide straightest route to/from the BNSF Railway Bridge compared to existing barge (center) and alternate barge (south) channels. • Unchanged navigation visibility associated with HNC (263–511 feet) and VNC (39–72 feet in the closed position; 178 feet in the open position).	• Primary Navigation Channel: – Location: Center – Width: 400 feet – Height: 116 feet • North Barge Channel – Location: North – Width: 400 feet – Height: 100 feet • South Barge Channel – Location: South – Width: 400 feet – Height: 110 feet • Increased HNC (400 feet) for primary (center) and alternate barge (south) channels. • Reduced VNC for new primary navigation channel (center). • Increased VNC for the north barge channel and south barge channel. • Improved alignment with the BNSF Railway Bridge. • Increased navigation visibility. • 6 pier sets in the water. • No bridge opening timing restrictions.	• Primary Navigation Channel: – Location: Center – Width: 400 feet – Height: 116 feet • North Barge Channel – Location: North – Width: 400 feet – Height: 100 feet • South Barge Channel – Location: South – Width: 400 feet – Height: 110 feet • Increased HNC (400 feet) for primary (center) and alternate barge (south) channels. • Reduced VNC for new primary navigation channel (center). • Increased VNC for the north barge channel and south barge channel. • Improved alignment with the BNSF Railway Bridge. • Increased navigation visibility. • 6 pier sets in the water. • No bridge opening timing restrictions.	Primary Navigation Channel: – Location: Center – Width: 400 feet – Height: 116 feet • North Barge Channel – Location: North – Width: 400 feet – Height: 100 feet • South Barge Channel – Location: South – Width: 400 feet – Height: 110 feet • Increased HNC (400 feet) for primary (center) and alternate barge (south) channels. • Reduced VNC for new primary navigation channel (center). • Increased VNC for the north barge channel and south barge channel. • Improved alignment with the BNSF Railway Bridge. • Increased navigation visibility. • 6 pier sets in the water. • No bridge opening timing restrictions.	Primary Navigation Channel: – Location: Center – Width: 400 feet – Height: 116 feet • North Barge Channel – Location: North – Width: 400 feet – Height: 100 feet • South Barge Channel – Location: South – Width: 400 feet – Height: 110 feet • Increased HNC (400 feet) for primary (center) and alternate barge (south) channels. • Reduced VNC for new primary navigation channel (center). • Increased VNC for the north barge channel and south barge channel. • Improved alignment with the BNSF Railway Bridge • Increased navigation visibility. • 6 pier sets in the water. • No bridge opening timing restrictions.	• Primary Navigation Channel: – Location: Center – Width: 400 feet – Height: 92 feet (closed) to 178 feet (open) • North Barge Channel – Location: North – Width: 400 feet – Height: 99 feet • South Barge Channel – Location: South – Width: 400 feet – Height: 90 feet • Increased HNC for all channels. • Same or increased VNC for all channels Improved alignment with the BNSF Railway Bridge. • Increased navigation visibility. • 6 pier sets in the water. • Additional timing restrictions on bridge openings anticipated. [i] • Upper Vancouver Turning Basin: Maintained length with an approximately 350-foot shift west.	• Primary Navigation Channel: – Location: Center – Width: 400 feet – Height: 116 feet • North Barge Channel – Location: North – Width: 400 feet – Height: 100 feet • South Barge Channel – Location: South – Width: 400 feet – Height: 110 feet • Increased HNC (400 feet) for primary (center) and alternate barge (south) channels. • Reduced VNC for new primary navigation channel (center). • Increased VNC for the north barge channel and south barge channel. • Improved alignment with the BNSF Railway Bridge. • Increased navigation visibility. • 6 pier sets in the water.

0 Transportation Area	1 No-Build Alternative	2 *IBR Program Recommended Design Options* - Modified LPA with Single-Level Fixed-Span Configuration,[a] One Auxiliary Lane, with C Street Ramps, Centered I-5, and All Five Park and Rides	3 Modified LPA with Double-Deck Fixed-Span Configuration, One Auxiliary Lane, with C Street Ramps, Centered I-5, and All Five Park and Rides	4 Modified LPA with Single-Level Fixed-Span Configuration,[a] Two Auxiliary Lanes, with C Street Ramps, Centered I-5, and All Five Park and Rides	5 Modified LPA with Single-Level Fixed-Span Configuration,[a] One Auxiliary Lane, with C Street Ramps, I-5 Shifted West, and All Five Park and Rides	6 Modified LPA with Single-Level Movable-Span Configuration, One Auxiliary Lane, with C Street Ramps, Centered I-5, and All Five Park and Rides	7 Modified LPA with Single-Level Fixed-Span Configuration,[a] One Auxiliary Lane, without C Street Ramps,[b] Centered I-5, and All Five Park and Rides
	• 9 pier sets in the water. • Bridge Opening Timing Restrictions: No lifts allowed on weekdays: – 6:30 AM to 9:00 AM and 2:30 PM to 6:00 PM • Upper Vancouver Turning Basin: Approximately 2,000 feet long. • Continued risks to navigation from potential earthquake events, including the potential for the bridge failing and blocking or obstructing the navigation channels. • No demolition of the existing bridge.	• Upper Vancouver Turning Basin: Maintained length with an approximately 300–325-foot shift west. • Increased seismic resiliency in event of potential seismic activity reducing risk of bridge failure or collapse and blocking or obstructing the navigation channels. • Existing bridge foundation elements would be removed to a depth determined by the USACE to not pose a hazard to current or future dredging operations.	• Upper Vancouver Turning Basin: Maintained length with an approximately 300–325-foot shift west. • Increased seismic resiliency in event of potential seismic activity reducing risk of bridge failure or collapse and blocking or obstructing the navigation channels. • Existing bridge foundation elements would be removed to a depth determined by the USACE to not pose a hazard to current or future dredging operations.	• Upper Vancouver Turning Basin: Maintained length with an approximately 300–325-foot shift west. • Increased seismic resiliency in event of potential seismic activity reducing risk of bridge failure or collapse and blocking or obstructing the navigation channels. • Existing bridge foundation elements would be removed to a depth determined by the USACE to not pose a hazard to current or future dredging operations.	• Upper Vancouver Turning Basin: Maintained length with an approximately 300–325-foot shift west. • Increased seismic resiliency in event of potential seismic activity reducing risk of bridge failure or collapse and blocking or obstructing the navigation channels. • Existing bridge foundation elements would be removed to a depth determined by the USACE to not pose a hazard to current or future dredging operations.	• Increased seismic resiliency in event of potential seismic activity reducing risk of bridge failure or collapse and blocking or obstructing the navigation channels. • Existing bridge foundation elements would be removed to a depth determined by the USACE to not pose a hazard to current or future dredging operations.	• Upper Vancouver Turning Basin: Maintained length with an approximately 300–325-foot shift west. • Increased seismic resiliency in event of potential seismic activity reducing risk of bridge failure or collapse and blocking or obstructing the navigation channels. • Existing bridge foundation elements would be removed to a depth determined by the USACE to not pose a hazard to current or future dredging operations.
Aviation *(See Section 3.22)*	Portland International Airport: • No long-term effects on aviation activities. Pearson Field: • Horizontal Surface: 98 vertical feet penetration by south lift tower, illuminated to increase visibility. • Approach Surface: No penetration. • Transitional Surfaces: Penetration by existing Interstate Bridge north lift tower; illuminated. • Westbound Departure OCS: Obstacle departure procedures required to avoid existing Interstate Bridge lift towers; climb gradient is 650 feet/NM.	Portland International Airport: • No long-term effects on aviation activities. Pearson Field: • Horizontal Surface: No penetration. • Approach Surface: No penetration. • Transitional Surfaces: No penetration. • Westbound Departure OCS: Obstacle departure procedures required to avoid new bridges; climb gradient reduced to 474 feet/NM.[j]	Portland International Airport: • No long-term effects on aviation activities. Pearson Field: • Horizontal Surface: Up to 12.5 vertical feet penetration by signs and lighting, illuminated to increase visibility. • Approach Surface: Use low-profile signs and lighting on north ends of upper decks to avoid penetration. • Transitional Surfaces: Use low-profile signs and lighting on north ends of upper decks to avoid penetration.	Portland International Airport: • No long-term effects on aviation activities. Pearson Field: • Horizontal Surface: No penetration. • Approach Surface: No penetration. • Transitional Surfaces: No penetration. • Westbound Departure OCS: Obstacle departure procedures required to avoid new bridges; climb gradient reduced to 474 feet/NM.[j]	Portland International Airport: • No long-term effects on aviation activities. Pearson Field: • Horizontal Surface: No penetration. • Approach Surface: No penetration. • Transitional Surfaces: No penetration. • Westbound Departure OCS: Obstacle departure procedures required to avoid new bridges; climb gradient reduced to 474 feet/NM.[j]	Portland International Airport: • No long-term effects on aviation activities. Pearson Field: • Horizontal Surface: 64 vertical feet penetration by lift towers, illuminated to increase visibility. • Approach Surface: No penetration • Transitional Surfaces: No penetration. • Westbound Departure OCS: Obstacle departure procedures required to avoid new bridges; climb gradient reduced to 544 feet/NM for vertical lift span, with and without C Street ramps.	Same as effects listed in Column 2, except: Portland International Airport: • No long-term effects on aviation activities. Pearson Field: • Horizontal Surface: No penetration. • Approach Surface: No penetration. • Transitional Surfaces: No penetration. • Westbound Departure OCS: Climb gradient further reduced to 357 feet/NM.

0 Transportation Area	1 No-Build Alternative	2 *IBR Program Recommended Design Options* - Modified LPA with Single-Level Fixed-Span Configuration, [a] One Auxiliary Lane, with C Street Ramps, Centered I-5, and All Five Park and Rides	3 Modified LPA with Double-Deck Fixed-Span Configuration, One Auxiliary Lane, with C Street Ramps, Centered I-5, and All Five Park and Rides	4 Modified LPA with Single-Level Fixed-Span Configuration, [a] Two Auxiliary Lanes, with C Street Ramps, Centered I-5, and All Five Park and Rides	5 Modified LPA with Single-Level Fixed-Span Configuration, [a] One Auxiliary Lane, with C Street Ramps, I-5 Shifted West, and All Five Park and Rides	6 Modified LPA with Single-Level Movable-Span Configuration, One Auxiliary Lane, with C Street Ramps, Centered I-5, and All Five Park and Rides	7 Modified LPA with Single-Level Fixed-Span Configuration, [a] One Auxiliary Lane, without C Street Ramps, [b] Centered I-5, and All Five Park and Rides
	• Wildlife strike risk: Existing open-truss framing continues to provide bird roosting and nesting areas, existing ODOT deterrence measures continue; aircraft wildlife strike risk continues at existing level.	• Wildlife strike risk: Design bridge features to reduce potential for bird nesting and roosting combined with continued deterrence measures would reduce potential for aircraft wildlife strikes from existing level.	• Westbound Departure OCS: Obstacle departure procedures required to avoid new bridges; climb gradient reduced to 427 feet/NM. • Wildlife strike risk: Same effects as Column 2.	• Wildlife strike risk: Design bridge features to reduce potential for bird nesting and roosting combined with continued deterrence measures would reduce potential for aircraft wildlife strikes from existing level.	• Wildlife strike risk: Design bridge features to reduce potential for bird nesting and roosting combined with continued deterrence measures would reduce potential for aircraft wildlife strikes from existing level.	• Wildlife strike risk: Design bridge features to reduce potential for bird nesting and roosting combined with continued deterrence measures would reduce potential for aircraft wildlife strikes from existing level.	• Wildlife strike risk: Design bridge features to reduce potential for bird nesting and roosting combined with continued deterrence measures would reduce potential for aircraft wildlife strikes from existing level.

Notes: The design option combinations shown in columns 2 through 7 are those that would have differing effects on transportation; other combinations of design options would have the same effects as those described in columns 2 through 7. Underlined design options in columns 3 through 7 identify how that particular design option combination differs from the Recommended Design Options in column 2, and the description of effects in columns 3 through 7 are in comparison to the Modified LPA with Recommended Design Options in column 2 unless otherwise stated. All projections and forecasts are for the design year of 2045 unless otherwise stated.

a The effects associated with the single-level fixed-span configuration would be the same for all bridge type options, unless otherwise specified.

b The SR 14 interchange without C Street ramps design option would require express bus transit to be rerouted to access downtown Vancouver via Mill Plain Boulevard. This would add more travel time for express bus transit trips in and out of downtown Vancouver on express bus because of added distance and congestion on the mainline.

c Total transit travel times include 10 minutes of walk access (1/4 mile walk on either end of the trip at 3 miles per hour average walk speed) in addition to initial and transfer (if applicable) wait time. Wait times are based on half the headway. “Headway” refers to the time or distance between consecutive vehicles (like buses, trains, or cars) traveling on the same route.

d Route 60 does not stop at Hayden Island southbound, so a trip from Vancouver to Hayden Island travels south to Delta Park and then back north to stop on Hayden Island.

e Route includes 60 Vancouver – Delta Park with transfer to Yellow Line LRT.

f Travel time is on Yellow Line LRT.

g Express Bus includes Route 101 from downtown Vancouver – Rose Quarter or Pioneer Square.

h Express Bus includes two stops between downtown Vancouver and Pioneer Square. LRT includes 16 stops between downtown Vancouver and Pioneer Square.

i New bridge opening restrictions would require coordination with USCG and mariners. Federal rulemaking process would need to occur to modify current restrictions for long-term operations of the Modified LPA with a single-level movable-span bridge configuration.

j The climb gradient is steeper for the single-level fixed-span configuration with C Street ramps compared to the double-deck fixed-span configuration due to the single-level fixed-span configuration’s increased width and the reduced distance between the C Street off-ramp and the Pearson Field runway.

feet/NM = feet per nautical mile; I = Interstate; IBR = Interstate Bridge Replacement; LPA = Locally Preferred Alternative; LRT = light-rail transit; NB = northbound; NM = nautical mile; OCS = obstacle clearance surface; ODOT = Oregon Department of Transportation; SB = southbound; SR = State Route; USACE = U.S. Army Corps of Engineers

Table 4. Summary of Reasonably Foreseeable Community and Environmental Effects for the No-Build Alternative and the Modified LPA [a]

0 Community and Environmental Effect	1 No-Build Alternative	2 *IBR Program Recommended Design Options* - Modified LPA with Single-Level Fixed-Span Configuration, One Auxiliary Lane, with C Street Ramps, Centered I-5, and All Five Park and Rides [a, b]	3 Modified LPA with Double-Deck Fixed-Span Configuration, One Auxiliary Lane, with C Street Ramps, Centered I-5, and All Five Park and Rides [a]	4 Modified LPA with Single-Level Fixed-Span Configuration, Two Auxiliary Lanes, with C Street Ramps, Centered I-5, and All Five Park and Rides [a, b]	5 Modified LPA with Single-Level Fixed-Span Configuration, One Auxiliary Lane, with C Street Ramps, I-5 Westward Shift, and All Five Park and Rides [a, b]	6 Modified LPA with Single-Level Movable-Span Configuration, One Auxiliary Lane, with C Street Ramps, Centered I-5, and All Five Park and Rides [a]	7 Modified LPA with Single-Level Fixed-Span Configuration, One Auxiliary Lane, without C Street Ramps, Centered I-5, and All Five Park and Rides [a, b]
Property Acquisitions and Displacements [c, d] *(See Section 3.3)*	None.	• For all improvements excluding the Park and Rides: – Approximately 120.9 acres of permanent acquisition. – Displacement of: ▪ 59 residences ▪ 58 businesses • For all Waterfront Park and Rides: – Approximately 2.0 acres of permanent acquisition. – Displacement of 8 businesses. – No residential displacements. • For all Evergreen Park and Rides: – Approximately 4.2 acres of permanent acquisition. – No residential or business displacements.	• For all improvements excluding the Park and Rides: – Approximately 120.6 acres of permanent acquisition. – Displacement of: ▪ 59 residences ▪ 58 businesses • For all Waterfront Park and Rides: – Approximately 2.0 acres of permanent acquisition. – Displacement of 8 businesses. – No residential displacements. • For all Evergreen Park and Rides: – Approximately 4.2 acres of permanent acquisition. – No residential or business displacements.	• For all improvements excluding the Park and Rides: – Approximately 120.9 acres of permanent acquisition. – Displacement of: ▪ 59 residences ▪ 58 businesses • For all Waterfront Park and Rides: – Approximately 2.0 acres of permanent acquisition. – Displacement of 8 businesses. – No residential displacements. • For all Evergreen Park and Rides: – Approximately 4.2 acres of permanent acquisition. – No residential or business displacements.	• For all improvements excluding the Park and Rides: – Approximately 122.8 acres of permanent acquisition. – Displacement of: ▪ 59 single-family residences, 33 multifamily residences. ▪ 61 businesses • For all Waterfront Park and Rides: – Approximately 2.0 acres of permanent acquisition. – Displacement of 8 businesses. – No residential displacements. • For all Evergreen Park and Rides: – Approximately 4.2 acres of permanent acquisition. – No residential or business displacements.	• For all improvements excluding the Park and Rides: – Approximately 120.9 acres of permanent acquisition. – Displacement of: ▪ 59 residences ▪ 58 businesses • For all Waterfront Park and Rides: – Approximately 2.0 acres of permanent acquisition. – Displacement of 8 businesses. – No residential displacements. • For all Evergreen Park and Rides: – Approximately 4.2 acres of permanent acquisition. – No residential or business displacements.	• For all improvements excluding the Park and Rides: – Approximately 120.9 acres of permanent acquisition. – Displacement of: ▪ 59 residences ▪ 58 businesses • For all Waterfront Park and Rides: – Approximately 2.0 acres of permanent acquisition. – Displacement of 8 businesses. – No residential displacements. • For all Evergreen Park and Rides: – Approximately 4.2 acres of permanent acquisition. – No residential or business displacements.

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Land Use and Economic Activity *(See Section 3.4)*	• Existing land uses would remain vulnerable to high levels of congestion and potential earthquake-induced failure. • No high-capacity transit, which is inconsistent with the stated policies and goals of regional transportation plans. • Congestion would impair freight movement and reduce area productivity, which could indirectly impact the implementation of land use plans and goals for economic development. • Loss in job growth could lead to decreased housing prices, increased commercial vacancies, and reduced demand for downtown revitalization.	• Converts approximately 128.4 acres of land to transportation use compared to the No-Build Alternative (Column 1); currently primarily zoned industrial or commercial with some land zoned residential. • High-capacity transit is consistent with state, regional, and local plans and policies. • Higher toll rates during peak periods would support regional and local policies for congestion and are not expected to change land use patterns. • Property tax revenues would be reduced compared to the No-Build Alternative (Column 1). • Business displacements have the potential to impact 66 businesses and 521 employees; affected businesses would be provided relocation assistance. • Bridge height would exclude up to four existing users/vessels that require more than 116 feet of vertical clearance from passage underneath the new Columbia River bridges as compared to the No-Build Alternative (Column 1). Changes to business operations for these four river users may occur, and some job loss could result.	The double-deck fixed-span bridge configuration design option would have effects similar to those described in Column 2 for the single-level fixed-span bridge configuration design option, except: • Converts approximately 0.3 acres less of land to transportation use. • Higher maximum bridge height and increased highway grade which could reduce freight vehicle speed compared to the single-level fixed-span bridge, with corresponding economic effects.	The two auxiliary lane design option would have effects similar to those described in Column 2 for the one auxiliary lane design option, except: • Improved traffic operations (shorter duration and length of congestion, reduced travel times, and improved mobility options) compared to design options with one auxiliary lane would result in improved mobility and access for freight and employment.	The I-5 westward shift design option would have effects similar to those described in Column 2 for the centered I-5 design option, except: • Larger areas of properties would be permanently acquired. • Additional 2.0 acres of permanent acquisition. • Additional three business displacements. • Potential to impact 135 additional employees.	The single-level movable - span bridge configuration design option would have effects similar to those described in Column 2 for the single-level fixed-span bridge configuration design option, except: • Bridge openings could interrupt vehicle and truck highway travel, transit service, and active transportation across the new Columbia River bridges. • No existing or future maritime vessels or cargo freight would be excluded from passage. • Lower bridge height compared to fixed-span bridge configuration design options would allow fewer existing marine users/vessels to pass without a bridge opening but would allow more existing marine users/vessels to pass without a bridge opening as compared to the No-Build Alternative. Movable-span operations, and thus river navigation operations, may have increased restrictions on bridge openings, which could impact marine commerce by restricting the times of day for large vessel movements.	The without C Street ramps design option would have effects similar to those described in Column 2 for the with C Street ramps design option, except: • Removal of the C Street ramps would result in traffic delay and increased travel times near the Mill Plain Boulevard interchange and in downtown Vancouver, which would have an economic impact on local businesses.

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Neighborhoods and Communities *(See Section 3.5)*	• No change to existing neighborhoods, community facilities, or social resources. Future development might not be fully consistent with goals that assume improved mobility and expanded transit access. Neighborhoods would not benefit from reduced congestion, improved mobility, and access to employment.	• Would not adversely affect community cohesion in neighborhoods, except for Hayden Island. Could increase cohesion in neighborhoods near the Community Connector. • Would affect the Hayden Island neighborhood's community cohesion both positively and negatively. Negative impacts include displacement of 39 floating homes and 28 businesses and changes to views. Positive impacts would include a more continuous street system, improved pedestrian and bicycle facilities, and transit that would increase connections for residents. • Would result in construction-related impacts such as traffic diversion, noise, temporary reductions in air quality, and sidewalk disruptions.	• Would not adversely affect community cohesion in neighborhoods, except for Hayden Island. Could increase cohesion in neighborhoods near the Community Connector. • Would affect the Hayden Island neighborhood's community cohesion both positively and negatively. Negative impacts include displacement of 39 floating homes and 28 businesses and changes to views. Positive impacts would include a more continuous street system, improved pedestrian and bicycle facilities, and transit that would increase connections for residents. • Would result in construction-related impacts such as traffic diversion, noise, temporary reductions in air quality, and sidewalk disruptions.	• Would not adversely affect community cohesion in neighborhoods, except for Hayden Island. Could increase cohesion in neighborhoods near the Community Connector. • Would affect the Hayden Island neighborhood's community cohesion both positively and negatively. Negative impacts include displacement of 39 floating homes and 28 businesses and changes to views. Positive impacts would include a more continuous street system, improved pedestrian and bicycle facilities, and transit that would increase connections for residents. • Would result in construction-related impacts such as traffic diversion, noise, temporary reductions in air quality, and sidewalk disruptions.	The I-5 Westward Shift design option would have impacts similar to those described in Column 2 for the Centered I-5 design option, except: • There would be additional residential displacements in the Esther Short neighborhood.	The Single-Level Movable-Span bridge configuration design option would have impacts similar to those described in Column 2 for the Single-Level Fixed-Span design option, except: • Bridge openings would cause backups. The backups would reduce reliability for all travel modes, similar to the No-Build Alternative, which would negatively affect neighborhood cohesion by impairing access to community facilities and encouraging cut-through traffic in neighborhoods.	• Would not adversely affect community cohesion in neighborhoods, except for Hayden Island. Could increase cohesion in neighborhoods near the Community Connector. • Would affect the Hayden Island neighborhood's community cohesion both positively and negatively. Negative impacts include displacement of 39 floating homes and 28 businesses and changes to views. Positive impacts would include a more continuous street system, improved pedestrian and bicycle facilities, and transit that would increase connections for residents. • Would result in construction-related impacts such as traffic diversion, noise, temporary reductions in air quality, and sidewalk disruptions.

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Public Services and Utilities *(See Section 3.6)*	• Increased congestion on I-5 would increase delays in emergency response. • No change to utilities.	• Emergency service response times would be improved compared to the No-Build Alternative on I-5 and at some intersections along critical access routes due to reduced congestion. • Utilities would be relocated or protected in place during construction and restored to full service following construction.	• Emergency service response improvements for the double-deck fixed-span bridge configuration design option would be similar to those for the single-level fixed-span bridge configuration design option listed in Column 2, but response to transit and shared-use path incidents could be slower than the single-level fixed-span bridge configuration design option because emergency vehicles would have reduced access to transit and active transportation facilities. • Utilities would be relocated or protected in place during construction and restored to full service following construction.	• Emergency service response improvements for the two auxiliary lane design option would be similar to those for the one auxiliary lane design option listed in Column 2, but further reductions in congestion on I-5 due to the second auxiliary lane would lead to further improved response times. • Utilities would be relocated or protected in place during construction and restored to full service following construction.	• Emergency service response times would be improved compared to the No-Build Alternative on I-5 and at some intersections along critical access routes due to reduced congestion. • Utilities would be relocated or protected in place during construction and restored to full service following construction.	• Effects on emergency service response times at critical intersections for the single-level movable-span bridge configuration design option would be similar to those for the single-level fixed-span bridge configuration design option listed in Column 2; delays and disruptions to emergency response due to bridge openings would continue, but with less frequency than the No-Build Alternative. • Utilities would be relocated or protected in place during construction and restored to full service following construction.	• Effects on emergency service response times in Portland for the without C Street ramps design option would be similar to those for the with C Street ramps design option listed in Column 2; however, without C Street ramps, 7 additional intersections in Downtown Vancouver would not meet performance standards, potentially resulting in delays for emergency vehicles. • Utilities would be relocated or protected in place during construction and restored to full service following construction.
Parks and Recreation *(See Section 3.7)*	• 0 acres of park and recreation resources to be acquired. • 0 linear feet of trails to be reconstructed and/or permanently realigned. • No change in transit access to park and recreation resources in the primary study area.	• Approximately 0.9 acres of park and recreation resources to be acquired. • Approximately 6,000 linear feet of trails to be reconstructed and/or permanently realigned. • Would improve access to some large regional parks.	• Approximately 0.9 acres (-760 square feet compared to area of acquisitions for the single-level fixed-span bridge configuration design option stated in Column 2) of park and recreation resources to be acquired. • Approximately 5,800 linear feet of trails to be reconstructed and/or permanently realigned. • Would improve access to some large regional parks.	• Approximately 0.9 acres (+2,260 square feet compared to area of acquisitions for the one auxiliary lane design option stated in Column 2) of park and recreation resources to be acquired. • Approximately 6,200 linear feet of trails to be reconstructed and/or permanently realigned. • Would improve access to some large regional parks.	• Approximately 0.9 acres (-200 square feet compared to area of acquisitions for the Centered I-5 design option stated in Column 2) of park and recreation resources to be acquired. • Approximately 6,000 linear feet of trails to be reconstructed and/or permanently realigned. • Would improve access to some large regional parks.	• Approximately 0.9 acres of park and recreation resources to be acquired. • Approximately 6,000 linear feet of trails to be reconstructed and/or permanently realigned. • Would improve access to some large regional parks.	• Approximately 0.9 acres of park and recreation resources to be acquired. • Approximately 5,900 linear feet of trails to be reconstructed and/or permanently realigned. • Would improve access to some large regional parks.

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Cultural Resources *(See Section 3.8)*	• 0 known NRHP-eligible historic built environment resources adversely affected. • 0 known NRHP-eligible archaeological sites potentially affected	• 12 known NRHP-eligible historic built environment resources adversely affected. • 11 known NRHP-eligible archaeological sites potentially affected.	• 12 known NRHP-eligible historic built environment resources adversely affected. • 11 known NRHP-eligible archaeological sites potentially affected.	• 12 known NRHP-eligible historic built environment resources adversely affected. • 11 known NRHP-eligible archaeological sites potentially affected.	• 12 known NRHP-eligible historic built environment resources adversely affected. • 11 known NRHP-eligible archaeological sites potentially affected.	• 12 known NRHP-eligible historic built environment resources adversely affected. • 11 known NRHP-eligible archaeological sites potentially affected.	• 12 known NRHP-eligible historic built environment resources adversely affected. • 11 known NRHP-eligible archaeological sites potentially affected.
Visual Quality *(See Section 3.9)*	• Constructed elements within the AVE would not change. Project environment coherence would be negatively affected by increased traffic and congestion, however, natural and cultural elements are expected to be compatible with the existing visual environment.	• Changes to visual elements could alter the visual character and quality in the AVE (e.g., new bridges across the Columbia River). • LUs where the effects to visual quality are beneficial or neutral would have a natural, cultural, and project environment that is compatible with existing visual conditions. • Adverse effects to visual quality would result from blocking views of the natural environment and changes in visual experience from elevated bridge structures, such as to viewers in the floating homes at the Jantzen Beach Moorage. • The five proposed park and rides would add to the urban elements and structures in downtown Vancouver, which would change some existing views but would be compatible with the existing visual character.	The double-deck fixed-span bridge configuration design option would have visual quality impacts similar to those described in Column 2 for the single-level fixed-span bridge configuration design option, except: • The deck of the double-deck fixed-span bridge configuration design option would be slightly narrower than the single-level bridge configuration design option, somewhat farther from nearby viewers, and cast a narrow shadow. However, with the double-deck fixed-span bridge configuration design option users of light-rail and the shared-use path would have the visual weight of the overhead bridge deck, the profile would be thicker from views such as the Vancouver Waterfront, and there would be fewer options for bridge architecture reflective of community preference.	The two auxiliary lane design option would have visual quality impacts similar to those described in Column 2 for the one auxiliary lane design option, except: • Additional bridge width from the additional auxiliary lane would contribute to a slightly increased visual mass for viewers in close proximity or beneath the structures in the Columbia River LU.	The I-5 westward shift design option would have visual quality impacts similar to those described in Column 2 for the centered I-5 design options, except: • The I-5 westward shift would improve the visual quality from sensitive viewers at Kanaka Village and other views from the Fort Vancouver National Historic Site in the Greater Central Park LU by shifting project elements slightly farther away.	The single-level movables-pan bridge configuration design option would have visual quality impacts similar to those described in Column 2 for the single-level fixed-span bridge configuration design option, except: • With the single-level movable-span bridge configuration design option in the closed position the bridge decks would be similar in height and visibility to the existing Interstate Bridge. However, the movable-span towers, and when in an open position, would protrude higher into the skyline than a fixed-span configuration. The movable-span towers would be more visible from Vancouver, Fort Vancouver, and Hayden Island, potentially obstruct additional views, and intensify visual impacts especially for sensitive recreational viewers. The towers would be permanent and the movable-span would be lifted intermittently.	The without C Street ramps design option would have visual quality impacts similar to those described in Column 2 for the with C Street ramps design option, except: • The design option to eliminate the C Street ramps would increase visual quality for sensitive recreational viewers in the Greater Central Park LU with the elimination of project environment elements that would be visible.

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Air Quality *(See Section 3.10)*	• 3,537,900 VMT in 2045 (66% increase compared to existing conditions). • Future regional air pollutant emissions would be substantially lower than existing emissions for all MSATs, CO, NO_X, and $PM_{2.5}$. Future regional emissions of VOC would be up to 25% higher than existing conditions due to increased VMT. • Changes in MSAT emissions (2045) from existing conditions (2015): – 1,3-Butadiene: 100% reduction – Acetaldehyde: 82% reduction – Acrolein: 89% reduction – Benzene: 69% reduction – Diesel Particulate Matter: 86% reduction – Ethylbenzene: 29% reduction – Formaldehyde: 86% reduction – Naphthalene: 83% reduction – Polycyclic Organic Matter: 93% reduction • Changes in regional criteria pollutant emissions: – CO: 61% reduction – NO_2: 75% reduction – VOCs: 26% increase	• 3,455,400 VMT in 2045 (62% increase compared to existing conditions). • Future regional air pollutant emissions would be similar to No-Build Alternative (slightly lower emissions than No-Build Alternative due to reduced VMT). • Changes in MSAT emissions (2045) from existing conditions (2015): – 1,3-Butadiene: 100% reduction – Acetaldehyde: 85% reduction – Acrolein: 90% reduction – Benzene: 70% reduction – Diesel Particulate Matter: 88% reduction – Ethylbenzene: 29% reduction – Formaldehyde: 88% reduction – Naphthalene: 83% reduction – Polycyclic Organic Matter: 94% reduction • Changes in regional criteria pollutant emissions: – CO: 63% reduction – NO_2: 79% reduction – VOCs: 25% increase – Total PM_{10} [e]: 21% increase – Total $PM_{2.5}$ [f]: 48% reduction	• 3,455,400 VMT in 2045 (62% increase compared to existing conditions). • The double-deck fixed-span bridge configuration design option would have similar changes in air pollutant emissions to those described in Column 2 for the single-level fixed-span bridge configuration design option, but may slightly increase operational emissions due to the higher profile grade, which would increase acceleration and braking of vehicles crossing the bridges. • The double-deck fixed-span bridge configuration design option would have similar changes in MSAT emissions to those described in Column 2 for the single-level fixed-span bridge configuration design option, but may slightly increase operational emissions due to the higher profile grade, which would increase acceleration and braking of vehicles crossing the bridges.	• 3,455,400 VMT in 2045 (62% increase compared to existing conditions). • Similar to No-Build Alternative (slightly lower emissions than No-Build Alternative due to reduced VMT) • Changes in MSAT emissions (2045) from existing conditions (2015): – 1,3-Butadiene: 100% reduction – Acetaldehyde: 85% reduction – Acrolein: 91% reduction – Benzene: 71% reduction – Diesel Particulate Matter: 88% reduction – Ethylbenzene: 30% reduction – Formaldehyde: 89% reduction – Naphthalene: 83% reduction – Polycyclic Organic Matter: 94% reduction • Changes in regional criteria pollutant emissions: – CO: 63% reduction – NO_2: 79% reduction – VOCs: 25% increase – Total PM_{10} [e]: 22% increase – Total $PM_{2.5}$ [f]: 49% reduction	• 3,455,400 VMT in 2045 (62% increase compared to existing conditions). • Future regional air pollutant emissions would be similar to No-Build Alternative (slightly lower emissions than No-Build Alternative due to reduced VMT). • Changes in MSAT emissions (2045) from existing conditions (2015): – 1,3-Butadiene: 100% reduction – Acetaldehyde: 85% reduction – Acrolein: 90% reduction – Benzene: 70% reduction – Diesel Particulate Matter: 88% reduction – Ethylbenzene: 29% reduction – Formaldehyde: 88% reduction – Naphthalene: 83% reduction – Polycyclic Organic Matter: 94% reduction • Changes in regional criteria pollutant emissions: – CO: 63% reduction – NO_2: 79% reduction – VOCs: 25% increase – Total PM_{10} [e]: 21% increase – Total $PM_{2.5}$ [f]: 48% reduction	• 3,455,400 VMT in 2045 (62% increase compared to existing conditions). • The single-level movable-span bridge configuration design option would have similar changes in air pollutant emissions to those described in Column 2 for the single-level fixed-span bridge configuration design option, except for a minor increase in air quality pollutants due to vehicles idling during bridge openings. There would be fewer bridge openings than with the No-Build Alternative. • The single-level movable-span bridge configuration design option would have similar changes in MSAT emissions to those described in Column 2 for the single-level fixed-span bridge configuration design option and Column 4 for the two auxiliary lane design option, except for a minor increase in air pollutants due to vehicles idling during bridge openings. There would be fewer bridge openings than with the No-Build Alternative.	• 3,455,400 VMT in 2045 (62% increase compared to existing conditions). • Future regional air pollutant emissions would be similar to No-Build Alternative (slightly lower emissions than No-Build Alternative due to reduced VMT). • Changes in MSAT emissions (2045) from existing conditions (2015): – 1,3-Butadiene: 100% reduction – Acetaldehyde: 85% reduction – Acrolein: 90% reduction – Benzene: 70% reduction – Diesel Particulate Matter: 88% reduction – Ethylbenzene: 29% reduction – Formaldehyde: 88% reduction – Naphthalene: 83% reduction – Polycyclic Organic Matter: 94% reduction • Changes in regional criteria pollutant emissions: – CO: 63% reduction – NO_2: 79% reduction – VOCs: 25% increase – Total PM_{10} [e]: 21% increase – Total $PM_{2.5}$ [f]: 48% reduction

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	– Total PM_{10}: 46% increase – Total $PM_{2.5}$: 39% reduction		• The double-deck fixed-span bridge configuration design option would have similar changes in regional criteria pollutant emissions to those described in Column 2 for the single-level fixed-span bridge configuration design option but may slightly increase operational emissions due to the higher profile grade, which would increase acceleration and braking of vehicles crossing the bridges.			• The single-level movable-span bridge configuration design option would have similar changes in regional criteria pollutant emissions to those described in Column 2 for the single-level fixed-span bridge configuration design option, except for a minor increase in air quality pollutants due to vehicles idling during bridge openings. There would be fewer bridge openings than with the No-Build Alternative.	
Noise and Vibration *(See Section 3.11)*	• 216 receptors would exceed highway noise thresholds. • No receptors would have moderate or severe transit noise impact levels. • No vibration impacts without the extension of light-rail.	• Without mitigation, 195 receptors would exceed highway noise thresholds due to the acquisition of floating homes located near the Columbia River light rail transit bridge alignment of the Modified LPA. • With mitigation, eight existing noise walls in Vancouver would be replaced as necessary for project construction along with two new noise walls in Vancouver and one new noise wall in Portland, which collectively would reduce the number of traffic noise impacts to 113.	The double-deck fixed-span bridge configuration design option would have similar effects to the single-level fixed-span bridge configuration design option, as listed in Column 2, except: • Users on the shared-use path across the Columbia River bridges would have more shielding and less exposure to noise from highway vehicles. • Mitigation would be consistent with the single-level fixed-span bridge configuration design option, as listed in Column 2.	The two auxiliary lane design option would have similar effects to the one auxiliary lane design option, as listed in Column 2.	The I-5 westward shift design option would have similar effects as the centered I-5 design option, as listed in Column 3, except: • The I-5 westward shift design option would result in twelve less receptors exceeding highway noise thresholds due to the acquisition of a 12-unit apartment complex located at E 7th Street and E C Street. • Mitigation would be consistent with the I-5 westward shift design option, except the I-5 westward shift design option would include one less new noise wall in downtown Vancouver as a result of Program acquisitions at E 7th Street and E C Street.	The single-level movable-span bridge configuration design option would have similar effects as listed in Column 2 for the single-level fixed-span bridge configuration design option.	The without C Street ramps design option would have similar effects to the with C Street ramps design option, as listed in Column 2.

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		• Transit noise impacts would occur at 12 receptors in downtown Vancouver at a 12-unit apartment complex located at E 7th Street and E C Street. • Transit vibration impacts would occur at 13 receptors in downtown Vancouver, including the same 12-unit apartment complex located at E 7th Street and E C Street and a movie theater located at E 8th Street and E C Street.					
Energy *(See Section 3.12)*	Total regional transportation energy consumption: • 271,933 mmBtu/day in 2045.	Total regional transportation energy consumption: • 271,187 mmBtu/day in 2045 (-0.27% compared to No-Build Alternative).	Total regional transportation energy consumption: • The double-deck fixed-span bridge configuration design option would have total regional transportation energy consumption impacts similar to those described in Column 2 for the single-level fixed-span bridge configuration design option, but would slightly increase operational energy consumption due to the increased profile grade of the new Columbia River bridges.	Total regional transportation energy consumption: • The two auxiliary lane design option would have total regional transportation energy consumption impacts similar to those described in Column 2 for the one auxiliary lane design option. Modeling results estimate a non-statistically significant difference of less than 0.1% due to the second auxiliary lane.	Total regional transportation energy consumption: • The I-5 westward shift design option would have total regional transportation energy consumption impacts similar to those described in Column 2 for the centered I-5 design option.	Total regional transportation energy consumption: • The single-level movable-span bridge configuration design option would have total regional transportation energy consumption impacts similar to those described in Column 2 for the single-level fixed-span bridge configuration design option, except it would slightly increase energy consumption due to the electricity required to raise and lower the bridge and as a result of idling that would be anticipated by a portion of the queued vehicles on the freeway during bridge closures.	Total regional transportation energy consumption: • The without C-Street ramps design option would have total regional transportation energy consumption impacts similar to those described in Column 2, but would create additional congestion on local streets due to the removal of the C Street ramps, which would decrease vehicle efficiency, resulting in increased energy consumption.

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Electric and Magnetic Fields *(See Section 3.13)*	No change in EMF emissions.	EMF emissions would increase slightly at certain locations along the light-rail extension but would remain well below exposure guidelines.	EMF emissions would increase slightly at certain locations along the light-rail extension but would remain well below exposure guidelines.	EMF emissions would increase slightly at certain locations along the light-rail extension but would remain well below exposure guidelines.	EMF emissions would increase slightly at certain locations along the light-rail extension but would remain well below exposure guidelines.	EMF emissions would increase slightly at certain locations along the light-rail extension but would remain well below exposure guidelines.	EMF emissions would increase slightly at certain locations along the light-rail extension but would remain well below exposure guidelines.
Water Quality and Hydrology [g] *(See Section 3.14)*	• Water Quality and Stormwater Management: – No change (area would remain untreated until stormwater treatment could be addressed according to state prioritization and available funding). • Contributing Impervious Area: 178 acres total: – 0 acres treated. – 21 acres infiltrated. – 157 acres untreated. • Total Suspended Solids: 120,272 lbs/year • Hydrology: No change (continued release of stormwater with degraded quality into receiving waters).	• Water Quality and Stormwater Management: – Beneficial effect on receiving water quality (due to BMPs to remove pollutants). – Could cause changes in peak flows and stormwater runoff volumes. • Contributing Impervious Area: 215 acres total: – 197 acres treated. – 18 acres infiltrated. – 0 acres untreated. • Total Suspended Solids: 16,720 lbs/year • Hydrology: Potential to cause long-term hydrologic effects due to an increase of 33 acres of contributing impervious area.	• Water Quality and Stormwater Management: – Beneficial effect on receiving water quality (due to BMPs to remove pollutants). – Could cause changes in peak flows and stormwater runoff volumes. • Contributing Impervious Area: 211 acres total: – 194 acres treated. – 17 acres infiltrated. – 0 acres untreated. • Total Suspended Solids: 16,694 lbs/year • Hydrology: Potential to cause long term hydrologic effects due to an increase of 30 acres of contributing impervious area.	• Water Quality and Stormwater Management: – The two auxiliary lane design option would have water quality and stormwater management impacts similar to those described in Column 2 for the one auxiliary lane design option, except with slight increase to pollutant loads from the second auxiliary lane. • Contributing Impervious Area: 215 acres total: – 198 acres treated. – 17 acres infiltrated. – 0 acres untreated. • Total Suspended Solids: 17,037 lbs/year • Hydrology: Potential to cause long term hydrologic effects due to an increase of 33 acres of contributing impervious area.	• Water Quality and Stormwater Management: – Beneficial effect on receiving water quality (due to BMPs to remove pollutants). – Could cause changes in peak flows and stormwater runoff volumes. • Contributing Impervious Area: 215 acres total: – 197 acres treated. – 18 acres infiltrated. – 0 acres untreated. • Total Suspended Solids: 16,720 lbs/year • Hydrology: Potential to cause long-term hydrologic effects due to an increase of 33 acres of contributing impervious area.	• Water Quality and Stormwater Management: – The single-level movable-span bridge configuration would have water quality and stormwater management impacts similar to those described in Column 2 for the single-level fixed-span bridge configuration design option, except: – Beneficial effect on receiving water quality (due to BMPs to remove pollutants) with slight increase to pollutant loads. – Potential for additional and accidental minor spills of materials and pollutants used for maintenance and operation of the movable-span configuration. • Contributing Impervious Area: 218 acres total: – 201 acres treated. – 17 acres infiltrated. – 0 acres untreated. • Total Suspended Solids: 17,336 lbs/year	• Water Quality and Stormwater Management: – Beneficial effect on receiving water quality (due to BMPs to remove pollutants). – Could cause changes in peak flows and stormwater runoff volumes. • Contributing Impervious Area: 215 acres total: – 197 acres treated. – 18 acres infiltrated. – 0 acres untreated. • Total Suspended Solids: 16,720 lbs/year • Hydrology: Potential to cause long-term hydrologic effects due to an increase of 33 acres of contributing impervious area.

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						• Hydrology: Potential to cause long term hydrologic effects due to an increase of 37 acres of contributing impervious area.	
Wetlands and Other Waters *(See Section 3.15)*	No change.	• Wetlands: 0.25 acres • Wetland Buffers: 5.69 acres • Other Waters: – 0.88 acres fill – -1.04 acres (removal of structures) – Net Change: -0.16 acres (restoration)	• Wetlands: 0.25 acres • Wetland Buffers: 5.69 acres • Other Waters: – 0.83 acres fill – -1.04 acres (removal of structures) – Net Change: -0.21 acres (restoration)	• Wetlands: 0.25 acres • Wetland Buffers: 5.69 acres • Other Waters: – 0.88 acres fill – -1.04 acres (removal of structures) – Net Change: -0.16 acres (restoration)	• Wetlands: 0.25 acres • Wetland Buffers: 5.69 acres • Other Waters: – 0.88 acres fill – -1.04 acres (removal of structures) – Net Change: -0.16 acres (restoration)	• Wetlands: 0.25 acres • Wetland Buffers: 5.69 acres. • Other Waters: – 1.11 acres fill – -1.04 acres (removal of structures) – Net Change: 0.07 acres (loss)	• Wetlands: 0.25 acres • Wetland Buffers: 5.69 acres • Other Waters: – 0.88 acres fill – -1.04 acres (removal of structures) – Net Change: -0.16 acres (restoration)
Ecosystems *(See Section 3.16)*	• Aquatic resources (total net change compared to the existing condition): – Continued benthic habitat impacts from existing bridges: 1.04 acres. – Continued benthic habitat impacts of overwater shading (Elevated Deck) from existing bridges: 11.65 acres. – Continued impacts from untreated stormwater from approximately 156.4 acres of existing contributing impervious area. – Potential for habitat impacts due to maintenance and operation.	• Aquatic resources (total net change compared to the existing condition): – Benthic habitat effect: -0.16 acres (net restoration). – Overwater Shading (Water Surface): +1.24 acres. – Overwater Shading (Elevated Deck): +9.09 acres. – Beneficial effect of stormwater treatment for all post-project contributing impervious area, including approximately 156.4 acres of existing impervious area that is currently untreated.	• Aquatic resources (total net change compared to the existing condition): – Benthic habitat effect: -0.21 acres (net restoration). – Overwater Shading (Water Surface): +1.05 acres. – Overwater Shading (Elevated Deck): +8.22 acres. – Beneficial effect of stormwater treatment for all post-project contributing impervious area, including approximately 156.4 acres of existing impervious area that is currently untreated.	• Aquatic resources (total net change compared to the existing condition): – Benthic habitat effect: -0.22 acres (net restoration) – Overwater Shading (Water Surface) 3.9 acres of elevated overwater shading (+12.99 acres compared to the existing condition). – Beneficial effect of stormwater treatment for all post-project CIA, including approximately 156.4 acres of existing impervious area that is currently untreated. • Permanent impacts to terrestrial resources in Oregon (acres): – “High” wildlife/riparian value habitats: 3.25 acres.	• Aquatic resources (total net change compared to the existing condition): – Benthic habitat effect: -0.16 acres (net restoration). – Overwater Shading (Water Surface): +1.24 acres. – Overwater Shading (Elevated Deck): +9.09 acres. – Beneficial effect of stormwater treatment for all post-project contributing impervious area, including approximately 156.4 acres of existing impervious area that is currently untreated.	• Aquatic resources (total net change compared to the existing condition): – Benthic habitat impact: +0.07 acres (net reduction of habitat) – Overwater Shading (Water Surface): +1.58 acres. – Overwater Shading (Elevated Deck): +13.23 acres. – Beneficial effect of stormwater treatment for all post-project contributing impervious area, including approximately 156.4 acres of existing impervious area that is currently untreated.	• Aquatic resources (total net change compared to the existing condition): – Benthic habitat effect: -0.16 acres (net restoration). – Overwater Shading (Water Surface): +1.24 acres. – Overwater Shading (Elevated Deck): +9.09 acres. – Beneficial effect of stormwater treatment for all post-project contributing impervious area, including approximately 156.4 acres of existing impervious area that is currently untreated.

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	• Permanent impacts to terrestrial resources in Oregon: – Potential for water quality and vegetation impacts due to maintenance and operation. • Permanent impacts to terrestrial resources in Washington: – Potential for water quality and vegetation impacts due to maintenance and operation.	• Permanent impacts to terrestrial resources in Oregon (acres): – "High" wildlife/riparian value habitats: 3.25 acres. – "Medium" wildlife/riparian value habitats: 7.67 acres. – Wetlands: 0.25 acres. – Wetland Buffers: 5.69 acres. • Permanent impacts to terrestrial resources in Washington (acres): – Riparian buffers: 0.28 acres. – Biodiversity Areas: 0.06 acres. – Oak Woodlands: <0.01 acres – Wetlands: 0. – Wetland Buffers: 0.	• Permanent impacts to terrestrial resources in Oregon (acres): – "High" wildlife/riparian value habitats: 3.25 acres. – "Medium" wildlife/riparian value habitats: 7.67 acres. – Wetlands: 0.25 acres. – Wetland Buffers: 5.69 acres. • Permanent impacts to terrestrial resources in Washington (acres): – Riparian buffers: 0.28 acres. – Biodiversity Areas: 0.06 acres. – Oak Woodlands: <0.01 acres – Wetlands: 0. – Wetland Buffers: 0.	– "Medium" wildlife/riparian value habitats: 7.67 acres. – Wetlands: 0.25 acres. – Wetland Buffers: 5.69 acres. • Permanent impacts to terrestrial resources in Washington (acres): – Riparian buffers: 0.28 acres. – Biodiversity Areas: 0.06 acres. – Oak Woodlands: <0.01 acres – Wetlands: 0. – Wetland Buffers: 0.	• Permanent impacts to terrestrial resources in Oregon (acres): – "High" wildlife/riparian value habitats: 3.25 acres. – "Medium" wildlife/riparian value habitats: 7.67 acres. – Wetlands: 0.25 acres. – Wetland Buffers: 5.69 acres. • Permanent impacts to terrestrial resources in Washington (acres): – Riparian buffers: 0.28 acres. – Biodiversity Areas: 0.06 acres. – Oak Woodlands: <0.01 acres – Wetlands: 0. – Wetland Buffers: 0.	• Permanent impacts to terrestrial resources in Oregon (acres): – "High" wildlife/riparian value habitats: 3.25 acres. – "Medium" wildlife/riparian value habitats: 7.67 acres. – Wetlands: 0.25 acres. – Wetland Buffers: 5.69 acres. • Permanent impacts to terrestrial resources in Washington (acres): – Riparian buffers: 0.28 acres. – Biodiversity Areas: 0.06 acres. – Oak Woodlands: <0.01 acres – Wetlands: 0. – Wetland Buffers: 0.	• Permanent impacts to terrestrial resources in Oregon (acres): – "High" wildlife/riparian value habitats: 3.25 acres. – "Medium" wildlife/riparian value habitats: 7.67 acres. – Wetlands: 0.25 acres. – Wetland Buffers: 5.69 acres. • Permanent impacts to terrestrial resources in Washington (acres): – Riparian buffers: 0.28 acres. – Biodiversity Areas: 0.06 acres. – Oak Woodlands: <0.01 acres – Wetlands: 0. – Wetland Buffers: 0.
Geology and Groundwater *(See Section 3.17)*	No change to existing seismic deficiencies; geologic resources; or groundwater quality.	• Improved public safety, minimizing damage to infrastructure, and limiting potential economic disruption due to seismic improvements. • Slight potential for increased use of materials that could spur expansion and/or opening of surface mines. • Benefits to groundwater quality as a result of modernized stormwater management and treatment.	• Improved public safety, minimizing damage to infrastructure, and limiting potential economic disruption due to seismic improvements. • Slight potential for increased use of materials that could spur expansion and/or opening of surface mines. • Benefits to groundwater quality as a result of modernized stormwater management and treatment.	• Improved public safety, minimizing damage to infrastructure, and limiting potential economic disruption due to seismic improvements. • Slight potential for increased use of materials that could spur expansion and/or opening of surface mines. • Benefits to groundwater quality as a result of modernized stormwater management and treatment.	• Improved public safety, minimizing damage to infrastructure, and limiting potential economic disruption due to seismic improvements. • Slight potential for increased use of materials that could spur expansion and/or opening of surface mines. • Benefits to groundwater quality as a result of modernized stormwater management and treatment.	The single-level movable-span bridge configuration design option would have effects similar to those described in Column 2 for the single-level fixed-span bridge configuration design option, except: • It would require more substantial river piers and pier foundations to support the movable spans than the single-level bridge configuration design option.	• Improved public safety, minimizing damage to infrastructure, and limiting potential economic disruption due to seismic improvements. • Slight potential for increased use of materials that could spur expansion and/or opening of surface mines. • Benefits to groundwater quality as a result of modernized stormwater management and treatment.

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Hazardous Materials *(See Section 3.18)*	• No potential for adverse effects from acquisition of contaminated sites. • No beneficial effects from the cleanup of contaminated sites. • Stormwater that is untreated for the removal of pollutants would continue to enter surface waterbodies and groundwater. • No improvement in existing spill risks from traffic congestion and collisions. • Future remediation activities at several sites have the potential to affect operation and maintenance of I-5.	• Moderate potential for increased liability for property owners (ODOT and WSDOT) from the acquisition of contaminated sites. • Beneficial effects on human health and safety, and surface and groundwater quality from cleanup and remediation of contaminated areas on acquired sites and limiting the possible off-site migration of contamination. • If residual contamination remains on acquired hazardous materials sites after cleanup, moderate potential for adverse effects on human health and safety if encountered during construction or with the possible off-site migration of contamination. • Beneficial effects from improvements in stormwater conveyance and treatment, which would reduce pollutants in stormwater runoff and improve surface water and groundwater quality. • Reduction in spill risk due to reduced traffic congestion and collisions.	• Moderate potential for increased liability for property owners (ODOT and WSDOT) from the acquisition of contaminated sites. • Beneficial effects on human health and safety, and surface and groundwater quality from cleanup and remediation of contaminated areas on acquired sites and limiting the possible off-site migration of contamination. • If residual contamination remains on acquired hazardous materials sites after cleanup, moderate potential for adverse effects on human health and safety if encountered during construction or with the possible off-site migration of contamination. • Beneficial effects from improvements in stormwater conveyance and treatment, which would reduce pollutants in stormwater runoff and improve surface water and groundwater quality. • Reduction in spill risk due to reduced traffic congestion and collisions.	• Moderate potential for increased liability for property owners (ODOT and WSDOT) from the acquisition of contaminated sites. • Beneficial effects on human health and safety, and surface and groundwater quality from cleanup and remediation of contaminated areas on acquired sites and limiting the possible off-site migration of contamination. • If residual contamination remains on acquired hazardous materials sites after cleanup, moderate potential for adverse effects on human health and safety if encountered during construction or with the possible off-site migration of contamination. • Beneficial effects from improvements in stormwater conveyance and treatment, which would reduce pollutants in stormwater runoff and improve surface water and groundwater quality. • Reduction in spill risk due to reduced traffic congestion and collisions.	• Moderate potential for increased liability for property owners (ODOT and WSDOT) from the acquisition of contaminated sites. • Beneficial effects on human health and safety, and surface and groundwater quality from cleanup and remediation of contaminated areas on acquired sites and limiting the possible off-site migration of contamination. • If residual contamination remains on acquired hazardous materials sites after cleanup, moderate potential for adverse effects on human health and safety if encountered during construction or with the possible off-site migration of contamination. • Beneficial effects from improvements in stormwater conveyance and treatment, which would reduce pollutants in stormwater runoff and improve surface water and groundwater quality. • Reduction in spill risk due to reduced traffic congestion and collisions.	• Moderate potential for increased liability for property owners (ODOT and WSDOT) from the acquisition of contaminated sites. • Beneficial effects on human health and safety, and surface and groundwater quality from cleanup and remediation of contaminated areas on acquired sites and limiting the possible off-site migration of contamination. • If residual contamination remains on acquired hazardous materials sites after cleanup, moderate potential for adverse effects on human health and safety if encountered during construction or with the possible off-site migration of contamination. • Beneficial effects from improvements in stormwater conveyance and treatment, which would reduce pollutants in stormwater runoff and improve surface water and groundwater quality. • Reduction in spill risk due to reduced traffic congestion and collisions.	• Moderate potential for increased liability for property owners (ODOT and WSDOT) from the acquisition of contaminated sites. • Beneficial effects on human health and safety, and surface and groundwater quality from cleanup and remediation of contaminated areas on acquired sites and limiting the possible off-site migration of contamination. • If residual contamination remains on acquired hazardous materials sites after cleanup, moderate potential for adverse effects on human health and safety if encountered during construction or with the possible off-site migration of contamination. • Beneficial effects from improvements in stormwater conveyance and treatment, which would reduce pollutants in stormwater runoff and improve surface water and groundwater quality. • Reduction in spill risk due to reduced traffic congestion and collisions.

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		• Future remediation activities at several sites have the potential to affect operation and maintenance of the Modified LPA.	• Future remediation activities at several sites have the potential to affect operation and maintenance of the Modified LPA.	• Future remediation activities at several sites have the potential to affect operation and maintenance of the Modified LPA.	• Future remediation activities at several sites have the potential to affect operation and maintenance of the Modified LPA.	• Future remediation activities at several sites have the potential to affect operation and maintenance of the Modified LPA.	• Future remediation activities at several sites have the potential to affect operation and maintenance of the Modified LPA.
Section 6(f) and Federal Lands to Park (FLP) *(See Section 3.21)*	No effect.	• East Delta Park: No acquisition of Section 6(f) or FLP-protected land. • Old Apple Tree Park: Would construct a new shared-use path on approximately 0.08 acres. Permanent easement (less than 0.1 acres) along the northern edge for maintenance. The easement would not change the recreational use of the park, affect landscaping, or convert the land to a non-park use. • Marshall Community Center, Luepke Senior Center, and Marshall Park: Acquisition of approximately 5,100 square feet (0.12 acres) of the 0.5 acres of FLP program–protected land would displace some horseshoe pits and trees. • Burnt Bridge Creek Trail: No acquisition of Section 6(f) or FLP-protected land.	• East Delta Park: No acquisition of Section 6(f) or FLP-protected land. • Old Apple Tree Park: Would construct a new shared-use path on approximately 0.08 acres. Permanent easement (less than 0.1 acres) along the northern edge for maintenance. The easement would not change the recreational use of the park, affect landscaping, or convert the land to a non-park use. • Marshall Community Center, Luepke Senior Center, and Marshall Park: Acquisition of approximately 5,100 square feet (0.12 acres) of the 0.5 acres of FLP program–protected land would displace some horseshoe pits and trees. • Burnt Bridge Creek Trail: No acquisition of Section 6(f) or FLP-protected land.	• East Delta Park: No acquisition of Section 6(f) or FLP-protected land. • Old Apple Tree Park: Would construct a new shared-use path on approximately 0.08 acres. Permanent easement (less than 0.1 acres) along the northern edge for maintenance. The easement would not change the recreational use of the park, affect landscaping, or convert the land to a non-park use. • Marshall Community Center, Luepke Senior Center, and Marshall Park: Acquisition of approximately 5,100 square feet (0.12 acres) of the 0.5 acres of FLP program–protected land would displace some horseshoe pits and trees. • Burnt Bridge Creek Trail: No acquisition of Section 6(f) or FLP-protected land.	• East Delta Park: No acquisition of Section 6(f) or FLP-protected land. • Old Apple Tree Park: Would construct a new shared-use path on approximately 0.08 acres. Permanent easement (less than 0.1 acres) along the northern edge for maintenance. The easement would not change the recreational use of the park, affect landscaping, or convert the land to a non-park use. • Marshall Community Center, Luepke Senior Center, and Marshall Park: Acquisition of approximately 5,100 square feet (0.12 acres) of the 0.5 acres of FLP program–protected land would displace some horseshoe pits and trees. • Burnt Bridge Creek Trail: No acquisition of Section 6(f) or FLP-protected land.	• East Delta Park: No acquisition of Section 6(f) or FLP-protected land. • Old Apple Tree Park: Would construct a new shared-use path on approximately 0.08 acres. Permanent easement (less than 0.1 acres) along the northern edge for maintenance. The easement would not change the recreational use of the park, affect landscaping, or convert the land to a non-park use. • Marshall Community Center, Luepke Senior Center, and Marshall Park: Acquisition of approximately 5,100 square feet (0.12 acres) of the 0.5 acres of FLP program–protected land would displace some horseshoe pits and trees. • Burnt Bridge Creek Trail: No acquisition of Section 6(f) or FLP-protected land.	• East Delta Park: No acquisition of Section 6(f) or FLP-protected land. • Old Apple Tree Park: Would construct a new shared-use path on approximately 0.08 acres. Permanent easement (less than 0.1 acres) along the northern edge for maintenance. The easement would not change the recreational use of the park, affect landscaping, or convert the land to a non-park use. • Marshall Community Center, Luepke Senior Center, and Marshall Park: Acquisition of approximately 5,100 square feet (0.12 acres) of the 0.5 acres of FLP program–protected land would displace some horseshoe pits and trees. • Burnt Bridge Creek Trail: No acquisition of Section 6(f) or FLP-protected land.
Section 4(f) *(See Chapter 4)*	No use of any Section 4(f) resources.	• *De minimis* impact to Old Apple Tree Park and Marshall Park. Use with greater than *de minimis* impact of 7 historic sites[h] and the Fort Vancouver NHS.	• *De minimis* impact to Old Apple Tree Park and Marshall Park. Use with greater than *de minimis* impact of 7 historic sites[h] and the Fort Vancouver NHS.	• *De minimis* impact to Old Apple Tree Park and Marshall Park. Use with greater than *de minimis* impact of 7 historic sites[h] and the Fort Vancouver NHS.	• *De minimis* impact Old Apple Tree Park and Marshall Park. Use with greater than *de minimis* impact of 7 historic sites[h] and the Fort Vancouver NHS.	• *De minimis* impact to Old Apple Tree Park and Marshall Park. Use with greater than *de minimis* impact of 7 historic sites[h] and the Fort Vancouver NHS.	• *De minimis* impact to Old Apple Tree Park and Marshall Park. Use with greater than *de minimis* impact of 7 historic sites[h] and the Fort Vancouver NHS.

0 Community and Environmental Effect	1 No-Build Alternative	2 *IBR Program Recommended Design Options* - Modified LPA with Single-Level Fixed-Span Configuration, One Auxiliary Lane, with C Street Ramps, Centered I-5, and All Five Park and Rides [a, b]	3 Modified LPA with Double-Deck Fixed-Span Configuration, One Auxiliary Lane, with C Street Ramps, Centered I-5, and All Five Park and Rides [a]	4 Modified LPA with Single-Level Fixed-Span Configuration, Two Auxiliary Lanes, with C Street Ramps, Centered I-5, and All Five Park and Rides [a, b]	5 Modified LPA with Single-Level Fixed-Span Configuration, One Auxiliary Lane, with C Street Ramps, I-5 Westward Shift, and All Five Park and Rides [a, b]	6 Modified LPA with Single-Level Movable-Span Configuration, One Auxiliary Lane, with C Street Ramps, Centered I-5, and All Five Park and Rides [a]	7 Modified LPA with Single-Level Fixed-Span Configuration, One Auxiliary Lane, without C Street Ramps, Centered I-5, and All Five Park and Rides [a, b]
		• Total use of 7.7 acres. • The total area of permanent incorporation of the VHNR Historic District would fall near the middle of the range in comparing all design options (0.7 acres). Adverse effects to 14 contributing resources in the VNHR Historic District; acquisitions primarily from noncontributing resources. Severe remaining harm to the northbound Interstate Bridge and Oregon-side resources, which would be demolished.	• Total use of 7.7 acres. • The total area of permanent incorporation of the VNHR Historic District would fall near the middle of the range in comparing all design options (0.7 acres plus 100 square feet more). Same remaining harm to the northbound Interstate Bridge and Oregon-side resources as Column 2, which would be severe. The double-deck fixed-span configuration would be more visible from the VNHR Historic District than the single-level design option.	• Total use of 7.7 acres. • The total area of permanent incorporation of the VNHR Historic District would fall near the middle of the range in comparing all design options (0.7 acres). Same remaining harm to the northbound Interstate Bridge and Oregon-side resources as Column 2, which would be severe.	• Total use of 8.1 acres, the most of all alternatives. • Less harm to the VNHR Historic District than Column 2 due to avoided demolition of Army Road System and reduced vibration risk to NCO Quarters Family Quarters Buildings. Less use of the VNHR Historic District than Column 2 (difference of 0.20 acres). • Same remaining harm to the northbound Interstate Bridge and Oregon-side resources as the Modified LPA, which would be severe. • Severe remaining harm to the Normandy Apartments, which would be demolished.	• Total use of 7.7 acres. • The total area of permanent incorporation of the VNHR Historic District would fall near the middle of the range in comparing all design options (0.7 acres). Same remaining harm to the northbound Interstate Bridge and Oregon-side resources as Column 2, which would be severe.	• Total use of 7.7 acres. • More permanent incorporation of the VNHR Historic District than the Modified LPA with C Street ramps design option (difference of 0.02 acres); Fort Vancouver NHS would have an additional 0.03 acres of incorporation. No change to the use or harm to contributing resources within VNHR Historic District as compared to Column 2. Same remaining harm to the northbound Interstate Bridge and Oregon-side resources as Column 2, which would be severe.

Notes: The design option combinations shown in columns 2 through 7 are those that would have differing effects on community and environmental resources; other combinations of design options would have the same effects as those described in columns 2 through 7. Underlined design options in columns 3 through 7 identify how that particular design option combination differs from the Recommended Design Options in column 2, and the description of effects in columns 3 through 7 are in comparison to the Modified LPA with Recommended Design Options in column 2 unless otherwise stated. All projections and forecasts are for the design year of 2045 unless otherwise stated.

a Totals shown in this table include all five park and rides. These totals could decrease if only one park and ride is established at each of the LRT stations.

b The effects associated with the single-level fixed-span configuration would be the same for all bridge type options.

c Parcel impacts, displacements, or total acreage are only counted once when more than one mode (highway, transit, or bicycle and pedestrian) results in the same or overlapping acquisitions.

d Does not include WSDOT or ODOT-owned property or right of way, City-owned right of way, or in-water leases.

e Total PM_{10} emissions are the sum of PM_{10} exhaust, PM_{10} brake wear, and PM_{10} tire wear.

f Total $PM_{2.5}$ emissions are the sum of $PM_{2.5}$ exhaust, $PM_{2.5}$ brake wear, and $PM_{2.5}$ tire wear.

g CIA was calculated for the Draft SEIS and assumed a double-deck fixed-span bridge configuration, two auxiliary lane, I-5 westward shift, and without C street ramp design options. Due to the high-level assumptions used to estimate CIA, the CIA was recalculated for the Recommended Design Options (Column 2). The effects for Columns 4, 5, and 7 assume a double-deck fixed-span configuration. All calculations are based on conceptual design. The Modified LPA and all the design options would treat all stormwater runoff.

h Historic sites with greater than de minimis impact include Harbor Shops (OR 107), Jantzen Beach Water Tank (OR 109) Jantzen Beach Moorage (OR 111), Northbound Interstate Bridge (OR 50), Normandy Apartments (WA 149), Bridge Substation (WA 1192), and the Vancouver National Historic Reserve historic properties (WA 1357, 369, 369, 918, 1358, 1359).

Key: AVE = Area of Visual Effect; BMP = best management practice; CIA = Contributing impervious area; CO = carbon monoxide; EMF = electric and magnetic fields; FLP = Federal Lands to Parks; I = Interstate; lbs = pounds; LPA = Locally Preferred Alternative; LU = Landscape Unit; mmBtu = one million British thermal units; MSAT = mobile source air toxics; N/A = not applicable; NCO = Noncommissioned Officer; NO_2 = nitrogen dioxide; NO_X = oxides of nitrogen; NHS = National Historic Site; NRHP = National Register of Historic Places; ODOT = Oregon Department of Transportation; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter; VMT = vehicle miles traveled; VNHR = Vancouver National Historic Reserve; VOC = volatile organic compounds; WSDOT = Washington Department of Transportation;

What avoidance, minimization, and mitigation measures are proposed for adverse impacts?

This section summarizes the proposed measures to avoid, minimize, and mitigate adverse community and environmental effects that would occur as a result of the Modified LPA. Avoidance, minimization and mitigation measures would be adjusted as needed for differences in effects associated with the design options. The IBR Program would comply with all environmental laws and obtain necessary permits that outline protections for local air quality, water quality, fish and wildlife, and community livability (e.g., noise levels, light and glare, dust, etc.) during construction. Table 5 highlights the avoidance, minimization, and mitigation measures proposed for the effects described in Table 3 and Table 4. Chapter 3, Existing Conditions and Environmental Consequences, and Appendix M, Mitigation and Commitment Matrix, provide more detail on the proposed measures.

Table 5. Summary of Avoidance, Minimization, and Mitigation Measures

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
1	Acquisitions	Temporary	Temporary property use during construction	In compliance with 23 Code of Federal Regulations (CFR) Part 710; the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (URA), as amended; the Washington State Department of Transportation's (WSDOT) Standard Specifications for Road, Bridge, and Municipal Construction (M41-10) and Revised Code of Washington (RCW) 47; and Oregon Department of Transportation's (ODOT) 2024 Standard Specifications for Construction and Oregon Revised Statutes (ORS) 35, ODOT and WSDOT will develop approaches to manage temporary construction easements as part of the overall IBR Program right of way plan. The plan will identify measures that would be required for contractors to avoid, minimize, and/or mitigate for impacts to property temporarily used for construction.
2	**Acquisitions** Economics Neighborhoods	Temporary	Disruption to property access during construction.	In compliance with the URA, ODOT and WSDOT will maintain continued access to properties during construction to the extent possible. If continued access cannot be provided, the property owner is entitled under the URA to just compensation for the period of time of the closure. Depending on the length of the closure, loss of access could also trigger temporary relocation for any occupants. Specific provisions will be detailed in the IBR Program right-of-way plan and/or specifications.
3	**Acquisitions** Neighborhoods	Temporary	Use of property during construction	In compliance with the URA; WSDOT's Standard Specifications for Road, Bridge, and Municipal Construction (M41-10) and RCW 47; and ODOT's 2024 Standard Specifications for Construction and ORS 35, ODOT and WSDOT will mitigate for construction easements through payment to property owners in exchange for the use of their property during construction. Site impacts from temporary construction uses will be restored and property owners compensated according to fair market value.

[16] When a measure applies to multiple resource topics, the primary topic is shown in bold.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
4	**Acquisitions** Land Use Economics Neighborhoods	Long-term	Business and residential displacements before construction	Under the URA, when property acquisition and residential or business displacements are unavoidable, ODOT and WSDOT will provide affected property owners with just compensation, and affected occupants will receive relocation assistance. Properties will be purchased by ODOT and WSDOT at fair market value. Eligible and displaced residential occupants resulting from the Modified Locally Preferred Alternative (LPA) will be provided with decent, safe, and sanitary replacement housing.
5	Acquisitions	Long-Term	Property acquisition before construction	ODOT and WSDOT will notify affected property owners that the IBR Program is planning to acquire their property following the Program's schedule for acquisitions.
6				In compliance with 23 United States Code (U.S.C.) §§ 107 and 317, ODOT and WSDOT will involve the U.S. General Services Administration in any property acquisition related to the acquisition of federally owned property. No other Federal agency landowners would be affected.
7				Under the URA, as amended, ODOT and WSDOT will compensate property owners for loss of deeded reservations of access. The amount of compensation will be determined during the appraisal process by analyzing the value of the property with and without comparable access point(s), in compliance with the Uniform Standards of Professional Appraisal Practice. Access points that are not at a deeded reservation location may be closed or relocated through police power if reasonable alternative access is available.
8	Acquisitions	Long-Term	Occupant displacement before construction	Under the URA, even though some displaced occupants may choose to leave the area, finding sufficient and affordable housing for those affected by the IBR Program could remain a challenge. If sufficient comparable replacement housing is not available, ODOT and WSDOT will commit to last resort housing in compliance with the URA's requirements for decent, safe, and sanitary housing.
9	Acquisitions	Long-Term	Relocation of floating homes before construction	Under the URA, as amended, floating homes will be provided relocation assistance to relocate to moorage withing the area if available, which may include a supplement payment for moorage. If homes are not moved, ODOT or Tri-County Metropolitan Transportation District of Oregon (TriMet) will purchase the floating homes at fair market value and provide relocation assistance, which may include payments, if necessary, to confirm compliance with URA's requirements for decent, safe, and sanitary housing.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
10	**Air Quality** Aviation Neighborhoods	Temporary	Increased particulate matter and exhaust emissions during construction	For construction in Washington, WSDOT will coordinate with the contractor to comply with the following standard and regulatory air quality measures during construction: • WSDOT Standard Specifications for Road, Bridge, and Municipal Construction, Section 1.07.5(4). • Fugitive dust control best management practices (BMPs) set forth in the Associated General Contractors of Washington Education Foundation and Fugitive Dust Task Force pamphlet, "Guide to Handling Fugitive Dust From Construction Projects."
11				For construction in Oregon, ODOT will coordinate with the contractor to comply with the following standard and regulatory air quality measures during construction: • Division 208 of Oregon Administrative Rules (OAR) 340. • ODOT Standard Specifications Section 290. • The Clean Diesel Construction Standard (OAR-731-005-0800). • Oregon House Bill 2007, known as the "Clean Diesel Bill." • The City of Portland Clean Air Construction Program to reduce diesel emissions by implementing a standard set of idle reduction and diesel equipment requirements on job sites.
12	**Air Quality** Neighborhoods	Temporary	Emissions within communities and residential areas from construction vehicles	ODOT and WSDOT will develop contract specifications that will minimize impacts to surrounding communities such as by using newer low-emitting construction equipment and electric equipment, and avoiding haul routes through residential areas when feasible.
13	Aviation	Temporary	Aviation obstruction during construction	In the area of demolition of the Interstate Bridge and construction activities for the Columbia River bridges and the State Route (SR) 14 interchange, ODOT and WSDOT will coordinate with the contractor to prepare the Federal Aviation Administration (FAA) Advisory Circular (AC) 70/7460-1M for FAA approval. Means and methods proposed by the contractor will be modified to mitigate and address FAA comments, like the locations of tall cranes near Pearson Field.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
14	Aviation	Temporary	Electronic device interference with aviation during construction	ODOT and WSDOT will coordinate with the contractor to implement construction specifications to confirm that contractors working near Pearson Field will not use any electronic devices that interfere with equipment required for air navigation and communication as specified in FAA Order 6050.32B "Spectrum Management Regulations and Procedures Manual."
15	Aviation	Temporary	Stormwater facilities becoming a Hazardous Wildlife Attractant during construction	ODOT and WSDOT will coordinate with the contractor to identify Modified LPA stormwater facilities within 5,000 feet of Pearson Field's Runway 8 that are likely to need modifications/treatments to avoid becoming a Hazardous Wildlife Attractant. WSDOT's Aviation Stormwater Design Manual (2008) and FAA AC 150/5200-33C "Hazardous Wildlife Attractants on or Near Airports" will be followed in this area to eliminate hazards to airports.
16	Aviation	Temporary	Obstruction hazard to aviation	ODOT and WSDOT will coordinate with the contractor to conduct outreach before and during construction to provide information to pilots on findings or recommendations following the FAA's review of the FAA AC 70/7460-1M, including any temporary obstruction proposed by the contractors.
17	Aviation	Long-Term	Obstruction hazard to aviation	During final design, ODOT and WSDOT will comply with the FAA's findings in response to the IBR Program's Form 7460-1. The FAA will issue a finding of "hazard to aviation" or "no hazard to aviation" upon completion of the aeronautical review.
18				ODOT and WSDOT will provide design plans to FAA to develop revised flight procedures to address changes in departure gradient requirements.
19				ODOT and WSDOT will follow FAA requirements for marking obstacles; this will likely include design, marking, and maintenance according to FAA AC 70/7460-1M "Obstruction Marking and Lighting" using equipment specified in FAA AC 150/5345-43J "Specification for Obstruction Lighting Equipment."
20	Aviation	Long-Term	Glare affecting aviation activities	ODOT and WSDOT will design roadway or accent lighting on the bridges and surrounding interchanges to limit light or glare that could affect aviation at Pearson Field or Portland International Airport, as feasible.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
21	Aviation	Long-Term	Stormwater facilities and offsite mitigation sites becoming a Hazardous Wildlife Attractant	ODOT and WSDOT will coordinate with the contractor to identify Modified LPA stormwater facilities within 5,000 feet of Pearson Field's Runway 8 that are likely to need modifications/treatments to avoid becoming a Hazardous Wildlife Attractant. WSDOT's Aviation Stormwater Design Manual (2008) and FAA AC 150/5200-33C "Hazardous Wildlife Attractants on or Near Airports" will be followed in this area to eliminate hazards to airports. Offsite wetlands mitigation sites will also conform with the FAA's guidance in AC 150/5200-33C.
22	Aviation	Long-Term	Birds roosting in proposed structures during construction	ODOT and WSDOT will incorporate modern construction materials and designs of proposed structures and features that minimize locations for birds to roost or nest, as feasible.
23	Aviation	Temporary	Dust, glare, and smoke obstructions for aviation during construction	ODOT and WSDOT will coordinate with the contractor to apply dust control measures such as watering exposed soil and using gravel surfacing on temporary construction roads. The Air Quality Technical Report lists dust control requirements in both Oregon and Washington. Construction materials and activities will be managed to minimize glare and smoke.
24	Cultural Resources	Temporary and Long-Term	Adverse effects to historic properties	Refer to the Section 106 Programmatic Agreement in Appendix N for mitigation to resolve adverse effects to historic properties.
25	Cultural Resources	Temporary	Effects to the Vancouver Barracks National Cemetery during construction	WSDOT will avoid effects to the Vancouver Barracks National Cemetery at East Fourth Plain Boulevard by preserving character-defining features along E Fourth Plain Boulevard within the temporary construction easement. This includes preservation of the perimeter fence, cobblestone wall with gates, perimeter road, and planting inside the boundary fence, consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties.
26	Cultural Resources	Temporary	Effects to the Mickler House	WSDOT will reconstruct the fence, if necessary, at the Mickler House at 901 East 29th Street following project completion. WSDOT will minimize to the maximum extent possible the effects to the existing walkway and curb when implementing Americans with Disabilities Act (ADA) design efforts.
27	Cultural Resources	Temporary	Adverse effects to Fort Vancouver National Historic Site	WSDOT will protect two historic trees in the allée, which are contributing components associated with the Fort Vancouver National Historic Site, consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
28	Cultural Resources	Temporary	Effects to the House of Providence during construction	WSDOT will minimize effects to the House of Providence, 400 East Evergreen Boulevard, by restoring to preconstruction conditions the character-defining features of the House of Providence located within the temporary construction easement along the southern property boundary at East Evergreen Boulevard, consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties.
29	Cultural Resources	Temporary	Effects to the Duplex Residence at 2901 K Street during construction	WSDOT will minimize effects to the Duplex Residence at 2901 K Street by restoring the grass lawn within the temporary construction easement that extends into the property's southwest corner to its preconstruction state. This includes replacing in-kind the lawn and preserving one mature ornamental shrub that would not be removed during construction, consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties.
30	Economics	Temporary	Disruption to railway lines during construction	ODOT and WSDOT will coordinate with the contractor to design construction schedules to minimize temporary impacts to BNSF Railway lines and service frequency, as feasible.
31	Economics	Temporary	Freight delays during construction	ODOT and WSDOT will work with the contractor to coordinate with the Ports of Portland and Vancouver to identify ways to minimize delays for commercial freight vehicles during construction, as feasible.
32	Economics	Temporary	Disruption to freight and business operations during construction	ODOT and WSDOT will work with the contractor to conduct outreach to businesses in areas with high volumes of freight traffic as construction plans and detours are developed to minimize the impact to their business operations, inform them of detours, and help keep freight moving during construction.
33	Economics	Long-Term	Disruptions to marine cargo transport during construction	ODOT and WSDOT will continue to work with the U.S. Coast Guard (USCG) and the U.S. Army Corps of Engineers (USACE) to help confirm that the potential for effects on river users is addressed through the agencies' permitting processes.
34	**Economics** Land Use	Temporary	Disruption to local businesses operations during construction	ODOT and WSDOT will coordinate with the contractor to reduce potential impacts to local businesses by implementing a construction schedule that avoids or minimizes complete closures of roads and access points to local businesses, as feasible.
35	Economics	Temporary	Disruption to business access during construction	ODOT and WSDOT will conduct outreach to businesses, in coordination with local jurisdictions, affected by construction as roadway closures and detours are identified to minimize impacts to their businesses.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
36	Ecosystems	Temporary	Disruption to aquatic, terrestrial, and botanical resources during construction	ODOT and WSDOT will coordinate with the contractor to perform all construction activities according to the requirements and conditions of the regulatory permits that are issued for the Modified LPA.
37				In compliance with ODOT and WSDOT policy and construction administration practice in Oregon and Washington, ODOT and WSDOT will have one or more state Department of Transportation inspectors on site during construction. The role of the inspector(s) will be to monitor compliance with contract and permit requirements.
38	Ecosystems	Temporary	Release of construction materials or waste, or sediment disturbance, that affects aquatic ecosystems during construction	ODOT and WSDOT will prepare a Water Quality Monitoring and Protection Plan (WQMPP) to satisfy the monitoring and reporting requirements of the 401 Water Quality Certifications that would ultimately be issued for the project. The WQMPP will be provided to applicable agencies for review and approval prior to implementation. The WQMPP will identify the timing and methodology for water-quality sampling during construction of the Modified LPA, as well as methods of implementation and reporting.
39	Ecosystems	Temporary	Disruption to aquatic ecosystems along the Columbia River bottom	ODOT and WSDOT will coordinate with the contractor to prohibit work barges from grounding out.
40	Ecosystems	Temporary	Contamination of aquatic ecosystems during construction	Dispose of excess or waste materials in an appropriate manner consistent with applicable local, state, and federal regulations, do not dispose of or abandon waterward of the ordinary high water mark (OHWM) or allow to enter waters of the state.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
41	Ecosystems	Temporary	Fish in the Columbia River impacted by pumps during construction	ODOT and WSDOT will coordinate with the contractor to confirm that all pumps employ a fish screen that meets the following specifications: • An automated cleaning device with a minimum effective surface area of 2.5 square feet per cubic foot per second and a nominal maximum approach velocity of 0.4 feet per second, or no automated cleaning device, a minimum effective surface area of 1 square foot per cubic foot per second and a nominal maximum approach rate of 0.2 feet per second; and • A round or square screen mesh that is no larger than 0.094 inches (2.38 millimeters [mm]) in the narrow dimension, or any other shape that is no larger than 0.069 inches (1.75 mm) in the narrow dimension; and • Each fish screen must be installed, operated, and maintained according to National Oceanic and Atmospheric Administration (NOAA) Fisheries fish screen criteria.
42	Ecosystems	Temporary	Erosion and sediment disturbance to aquatic and terrestrial ecosystems during construction	ODOT and WSDOT will coordinate with the contractor to designate at least one employee as the erosion and sediment control (ESC) lead. The ESC lead will be responsible for the implementation of the spill prevention, control, and countermeasure (SPCC) plan and pollution control plan (PCP).
43	Ecosystems	Temporary	Contamination of aquatic and terrestrial ecosystems from a spill of hazardous materials during construction	ODOT and WSDOT will coordinate with the contractor to maintain applicable spill response equipment and material designated in the SPCC plan and PCP at the job site.
44	Ecosystems	Temporary	Contamination of aquatic ecosystems from a spill of hazardous materials during construction	With the exception of barges and stationary large equipment (e.g., cranes, oscillators) operating from barges or work platforms, ODOT and WSDOT will coordinate with the contractor to fuel and maintain equipment at least 150 feet from the OHWM of any waterbody using secondary containment to minimize potential for spills or leaks entering the waterway.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
45	Ecosystems	Temporary	Contamination of aquatic or terrestrial ecosystems from hazardous materials leaking from construction equipment during construction	ODOT and WSDOT will coordinate with the contractor to implement inspection and cleanup procedures identified in the SPCC plan and PCP. All equipment to be used for construction activities will be cleaned and inspected prior to arriving at the project site, to confirm that no potentially hazardous materials are exposed, no leaks are present, all equipment is free of noxious weeds (or other invasive plants or animals), and all equipment is functioning properly. Should a leak be detected on heavy equipment used for the project, ODOT and WSDOT will coordinate with the contractor to immediately remove the equipment from the area, and not use the equipment again until it is adequately repaired.
46				Where off-site repair for heavy equipment leakage is not practicable, ODOT and WSDOT will coordinate with the contractor to prepare the SPCC plan and PCP to document measures to be implemented to prevent and/or contain accidental spills in the work/repair area to confirm that no contaminants escape containment to surface waters and cause a violation of applicable water-quality standards.
47	Ecosystems	Temporary	Contamination of aquatic ecosystems from construction equipment during construction	ODOT and WSDOT will coordinate with the contractor to confirm that only barges and support vessels will be operated in the water. Other construction equipment will be operated from on top of floating barges, the decks of temporary work bridges and platforms, the decks of the existing or replacement bridges, or areas above the OHWM.
48				ODOT and WSDOT will coordinate with the contractor to provide suitable containment measures for all equipment (including barges, work decks, stationary power equipment, and storage facilities) consistent with the SPCC plan and PCP to prevent and/or contain accidental spills to confirm no contaminants escape containment to surface waters and cause a violation of applicable water-quality standards.
49	Ecosystems	Temporary	Disruption to aquatic ecosystems by in-water construction structures during high-water events	ODOT and WSDOT will coordinate with the contractor to design and install temporary work bridges and platforms, cofferdams, and drilled shaft isolation casings consistent with the ODOT Hydraulics Manual, which establishes criteria to avoid these structures being overtopped during high-water events.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
50	Ecosystems	Temporary	Contamination of aquatic and terrestrial ecosystems from construction runoff	ODOT and WSDOT will coordinate with the contractor to require that process water generated on site from construction, demolition, or washing activities will be contained and treated to meet applicable water-quality standards before entering or reentering surface waters.
51	Ecosystems	Temporary	Contamination of aquatic and terrestrial ecosystems from paving, chip sealing, or painting activities during rain or wet weather	ODOT and WSDOT will coordinate with the contractor to confirm that paving, chip sealing, or stripe painting activities will not be conducted during periods of rain or wet weather.
52	Ecosystems	Temporary	Contamination of aquatic or terrestrial ecosystems from the cleaning of concrete equipment	ODOT and WSDOT will coordinate with the contractor to establish a concrete truck chute cleanout area consistent with the SPCC plan and PCP to properly contain wet concrete as part of ODOT Standard Specification 00290.30(a).
53	Ecosystems	Temporary	Vegetation clearing and erosion disrupts the ecosystem function and habitat of wetland and streams during construction	In compliance with the erosion and sediment control plan (ESCP), ODOT and WSDOT will coordinate with the contractor to delineate clearing limits by installing orange barrier fencing prior to vegetation clearing within or adjacent to a stream/wetland or its buffer and install perimeter protection/silt fence as needed to protect surface waters and other critical areas. For additional silt fence detail, consult ODOT Standard Specification 00280.16(c).
54	Ecosystems	Temporary	Disruption to aquatic, terrestrial, and botanical resources from damage to protection measures during construction	ODOT and WSDOT will coordinate with the contractor to inspect, maintain, and repair the ESCP measure as described in applicable permit requirements and ODOT Standard Specifications 00280.60 to 00280.70.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
55	Ecosystems	Temporary	Chemical and/or debris releases affects the ecosystem function and habitat of surface waters during construction	For landward construction and demolition, ODOT and WSDOT will coordinate with the contractor to locate project staging and material storage areas a minimum of 150 feet from surface waters, in currently developed areas such as parking lots or managed fields, unless a site visit by an ODOT/WSDOT biologist determines (and an ODOT/NOAA Fisheries liaison confirms) that the topographic features or other site characteristics allow for site use closer to the edge of surface waters.
56	Ecosystems	Temporary	Erosion and sediment disturbance of aquatic ecosystems during construction	ODOT and WSDOT will coordinate with the contractor to complete excavation activities under dry or dewatered conditions where practicable. Where dewatering requires the use of cofferdams and/or berms, these structures will be constructed of sandbags, clean rock, steel sheeting, or other non-erodible material.
57	Ecosystems	Temporary	Damage to river bank and aquatic ecosystem function and habitat during construction	ODOT and WSDOT will coordinate with the contractor to limit bank shaping to the extent as shown on the approved grading plans. Minor adjustments made in the field will occur only after engineer's review and approval.
58	Ecosystems	Temporary	Potential for non-degradable debris from erosion and sediment control materials entering aquatic ecosystems during construction	ODOT and WSDOT will coordinate with the contractor to install bio-degradable erosion control blankets on areas of disturbed ground with slopes of 1V:3H or steeper and within 150 feet of surface waters. For additional erosion control blanket detail, consult ODOT Standard Specification 00280.14I.
59	Ecosystems	Temporary	Erosion and sediment disturbance to surface water ecosystem function and habitat during construction	ODOT and WSDOT will coordinate with the contractor to cover erodible materials (material capable of being displaced and transported by rain, wind or surface water runoff) as prescribed in the ESCP to prevent sediments from being washed from the storage area to surface waters. For additional detail, consult, ODOT Standard Specification 00280.42.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
60	Ecosystems	Temporary	High noise and vibration levels associated with vibratory hammer operations affect aquatic and terrestrial species during construction	ODOT and WSDOT will coordinate with the contractor to use a vibratory hammer to drive steel piles to the maximum extent practicable, to minimize noise levels.
61	Ecosystems	Temporary	High noise and vibration levels associated with impact pile driving activities below the OHWM affect aquatic species during construction	ODOT and WSDOT will coordinate with the contractor to conduct impact pile driving below the OHWM only between September 15 and April 15. Vibratory pile installation and removal (as well as certain other in-water construction activities) may occur on a year-round basis, provided they are conducted in compliance with all regulatory approvals.
62	Ecosystems	Temporary	High noise and vibration levels associated with impact pile driver affect aquatic species during construction	ODOT and WSDOT will coordinate with the contractor to operate no more than two impact pile drivers simultaneously within the same waterbody channel.
63				ODOT and WSDOT will coordinate with the contractor to employ a bubble curtain or other similarly effective noise attenuation device during all impact pile driving conducted in water depths greater than 0.67 meters (2 feet).
64	Ecosystems	Temporary	High noise levels associated with impact pile driving affect aquatic species during construction	ODOT and WSDOT will coordinate with the contractor to develop and implement a hydroacoustic monitoring plan, to allow the predicted noise attenuation levels and the effectiveness of the noise attenuation devices to be field verified. ODOT and WSDOT will develop the plan based on the template developed by the Fisheries Hydroacoustic Working Group, in coordination with the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA). ODOT and WSDOT will provide the plan to NOAA Fisheries for review and approval prior to any impact pile-driving activity commencing.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
65	Ecosystems	Temporary	Disruption to marine mammals during construction	ODOT and WSDOT will coordinate with the contractor to implement the marine mammal monitoring plan as required by the Letter of Authorization issued by NOAA's Office of Protected Resources.
66	Ecosystems	Temporary	Predation from piscivorous birds perching on temporary work structures	ODOT and WSDOT will coordinate with the state wildlife agencies and contractor to determine and install appropriate deterrents or other anti-perching devices on temporary work structures and open-ended pipe piles to discourage perching by piscivorous birds. ODOT and WSDOT will require that the contractor monitor and manage temporary work structures to not allow for extensive perching by piscivorous birds, including during periods of non-use.
67	Ecosystems	Temporary	Contamination of aquatic or terrestrial ecosystems from release of demolition waste during construction	ODOT and WSDOT will coordinate with the contractor to remove temporary piles with a vibratory hammer, or by direct pulling, and prohibit the intentionally breaking of piles by twisting or bending.
68				In the event a temporary pile cannot be removed, ODOT and WSDOT will direct the contractor to cut or press the pile 3 feet below the mudline. At locations where hazardous materials are present or adjacent to utilities, ODOT and WSDOT may allow the contractor to cut the temporary piles at the mud line with underwater torches, if ODOT and WSDOT determine that such activity would not conflict with navigation.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
69	Ecosystems	Temporary	Potential loss of fish during fish salvage	ODOT and WSDOT will coordinate with the contractor to develop and implement a Temporary Water Management Plan, consistent with the requirements of ODOT Special Provision Section 00245.03. ODOT and WSDOT will coordinate with the contractor to provide the Temporary Water Management Plan to NOAA Fisheries for review and approval prior to any work area isolation or fish salvage activities.
70				ODOT and WSDOT will coordinate with the contractor to install cofferdams and isolation casings in a manner that minimizes fish entrapment and install sheet piles from upstream to downstream, lowering the sheet piles slowly until they make contact with the substrate.
71				ODOT and WSDOT will coordinate with the contractor to install screens (3/32 inch [2.38 mm] on a diagonal) at the bottom of drilled shaft isolation casings prior to installation, to minimize potential for fish entrapment during installation.
72				ODOT and WSDOT will coordinate with the contractor to conduct fish salvage according to the best practices established in the Biological Opinion for ODOT's Federal-Aid Highway Programmatic consultation.
73				ODOT and WSDOT, in coordination with the contractor, will have a qualified fishery biologist conduct and supervise fish capture and release activity to minimize risk of injury to fish.
74				ODOT and WSDOT will prepare a fish salvage report and submit to NOAA Fisheries, U.S. Fish and Wildlife Service (USFWS), Oregon Department of Fish and Wildlife (ODFW), and Washington Department of Fish and Wildlife (WDFW) following project completion.
75				ODOT and WSDOT will coordinate with the contractor to make a reasonable effort to capture Endangered Species Act-listed fish known or likely to be present in an in-water isolated work area using methods that minimize the risk of injury.
76				If electrofishing must be used, ODOT and WSDOT will coordinate with the contractor to conduct consistent with NOAA Fisheries "Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act" (NOAA Fisheries 2000), or most recent version.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
77	Ecosystems	Temporary	Disturbance to aquatic and terrestrial ecosystems during construction	ODOT and WSDOT will avoid and minimize short-term impacts to ecosystem resources in final design to the extent practicable.
78	Ecosystems	Temporary	Disruption to terrestrial habitats during construction	ODOT and WSDOT will coordinate with the contractor to restore temporarily disturbed terrestrial habitats consistent with applicable regulatory requirements.
79	Ecosystems	Temporary	Disruption to aquatic, terrestrial, and botanical ecosystems during construction	ODOT and WSDOT will provide compensatory mitigation for unavoidable impacts to ecosystem resources, consistent with applicable federal, state, and local regulatory requirements.
80	Ecosystems	Temporary	Disruption to migratory bird nesting during construction	ODOT and WSDOT will coordinate with the contractor to conduct activities with the potential to impact nesting migratory birds, such as nest removal, consistent with the provisions of the Migratory Bird Treaty Act, which requires nests of migratory birds to be removed only at times when nests are inactive.
81	Ecosystems	Long-Term	Contamination of aquatic or terrestrial ecosystems from potential increase in pollutants entering stormwater	ODOT and WSDOT will provide stormwater quality and quantity treatment that meets or exceeds applicable regulatory requirements for all post-project Contributing Impervious Area.
82	Ecosystems	Long-Term	Disruption to aquatic, terrestrial, and botanical resources	ODOT and WSDOT will provide compensatory mitigation for unavoidable impacts to ecosystem resources, consistent with applicable federal, state, and local regulatory requirements.
83	Ecosystems	Long-Term	Disturbance to aquatic and terrestrial resources	ODOT and WSDOT will avoid and minimize long-term impacts to ecosystem resources in final design to the extent practicable.
84	Ecosystems	Long-Term	Loss of function of aquatic or terrestrial ecosystem resources	ODOT and WSDOT will prepare a compensatory mitigation plan that satisfies applicable federal, state, and local regulatory requirements, and that demonstrates no net loss of function of ecosystem resources.

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85	Ecosystems	Long-Term	Removal of existing peregrine falcon nest	ODOT and WSDOT will design and coordinate with the contractor to install an alternate nesting structure within the vicinity, to offset removal of an existing peregrine falcon nest from demolition of the existing Interstate Bridge, as and where feasible.
86	Ecosystems	Long-Term	Predation from avian perching and nesting on the shaft caps and replacement bridge structure	ODOT and WSDOT will coordinate with WDFW and ODFW during final bridge design for recommendations to reduce the potential for and/or extent of pinniped and avian perching on the shaft caps and avian nesting and perching on the replacement bridge structure. ODOT and WSDOT will evaluate recommendations for feasibility and incorporate them into final design to the extent practicable.
87	**Ecosystems** Parks and Recreation Visual Quality	Temporary	Increased noise levels, light, and glare on aquatic and terrestrial ecosystem and surrounding neighboring viewers during nighttime construction.	ODOT and WSDOT will coordinate with the contractor to conduct construction activities consistent with local, state and federal permit restrictions for allowable work hours. If temporary lighting is required, contractors will use directional lighting with shielded luminaries to control glare and direct light onto work area, not surface waters or sensitive neighboring viewers.
88	Energy	Temporary	Energy consumption by vehicles and equipment during construction	In Oregon, ODOT will comply with ODOT Standard Specifications Section 290. In Washington, WSDOT will comply with WSDOT Standard Specifications for Roads, Bridge, and Municipal Construction, Section 1.07.5(4).
89	Energy	Temporary	Energy consumption during construction	As feasible, ODOT and WSDOT will coordinate with the contractor to continue to consider advances in energy-reducing or energy-saving materials and methods including: • Sourcing building and paving materials from local sources that require shorter distances for transport to the project site. • In-place recycling of asphalt surfaces. • Warm-mix asphalt technologies. • Other innovative methods that encourage use of recycled materials.

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90	Energy	Long-Term	Energy consumption from highway and transit operations including lighting and other components	ODOT and WSDOT will coordinate with TriMet and Clark County Public Transit Benefit Area Authority (C-TRAN) to use energy-efficient electrical systems for lighting, transit stations and other electrical needs to decrease energy consumption, where feasible.
91	Energy	Temporary	Energy: Increase in energy usage and emissions from vehicle idling, backups, and traffic delays	ODOT and WSDOT will coordinate with the contractor to ensure that all work in Washington and Oregon will follow applicable state policies and procedures including: • Minimize delays to traffic during peak travel times. • Minimize unnecessary idling of on-site diesel construction equipment. • Educate vehicle operators to shut off equipment when not in active use to reduce emissions from idling. • Prepare a traffic control plan with detours and strategic construction timing (e.g., night work) to move traffic through the area and reduce backups and delays to the traveling public to the extent practicable.
92	Geology and Groundwater	Temporary	Erosion and stormwater pollution during construction	ODOT and WSDOT will coordinate with the contractor to prepare and implement erosion control and stormwater pollution prevention plans and grading plans during construction. Plans will adhere to ODOT and WSDOT guidelines.
93	Geology and Groundwater	Temporary	Discharge to stormwater and groundwater during construction	ODOT and WSDOT will coordinate with the contractor to prepare and implement stormwater discharge permits before and during construction.
94	Geology and Groundwater	Long-Term	Construction and maintenance of stormwater mitigation	ODOT, WSDOT, and the contractor will coordinate with applicable agencies, for example the City of Vancouver Public Works Water, Sewer and Stormwater Division, City of Portland Environmental Services, and other relevant municipal agencies in Gresham. Coordination will be for inspection and observation monitoring of Modified LPA stormwater mitigation installations and operations to confirm that appropriate construction and maintenance measures are being taken.
95	Geology and Groundwater	Temporary	Wasted soils during construction	ODOT and WSDOT will evaluate potential reuse of existing soils during construction. Recycle or reuse aggregate, quarry rock, asphalt, and concrete materials to the extent practical.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
96	Geology and Groundwater	Long-Term	Risks from earthquakes and other seismic hazards	ODOT and WSDOT will design structures to comply with federal, state, and city building seismic codes and standards; apply advancements in earthquake science and construction materials; and update in the conceptual model.
97	Geology and Groundwater	Long-Term	Contamination of groundwater resources	ODOT and WSDOT will design systems to minimize contamination of groundwater resources in compliance with Vancouver Municipal Code (VMC) Chapter 14.26 Water and Sewers – Water Resources Protection and Portland City Code (PCC) Chapter 21.35, Wellhead Protection, and any applicable Washington and Oregon regulations, based on jurisdictions.
98	Geology and Groundwater	Long-Term	Risk of structure failure during a Cascadia-style seismic event	ODOT and WSDOT will design structures to consider the effects of seismically induced ground motions on shallow footings, retaining walls, and other structures that could increase the potential for structure failure resulting from a future seismic event.
99	Geology and Groundwater	Long-Term	Geologic concerns, such as increased erosion and scour	ODOT and WSDOT will design the Modified LPA to accommodate a range of future conditions resulting from potential geologic events or changes in total precipitation to provide resilience for geologic concerns, such as increased erosion and scour, as feasible.
100	Geology and Groundwater	Long-Term	Geologic hazards	ODOT and WSDOT will conduct site-specific assessments of existing geologic hazards such as, but not limited to, faults, ancient landslides, steep cut slopes, non-seismic settlements, and soil liquefaction during design of the Modified LPA, as feasible. Site-specific assessments should include the use of geotechnical drilling, test pitting, material testing, geophysical techniques, subsurface displacement monitoring (inclinometers), and monitoring well installation, as feasible. Assessment will include recommended options for avoiding or mitigating geologic hazards. Compliance with the Post Review Discovery Plan will be required. This plan is Attachment F of the Section 106 Programmatic Agreement, which is included as an appendix to the Final Supplemental Environmental Impact Statement (SEIS).
101	Geology and Groundwater	Long-Term	Soil settlement near flood control levees and structures	ODOT and WSDOT will coordinate with applicable agencies to consider the use of light weight fills or geoform in areas adjacent to existing flood control levees and structures to minimize the potential for settlements, as feasible.
102	Geology and Groundwater	Long-Term	Soil liquefaction and non-seismic settlements	ODOT and WSDOT will evaluate soil stabilization techniques to minimize the potential for soil liquefaction and non-seismic settlements during design of the Modified LPA. Stabilization techniques may include, but are not limited to, the use of soil mixing, compaction grouting, jet grouting, and stone columns.

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103	Geology and Groundwater	Long-Term	Contaminated groundwater infiltration to the City of Vancouver well head protection zones and Cascade Expansion groundwater protection area	ODOT and WSDOT will coordinate with applicable agencies to locate stormwater treatment facilities, to the extent possible, away from City of Vancouver well head protection zones for WS-1 and WS-3, Port of Vancouver Well 3, and the Cascade Expansion groundwater protection area in Gresham for the Ruby Junction location. Where relocation is not possible, coordinate with appropriate local agencies to design site-specific elements to minimize the infiltration of potential contaminants, treat the runoff, and/or further redirect flows away from these sensitive areas.
104	Hazardous Materials	Temporary	Release of hazardous materials from construction activities and equipment	ODOT and WSDOT will coordinate with the contractor to conduct fueling, maintenance, and cleaning in areas that are contained berms or other containment as identified in approved refueling plans.
105				ODOT and WSDOT will coordinate with the contractor to minimize the production or generation of hazardous materials, both upland and during demolition, and replacement of overwater spans.
106				ODOT and WSDOT will coordinate with the contractor to dispose of materials such as used motor oil and water-based paint at recycling centers, as appropriate.
107				In accordance with Safety Standards for Construction Work: Lead (Washington Administrative Code [WAC] 296-155) and General Occupational Health Standards: Asbestos (WAC 296-62 Part I-1, OAR 340-248), ODOT and WSDOT will coordinate with the contractor to conduct hazardous building materials surveys (HBMSs) on structures proposed for demolition prior to demolition to identify asbestos-containing materials, lead-based paint, and other hazardous materials.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
108	Hazardous Materials	Temporary	Release of hazardous materials from contaminated sites, construction activities, and equipment	ODOT and WSDOT will coordinate with the contractor to label and store contaminated media according to federal regulations.
109				ODOT and WSDOT will coordinate with the contractor to locate contaminated media (including dredge spoils) storage away from storm drains or surface water.
110				ODOT and WSDOT will coordinate with the contractor to handle potential spills of hazardous materials in conformance with applicable regulatory requirements and adhere to the Program SPCC plan.
111	Hazardous Materials	Temporary	Exposure of construction workers and other project contractors to hazardous materials which may impact human health	ODOT and WSDOT will coordinate with the contractor to prepare a Program-wide construction health and safety plan, as required by federal Occupational Safety and Health Act regulations and state regulations, to minimize the potential for exposure of construction workers to hazardous materials and the risk to human health and the environment.
112	Hazardous Materials	Long-Term	Presence of Recognized Environmental Conditions (REC) at contaminated sites	For properties where rights of entry have not yet been obtained, ODOT and WSDOT will prepare Phase II Environmental Site Assessments (ESAs) in cases where identified RECs indicate that a subsurface investigation is necessary to confirm the nature and extent of contamination and define the specific measures and applicable regulatory agency approvals needed to address the contamination. Conclusions from these investigations will provide decision-makers with a more detailed understanding of cleanup obligations and associated costs for use during the acquisition process. HBMSs may also be completed during this period to inform the acquisition process for properties with this recommendation.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
113	Hazardous Materials	Long-Term	Liability from acquired contaminated properties	ODOT and WSDOT will use conclusions and data from IBR Phase I and Phase II ESAs and existing regulatory documentation to compile potential order of magnitude costs for cleanup or remediation of properties with documented contamination.
114				ODOT and WSDOT will coordinate with the contractor to develop detailed hazardous materials management plans during final design and as part of the property acquisition process. ODOT and WSDOT will coordinate with the contractor to obtain necessary regulatory approvals to address areas where cleanup and remediation are needed.
115	Hazardous Materials	Long-Term	Contaminated material encounters	ODOT and WSDOT will coordinate with the contractor to prepare a site-specific contaminated material management plan to confirm proper characterization, management, storage, disposal, and reporting of contaminated materials encountered during construction activities.
116	**Land Use** Public Services Transportation	Temporary	Conflicting construction plans with other projects	Prior to finalizing construction plans, ODOT and WSDOT will work with agency partners to obtain information on the construction timelines for other planned projects, including those identified in the Land Use technical report, and will coordinate with those projects to develop traffic and other plans to minimize disruption.
117	Navigation	Temporary	Construction of new bridges in a navigable waterway	ODOT and WSDOT will coordinate with all IBR Program contractors to follow permit requirements for construction as detailed in the individual local, state, and federal permits and authorizations that must be obtained as part of the USCG Permit application.
118	Navigation	Temporary	Closures and limited horizontal and vertical clearances to navigation channels and turning basin during construction	ODOT and WSDOT will coordinate with USCG Captain of the Port and the USACE to prepare a Construction Sequencing Plan identifying changes to three navigation channels and the turning basin. The Plan will include all navigation channel restrictions or changes throughout construction of the new bridge and demolition of the existing bridge.
119	Navigation	Temporary	Closures and limited horizontal and vertical clearances to navigation channels and turning basin during construction	ODOT and WSDOT will coordinate with the contractor to provide construction schedule and duration information, impacts to vertical navigation clearance and horizontal navigation clearance, or other issues that may impact river users, as well as means to minimize impacts to navigation (e.g., maintaining an open channel, tug assists, etc.) to the USCG for a Local Notice to Mariners, which USCG will publish to provide information to river users prior to and during construction.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
120	Navigation	Temporary	Closures and limited horizontal and vertical clearances to navigation channels and turning basin during construction	ODOT and WSDOT will coordinate with the contractor to make a(n) assist tug(s) available to support safe navigation when vertical or horizontal clearances are reduced and assistance is needed to safely navigate the restricted channel, as required.
121	Navigation	Temporary	Closures and limited horizontal and vertical clearances to navigation channels and turning basin during construction	ODOT and WSDOT will coordinate with USACE to enable passage of the Interstate Bridge by dredge(s) during construction to support upstream dredging missions.
122	Navigation	Temporary	Navigation community would need to be aware of waterway restrictions and construction activities	ODOT and WSDOT will conduct outreach to inform the navigation community, recreational boaters, and other river users of waterway restrictions and other construction activities that may restrict or otherwise change local navigation conditions via a variety of platforms, including local maritime publications.
123	Navigation	Temporary	Presence of construction barges and equipment in and near the navigation channels	ODOT and WSDOT will coordinate with the contractor to require all construction barges to have active Automatic Identification System signals, in compliance with 33 CFR § 164.46, and coordinate with NOAA and USACE to update published navigation charts for construction channel lines. (NOAA is required to provide nautical charts per the Coast and Geodetic Survey Act of 1947.)
124	Navigation	Temporary	Closures and limited horizontal and vertical clearances to navigation channels and turning basin during construction	ODOT and WSDOT will work with the USACE and the USCG to coordinate navigation channel restrictions and closures during construction with dam lock closures. Consider seasonal factors, such as the spring freshet (high-water, high velocity conditions) and annual agricultural harvests (transport of high freight volume), to the extent feasible.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
125	Navigation	Long-Term	New bridges in a navigable waterway	ODOT and WSDOT will follow USCG requirements for visual aids when constructing the bridges and provide obstruction marking and lighting to make the river crossing structures visible to river traffic. Design roadway or accent lighting on the bridges and surrounding interchanges to limit light or glare that could affect river navigation.
126	Navigation	Long-Term	Vertical and horizontal navigation clearance for each navigation channel would change with the new Columbia River bridges	ODOT and WSDOT will coordinate with the USCG and USACE to update navigation charts and other navigation publications to reflect changes to vertical and horizontal navigation clearance for future river users.
127	Neighborhoods and Communities	Temporary	Disruption to vehicular traffic during construction	ODOT and WSDOT will use temporary signage, including variable message signs, to inform drivers of construction impacts or heavy equipment entering or leaving the roadway.
128	**Neighborhoods and Communities** Economics	Temporary	Disruption to business operations during construction	ODOT and WSDOT will provide signs for local businesses impacted by construction to alert customers of their continued operation.
129	Neighborhoods and Communities	Temporary	Changes in active transportation routes and access during construction	ODOT and WSDOT will place communication and signage for temporary routes for pedestrians and biking. Efforts will be made for wayfinding signage to be accessible, consistent, thorough, and maintained.
130	Neighborhoods and Communities	Temporary	In-water activities near floating home communities during construction	For floating home communities, ODOT will implement no wake zones, including appropriate signage for waterborne construction vessels.
131	Neighborhoods and Communities	Temporary	Displacement of people camping or occupying public rights-of-way during construction	ODOT and WSDOT will coordinate with local jurisdictions and other organizations to determine whether homeless persons living in the study area will be affected by construction activities and ensure that appropriate services are offered to people experiencing unsheltered homelessness in areas directly affected by construction activities.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
132	Neighborhoods and Communities	Temporary	Removal of landscaping during construction	ODOT and WSDOT will restore removed landscaping on properties following construction or as otherwise agreed within the property rights process, consistent with local requirements.
133	**Neighborhoods and Communities** Economics	Long-Term	New tolling implemented	Toll rates and policies implemented on the existing Interstate Bridge (pre-completion tolling) and the replacement Columbia River bridges under the Modified LPA (long-term tolling) will be jointly set by the Oregon Transportation Commission and the Washington State Transportation Commission. At the direction of the commissions, all toll scenarios under consideration for the IBR Program assume a low-income discount. Formal action will be needed by the commissions in order to implement rates and policies, including discounts and exemptions. This will occur after the completion of tolling studies following the National Environmental Policy Act (NEPA) Record of Decision.
134	**Neighborhoods and Communities** Land Use	Temporary	Highway ramp and local street closures, detours, changes in access to businesses and neighborhoods during construction	ODOT and WSDOT will hold community meetings and provide information to businesses, agencies, and community-based organizations within the greater Portland and Vancouver area before construction starts to inform residents of the construction timeline, relevant staging plans, ramp and road closures, and detour plans. ODOT and WSDOT will make traffic advisories and updates available to the public to help make travel choices and a hotline will be provided for construction information.
135	**Noise and Vibration** Cultural Resources	Temporary	Potential structural or architectural damage to historic properties from vibration during construction	WSDOT and ODOT will coordinate with the contractor to conduct continuous vibration monitoring for historic properties constructed with unreinforced masonry structural components within the vicinity of the construction footprint for the duration of Program preconstruction and construction activities, and will require the Noise and Vibration Monitoring Plan to document threshold limits, as well as requirements and protocols to achieve these limits specifically for historic properties (FTA 2018). If structural or architectural damage (such as cracked plaster, stucco, or tile) to historic properties occurs as a result of Program construction, WSDOT and ODOT, in coordination with FHWA and FTA, will notify the Washington State Department of Archaeology and Historic Preservation and/or Oregon State Historic Preservation Office, as appropriate, the other Consulting Parties, and the property owner, as appropriate, of the adverse effect on historic built environment properties, and then prepare a Treatment Plan to identify and determine any necessary repairs, consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
136	Noise and Vibration	Temporary	Noise complaints during construction	ODOT and WSDOT will evaluate and respond to noise complaints in accordance with the Noise and Vibration Monitoring Plan.
137	Noise and Vibration	Long-Term	Light-rail track operational noise	**Light-Rail:** ODOT and WSDOT, in coordination with TriMet and C-TRAN, will equip all light-rail track curves with a radius of less than 300 feet with wayside lubricators. After construction of the alignment, during the initial testing, if additional curves are identified with wheel squeal, ODOT and WSDOT, in coordination with TriMet and C-TRAN, will install wayside track lubricators, as necessary.
138	Noise and Vibration	Long-Term	Light-rail track operational noise at site LRT-1	**Interstate (I-) 5/ SR 14 Interchange – Light-Rail:** WSDOT, in coordination with TriMet and C-TRAN, will install tall traffic safety barriers or sound barriers along the elevated structure to mitigate the noise impacts at site LRT-1, which represents the Normandy Apartments. A 4-foot acoustical absorptive wall or 6-foot reflective wall, extending above the top of rail, will be effective at reducing noise levels at this location by 7 to 10 A-weighted decibels (dBA).
139	Noise and Vibration	Long-Term	Light-rail operational vibration along direct fixation track way	**I-5/SR 14 Interchange - Light Rail:** WSDOT, in coordination with TriMet and C-TRAN, will use resilient rail fasteners to mitigate vibration impacts located along direct fixation track way. Receivers LRV-1 and LRV-2, with predicted levels of 72 velocity of vibration in decibels (VdB) and 76 VdB, respectively, will be the only locations where there is still a potential for vibration impact. WSDOT will coordinate with Tri-Met and C-TRAN to perform additional testing to confirm that the vibration levels at LRV-1 and LRV-2 will be below the 72 VdB and 75 VdB FTA vibration criteria.
140	Noise and Vibration	Long-Term	Traffic noise at Newport Apartments	**Portland Mainland - Highway:** ODOT will coordinate with the contractor to design and construct Noise Wall 18, if confirmed via poll of benefited receptors.
141	Noise and Vibration	Long-Term	Traffic noise at residences (Noise Walls 4, 5, 6, 7, and 8) and offices within Fort Vancouver (Noise Wall 11A)	**Vancouver:** WSDOT will coordinate with the contractor and local jurisdictions to conduct community outreach and poll of benefited receptors, design, and reconstruct existing noise walls Noise Wall 1, Noise Wall 2, Noise Wall 3, Noise Wall 4, Noise Wall 5, Noise Wall 6, Noise Wall 7, Noise Wall 8, and Noise Wall 11A. Design and construct Noise Wall 12, if confirmed via poll of benefited receptors.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
142	Noise and Vibration	Temporary	Exceedance of noise limits during construction	In the event that construction activities exceed the noise limits in Washington set forth in Table 2-10 of the Noise and Vibration Technical Report and local jurisdiction time restrictions, WSDOT will coordinate with the contractor to request a noise variance for approval from the local jurisdiction.
143	Noise and Vibration	Temporary	Noise associated with construction equipment and operations, and building equipment	ODOT and WSDOT will coordinate with the contractor to comply with pertinent equipment noise standards of the U.S. Environmental Protection Agency (EPA) (EPA 1971).
144	Noise and Vibration	Temporary	Potential construction noise and structural or architectural damage to historic properties from vibration during construction	ODOT and WSDOT will require the contractor to prepare a Noise and Vibration Monitoring Plan to document the details of these requirements and associated protocols, including threshold limits specifically for historic properties.
145	Noise and Vibration	Temporary	Noise from construction activities in Portland Mainland and Portland/Hayden Island	**Portland Mainland, Portland/Hayden Island:** ODOT will coordinate with the contractor to comply with applicable state and local agency noise ordinances and ODOT Standard Specification for Construction, § 00290.32 Noise Control (2024) in Portland.
146	**Noise and Vibration** Economics	Temporary	Potential structural or architectural damage from vibration during construction	ODOT and WSDOT will require contractors to perform vibration monitoring at structures located in the vicinity of all construction areas, in accordance with the Noise and Vibration Monitoring Plan.
147	Noise and Vibration	Temporary	Noise from construction activities in Vancouver	**Vancouver:** WSDOT will coordinate with the contractor to comply with applicable state and local agency noise ordinance, including ODOT Standard Specification for Construction, § 00290.32 Noise Control (2024) in Vancouver, or project special provisions, for work completed in Washington.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
148	Parks and Recreation	Temporary	Potential disturbance or removal of trees in parks and recreation areas during construction	ODOT and WSDOT will coordinate with the contractor to comply with the City of Vancouver's tree conservation requirements (VMC 20.770.090, Tree, Vegetation, and Soil Protection During Construction), City of Portland's preservation standards for trees in development situations (PCC 11.50.040, Tree Preservation Standards), and City of Portland's Tree Plan requirements (PCC 11.50.020). Protect trees, to the extent practical, on park property that would be close to construction activities (as defined in PCC 11.60.030 and VMC 20.770.090), from adverse impacts as directed by the agency managing the park land (the cities of Vancouver, Portland, and Gresham; National Park Service [NPS]; Clark College; and Vancouver Public School District).
149	**Parks and Recreation** Section 4(f) Resources	Temporary	Ground disturbance of park features, including landscaping, during construction	ODOT, WSDOT, and the contractor will coordinate with Officials with Jurisdiction to restore park features, including landscaping to its original condition or better. New landscaping will include plants that are resilient or adaptive or in accordance with an established restoration plan.
150	Parks and Recreation	Temporary	Disruption of events at public parks and recreation facilities during construction	ODOT and WSDOT will coordinate with the contractor to schedule construction-related closures at public parks and recreation facilities to minimize effects on planned events, as feasible.
151	Parks and Recreation	Temporary	Restrictions on recreational trails in the Columbia River during construction	ODOT and WDSOT will provide notice to users of the recreational water trails in the Columbia River of temporary construction restrictions.
152	Parks and Recreation	Temporary	Access restrictions to, and temporary closures of, recreational fishing areas during construction	ODOT and WSDOT will notify recreational anglers of temporary access restrictions to fishing areas. ODOT and WSDOT will also consider other coordination efforts, including working with the WDFW and ODFW to share closure information and distribute information at appropriate locations.
153	Parks and Recreation	Temporary	Tree removal within parks and recreation areas	Where trees would be removed from a park or recreation area, ODOT and WSDOT will coordinate with the appropriate jurisdiction to follow their tree removal permitting process and tree replanting requirements of PCC 11.40.060 (Tree Replacement Requirements) and VMC 20.770.050 (Tree, Vegetation, and Soil Plan Required), including location and type.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
154	Parks and Recreation	Long-Term	Potential removal of recreational amenities within parks	As coordinated with the park owners, ODOT and WSDOT will replace recreational amenities, such as sports facilities, on acquired park land or fund replacement of equivalent features in the same park or one nearby.
155	Parks and Recreation	Long-Term	Changes in the visual quality of a park or recreation area from project structures	ODOT and WSDOT will explore retaining wall façade treatments adjacent to parks and recreation areas to improve the visual quality, where feasible.
156	**Parks and Recreation** Visual Quality	Long-Term	Changes in the visual quality of a park or recreation area from project structures	ODOT and WSDOT will screen portions of the Modified LPA from view within parks and recreation areas where feasible within Department of Transportation right of way.
157	**Public Services** Land Use	Temporary	Detours, increased delays, and traffic during construction affecting response times for mobile public services including police, fire, medical emergency, school transportation, and solid waste services	ODOT and WSDOT will develop and implement a preconstruction communication plan, in coordination with affected emergency response groups and other public service agencies, detailing how detour and road closure information will be communicated to public service providers. ODOT and WSDOT will incorporate measures into contract specifications to avoid and minimize interruptions to traffic flow and access during construction.
158	Public Services	Temporary	Changes in access to construction zones	ODOT and WSDOT will communicate with emergency services about access points to construction zones as needed.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
159	Public Services	Temporary	Detours, increased delays, and traffic during construction affecting response times for mobile public services including police, fire, medical emergency, school transportation, and solid waste services	ODOT and WSDOT will conduct outreach before and during construction to communicate construction detours and traffic routing plans to public service providers and the communities they serve. This will include notifying emergency service providers of any planned closures of lanes or detours for fire response and medical transport across the Columbia River, clearly identifying any alternate routes, and providing space for emergency use where feasible.
160	Section 4(f) Resources	Temporary	Parks access during construction	ODOT and WSDOT will keep all parks open and accessible during construction to the extent feasible.
161	Section 4(f) Resources	Temporary	Trails closure during construction	ODOT and WSODT provide detours for any trails closed by construction to the extent feasible.
162	**Section 4(f) Resources** Section 6(f) and Federal Lands to Parks (FLP) Resources	Temporary/ Long-Term	Use of Parkland	The IBR Program will meet the Vancouver Parks, Recreation, and Cultural Services requirements identified in their responses to Section 4(f) and FLP Concurrence Letters signed September 11, 2025 (Appendix Q), to the extent feasible.
163	Section 6(f) and FLP Resources	Temporary	Construction activities at East Delta Park	ODOT will implement mitigation for temporary impacts to East Delta Park as detailed in the temporary non-conforming use document in Appendix P to this Final SEIS. If impacts to this park exceed those listed in the temporary non-conforming use document, then further coordination would be undertaken with the applicable federal, state and local agencies during design and construction.
164	Section 6(f) and FLP Resources	Temporary	Construction activities at East Delta Park	ODOT will confirm that the temporary construction work at the northwest edge of Delta Park will not exceed 180 days.
165	**Section 6(f) and FLP Resources** Section 4(f) Resources	Long-Term	Implementation of the new shared use path within the Old Apple Tree Park	WSDOT will develop and execute an agreement with NPS and City of Vancouver confirming the new shared use path within Old Apple Tree Park is consistent with the existing park program while maintaining current ownership of the land.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
166	**Section 6(f) and FLP Resources** Section 4(f) Resources	Long-Term	Transfer of the existing FLP property at Marshall Park	To address FLP requirements at Marshall Park, WSDOT will develop and execute an agreement with FHWA, U.S. General Services Administration, and NPS to transfer existing FLP property to a different federal land conveyance program. WSDOT will also provide City of Vancouver funding to advance their park planning and improvements on a timeline that allows for the City's public involvement and an informed decision-making process.
167	Transportation	Temporary	Changes to local jurisdiction transportation facilities during construction	During construction activities, ODOT, WSDOT, and TriMet will comply with permit requirements for maintenance of traffic and with local permit requirements when local jurisdictional transportation facilities are impacted.
168	Transportation	Temporary	Regional travel impacts during construction	ODOT and WSDOT will develop detailed construction plans and maintenance of traffic plans to address all affected transportation facilities and their modes of transportation. Plans will be prepared during subsequent design and construction phases. Plans will be developed to meet applicable agency standards. Plans will be coordinated with agencies with jurisdiction for review and applicable approvals.
169	Transportation	Temporary	Freight mobility and access impacts during construction	To minimize potential freight impacts during construction, ODOT and WSDOT will communicate with the freight community and the public to notify them of closures or detours.
170	Transportation	Temporary	Freight rail operations impacts during construction	To minimize impacts to freight rail operations, ODOT and WSDOT will coordinate with the railroad owners and rail operators and will obtain all applicable required permits. Construction will be limited to the times approved and coordinated with freight rail operations.
171	Transportation	Temporary	Bridge opening and gate closure impacts during construction	ODOT and WSDOT will work with the USCG, the Ports, and other jurisdictions to minimize bridge openings and gate closures to overnight periods to lessen the impact to all transportation modes. ODOT and WSDOT will develop a construction plan that identifies available resources that could be used to inform the public of upcoming bridge openings and gate closures.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
172	Transportation	Temporary	Local road closures, lane closures, traffic detours, and property access modifications and closures during construction	ODOT and WSDOT will comply with state and local regulations governing construction traffic control and construction truck routing associated with constructing the Modified LPA.
173	Transportation	Temporary	Transit operations impacts during construction	ODOT and WSDOT will coordinate the transit service and facility modifications with TriMet and C-TRAN to minimize temporary impacts and disruptions to bus and light-rail facilities and service during construction. ODOT and WSDOT will also consider other potential strategies such as temporary transit priority treatments with the affected transit agencies during construction as feasible.
174	**Transportation** Economics	Temporary	Temporary closure of sidewalks, bicycle facilities, and/or shared-use paths or active transportation facility impacts during construction	Contracting agencies, including ODOT, WSDOT, TriMet, and C-TRAN, will develop plans for, and implementation of, safe and accessible detour routes for active transportation users during construction to preserve access to businesses, transit, parks, and other destinations in the project area.
175	Transportation	Temporary	Safety impacts during construction	ODOT and WSDOT will comply with their agency construction manuals, FHWA and FTA guidance, and related practices and procedures during construction.
176	Transportation	Temporary	Disruption to transportation demand management (TDM) and transportation system management (TSM) programs and operations during construction	ODOT and WSDOT will coordinate construction, pre-completion tolling, and TDM/TSM with partner agencies to identify opportunities to minimize the severity of transportation effects during construction.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
177	Transportation	Long-Term	Highway operations	During Final Design, the IBR Program will further investigate opportunities to optimize freeway operations and safety in accordance with the Freeway Management and Operations Handbook (FHWA 2006) and other applicable laws and regulations for the Interstate. In addition, the IBR Program and partners will continue to look for opportunities beyond what the IBR Program already includes (i.e., variable-rate tolling, improved transit and active transportation systems, and enhanced TDM and TSM systems).
178	Transportation	Long-Term	Congestion at the southbound I-5 downstream bottleneck near the I-5/I-405 split in North Portland	ODOT and WSDOT will continue to work with regional and local agencies to assess the region's transportation issues, such as the southbound I-5 downstream bottleneck near the I-5/I-405 split in North Portland, and identify potential solutions.
179	Transportation	Long-Term	Congestion on the southbound I-5 collector-distributor roadway in Vancouver	ODOT and WSDOT will consider potential mitigation measures to address congestion on the southbound I-5 collector-distributor roadway in Vancouver which could include demand reduction and system management strategies, or design-related enhancements such as braiding the Mill Plain on-ramp and SR 14 off-ramp and possibly providing a slip lane to continue providing access for trips traveling from the Mill Plain interchange to SR 14.
180	Transportation	Long-Term	Potential traffic congestion from bridge openings and gate closures	ODOT and WSDOT will request Congressional authorization, through the USCG, for different bridge opening and gate closure timing limitations for the single-level movable-span bridge configuration, if selected.
181	Transportation	Long-Term	Potential transit disruption from bridge openings and gate closures	ODOT and WSDOT, in coordination with TriMet and C-TRAN, will incorporate bridge opening and gate closure limitations into transit service schedules for the single-level movable-span bridge configuration, if selected.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
182	**Transportation** Economics	Long-Term	Potential disruptions to the public, businesses, travel organizations, freight industry, and mariners from bridge openings and gate closures	ODOT and WSDOT will disseminate information concerning bridge openings and gate closures restrictions to the public, businesses, travel organizations, freight industry, and mariners for the single-level movable-span bridge configuration, if selected.
183	Transportation	Long-Term	Disruption to interchange operations at Marine Drive and I-5 Interchange	As part of final design approval of the Marine Drive and I-5 interchange, ODOT will review interchange operations and conduct an updated traffic analysis in accordance with agency requirements to determine final design of the Marine Drive and I-5 interchange.
184	Transportation	Long-Term	Arterial and local street impacts along the Mill Plain Boulevard/15th Street east-west couplet	In coordination with City of Vancouver, WSDOT will address impacts caused by the additional traffic volumes accessing the Mill Plain Boulevard/15th Street east–west couplet for the Modified LPA without C Street Ramps, if selected. These potential mitigation measures could include adding an additional lane both eastbound and westbound through the Mill Plain Boulevard and 15th Street couplet between Columbia Street and the I-5 interchange as well as turning lanes at intersections and I-5/Mill Plain interchange as needed. This would result in additional impacts that are not quantified at this point. As part of final design approval, additional NEPA impact analysis and traffic analysis may be needed in coordination with the City of Vancouver to confirm the final design and align mitigation and design measures with City of Vancouver goals and outcomes. Final mitigation will be determined and agreed upon by WSDOT and the City of Vancouver.
185	Transportation	Long-Term	Potential disruption to TriMet's light rail transit (LRT) performance	As the IBR Program continues with final design and transit operations planning, ODOT and WSDOT will coordinate with TriMet to incorporate the Yellow Line LRT extension's operational plan, in conjunction with TriMet's ongoing system planning and Capital Investment Program. If the IBR Program's LRT frequencies are projected to degrade TriMet's LRT on-time performance, it would provide a proportionate financial share toward a separate TriMet Project to improve on-time performance at the Rose Quarter.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
186	Utilities	Temporary	Disruption to broadband/fiber services during construction	ODOT and WSDOT will coordinate with the contractor to comply with current federal Dig Once laws (23 CFR § 645.307) and associated state regulations and guidelines, which require advanced coordination with the broadband/fiber industry to invite these providers to participate in highway improvement projects.
187	Utilities	Temporary	Temporary service disruptions when utilities are relocated or protected in place during construction	ODOT and WSDOT will contact utility providers during design to identify temporary facility needs and staging and sequencing provisions. Utilities will be protected in place where possible; where protection or preservation in place is not possible, the goal will be to relocate facilities only once to reduce service disruptions.
188	Utilities	Temporary	Interruption to fire flow during construction	ODOT and WSDOT will sequence construction to avoid interruptions to fire flow (the volume of water needed to control and extinguish a fire) to the extent possible. ODOT and WSDOT will coordinate with the Vancouver Fire Department and Portland Fire and Rescue to develop a plan for ensuring fire flow is maintained throughout construction to the extent possible, using temporary provisions as needed.
189	Utilities	Temporary	Interruption to fire flows during construction	If temporary interruptions to fire flows are unavoidable, ODOT and WSDOT will provide additional details on the anticipated locations and durations of the disruptions to Vancouver Fire Department and Portland Fire and Rescue as soon as that information is available.
190	Utilities	Temporary	Disruption to sanitary sewer pump station at Columbia Street and Columbia Way during construction	ODOT and WSDOT will coordinate with the utility providers to protect or preserve in place, to the extent feasible, the sanitary sewer pump station located at Columbia Street and Columbia Way near the Vancouver waterfront.
191	Utilities	Long-Term	Permanent relocation of utilities	If relocation of utilities is unavoidable, ODOT and WSDOT will develop or modify agreements with affected utility providers to specify the locations of utilities within the right of way, access and maintenance requirements, etc.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
192	Visual Quality	Long-Term	Visual quality changes to public gathering places, open spaces and urban environments	ODOT and WSDOT will coordinate with the City of Vancouver, Port of Vancouver, and City of Portland to create or enhance public gathering places, open spaces, and urban environments, to the extent feasible, including: • Design the active transportation facility on the Columbia River bridges for a low-stress environment that prioritizes safety and offers designated refuge areas for pedestrians, cyclists, and other transportation users, where feasible. • Use "Crime Prevention Through Environmental Design" principles in the design of publicly accessible spaces to promote security (e.g., lighting in low-visibility areas such as under new bridge structures) and apply other related best management practices. • Coordinate with local agencies to encourage creating or enhancing spaces, events, or initiatives that activate open spaces and urban environments, including the Main Street extension to the river. • The final design should emphasize the visual quality of high foot traffic areas and community gathering places, including Terminal 1 and the Vancouver Waterfront, to the extent feasible. • Consider application of treatments to minimize unauthorized use of public rights of way, to the extent possible.
193	Visual Quality	Long-Term	Introduction of new visual transit structural and architectural elements	ODOT and WSDOT will design transit structural and architectural elements to be context sensitive, in coordination with C-TRAN and TriMet, including: • Design system-related signage and transit patron cues to be consistent with other transit system elements within respective systems. • Design the signal pole color, location, and style in accordance with the lighting district standards of the jurisdiction where the poles would be located. • Provide landscaping, public art, or other façade treatments for the walls of light-rail guideway structures, as feasible, in accordance with Program architectural guidance. • Design the park and rides to complement the surrounding development, to the extent feasible, in compliance with local regulations and in coordination with the City of Vancouver.
194	Visual Quality	Long-Term	Relocation of the Boat of Discovery art	ODOT and WSDOT will coordinate the relocation of the Boat of Discovery art installation with the City of Vancouver, Port of Vancouver staff, the original artists, and/or donors.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
195	**Visual Quality** Neighborhoods	Long-Term	Changes in visual character due to new transportation infrastructure elements	ODOT and WSDOT will develop guidance for architectural elements for the Program area in consultation with local agencies, Tribes, and IBR's advisory groups, including: • Design architectural features to be both aesthetically pleasing and blend with the surrounding community, to the extent feasible. • Consider minimization of structural bulk, to the extent feasible. • Consider natural light permeability with structure design, to the extent feasible. • Coordinate lighting under structures with local jurisdiction and I-5 lighting. • As applicable, design gateways in coordination with local plans, including designs for landscaping, wall treatments, and other IBR Program improvements. • Explore the incorporation of preserved bridgehead visual character elements into the final design. • Coordinate with the City of Vancouver and consider the Urban Design Desired Outcomes. • Coordinate with the City of Vancouver to integrate the design of the Evergreen Station, Community Connector, Library Square site, and the interface with the Historic Reserve, with the surrounding street network by applying the City of Vancouver's Draft Desired Outcomes and Guiding Principles for the Community Connector and Evergreen Station Area (COV 2024) to the extent feasible. • Coordinate with the City of Vancouver on the use and design of publicly accessible spaces in the waterfront area, including beneath the bridge approach and ramps, considering previous and ongoing community input.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
196	Visual Quality	Long-Term	Removal and disturbance of existing vegetation and landscaping during construction	ODOT and WSDOT will coordinate with the contractor to comply with the following applicable vegetation and tree mitigation requirements: • Install new vegetation, as soon as feasible. • Provide enhanced landscapes to integrate the facilities into the community to the extent feasible. • Within the ODOT and WSDOT right of way, maintain existing vegetation wherever possible, particularly between the Kanaka Village and SR 14 ramps. • Include plantings as visual screens in landscape plans, as feasible. • Consider matching Vancouver Land Bridge landscaping in new, adjacent landscaped areas, as feasible and appropriate.
197	Visual Quality	Long-Term	Disruption to the visual character from graffiti	In partnership with the City of Vancouver, at applicable design gateways, the IBR Program will develop designs and construct project elements with anti-graffiti elements, to the extent feasible and constructable.
198	Visual Quality	Long-Term	Disruption to visual character from graffiti	In partnership with the City of Portland, the IBR Program will develop designs and construct project elements at Delta Park with anti-graffiti elements, to the extent feasible and constructable.
199	Water Quality and Hydrology	Temporary	Disruption to groundwater hydrology during construction	ODOT and WSDOT will coordinate with the contractor to minimize groundwater pumping in instances where construction activities must be conducted in the dry to allow proper installation of materials and visual inspections of completed work to avoid dewatering areas when practicable and minimize changes to groundwater hydrology.
200	Water Quality and Hydrology	Temporary	In-water work activities affect water quality during construction	ODOT and WSDOT will coordinate with the contractor to conduct specified in-water work during approved periods for the Columbia River, as approved by WDFW, ODFW, NOAA Fisheries, and USFWS.
201	Water Quality and Hydrology	Temporary	Water contamination from construction equipment used during construction	ODOT and WSDOT will coordinate with the contractor to stage construction equipment used for in-water work activities above the OHWM and will require construction equipment to use non-petroleum-based fluids, as feasible.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
202	Water Quality and Hydrology	Temporary	Water turbidity during construction	In compliance with requirements of the 401 permits issued by the Oregon Department of Environmental Quality (DEQ) and Washington State Department of Ecology (Ecology), ODOT, WSDOT, and the contractor will monitor turbidity and provide a "rest" period to allow turbidity, if any, to dissipate between in-water work activities.
203	Water Quality and Hydrology	Long-Term	Rise in base flood elevation from changes within floodplains	As design progresses, ODOT and WSDOT will conduct a detailed hydraulic analysis of the affected floodplains. If a rise in the base flood elevation is predicted, assess mitigation through floodplain excavation (cut/fill balance) activities within the footprint of the Modified LPA and determine whether additional land may be required to accomplish the required mitigation. Complete a Location Hydraulic Study to document the impacts, mitigation measures, evaluation of alternatives, and findings in accordance with the provisions of 23 CFR Part 650A.
204	Water Quality and Hydrology	Temporary	Potential for locating flood storage areas in habitat areas	ODOT and WSDOT will continue to work with the City of Portland to confirm flood storage compensation does not jeopardize threatened and endangered species and designated critical habitats or unduly affect any other species or habitats of interest (revised Floodplain Development Code Chapter 24.50 "Flood Hazard Areas").
205	Water Quality and Hydrology	Long-Term	Base flood elevation increase	ODOT and WSDOT will offset potential rise in the base flood elevation through compensatory floodplain excavation (cut/fill balance) activities or through other approved mitigation strategies as determined through a Location Hydraulic Study.
206	Water Quality and Hydrology	Long-Term	Contaminated stormwater and changes in stormwater flow to the wellhead protection zone in the Burnt Bridge Creek watershed	For the wellhead protection zone in the Burnt Bridge Creek watershed, ODOT and WSDOT will provide stormwater treatment facilities for treatment of all Program-related runoff, such as providing underground injection control requirements, to the extent practicable, and stormwater facilities to manage stormwater volumes.
207	Water Quality and Hydrology	Long-Term	Contaminated stormwater runoff during operations	ODOT and WSDOT will prepare stormwater monitoring plan(s) to evaluate the long-term performance and effectiveness of the updated stormwater conveyance and treatment systems.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
208	Water Quality and Hydrology	Temporary	Risk of flooding from increased flood heights or velocities due to project construction	ODOT and WSDOT will coordinate with Cities of Portland and Vancouver to comply with special flood hazard area regulations.
209	Water Quality and Hydrology	Long-Term	Displacement of U.S. Geological Survey (USGS) stream gage 14144700	Through discussions with USGS Oregon Water Science Center, ODOT and WSDOT will relocate the USGS stream gage 14144700 Columbia River at Vancouver, Washington.
210	**Water Quality and Hydrology** Ecosystems	Temporary	Water contamination from erosion and ground disturbance, and from pollutants in stormwater runoff during construction	ODOT and WSDOT will require the contractor to prepare and implement an ESCP and stormwater pollution prevention plan (SWPPP) to minimize impacts associated with clearing, vegetation removal, grading, filling, compaction, or excavation. The BMPs identified in the ESCP and SWPPP will be used to control sediments in areas impacted by vegetation removal or ground-disturbing activities. Additional temporary control measures may be required beyond those described in the ESCP/SWPPP if it appears pollution or erosion may result from weather, nature of the materials, or progress on construction. For additional details, consult ODOT Standard Specifications 00280.00 to 00280.90 and WSDOT Temporary Erosion and Sediment Control Manual M3109.02.
211	**Water Quality and Hydrology** Ecosystems	Temporary	Water contamination from erosion and exposed soils during construction grading and vegetation removal	ODOT and WSDOT will require the contractor to stabilize all exposed soils as directed in measures prescribed in the ESCP and SWPPP. The contractor will hydro-seed all bare soil areas following grading activities and revegetate all temporarily disturbed areas with native vegetation. For additional details, consult ODOT Standard Specifications 01030.00 to 01030.90 and WSDOT Temporary Erosion and Sediment Control Manual M3109.02.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
212	**Water Quality and Hydrology** Ecosystems	Temporary	Water contamination from soils exposed during construction grading and vegetation removal	Include native plants and pollinator-friendly species, to the extent feasible and consistent with regulatory requirements and specifications, in the design of vegetative landscaping for restoration of areas that are temporarily disturbed.
213				ODOT and WSDOT will require the contractor to revegetate temporarily disturbed areas as soon as practicable in compliance with applicable regulatory requirements. For additional detail, consult ODOT Standard Specifications 01040.00 to 01040.90 and WSDOT Temporary Erosion and Sediment Control Manual M3109.02.
214	**Water Quality and Hydrology** Ecosystems	Long-Term	Water contamination from erosion of exposed soils	ODOT and WSDOT will maintain and monitor planted vegetation consistent with applicable regulatory and permit requirements. For additional detail, consult ODOT Standard Specifications 01040.00 to 01040.90 and WSDOT Temporary Erosion and Sediment Control Manual M3109.02.
215	Water Quality and Hydrology	Temporary	Material spills during in-water excavation during construction	If in-water excavation is required outside of a cofferdam, ODOT and WSDOT will coordinate with the contractor to use a clamshell bucket minimizing material spillage, within the established in-water work windows. Excavation, handling, and disposal of excavated materials will be conducted consistent with the requirements and conditions of the regulatory permits issued for the Modified LPA.
216	**Water Quality and Hydrology** Hazardous Materials	Temporary	Contaminated soil or groundwater during construction	ODOT and WSDOT will coordinate with the contractor to study, test, and remediate sites with existing soil or groundwater contamination adjacent to construction areas, as needed.
217	**Water Quality and Hydrology** Hazardous Materials	Temporary	Contaminated stormwater runoff entering waterbodies during construction	ODOT and WSDOT will require the contractor to comply with all relevant water quality permit conditions for the treatment of stormwater runoff prior to discharge into receiving waters during construction.
218	**Water Quality and Hydrology** Hazardous Materials	Temporary	Spills and releases of hazardous materials and pollutants in stormwater runoff during construction	ODOT and WSDOT will require the contractor to select, design, and implement water quality BMPs to comply with all federal, state, and local construction requirements issued through Clean Water Act Section 402, to reduce suspended solids, particulates, and dissolved metals and to treat newly identified pollutants like 6PPD-quinone.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
219	**Water Quality and Hydrology** Hazardous Materials	Long-Term	Increased rate of stormwater runoff to waterbodies	ODOT and WSDOT will construct flow control facilities to infiltrate or reduce the flow rates of all study area runoff, pursuant to local regulatory requirements. Mitigation for increased runoff to the Columbia Slough or the Columbia River will not be required because these water bodies are exempt from stormwater quantity management.
220	**Water Quality and Hydrology** Hazardous Materials	Long-Term	Contaminated stormwater runoff during operations	ODOT and WSDOT will treat stormwater runoff through approved bioretention BMPs, such as ponds/planters, biofiltration swales, bioslopes, and/or media filter drains that provide water quality treatment via infiltration through a phosphorus-free, compost-amended soil medium and/or vegetation.
221	**Water Quality and Hydrology** Hazardous Materials	Long-Term	Potential increase in pollutants in stormwater and surface water	ODOT and WSDOT will design advanced and effective water quality treatment facilities in accordance with each jurisdiction's specifications, such as Ecology's Technology Assessment Protocol program (Washington), the 2025 Stormwater Management Manual (Portland), and City of Vancouver's Surface Water Management Program.
222	Water Quality and Hydrology	Long-Term	Contaminated stormwater runoff entering waterbodies during operations	ODOT and WSDOT will comply with their stormwater management requirements, and the City of Portland and City of Vancouver regulations for the portions of the Modified LPA along City-managed roads, for the long-term treatment of stormwater runoff prior to discharge into receiving waters.
223	Water Quality and Hydrology	Long-Term	Spills and releases of hazardous materials and pollutants in stormwater runoff during operations	ODOT and WSDOT will comply with all federal, state, and local regulatory requirements and municipal stormwater permit requirements issued through Clean Water Act Section 402, to reduce suspended solids, particulates, and dissolved metals; and to treat newly identified pollutants like 6PPD-quinone.
224	**Water Quality and Hydrology** Hazardous Materials Ecosystems	Temporary	Release of hazardous materials from a spill during construction	ODOT and WSDOT will require the contractor to prepare an SPCC plan prior to beginning construction, implement the SPCC plan, and have the SPCC plan available at the project site at all times. This plan will be provided to Ecology in Washington and DEQ in Oregon for review and approval. The SPCC plan will identify the appropriate spill containment materials, as well as the means and methods of implementation, response, and reporting in the event of a spill. Any modifications to the SPCC plan during construction will be provided to ODOT, WSDOT, Ecology, and DEQ for review and approval. For additional details, consult ODOT Standard Specification 00290.00 to 00290.90 and WSDOT Standard Specification 1-07.15.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
225	Wetlands and Other Waters	Temporary	Ground disturbance in or around wetlands during construction	In accordance with local and state standards, ODOT and WSDOT will coordinate with the contractor to implement appropriate high visibility/exclusionary fencing around avoided wetlands and other waters prior to the start of construction.
226	Wetlands and Other Waters	Temporary	Sediment disturbance and erosion during construction	In accordance with local and state standards, ODOT and WSDOT will coordinate with the contractor to implement BMPs for sediment and erosion control procedures during construction activities.
227	Wetlands and Other Waters	Temporary	Vegetation removal during construction	At the end of construction, ODOT and WSDOT will coordinate with the contractor to replace vegetation temporarily cleared for construction activities in accordance with local, state regulatory guidance or property agreements.
228	Wetlands and Other Waters	Temporary	Disturbing waters with in-water construction activities	ODOT and WSDOT will coordinate with the contractor to avoid restricted work outside of the in-water work window as identified in the Biological Opinion, and federal, state, and local permits.
229	Wetlands and Other Waters	Temporary	Wetland disturbance during construction	ODOT and WSDOT will offset unavoidable temporary impacts that cannot be minimized through BMPs or restored on site, through the purchase of credits from a mitigation bank or Permittee Responsible Mitigation, similar to mitigation used for certain long-term effects. The total unavoidable temporary impacts and the required compensatory mitigation will be determined through the permitting process.
230	Wetlands and Other Waters	Temporary	Wetland disturbance during construction	ODOT and WSDOT will avoid and minimize short-term, temporary impacts to wetland resources in final design to the extent practicable.
231	Wetlands and Other Waters	Temporary	Wetland and wetland buffer habitat disturbance during construction	At the end of the applicable construction activities, ODOT and WSDOT will coordinate with the contractor to restore temporarily disturbed wetland and wetland buffer habitats consistent with applicable regulatory requirements.
232	Wetlands and Other Waters	Long-Term	Filling or removing material in wetlands and other waters of the U.S. and state	ODOT and WSDOT will advance the design of the Modified LPA consistent with the applicable federal, state, and local agency regulatory mitigation related to filling or removing material in wetlands and other waters of the U.S. and state.

Item #	Resource Area[16]	Temporary or Long-Term Effect	Impact Type	Avoidance, Minimization, and Mitigation Measures
233	Wetlands and Other Waters	Long-Term	Loss of wetland and waters functions and values	ODOT and WSDOT will continue to evaluate mitigation actions to offset losses of wetland and waters functions and values, including wetland buffers, as the Modified LPA design progresses.
234				ODOT and WSDOT will identify agency-approved compensatory mitigation banks and potential Permittee Responsible Mitigation sites in both Oregon and Washington to help fulfill the compensatory requirements for permanent, temporary, and indirect impacts.
235				ODOT and WSDOT will prepare a compensatory mitigation plan that satisfies applicable federal, state, and local regulatory requirements, and that demonstrates no net loss of function and values of wetland and waters resources.
236				ODOT and WSDOT will comply with increased wetland mitigation ratios as prescribed by the regulatory agencies during the permitting process for unavoidable impacts to Vanport Wetlands from the Expo Road improvements on mainland Oregon. Increased mitigation ratios are not known at this time, and would be dictated by the regulatory agencies during the permitting process.

Key: AC = Advisory Circular; BMPs = best management practices; CFR = Code of Federal Regulations; C-TRAN = Clark County Public Transit Benefit Area Authority; dBA = A-weighted decibels; DEQ = Oregon Department of Environmental Quality; Ecology = Washington State Department of Ecology; EPA = U.S. Environmental Protection Agency; ESA = Environmental Site Assessment; ESC = erosion and sediment control; ESCP = erosion and sediment control plan; FAA = Federal Aviation Administration; FHWA = Federal Highway Administration; FLP = Federal Lands to Parks; FTA = Federal Transit Administration; HBMS = hazardous building materials survey; I- = Interstate; LPA = Locally Preferred Alternative; LRT = light-rail transit; mm = millimeters; NEPA = National Environmental Policy Act; NOAA = National Oceanic and Atmospheric Administration; NPS = National Park Service; ODOT = Oregon Department of Transportation; ODFW = Oregon Department of Fish and Wildlife; OHWM = ordinary high water mark; ORS = Oregon Revised Statutes; OAR = Oregon Administrative Rules; PCC = Portland City Code; PCP = pollution control plan; REC = recognized environmental condition; RCW = Revised Code of Washington; SEIS = Supplemental Environmental Impact Statement; SPCC = spill prevention, control, and countermeasure; SR = State Route; TDM = transportation demand management; TriMet = Tri-County Metropolitan Transportation District of Oregon; TSM = transportation system management; VdB = velocity of vibration in decibels; USACE = U.S. Army Corps of Engineers; USCG = U.S. Coast Guard; USFWS = U.S. Fish and Wildlife Service; USGS = U.S. Geological Survey; U.S.C. = United States Code; URA = Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended; VMC = Vancouver Municipal Code; WAC = Washington Administrative Code; WDFW = Washington Department of Fish and Wildlife; WQMPP = Water Quality Monitoring and Protection Plan; WSDOT = Washington State Department of Transportation

What are the next steps and how will a decision be made?

The proposed design of the Modified LPA described in the Draft SEIS has been refined based on public input and technical findings as documented in this Final SEIS. The design of the Modified LPA has been developed to a level of detail to allow the IBR Program to apply for permits and update cost estimates. The IBR Program will continue to work and foster relationships with agencies, tribes, and the public through completion of the Program.

An Amended ROD is expected to be issued by FHWA and FTA following publication of this Final SEIS, which will be the final NEPA decision on the proposed IBR Program.

How can the public learn more about and be involved in the IBR Program?

The Program website (www.interstatebridge.org) provides more information, including background and the process that led to the development of this Final SEIS. The website also has information on upcoming public events, Program milestones, and how to view the Final SEIS.

An electronic copy of the Final SEIS is available at no charge and can be downloaded here: www.interstatebridge.org

A printed copy and electronic copy of the Final SEIS are available for viewing at the IBR Program office by appointment. To schedule an appointment:

Visit: Office Hours

Email: info@interstatebridge.org,

or Call: (360) 859-0494

Computers and internet access are available at various public libraries and meeting places throughout the Portland-Vancouver metropolitan area:

Washington Locations

- Fort Vancouver Regional Libraries
  Multiple locations - Please call to find a location near you. (360) 906-5000
- Clark College – Cannell Library
  1933 Fort Vancouver Way #112, Vancouver, WA 98663 (360) 992-2151
- Washington State University Vancouver Library
  14204 NE Salmon Creek Avenue, Vancouver, WA 98686 (360) 546-9680
- Camas Public Library
  625 NE 4th Ave, Camas, WA 98607 (360) 834-4692

Oregon Locations

- Multnomah County Library
  Multiple locations - Please call to find a location near you. (503) 988-5123
- Portland State University – Branford P. Millar Library
  1875 SW Park Avenue, Portland, OR 97201 (503) 725-5874
- Portland Community College Library
  Multiple locations - Please call to find a location near you. (971) 722-5322

- University of Portland Library – Wilson W. Clark Memorial Library
  5000 N. Willamette Boulevard, Portland, OR 97203 (503) 943-7111
- Clackamas Community College Library
  19600 Molalla Avenue, Oregon City, Oregon 97045 (503) 594-6042
- Mt. Hood Community College Library
  26000 SE Stark Street, Gresham, OR 97030 (503) 491-7161
- Oregon Health & Science University Library
  3181 SW Sam Jackson Park Road, Portland, OR 97239 (503) 494-3460
- Oregon State University – Portland Center
  555 SW Morrison Street, 2nd Floor, Portland, OR 97204 (503) 273-4301
- University of Oregon – Portland Library & Learning Center
  2800 NE Liberty St, 2nd Floor, Portland, OR 97211 (503) 412-3671

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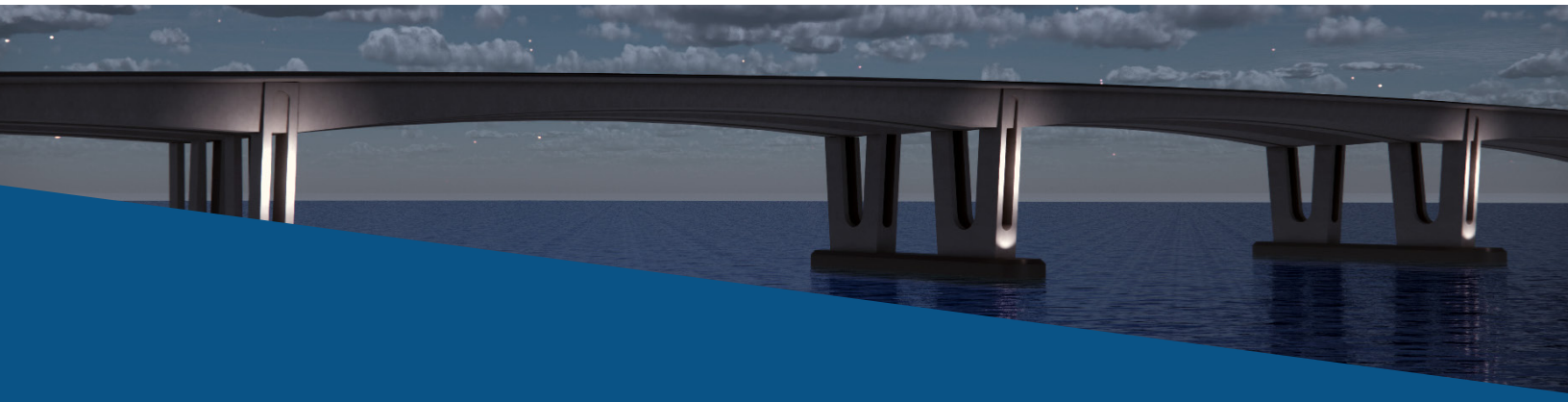

Oregon Department of Transportation

Washington State Department of Transportation