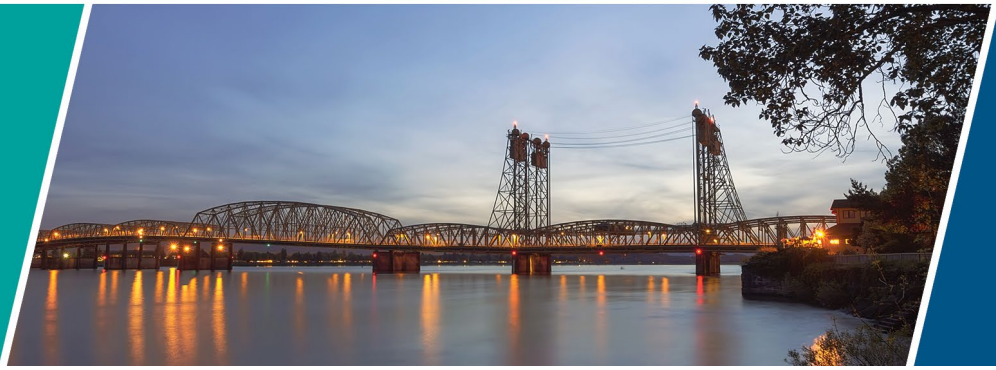
Interstate BRIDGE Replacement Program

Considering the importance of our natural environment



Neighborhoods and Communities Technical Report

March 2026

Oregon

For Americans with Disabilities Act (ADA) 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 Washington State Department of Transportation (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.

Neighborhoods and Communities Technical Report

CONTENTS

FIGURES

TABLES

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
BRT	bus rapid transit
CCFS projects	Columbia Corridor Flood Safety projects
CRC	Columbia River Crossing
CTR	Commute Trip Reduction
C-TRAN	Clark County Public Transit Benefit Area Authority
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GIS	Geographic Information System
I-5	Interstate 5
IBR	Interstate Bridge Replacement
LPA	Locally Preferred Alternative
LRT	light-rail transit
LRV	light-rail vehicle
MAX	Metropolitan Area Express
MAX	Metropolitan Area Express
NAVD 88	North American Vertical Datum of 1988
NEPA	National Environmental Policy Act
ODOT	Oregon Department of Transportation

Acronym/Abbreviation	Definition
OTC	Oregon Transportation Commission
PMLS	Portland Metro Levee System
PNCD	Preliminary Navigation Clearance Determination
ROD	Record of Decision
SEIS	Supplemental Environmental Impact Report
SOV	single-occupancy vehicle
SR	state route
SR	State Route
TOD	transit-oriented development
TriMet	Tri-County Metropolitan Transportation District
TriMet	Tri-County Metropolitan Transportation District of Oregon
U.S.	United States
UFSWQD	Urban Flood Safety and Water Quality District
Uniform Act	Uniform Relocation and Real Property Acquisition Act
URA	urban renewal area
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
VA	Veterans Affairs
WSDOT	Washington State Department of Transportation
WSTC	Washington State Transportation Commission

1. PROGRAM OVERVIEW

This technical report identifies, describes, and evaluates short-term and long-term effects on neighborhoods resulting from the Interstate Bridge Replacement (IBR) Program. The construction and operation of transportation infrastructure has the potential to result in permanent and temporary impacts within the study area. The Modified Locally Preferred Alternative (LPA) would be designed to avoid and/or minimize these effects to the greatest extent possible. This report provides mitigation measure for potential effects when avoidance is not feasible.

The purpose of this report is to satisfy applicable portions of the National Environmental Policy Act (NEPA) 42 United State Code (U.S.C.) 4321 "to promote efforts which will prevent or eliminate damage to the environment." Information and potential environmental consequences described in this technical report will be used to support the Final Supplemental Environmental Impact Statement (SEIS) for the IBR Program pursuant to 42 U.S.C. 4332.

The objectives of this report are to:

- Define the Program study area and the methods of data collection and evaluation used for the analysis (Chapter 2).
- Describe existing neighborhood characteristics within the study area (Chapter 3).
- Discuss potential long-term, temporary, and indirect effects resulting from construction and operation of the Modified LPA in comparison to the No-Build Alternative (Chapters 4 through 6).
- Provide proposed avoidance and mitigation measures to help prevent, eliminate or minimize environmental consequences from the Modified LPA (Chapter 7).

The IBR Program is a continuation of the previously suspended Columbia River Crossing (CRC) project with the same purpose to replace the aging Interstate Bridge across the Columbia River with a modern, seismically resilient multimodal structure. The proposed infrastructure improvements are located along a 5-mile stretch of the Interstate 5 (I-5) corridor that extends from approximately Victory Boulevard in Portland to State Route (SR) 500 in Vancouver, as shown in Figure 1-1.

Figure 1-1. IBR Program Location Overview

1.1 Components of the Modified LPA

The basic proposed components of the Modified LPA[1] include:

- 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

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

Interstate Bridge (both spans) would be removed.[2] 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 light-rail transit (LRT) extension of the current Metropolitan Area Express (MAX) Yellow Line 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. The Tri-County Metropolitan Transportation District of Oregon (TriMet), which operates the MAX system, would also operate the Yellow Line extension.
- Associated LRT improvements such as traction power substations (TPSS),[3] 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).
- Connections to local bus transit service, including bus rapid transit (BRT) and express bus routes, in collaboration with the Clark County Public Transit Benefit Area Authority (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 1.1.7, 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."

[2] For purposes of this report, the existing I-5 bridges over the Columbia River are referred to as the "Interstate Bridge." The new replacement I-5 bridges over the Columbia River are referred to as the "Columbia River bridges."

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

- 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 1-1.

- **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 the 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 1-1. Modified LPA Design Options

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 just two park and rides: one park and ride with 570 parking spaces near the Waterfront Station and one park and ride with 700 parking spaces near the Evergreen Station. The locations for park and rides that were evaluated included: ➢ 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 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.

The transportation improvements proposed for the Modified LPA and the design options are shown in Figure 1-2. The Modified LPA includes all of the components listed above. If there are differences in environmental effects or benefits between the design options, they are identified in the sections below.

Section 1.1.1, Interstate 5 Mainline, describes the overall configuration of the I-5 mainline through the study area, and Sections 1.1.2, Portland Mainland and Hayden Island (Subarea A), through Section 1.1.5, Upper Vancouver (Subarea D), provide additional detail on four geographic subareas (A through

D), which are shown on Figure 1-3. In each subarea, improvements to I-5, its interchanges, and the local roadways are described first, followed by transit and active transportation improvements. Design options are described under separate headings in the subareas in which they would be located. The description of the Modified LPA and design options are based on conceptual design and are subject to refinement as the design is finalized. The IBR Program will continue to consult with regulatory agencies, local agencies with jurisdiction, and tribes to seek opportunities for improvements and avoidance and minimization of impacts.

Figure 1-2. Modified LPA Components

Figure 1-3. Modified LPA – Geographic Subareas

1.1.1 Interstate 5 Mainline

Today, within the 5-mile corridor, I-5 has three, typically 12-foot-wide, through lanes in each direction, an approximately 6- to 12-foot-wide inside shoulder, and an approximately 6- to 12-foot-wide outside shoulder, with the exception of the Interstate Bridge, which has approximately 1- to 2-foot-wide inside and outside shoulders. There are currently intermittent one and two auxiliary lane sections between the Victory Boulevard and Hayden Island interchanges in Oregon and between SR 14 and SR 500 in Washington.

The Modified LPA would include three 12-foot through lanes from Interstate Avenue/Victory Boulevard to SR 500/39th Street and one or two 12-foot auxiliary lanes, as detailed below and shown on Figure 1-4. Many of the existing auxiliary lanes on I-5 between the SR 14 and Main Street interchanges in Vancouver would remain, although they would be reconfigured. The existing auxiliary lanes between the Victory Boulevard and Hayden Island interchanges would be replaced with changes to

on- and off-ramps and interchange reconfigurations. The existing Interstate Bridge over the Columbia River does not have auxiliary lanes; the Modified LPA would add one or two auxiliary lanes in each direction across the new Columbia River bridges.

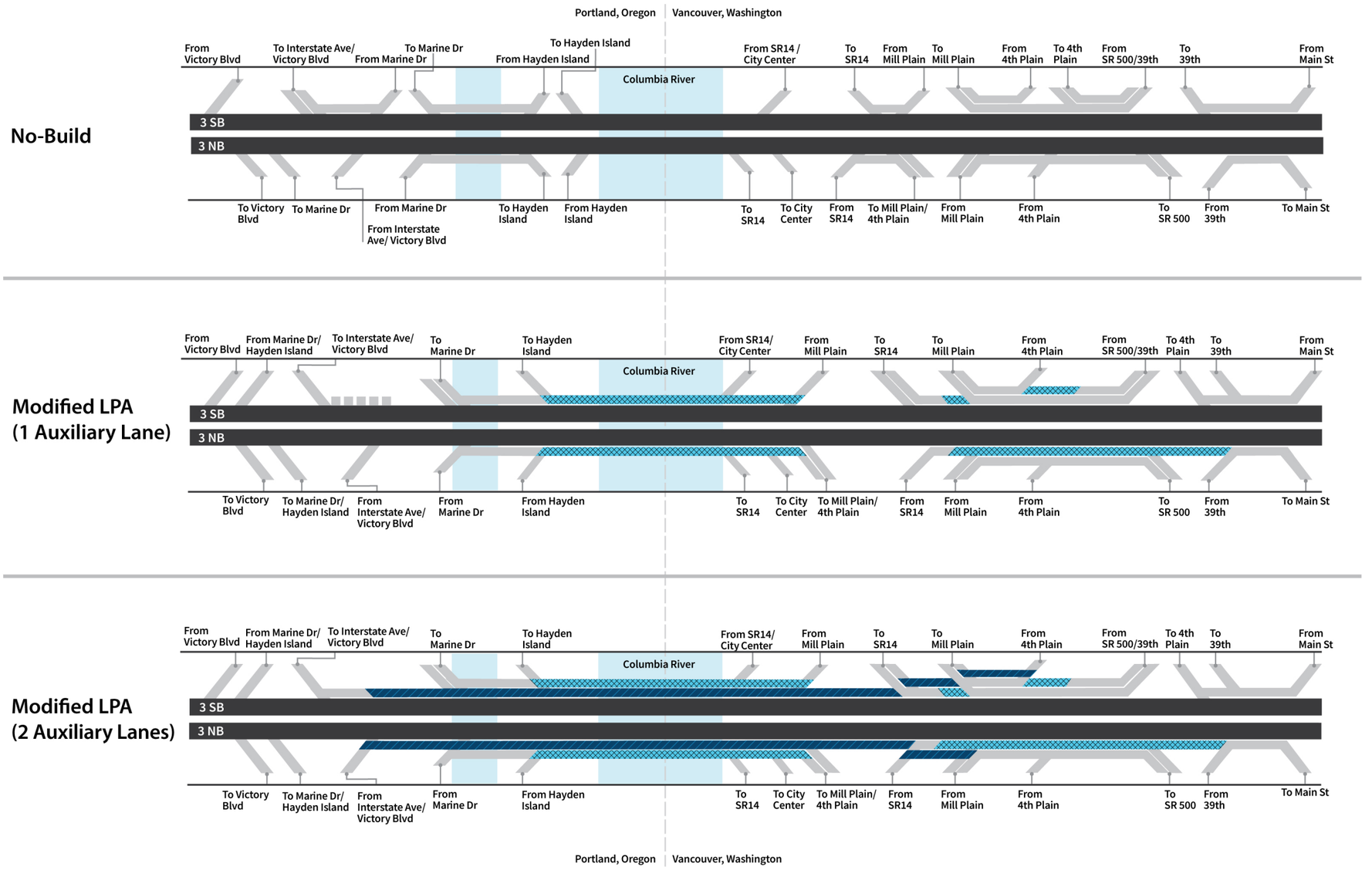
The Modified LPA would also include shoulders (11- to 14-foot inside shoulders and 10- to 14-foot outside shoulders) to be consistent with the design standards of the Oregon Department of Transportation (ODOT) and Washington State Department of Transportation (WSDOT). The inside shoulder would be used by express bus service to bypass mainline congestion, known as "bus on shoulder" (refer to Section 1.1.7, Transit Operating Characteristics). The shoulder would be available for express bus service when general-purpose speeds are below 35 miles per hour (mph).

1.1.1.1 Auxiliary Lane Design Options

The Modified LPA includes design options for one auxiliary lane in each direction or two auxiliary lanes in each direction across the Columbia River bridges in addition to and in combination with existing auxiliary lanes in the area. The one auxiliary lane design option would include an auxiliary lane in each direction across the Columbia River bridges between the Marine Drive interchange and the Mill Plain Boulevard interchange. The two auxiliary lane design option would include a second auxiliary lane from the Interstate Avenue/Victory Boulevard interchange and the SR 500/39th Street interchange, including on the Columbia River bridges (see Figure 1-4). This section provides an overview of the one auxiliary lane and the two auxiliary lane design options.

Figure 1-5, which shows a single-level fixed-span bridge configuration for comparison purposes, shows that the scale of the physical impacts (footprint, or the limits of permanent improvements) would be similar for the Modified LPA with one auxiliary lane design option and the Modified LPA with two auxiliary lanes design option, except over the Columbia River and in downtown Vancouver. For all bridge configuration design options, the two auxiliary lane design option would add a net of approximately 16 feet (8 feet in each direction) in total roadway width to the Columbia River bridges compared to the one auxiliary lane design option.

Figure 1-4. Auxiliary Lane Configurations



Each scenario has three through lanes in each direction

- Existing Through Lanes
- Interchange Ramps and Existing Auxiliary Lanes
- Existing Auxiliary Lanes Removed
- One Auxiliary Lane added in Modified LPA
- Second Auxiliary Lane added in Modified LPA

Notes:

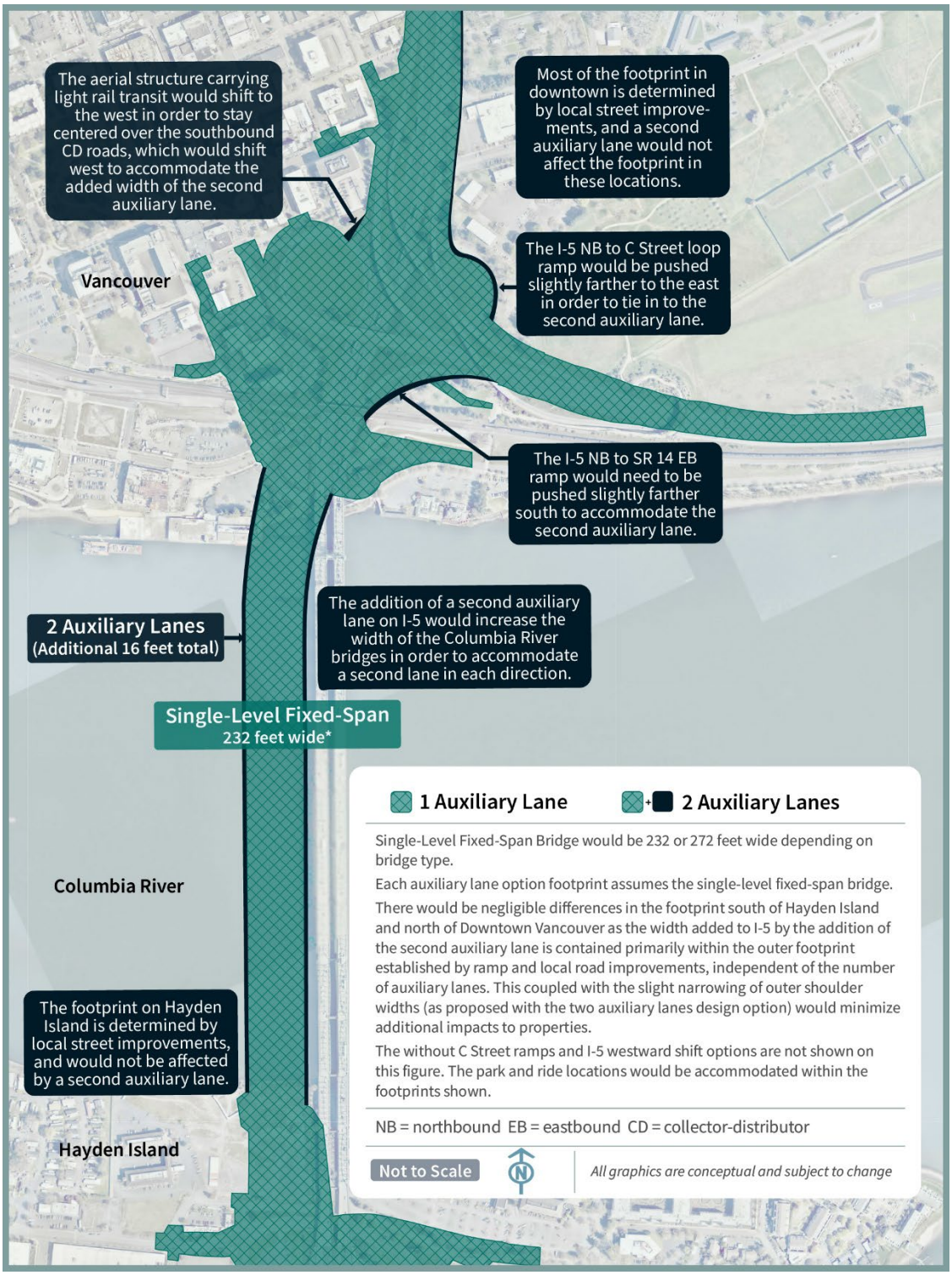
Collector Distributor Lanes not shown.

The traffic operations analysis incorporating both the one and two auxiliary lane design option applies equally to all bridge configuration options in this Draft SEIS.

The C Street ramp (NB to City Center) is an option.

Figure is not to scale.

Figure 1-5. Auxiliary Lane Configuration Footprint Differences



Note: All dimensions are approximate.

ONE AUXILIARY LANE DESIGN OPTION – RECOMMENDED DESIGN OPTION

The one auxiliary lane design option would include a 12-foot-wide auxiliary lane in each direction across the Columbia River bridges between the Marine Drive interchange and the Mill Plain Boulevard interchange.

On northbound I-5, the auxiliary lane would extend the existing auxiliary from the Marine Drive on-ramp to the Hayden Island off-ramp to continue across the Columbia River bridge, and end at the combined off-ramp to Mill Plain/Fourth Plain Boulevard, north of SR 14 (see Figure 1-4). The existing auxiliary lane from the SR 14 on-ramp to the Mill Plain/Fourth Plain off-ramp would be extended to connect to the existing auxiliary lane from the 39th Street on-ramp to the Main Street off-ramp, creating an auxiliary lane beginning at the SR 14 on-ramp and ending at the Main Street off-ramp. The existing auxiliary lane located between the Mill Plain Boulevard on-ramp and the SR 500 off-ramp would remain.

The IBR Program recommends advancing the one auxiliary lane in each direction of I-5 design option. The one and two auxiliary lane design options would provide important benefits to highway operations and safety. Both options received a mix of positive and negative feedback from the public. The one auxiliary lane design option is recommended because it would reduce overall environmental impacts while improving transportation operations and safety. The one auxiliary lane design option is also supported by local transportation agencies.

On southbound I-5, the two existing auxiliary lanes between SR 500/39th Street and Mill Plain Boulevard would remain, with some reconfiguration due to the braided ramps between the SR 500/39th Street and Fourth Plain Boulevard interchanges. The new auxiliary lane across the Columbia River would begin at the Mill Plain Boulevard on-ramp and would continue across the Columbia River bridge, connecting to the existing auxiliary lane on Hayden Island and ending at the Marine Drive off-ramp. The existing southbound auxiliary lane between Marine Drive and Victory Boulevard/Interstate Avenue would be removed due to ramp reconfigurations as part of the Marine Drive braided ramp with the Victory Boulevard/Interstate Avenue off-ramp.

TWO AUXILIARY LANE DESIGN OPTION

The two auxiliary lane design option would include the same improvements as described under the one auxiliary lane design option and would add a second 12-foot-wide auxiliary lane in each direction of I-5 across the Columbia River bridges to further improve safety and operations in the corridor.

On northbound I-5, the inside auxiliary lane would extend from the combined Interstate Avenue/Victory Boulevard on-ramp, continue across the Columbia River bridge, and end at the SR 500/39th Street interchange, connecting to the existing auxiliary lane between the SR 14 on-ramp and Mill Plain on-ramp and the existing auxiliary lane between the 39th Street on-ramp and the Main Street off-ramp. The outside auxiliary lane would extend from the Marine Drive on-ramp across the Columbia River bridge and end at the Mill Plain/Fourth Plain Boulevard off-ramp. A new outside auxiliary lane would begin at the SR 14 on-ramp connecting to the existing auxiliary lane between the Mill Plain Boulevard on-ramp and the SR 500/39th Street off-ramp.

On southbound I-5, the two existing auxiliary lanes between SR 500/39th Street and Mill Plain Boulevard would remain, with some reconfiguration because of the braided ramps between the SR 500/39th Street and Fourth Plain Boulevard interchanges. In addition, there would be a third auxiliary lane between the Fourth Plain Boulevard on-ramp and the Mill Plain Boulevard off-ramp to improve operations and safety between these two closely spaced ramps. The existing auxiliary lane between the SR 500/39th Street on-ramp would extend to the SR 14 collector-distributor off-ramp. This auxiliary lane would then continue across the Columbia River bridge to the Interstate Avenue/Victory Boulevard off-ramp. The outside auxiliary lane would extend from the Mill Plain on-ramp across the Columbia River bridge to connect to the existing auxiliary lane between Hayden Island and the Marine Drive off-ramp.

1.1.2 Portland Mainland and Hayden Island (Subarea A)

This section discusses the geographic Subarea A (Figure 1-3 provides an overview of the geographic subareas). Figure 1-6 shows highway and interchange improvements in Subarea A, including the North Portland Harbor bridges.

1.1.2.1 Levee System Improvements

Within Subarea A, the IBR Program has the potential to alter three federally authorized levee systems:

- The Oregon Slough segment of the Peninsula Drainage District Number 1 levee (PEN 1).
- The Oregon Slough segment of the Peninsula Drainage District Number 2 levee (PEN 2).
- The PEN1/PEN2 Cross Levee segment of the PEN 1 levee (Cross Levee).

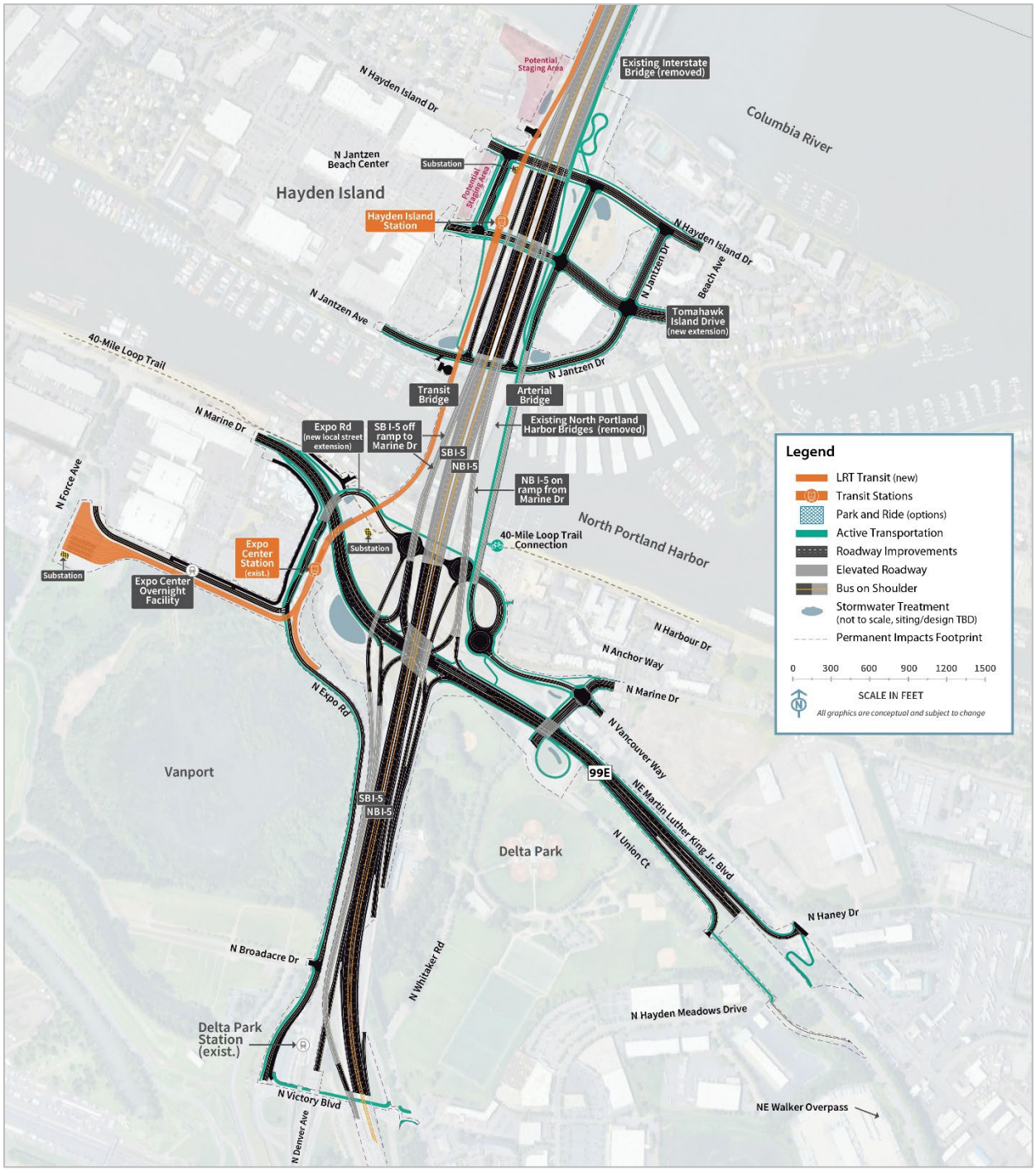
The levee systems are shown on Figure 1-7, and intersections with Modified LPA components are described throughout this section (Section 1.1.2, Portland Mainland and Hayden Island (Subarea A)), where appropriate. Within Subarea A, the IBR Program study area intersects with PEN 1 to the west of I-5 and with PEN 2 to the east of I-5. PEN 1 and PEN 2 include a main levee along the south side of North Portland Harbor and are part of a combination of levees and floodwalls. PEN 1 and PEN 2 are separated by the Cross Levee that is intended to isolate the two districts if one of them were to fail. The Cross Levee is located along the I-5 mainline embankment, except in the Marine Drive interchange area, where it is located on the west edge of the existing ramp from Marine Drive to southbound I-5.[4]

There are two concurrent projects underway that are planning improvements to PEN1, PEN2, and the Cross Levee to reduce flood risk:

- The U.S. Army Corps of Engineers (USACE) Portland Metro Levee System (PMLS) project.
- The Columbia Corridor Flood Safety (CCFS) projects (formerly known as “Flood Safe Columbia River” and “Levee Ready Columbia”).

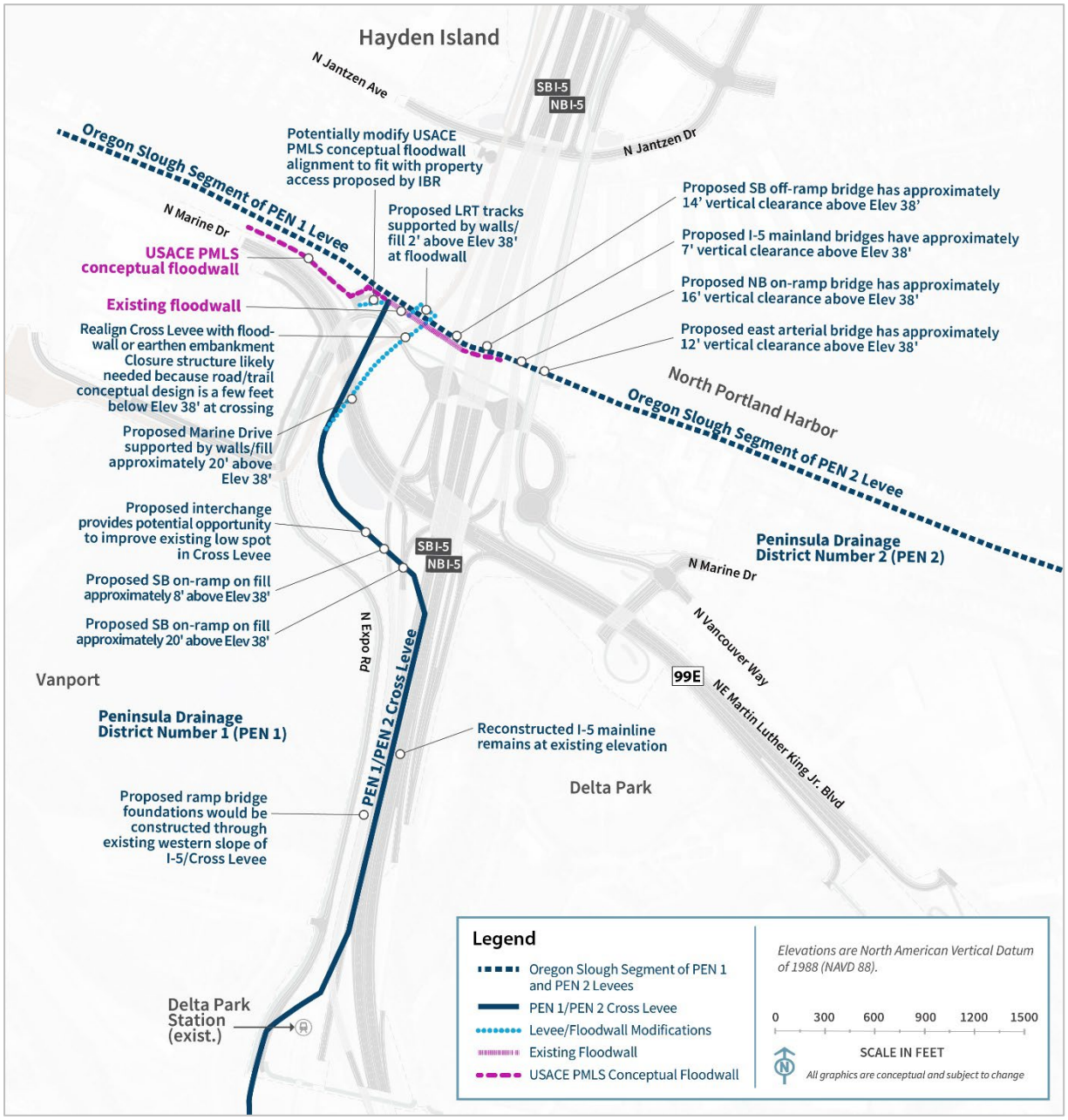
[4] The portion of the original Denver Avenue levee alignment within the Marine Drive interchange area is no longer considered part of the levee system by UFSWQD.

Figure 1-6. Portland Mainland and Hayden Island (Subarea A)



LRT = light-rail transit; NB = northbound; SB = southbound; TBD = to be determined

Figure 1-7. Levee Systems in Subarea A



The Urban Flood Safety and Water Quality District (UFSWQD)[5] is working in partnership with the USACE on the PMLS project, which includes improvements at PEN 1 and PEN 2 (e.g., raising these levees to elevation 38.2 feet for earthen levees and 39.2 feet for flood walls North American Vertical Datum of 1988 [NAVD 88]).[6] Additionally, as part of the CCFS projects, UFSWQD has identified the need to raise a low spot in the Cross Levee on the southwest side of the Marine Drive interchange.

The IBR Program is in close coordination with UFSWQD and the USACE to ensure that the IBR Program's design efforts consider the timing and scope of the PMLS and the CCFS proposed modifications. The intersection of the IBR Program proposed actions to both the existing levee configuration and the anticipated future condition based on the proposed PMLS and CCFS projects are described below, where appropriate.

1.1.2.2 Highways, Interchanges, and Local Roadways

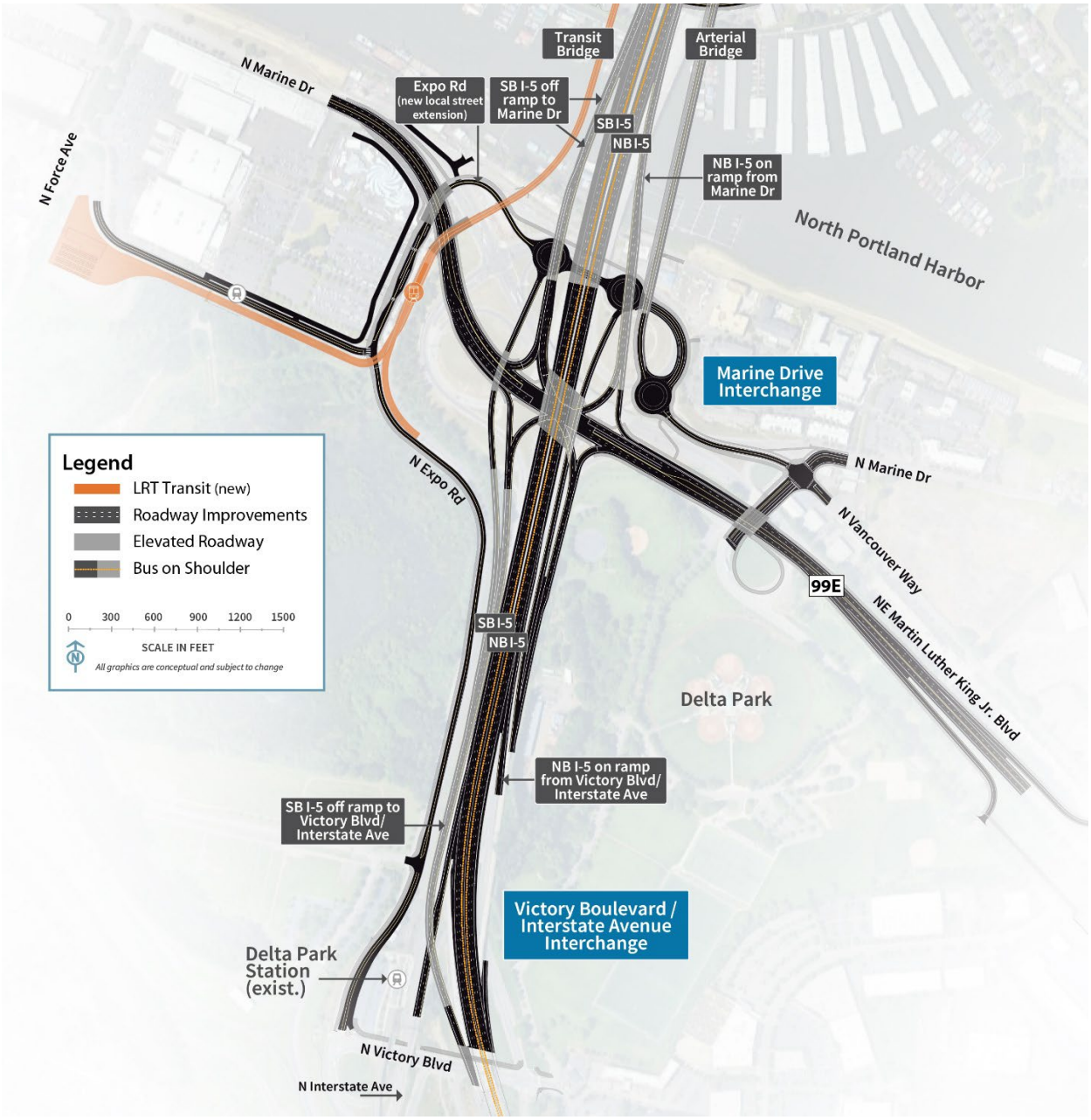
VICTORY BOULEVARD/INTERSTATE AVENUE INTERCHANGE AREA

The southern extent of the Modified LPA would improve two ramps at the Victory Boulevard/Interstate Avenue interchange (see Figure 1-6 and Figure 1-8). The first ramp improvement would be the southbound I-5 off-ramp to Victory Boulevard/Interstate Avenue; this off-ramp would be braided below (i.e., grade separated or pass below) the Marine Drive to the I-5 southbound on-ramp (see the Marine Drive Interchange Area section below). The other ramp improvement would lengthen the merge distance for northbound traffic entering I-5 from Victory Boulevard and from Interstate Avenue.

The existing I-5 mainline between Victory Boulevard/Interstate Avenue and Marine Drive is part of the Cross Levee (see Figure 1-7). The Modified LPA would require some pavement reconstruction of the mainline in this area; however, the improvements would mostly consist of pavement overlay, and the profile and footprint would be similar to existing conditions.

[5] UFSWQD includes PEN 1 and PEN 2, Urban Flood Safety and Water Quality District No. 1, and the Sandy Drainage Improvement Company.
[6] NAVD 88 is a vertical control datum (reference point) used by federal agencies for surveying.

Figure 1-8. Transit and Roadway Improvements in North Portland



MARINE DRIVE INTERCHANGE AREA

The next interchange north of the Victory Boulevard/Interstate Avenue interchange is at Marine Drive. All movements within this interchange would be reconfigured to improve safety and operations for motorists entering and exiting I-5, and all active transportation users accessing areas in the vicinity of the interchange. In addition, Marine Drive would be raised over the proposed LRT extension to separate motorist and transit users. The proposed Marine Drive interchange configuration would be a single-point urban interchange. Figure 1-8 shows Marine Drive interchange's layout and construction footprint.

Martin Luther King Jr. Boulevard would have new more direct connections to I-5. The new interchange configuration would change the westbound Marine Drive and westbound Vancouver Way connections to Martin Luther King Jr. Boulevard. An improved connection farther east of the interchange (near Haney Drive) would provide access to westbound Martin Luther King Jr. Boulevard for these two streets. The existing access to westbound Martin Luther King Jr. Boulevard from Vancouver Way east of Haney Drive would be closed. For eastbound travelers on Martin Luther King Jr. Boulevard exiting to Union Court, the existing loop connection would be replaced with a new connection farther east (between the access to the East Delta Park Owens Sports Complex and N Hayden Meadows Drive).

Expo Road from Victory Boulevard to the Expo Center would be reconstructed with improved active transportation facilities. North of the Expo Center, Expo Road would be extended under Marine Drive and continue under I-5 to the east, connecting with Marine Drive and Vancouver Way through three new connected intersections. The westernmost intersection would connect the new local street extension to I-5 southbound. The middle intersection would connect the I-5 northbound off-ramp to the local street extension. The easternmost intersection would connect the new local street extension to an arterial bridge crossing North Portland Harbor to Hayden Island. This intersection would also connect the local street extension to Marine Drive and Vancouver Way.

To access Hayden Island using the arterial bridge from the east on Martin Luther King Jr. Boulevard, motorists would exit Martin Luther King Jr. Boulevard at the existing off-ramp to Vancouver Way just west of the Walker Street overpass. Then motorists would travel west on Vancouver Way, through the intersection with Marine Drive and straight through the intersection to the arterial bridge.

From Hayden Island, motorists traveling south to Portland via Martin Luther King Jr. Boulevard would turn onto the arterial bridge southbound and travel straight through the intersection onto Vancouver Way. At the intersection of Vancouver Way and Marine Drive, motorists would turn right onto Union Court and follow the existing road southeast to the existing on-ramp onto Martin Luther King Jr. Boulevard.

The conceptual floodwall alignment from the proposed USACE PMLS project is located on the north side of Marine Drive, near two industrial properties, with three proposed closure structures[7] for property access. The Modified LPA would realign Marine Drive to the south to maintain traffic on existing Marine Drive during construction. The Modified LPA would provide access to the two industrial properties via the new local road extension from Expo Road. Therefore, the change in

[7] Levee closure structures are put in place at openings along the embankment/floodwall to provide flood protection during high water conditions.

access for the two industrial properties could require small modifications to the floodwall alignment (a potential shift of approximately 5 to 10 feet to the south) and closure structure locations. The IBR Program is coordinating with USACE PMLS and the UFSWQD on modifications to the floodwall alignment.

Marine Drive and the two southbound on-ramps would travel over the Cross Levee approximately 10 to 20 feet above the proposed elevation of the improved levee, and they would be supported by fill and retaining walls near an existing low spot in the Cross Levee.

The I-5 southbound on-ramp from Marine Drive would continue on a new bridge structure. Although the bridge's foundation locations have not been determined yet, they would be constructed through the western slope of the Cross Levee (between the existing I-5 mainline and the existing light-rail).

NORTH PORTLAND HARBOR BRIDGES

To the north of the Marine Drive interchange is the Hayden Island interchange area, which is shown in Figure 1-6. I-5 crosses over the North Portland Harbor when traveling between these two interchanges. The Modified LPA proposes to replace the existing I-5 bridge spanning North Portland Harbor to improve seismic resilience.

Six new parallel bridges would be built across the waterway under the Modified LPA: one on the east side of the existing I-5 North Portland Harbor bridge and five on the west side or overlapping the location of the existing bridge (which would be removed). From west to east, these bridges would carry:

- The LRT tracks.
- The southbound I-5 off-ramp to Marine Drive.
- The southbound I-5 mainline.
- The northbound I-5 mainline.
- The northbound I-5 on-ramp from Marine Drive.
- An arterial bridge between the Portland mainland and Hayden Island with a shared-use path for pedestrians and bicyclists.

All new structures would have at least as much vertical navigation clearance over North Portland Harbor as the existing North Portland Harbor bridge.

All of the six bridges would be designed and constructed to have sufficient clearance over the levees for access and maintenance. The foundation locations for the five roadway bridges have not been determined at this stage of design, but some foundations could be constructed through landward or riverward levee slopes.

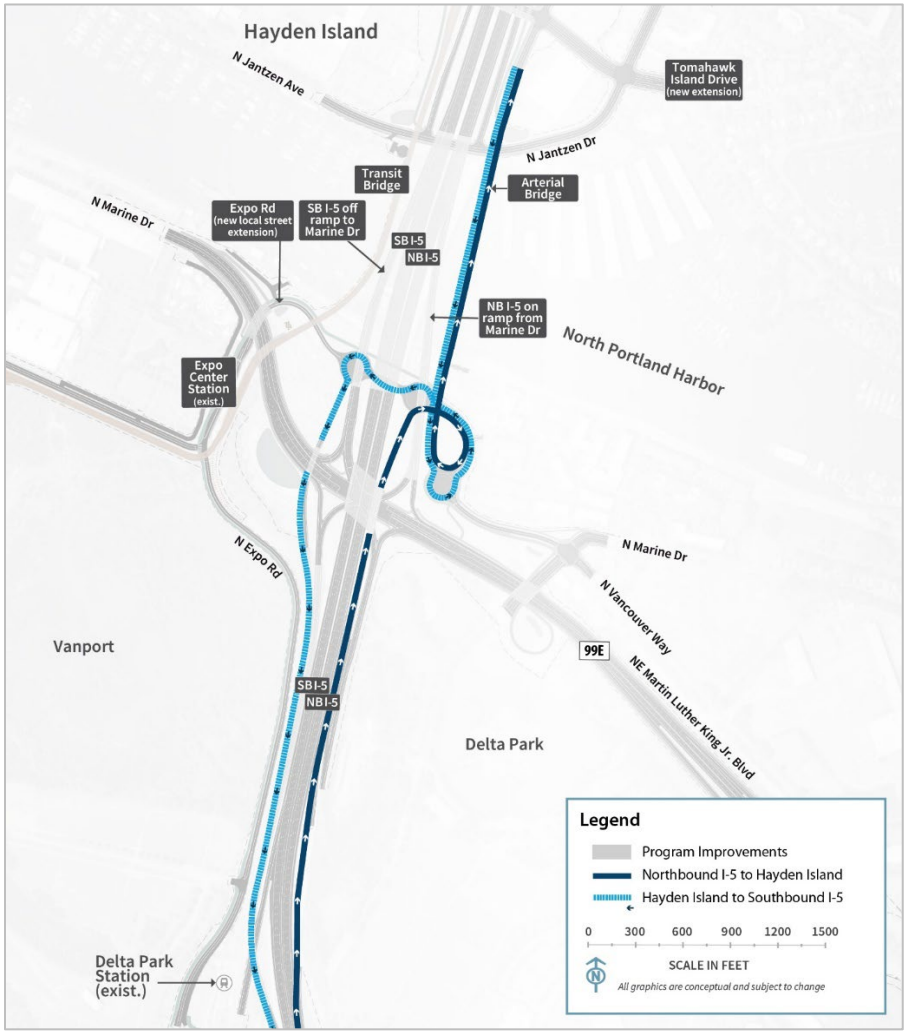
HAYDEN ISLAND INTERCHANGE AREA

All traffic movements for the Hayden Island interchange would be reconfigured. Figure 1-6 shows the layout and construction footprint of the Hayden Island interchange. A partial interchange would be built on Hayden Island with a northbound I-5 on-ramp from Jantzen Drive and a southbound I-5 off-ramp to Jantzen Drive. This would improve ramp lengths to provide sufficient merging/diverging

areas compared to the existing substandard ramps that require acceleration and deceleration in a short distance. The I-5 mainline would be partially located on fill across the island and partially elevated to provide east–west connections on Hayden Island.

There would not be a southbound I-5 on-ramp or northbound I-5 off-ramp located on Hayden Island. Connections to Hayden Island for those movements would be via the local access (i.e., arterial) bridge connecting North Portland to Hayden Island (Figure 1-9). Vehicles traveling northbound on I-5 wanting to access Hayden Island would exit with traffic going to the Marine Drive interchange, cross under Martin Luther King Jr. Boulevard to the new intersection at the Expo Road local street extension, and use the arterial bridge to cross North Portland Harbor. Vehicles on Hayden Island looking to enter I-5 southbound would use the arterial bridge to cross North Portland Harbor, cross under I-5 using the new Expo Road local street extension to the westernmost intersection, cross under Marine Drive, merge with the Marine Drive southbound on-ramp, and merge with I-5 southbound south of Victory Boulevard.

Figure 1-9. Vehicle Circulation between Hayden Island and the Portland Mainland



NB = northbound; SB = southbound

Improvements to Jantzen Avenue may include additional left-turn and right-turn lanes at the interchange ramp terminals and active transportation facilities. Improvements to Hayden Island Drive would include new connections to the new arterial bridge over North Portland Harbor. The existing I-5 northbound and southbound access points from Hayden Island Drive would also be removed. A new extension of Tomahawk Island Drive would travel east–west through the middle of Hayden Island and under the I-5 interchange, thus improving connectivity across I-5 on the island.

1.1.2.3 Transit

A new light-rail alignment for northbound and southbound trains would be constructed within Subarea A (Figure 1-6) to extend from the existing Expo Center MAX Station over North Portland Harbor to a new station at Hayden Island. An overnight LRV facility would be constructed on the southwest corner of the Expo Center property (Figure 1-6) to provide storage for trains during hours when the MAX is not in service. This facility is described in Section 1.1.6, Transit Support Facilities. The existing Expo Center MAX Station would be modified to remove the westernmost track and platform. Other platform modifications, including track realignment and regrading the station, are anticipated to transition to the extension alignment. This could require reconstruction of the operator break facility, signal/communication buildings, and TPSSs. The existing TPSS at the end of TriMet's MAX Yellow Line would be decommissioned. A new TPSS would be constructed to the east of the LRT tracks and south of Expo Road, as well as at the overnight LRV facility, east of N Force Avenue. Immediately north of the Expo Center MAX Station, the LRT alignment would curve east toward I-5, pass beneath an elevated Marine Drive, cross the proposed Expo Road local street extension and the 40-Mile Loop Trail at grade, then rise over the existing levee onto a light-rail bridge to cross North Portland Harbor.

After crossing the new Expo Road extension, the new light-rail track would cross over the main levee (Figure 1-7). The light-rail profile is anticipated to provide sufficient clearance above the improved levees at the existing floodwall (and improved floodwall), and the tracks would be constructed on fill supported by retaining walls above the floodwall. North of the floodwall, the light-rail tracks would continue onto the new light-rail bridge over North Portland Harbor.

As the Modified LPA's light-rail extension would cross the north end of the existing Cross Levee, the IBR Program is proposing to realign the Cross Levee to the east of the light-rail alignment. This realigned Cross Levee would intersect the new Expo Road extension. A levee closure structure would be required because the proposed roadway is a few feet lower than the proposed elevation of the improved levee.

On Hayden Island, proposed transit components include northbound and southbound LRT tracks over Hayden Island; the tracks would be elevated at approximately the height of the new I-5 mainline. An elevated LRT station would also be built on the island immediately west of I-5. Active transportation facilities, described below, would connect to the new Hayden Island Station. A new TPSS would be constructed at the Hayden Island Station, north of the transit platform. If a single-level fixed-span or movable-span Columbia River bridge configuration were implemented, the light-rail alignment would extend north on Hayden Island along the western edge of I-5 before transitioning onto the outer (western) edge of the new western single-level bridge over the Columbia River. For the double-deck

configuration, the light-rail alignment would transition to the lower level of the new double-deck southbound I-5 bridge over the Columbia River.

1.1.2.4 Active Transportation

In the Victory Boulevard interchange area (Figure 1-6), active transportation facilities would be provided on Victory Boulevard beneath I-5 and Interstate Avenue between Expo Road and the northbound on/off-ramp terminal east of I-5. Active transportation facilities would also be provided along Expo Road between Victory Boulevard and the Expo Center. These facilities would provide direct connections between the Victory Boulevard and Marine Drive interchange areas, as well as links to the Delta Park and Expo Center MAX Stations.

New shared-use path connections throughout the Marine Drive interchange area would provide access between the Bridgeton neighborhood (on the east side of I-5), Hayden Island, and the Expo Center MAX Station. There would also be connections to the existing portions of the 40-Mile Loop Trail, which runs north of Marine Drive under I-5 through the interchange area. The path would continue along the extension of Expo Road under the interchange to the intersection of Marine Drive and Vancouver Way, where it would connect under Martin Luther King Jr. Boulevard to Delta Park.

East of the Marine Drive interchange, active transportation facilities on Martin Luther King Jr. Boulevard and on the parallel street, Union Court, would connect travelers to Marine Drive and across the arterial bridge to Hayden Island. The active transportation facilities on Martin Luther King Jr. Boulevard would provide westbound and eastbound cyclists and pedestrians with off-street crossings of the interchange and would also provide connections to both the Expo Center MAX Station and the 40-Mile Loop Trail to the west.

The new arterial bridge over North Portland Harbor would include a shared-use path for pedestrians and bicyclists (Figure 1-6). On Hayden Island, active transportation facilities would be provided on Jantzen Avenue, Hayden Island Drive, and Tomahawk Island Drive and would connect to the Hayden Island Station. The shared-use path on the arterial bridge would continue along the arterial bridge to the south side of Tomahawk Island Drive. A parallel, elevated path from the arterial bridge would continue adjacent to I-5 across Hayden Island and cross above Tomahawk Island Drive and Hayden Island Drive to connect to the outer edge of the new single-level, or lower level of the double-deck eastern bridge over the Columbia River. A ramp down to the north side of Hayden Island Drive would be provided from the elevated path.

1.1.3 Columbia River Bridges (Subarea B)

This section discusses the geographic Subarea B (Figure 1-3 provides an overview of the geographic subareas). Figure 1-10 shows highway and interchange improvements in Subarea B.

Figure 1-10. Columbia River Bridges (Subarea B)

1.1.3.1 Highways, Interchanges, and Local Roadways

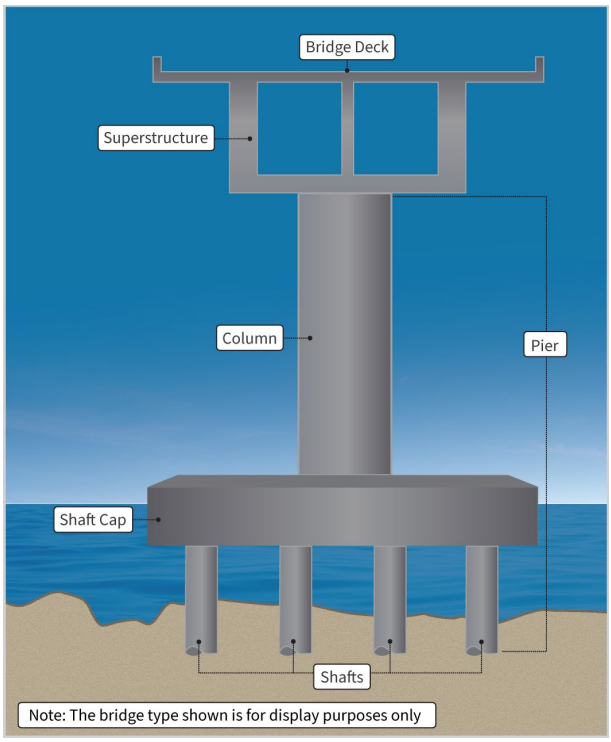
The two existing parallel northbound and southbound I-5 bridges that cross the Columbia River were constructed in 1917 and 1958, respectively. When the 1958 bridge was constructed, pier 5 of the 1917 bridge was removed and the profile was raised to match the new bridge. For the IBR Program, the two existing bridges would be replaced by two new parallel bridges, located west of the existing bridges (Figure 1-10). The new bridges would be designed to current American Association of State Highway and Transportation Officials (AASHTO) Load and Resistance Factor Design (LRFD) Bridge Design Specifications and AASHTO Seismic Guide Specifications and in compliance with ODOT and WSDOT

design criteria. With all bridge configuration design options, the new eastern bridge would accommodate northbound highway traffic and a shared-use path. The new western bridge would carry southbound traffic and light-rail tracks. Whereas the existing bridges each have three lanes with no shoulders, each of the two new bridges would accommodate three through lanes, one or two auxiliary lanes, and shoulders on both sides of the highway. Lanes and shoulders would be built to full design standards.

As with the existing bridge (Figure 1-12), the new Columbia River bridges would provide three navigation channels: a primary navigation channel (Figure 1-13). The current location of the primary navigation channel is near the Vancouver shoreline where the existing lift spans are located. The IBR Program is coordinating with the USACE to obtain authorization to change the location of the primary navigation channel. Under the Modified LPA, the primary navigation channel would be shifted south approximately 500 feet (measured by channel centerlines), and the existing center barge channel would shift north and become the north barge channel. The new primary navigation channel would be 400 feet wide (this width includes a 300-foot USACE-authorized channel and a 50-foot channel maintenance buffer on each side of the authorized channel), and the two barge channels would also each be 400 feet wide.

The existing Interstate Bridge has nine in-water pier sets[8] and four pier sets on land (pier locations are shown on Figure 1-12). The new Columbia River bridges (any bridge configuration) would be built on six in-water pier sets, plus multiple piers on land (pier locations are shown on Figure 1-13). Each in-water pier set would be supported by a foundation of drilled shafts; each group of shafts would be tied together with a concrete shaft cap. Columns or pier walls would rise from the shaft caps and connect to the superstructures of the bridges (Figure 1-11).

Figure 1-11. Bridge Foundation Concept



BRIDGE CONFIGURATION OPTIONS

Three bridge configuration options are being considered: (1) double-deck fixed-span (with one bridge type); (2) a single-level fixed-span (with various potential bridge types); and (3) a single-level movable-span (with one bridge type). Both the double-deck and single-level fixed-span configurations would provide 116 feet of vertical navigation clearance at their respective highest spans, which was the vertical navigation clearance of the CRC LPA. The CRC LPA included a double-deck fixed-span bridge configuration. The single-

[8] A pier set consists of the pier supporting the northbound bridge and the pier supporting the southbound bridge at a given location.

level fixed-span configuration was developed and is being considered as part of the IBR Program in response to the physical and contextual changes (e.g., design and operational considerations) since 2013 that allowed for opportunities to examine a refinement in the double-deck bridge configuration (e.g., ingress and egress of transit from the lower level of the double-deck fixed-span configuration on the north end of the southbound bridge).

Consideration of the single-level movable-span configuration as part the IBR Program was necessitated by the U.S. Coast Guard's (USCG) review of the Program's navigation impacts on the Columbia River and issuance of a Preliminary Navigation Clearance Determination (PNCD) (USCG 2022). The USCG PNCD set the preliminary vertical navigation clearance recommended for the issuance of a bridge permit at 178 feet; this is the current vertical navigation clearance of the Interstate Bridge. On January 16, 2026, the USCG issued a revised PNCD for the new Columbia River bridges and set the preliminary vertical navigation clearance at 116 feet or greater (USCG 2026).

The IBR Program is carrying forward the three bridge configurations, each of which meets the IBR Program's Purpose and Need, to address changed conditions to ensure a permittable bridge configuration is within the range of options considered in the Supplemental Environmental Impact Statement (SEIS). Each of the bridge configuration design options provides at least 116 feet of vertical navigation clearance and is consistent with the January 2026 PNCD issued by the USCG. Additional discussion on pending actions to obtain authorizations from USCG and USACE for the Columbia River bridges' primary navigation channel location are described in Section 2.6, Additional Compliance, of the Final SEIS.

Each of the bridge configurations assumes one auxiliary lane; two auxiliary lanes could be applied to any of the bridge configurations. All typical sections with one auxiliary lane would provide 14-foot shoulders to accommodate bus on shoulder and maintain traffic during construction of the Modified LPA and future maintenance.

Figure 1-12. Existing Navigation Clearances of the Interstate Bridge

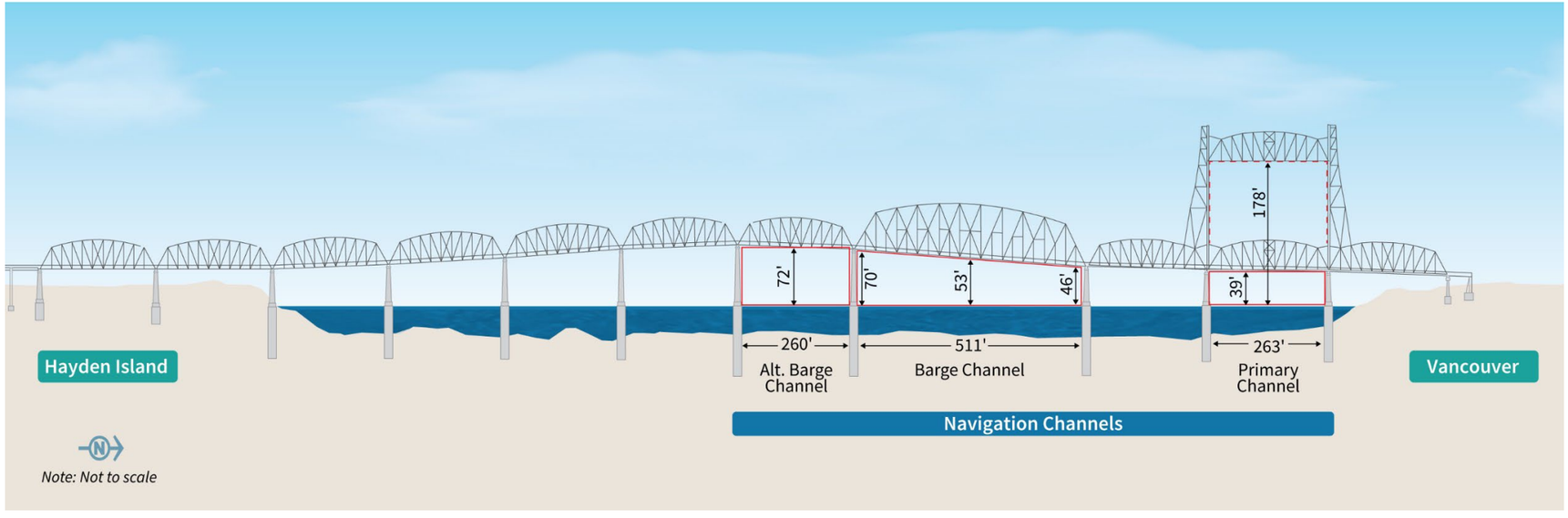
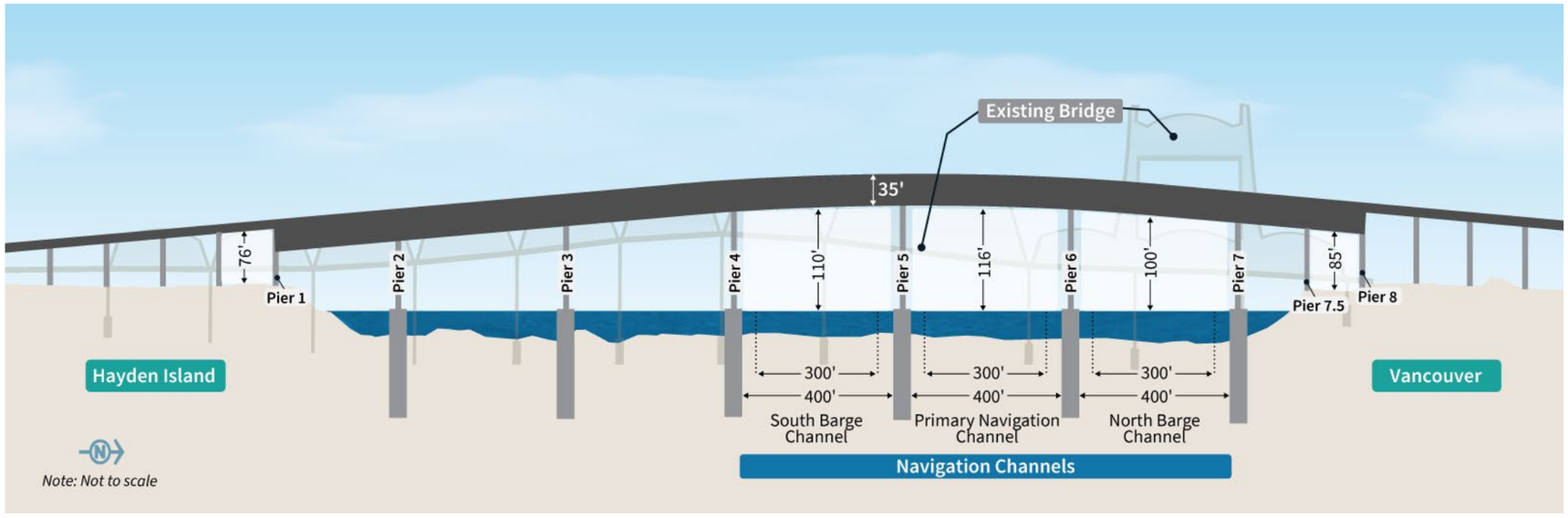


Figure 1-13. Navigation Clearances and Proposed Profile of the Modified LPA Columbia River Bridges with a Double-Deck Fixed-Span Configuration



Note: The location and widths of the proposed navigation channels would be same for all bridge configuration and bridge type options. The three navigation channels would each be 400 feet wide (this width includes a 300-foot USACE-authorized channel (shown in dotted lines) plus a 50-foot channel maintenance buffer on each side of the authorized channel). The vertical navigation clearance would vary, as described in the following sections.

Double-Deck Fixed-Span Configuration

The double-deck fixed-span configuration would be two side-by-side, double-deck, fixed-span steel truss bridges. Figure 1-14 shows an example of this configuration (this image is subject to change and is shown as a representative concept; it does not depict the final design). The double-deck fixed-span configuration would provide 116 feet of vertical navigation clearance for river traffic using the primary navigation channel and 400 feet of horizontal navigation clearance at the primary navigation channel, as well as barge channels.

The eastern bridge would accommodate northbound highway traffic on the upper level and the shared-use path and utilities on the lower level. The western bridge would carry southbound traffic on the upper level and one set of light-rail tracks (one northbound track and one southbound track) on the lower level. Each bridge deck would typically be 79 feet wide, with a total out-to-out width of approximately 173 feet.[9]

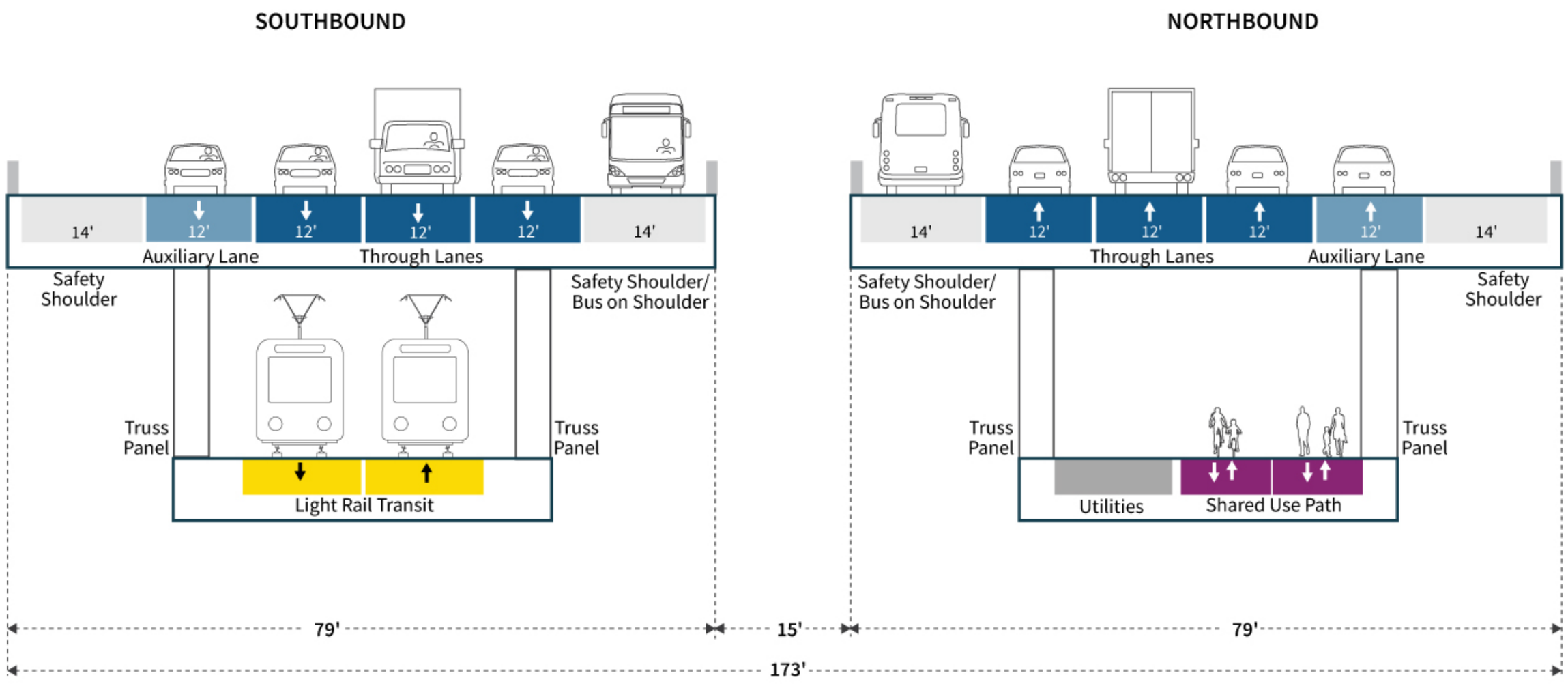
Figure 1-14. Conceptual Drawing of a Double-Deck Fixed-Span Configuration

Note: Visualization is looking southeast from Vancouver.

Figure 1-15 shows a typical cross section of the two parallel double-deck bridges. Like all bridge configuration design options under consideration, the double-deck fixed-span configuration would have six in-water pier sets. Each pier set would require 12 in-water drilled shafts, for a total of 72 in-water drilled shafts. Each individual shaft cap would be approximately 50 feet by 85 feet. This bridge configuration would have up to a 4% maximum grade on both the Oregon and Washington sides. All vertical profiles would follow AASHTO, WSDOT, and ODOT design standards.

[9] "Out-to-out width" is the measurement between the outside edges of the bridge across its width at the widest point.

Figure 1-15. Typical Cross Section of the Double-Deck Fixed-Span Configuration



Note: Design is not final and subject to change. Widths may vary with final design. The one auxiliary lane design option is used for illustration purposes. The two auxiliary lane design option would add approximately 8 feet to each bridge (i.e., 16 feet to the total width).

Single-Level Fixed-Span Configuration – Recommended Design Option

The single-level fixed-span configuration would have two side-by-side, single-level, fixed-span steel or concrete bridges. This report considers two single-level fixed-span bridge type options: a girder (steel or concrete segmental) bridge and an extradosed bridge.[10] The description in this section applies to both bridge types (unless otherwise indicated). Conceptual examples of both options are shown on Figure 1-16. These images are subject to change and do not represent final design.

This configuration would provide 116 feet of vertical navigation clearance for river traffic using the primary navigation channel and 400 feet of horizontal navigation clearance at the primary navigation channel, as well as barge channels, which is consistent with the January 2026 PNCD issued by the USCG.

The eastern bridge would accommodate northbound highway traffic and the shared-use path; the bridge deck would be approximately 104 feet wide. The western bridge would carry southbound traffic and light-rail tracks; the bridge deck would be approximately 113 feet wide. The I-5 highway, light-rail tracks, and the shared-use path would be on the same level across the two bridges, instead of being divided between two levels as with the double-deck configuration. The total out-to-out width of the single-level fixed-span configuration (extradosed option) would be approximately 272 feet at its widest point, approximately 99 feet wider than the double-deck configuration. The total out-to-out width of the single-level fixed-span configuration (girder option) would be approximately 232 feet at its widest point. Figure 1-17 shows a typical cross section of the single-level configuration with an extradosed bridge as shown by the 10-foot-wide bridge columns. Figure 1-18 shows a

The IBR Program recommends advancing the single-level fixed-span bridge configuration. All bridge configurations would provide important benefits to highway operations and safety and have similar impacts to many resources. The main differences between either of the fixed-span configurations and the movable-span configuration is that the latter would provide more vertical clearance to accommodate larger vessels and a lower grade for all land-based transportation modes (which would benefit freight and active transportation users in particular), but this configuration would also periodically disrupt all other land-based transportation modes (personal vehicles, freight, transit, and active transportation) with bridge openings. The main differences between the double-deck and single-level fixed-span configurations are that the slightly higher grade of the former would impact freight traffic and active transportation users, and the latter would have faster emergency response times (although there would also be more exposure to vehicles) and give users of the shared-use path a greater sense of security due to “eyes on the path.” The fixed-span configurations received generally positive comments from the public, while there was mixed feedback on the movable-span because of the tradeoffs given above.

[10] The Draft SEIS also included a finback as a single-level fixed-span bridge type. As the design of the various bridge types progressed, it was determined that the finback would have higher risks associated with increased cost and construction schedule because this bridge type is less common and applying this bridge type to the scale of the new Columbia River bridges would introduce more design and construction challenges than the other bridge type options. Other bridge types, such as concrete or steel girder or extradosed, would have fewer risks and would be a more suitable for this location. As a result, the finback bridge type was dropped from further consideration.

typical cross section with a girder bridge, which would not have the 10-foot-wide bridge columns shown on Figure 1-17.

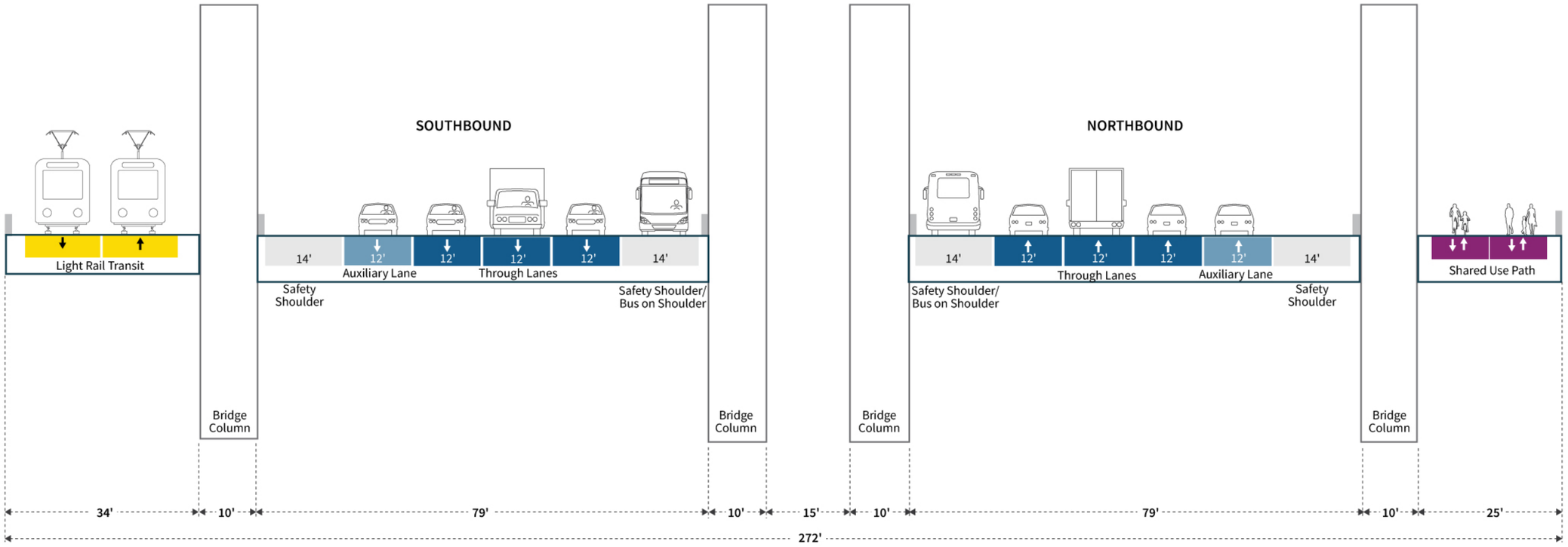
There would be six in-water pier sets with 16 in-water drilled shafts on each combined shaft cap, for a total of 96 in-water drilled shafts. The combined shaft caps for each pier set would be approximately 50 feet by 230 feet.

This bridge configuration would be expected to have an approximate grade of 3% on both the Oregon and Washington sides of the bridge. All vertical profiles would follow AASHTO, WSDOT, and ODOT design standards.

Figure 1-16. Conceptual Drawings of Single-Level Fixed-Span Bridge Types

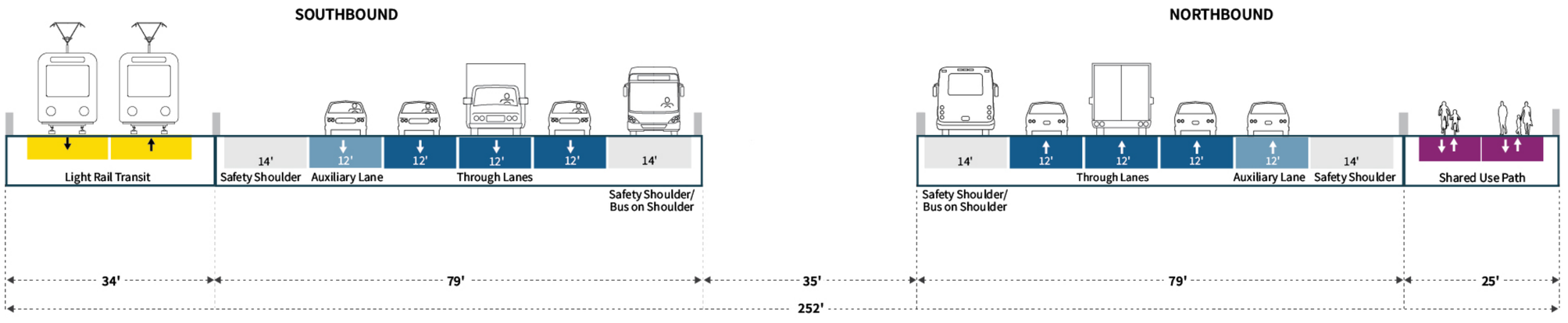
Note: Visualizations are for illustrative purposes only. They do not reflect property impacts or represent final design. Visualization is looking southeast from Vancouver.

Figure 1-17. Typical Cross Section of the Single-Level Fixed-Span Configuration (Extradosed Type)



Note: Design is not final and subject to change. Widths may vary with final design. The two auxiliary lane design option would add approximately 8 feet to each bridge (i.e., 16 feet to the total width).

Figure 1-18. Typical Cross Section of the Single-Level Fixed-Span Configuration (Girder Type)



Note: Design is not final and subject to change. Widths may vary with final design. The cross section for a girder bridge type would be the same as an extradosed bridge type except that it would not have the four 10-foot bridge columns. The distance between the two bridges could be reduced to 10 feet. The one auxiliary lane design option is used for illustration purposes. The two auxiliary lane design option would add approximately 8 feet to each bridge (i.e., 16 feet to the total width).

Single-Level Movable-Span Configuration

The single-level movable-span configuration would have two side-by-side, single-level steel girder bridges with movable spans between Piers 5 and 6. For the purpose of this report, the IBR Program assessed a vertical lift movable-span configuration with counterweights based on the analysis in the *River Crossing Bridge Clearance Assessment Report – Movable-Span Options,* included as part of Attachment C in Appendix D, Design Options Development, Screening, and Evaluation Technical Report to the Final SEIS. A conceptual example of a vertical lift-span bridge is shown in Figure 1-19. These images are subject to change and do not represent final design.

A movable span must be located on a straight and flat bridge section (i.e., without horizontal curvature and with minimal grade). To comply with these requirements, and for the bridge to maintain the highway, transit, and active transportation connections on Hayden Island and in Vancouver while minimizing property acquisitions and displacements, the movable span is proposed to be located approximately 500 feet south of the existing lift span, between Piers 5 and 6.

The single-level movable-span configuration would provide approximately 90 feet of vertical navigation clearance over the proposed relocated primary navigation channel when the movable spans are in the closed position, with 99 feet of vertical navigation clearance available over the north barge channel. It satisfies the requirement of a minimum of 72 feet of vertical navigation clearance (the existing Interstate Bridge's maximum clearance over the alternate [southernmost] over the barge channel when the existing lift span is in the closed position).

In the open position, the movable span would provide 178 feet of vertical navigation clearance over the proposed relocated primary navigation channel. Similar to the fixed-span configurations, the movable span would provide 400 feet of horizontal navigation clearance for the primary navigation channel and for each of the two barge channels. The vertical lift-span towers would be approximately 243 feet high, which would be slightly shorter than the existing lift-span towers, which are 247 feet high.

Similar to the single-level fixed-span configuration, the eastern bridge would accommodate northbound highway traffic and the shared-use path, and the western bridge would carry southbound traffic and light-rail tracks. The I-5 highway, light-rail tracks, and shared-use path would be on the same level across the bridges instead of on two levels as with the double-deck configuration. Typical cross sections of the single-level movable-span configuration are shown in Figure 1-20; the top section depicts the vertical lift spans (Piers 5 and 6), and the bottom section depicts the fixed spans (Piers 2, 3, 4, and 7). The movable and fixed cross sections are slightly different because the movable span requires lift towers, which are not required for the fixed spans of the bridges.

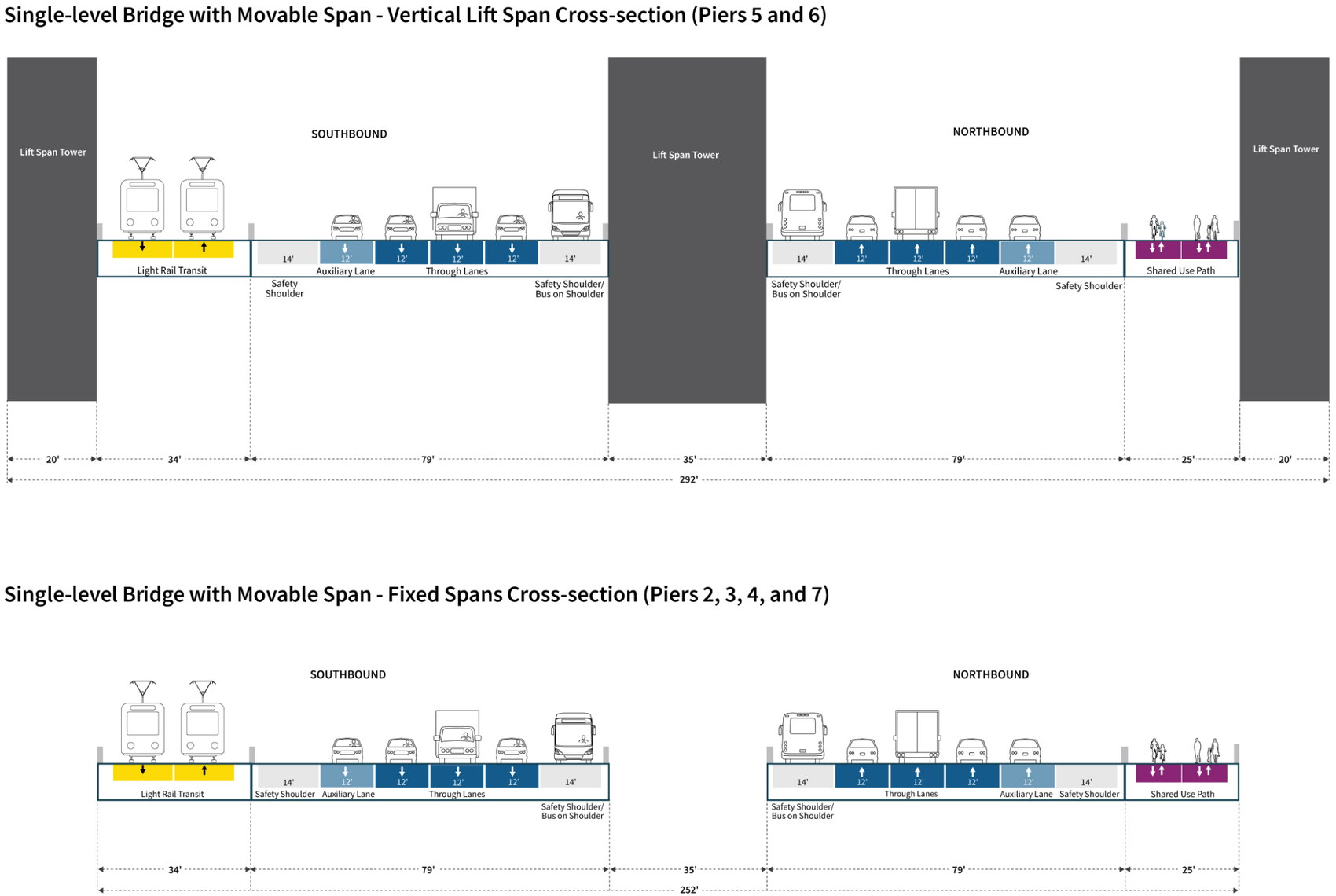
There would be six in-water pier sets and two piers on land per bridge. The vertical lift span would have 22 in-water drilled shafts each for Piers 5 and 6; the shaft caps for these piers would be approximately 50 feet by 312 feet to accommodate the vertical lift spans. Piers 2, 3, 4, and 7 would have 16 in-water drilled shafts each; the shaft caps for these piers would be the same as for the fixed-span options (approximately 50 feet by 230 feet). The single-level movable-span configuration (with a vertical lift span) would have a total of 108 in-water drilled shafts.

This single-level movable-span configuration would be expected to have an approximate grade of 3% on the Oregon side of the bridge and an approximate grade of 1.5% on the Washington side. All vertical profiles would follow AASHTO, WSDOT, and ODOT design standards.

Figure 1-19. Conceptual Drawings of Single-Level Movable-Span Configurations in the Closed and Open Positions

Note: Visualization is looking southeast (upstream) from Vancouver.

Figure 1-20. Typical Cross Section of the Single-Level Movable-Span Bridge Type



Note: Design is not final and subject to change. Widths may vary with final design. The one auxiliary lane design option is used for illustration purposes. The two auxiliary lane design option would add approximately 8 feet to each bridge (i.e., 16 feet to the total width).

Bridge Configuration Comparison

This section summarizes and compares each of the bridge configurations. Table 1-2 lists the key considerations for each bridge configuration. Figure 1-21 compares each of the three bridge configurations' footprints with the one auxiliary lane design option (refer to Figure 1-5 for a comparison of the one and two auxiliary lane design options footprints). The footprints of each configuration would differ in only three locations: over the Columbia River and at the bridge landings on Hayden Island and Vancouver. The rest of the I-5 corridor would have the same footprint. Over the Columbia River, the footprint of the double-deck fixed-span configuration would be approximately 173 feet wide. Comparatively, the extradosed bridge type of the single-level fixed-span configuration would be approximately 272 feet wide (approximately 99 feet wider), and the single-level fixed-span configuration with a girder bridge type would be approximately 232 feet wide (approximately 59 feet wider). The single-level movable-span configuration would be approximately 252 feet wide (approximately 79 feet wider than the double-deck fixed-span configuration), except at Piers 5 and 6, where larger bridge foundations would require an additional width of approximately 40 feet to support the movable span. The single-level configurations would have a wider footprint at the bridge landings on Hayden Island and Vancouver because transit and active transportation would be located adjacent to the highway, rather than below the highway in the double-deck option.

Figure 1-22 compares the basic profile and elevation of each configuration. The single-level fixed-span configuration and the lower deck of the double-deck fixed-span would have similar elevations, but the upper deck of the double-deck bridge would be approximately 35 feet higher. The single-level movable-span configuration would have a lower profile than the fixed-span configurations when the span is in the closed position.

Figure 1-21. Bridge Configuration Footprint Comparison

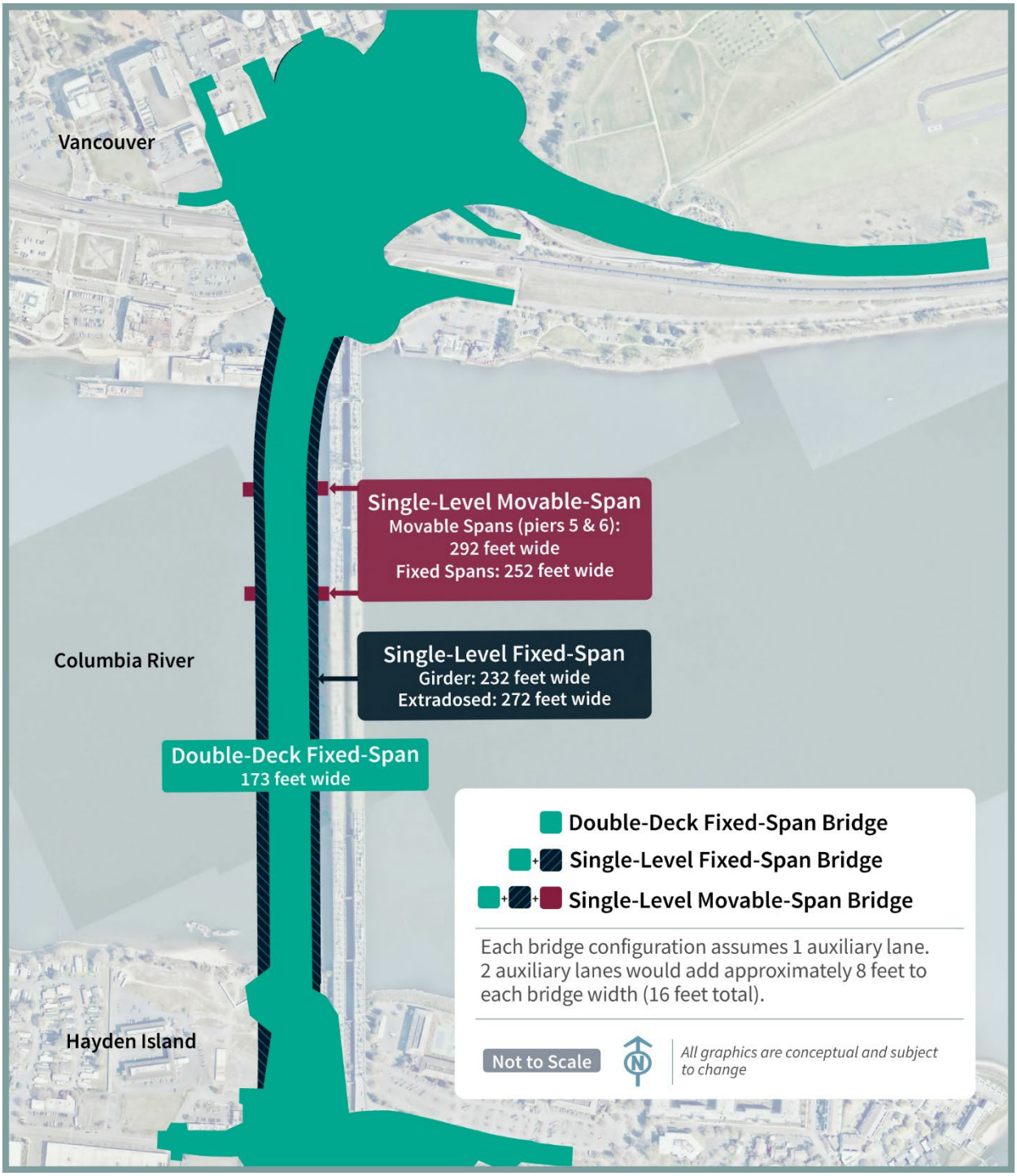
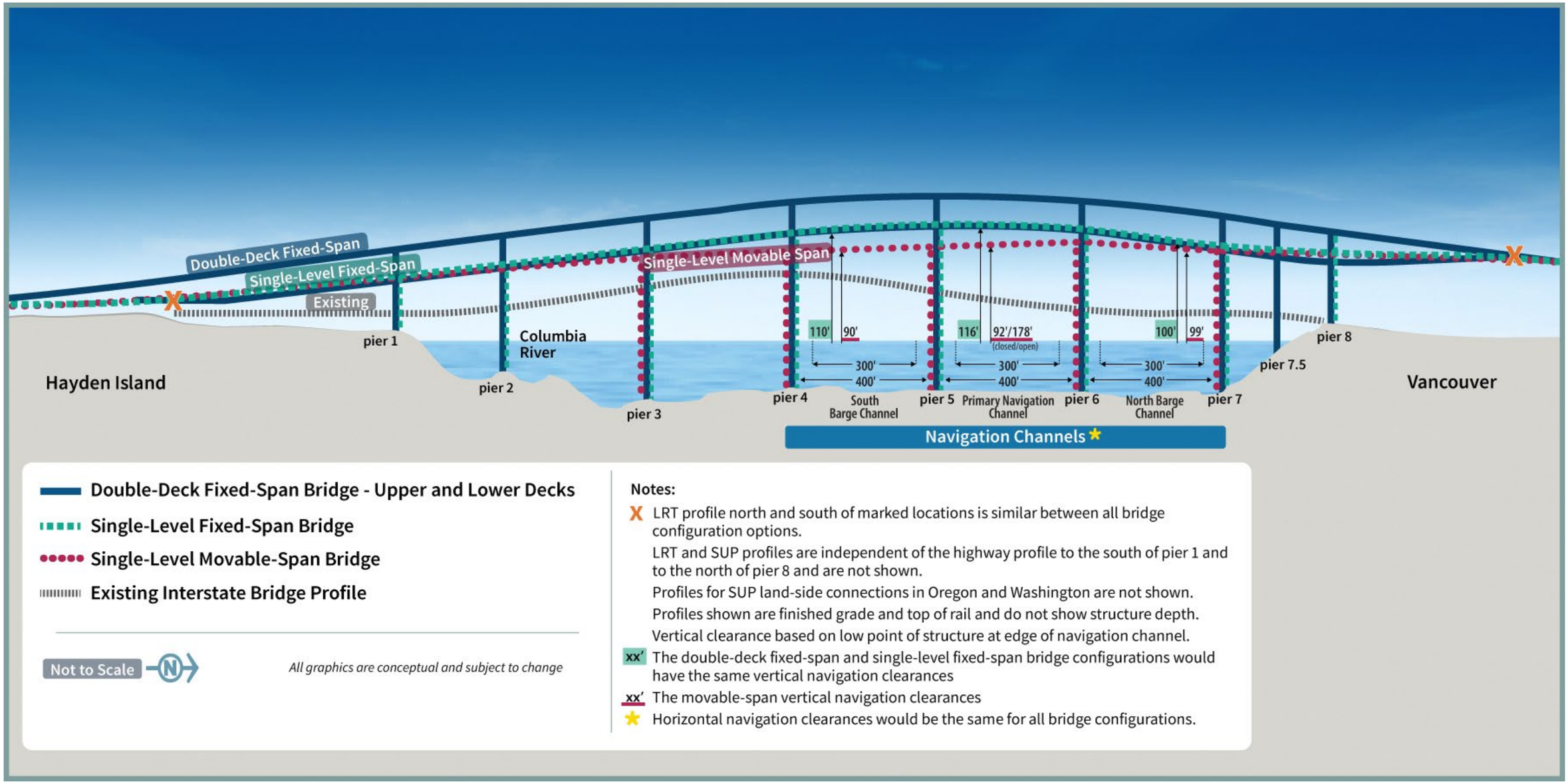


Figure 1-22. Bridge Configuration Profile Comparison



LRT = light-rail transit; SUP = shared-use path

Table 1-2. Summary of Bridge Configurations

Component	No-Build Alternative	Modified LPA with Double-Deck Fixed-Span Configuration	Modified LPA with Single-Level Fixed-Span Configuration [a]	Modified LPA with Single-Level Movable-Span Configuration
Bridge type	Steel through-truss spans	Double-deck steel truss	Single-level, concrete or steel girders, or extradosed	Single-level, steel girders with vertical lift span
Number of bridges	Two	Two	Two	Two
Movable-span type	Vertical lift span with counterweights.	N/A	N/A	Vertical lift span with counterweights
Movable-span location	Adjacent to Vancouver shoreline.	N/A	N/A	Between Piers 5 and 6 (approximately 500 feet south of the existing lift span)
Lift opening restrictions for vessels	Weekday peak AM and PM highway travel periods. [b] Typical bridge opening/gate closure durations are approximately 9 to 27 minutes depending on the purpose of the bridge lift (i.e., maintenance or vessel traffic) and lift elevation (i.e., partial lift or full lift). From 2007 to 2024, there was an average of 152 lifts per year (IBR 2025).	N/A	N/A	• Considering 2007–2024 trends in vessels transiting under the Interstate Bridge, there would be fewer bridge lifts compared to the No-Build Alternative due to increased vertical navigation clearance in the closed position (99 feet compared to 72 feet). • Additional restrictions to daytime bridge openings would be requested to consolidate fewer bridge openings outside of morning, midday, and evening peak hours when

Component	No-Build Alternative	Modified LPA with Double-Deck Fixed-Span Configuration	Modified LPA with Single-Level Fixed-Span Configuration [a]	Modified LPA with Single-Level Movable-Span Configuration
				vehicle and transit demand is high in order to improve LRT on-time performance and system reliability and reduce highway congestion. Changes to bridge opening restrictions would require future federal rulemaking process and authorization by USCG (beyond the assumed No-Build Alternative bridge restrictions for peak AM and PM highway travel periods). [b] • Typical opening durations are assumed to be 9 to 18 minutes [c] for the purposes of impact analysis but would ultimately depend on various operational considerations related to vessel traffic and river and weather conditions. Additional time would also be required to stop traffic prior to opening and restart traffic after the bridge closes.

Component	No-Build Alternative	Modified LPA with Double-Deck Fixed-Span Configuration	Modified LPA with Single-Level Fixed-Span Configuration [a]	Modified LPA with Single-Level Movable-Span Configuration
Out-to-out width [d]	138 feet total width	~173 feet total width	Girder: ~232 feet total width Extradosed: 272 feet total width	• ~292 feet at the movable span • ~252 feet at the fixed spans
Deck widths	52 feet (SB) 52 feet (NB)	~79 feet (SB) ~79 feet (NB)	Girder: • ~113 feet (SB) • ~104 feet (NB) Extradosed: • ~133 feet (SB) • ~124 feet (NB)	~113 feet (SB) ~104 feet (NB)
Vertical navigation clearance	Primary navigation channel: • 39 feet when closed • 178 feet when open Barge channel: • 46 feet to 70 feet Alternate barge channel: • 72 feet	Primary navigation channel: • 116 feet maximum North barge channel: • 100 feet maximum South barge channel: • 110 feet maximum	Primary navigation channel: • 116 feet maximum. North barge channel: • 100 feet maximum South barge channel: • 110 feet maximum	Primary navigation channel: • Closed position: ~90 feet. • Open position: 178 feet North barge channel: • ~99 feet maximum South barge channel: • ~90 feet maximum
Horizontal navigation clearance	• 263 feet for primary navigation channel • 511 feet for barge channel • 260 feet for alternate barge channel	400 feet for all navigation channels (300-foot USACE authorized channel plus a 50-foot channel maintenance buffer on each side)	400 feet for all navigation channels (300-foot USACE authorized channel plus a 50-foot channel maintenance buffer on each side)	400 feet for all navigation channels (300-foot USACE authorized channel plus a 50-foot channel maintenance buffer on each side)

Component	No-Build Alternative	Modified LPA with Double-Deck Fixed-Span Configuration	Modified LPA with Single-Level Fixed-Span Configuration [a]	Modified LPA with Single-Level Movable-Span Configuration
Maximum height of bridge component (elevation relative to NAVD 88) [e]	247 feet at top of lift tower	~166 feet	Girder: ~137 feet. Extradosed: ~179 feet at top of pylons	~243 feet at top of lift tower
Movable span length (from center of pier to center of pier)	278 feet	N/A	N/A	450 feet
Number of in-water pier sets	Nine	Six	Six	Six
Number of in-water drilled shafts	N/A	72	96	108
Shaft cap sizes	N/A	50 feet by 85 feet	50 feet by 230 feet	• Piers 2, 3, 4, and 7: 50 feet by 230 feet • Piers 5 and 6: 50 feet by 312 feet (one combined footing at each location to house tower/equipment for the lift span)
Conceptual vertical grade [f]	4.8%	~4% on the Washington side ~4% on the Oregon side	~3% on the Washington side ~3% on the Oregon side	~1.5% on the Washington side. ~3% on the Oregon side
LRT location	N/A	Below highway on SB bridge	West of highway on SB bridge	West of highway on SB bridge

Component	No-Build Alternative	Modified LPA with Double-Deck Fixed-Span Configuration	Modified LPA with Single-Level Fixed-Span Configuration [a]	Modified LPA with Single-Level Movable-Span Configuration
Express bus	Shared roadway lanes	Inside shoulder of NB and SB (upper) bridges	Inside shoulder of NB and SB bridges	Inside shoulder of NB and SB bridges
Shared-use path location	Sidewalk adjacent to roadway in both directions	Below highway on NB bridge	East of highway on NB bridge	East of highway on NB bridge

All dimensions and quantities are approximate.

a When different bridge types are not mentioned, data apply to both bridge types under the single-level fixed-span bridge configuration.

b The No-Build Alternative assume existing conditions that restrict bridge openings during weekday peak periods (Monday through Friday 6:30 a.m. to 9 a.m.; 2:30 p.m. to 6 p.m., excluding federal holidays). For the Modified LPA with a single-level movable-span bridge configuration design option, additional timing restrictions, which would increase restrictions on the timing for and duration of bridge openings, except for emergencies, would be requested and coordinated with the USCG. Bridge openings would be required for vessels and/or cargo with heights greater than 72 feet under the No-Build Alternative; whereas, bridge openings for vessels and/or cargo requiring more than 99 feet of clearance would be required for the Modified LPA with the movable-span bridge configuration design option.

c For the purposes of the transportation analysis in the Final SEIS (Section 3.1, Transportation of the Final SEIS), the movable-span opening time is assumed to be an average of 13.2 minutes.

d "Out-to-out width" is the measurement between the outside edges of both northbound and southbound bridge across its width at the widest point and includes the space between the two bridges. The deck width is the measurement of the outer edges of either the northbound bridge or the southbound bridge.

e NAVD 88 (North American Vertical Datum of 1988) is a vertical control datum (reference point) used by federal agencies for surveying.

f The maximum allowable vertical grade according to ODOT and WSDOT standards on the I-5 mainline is 4%.

I-5 = Interstate 5; LPA = Locally Preferred Alternative; LRT = light-rail transit; N/A = not applicable; NAVD 88 = North American Vertical Datum of 1988; NB = northbound; ODOT = Oregon Department of Transportation; SB = southbound; SEIS = Supplemental Environmental Impact Statement; USACE = U.S. Army Corps of Engineers; USCG = U.S. Coast Guard; WSDOT = Washington State Department of Transportation

1.1.4 Downtown Vancouver (Subarea C)

This section discusses the geographic Subarea C (Figure 1-3 shows an overview of the geographic subareas). Figure 1-23 shows all highway and interchange improvements in Subarea C.

1.1.4.1 Highways, Interchanges, and Local Roadways

North of the Columbia River bridges in downtown Vancouver, improvements are proposed to the SR 14 interchange (Figure 1-23).

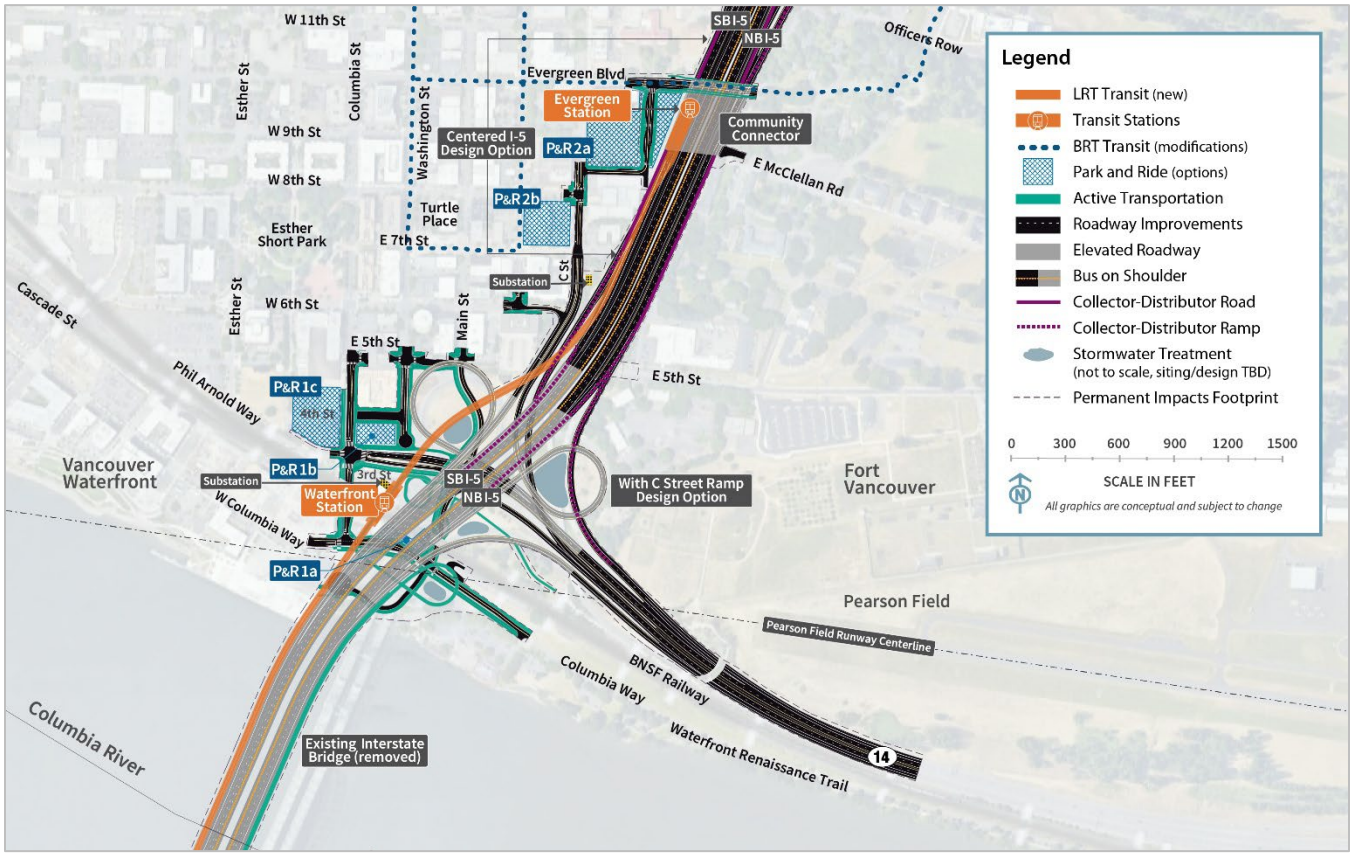
SR 14 INTERCHANGE/DOWNTOWN VANCOUVER

The new Columbia River bridges would touch down just north of the SR 14 interchange (Figure 1-23). The function of the SR 14 interchange configuration would remain essentially the same as it is now, but the interchange would be elevated to meet the new Columbia River bridges that cross over the BNSF Railway tracks. Direct connections between I-5 and SR 14 would be rebuilt. Access to and from downtown Vancouver would be provided as it is today, but the connection points would be relocated. Access from downtown Vancouver to eastbound SR 14 would be relocated from the Washington Street and W 5th Street intersection to a new intersection at Columbia Street and W 3rd Street. Access from westbound SR 14 would also be shifted from C Street to the new Columbia Street and W 3rd Street intersection. Access from downtown Vancouver to southbound I-5 would be relocated from the Washington Street and W 5th Street intersection to C Street. Access from northbound I-5 to downtown Vancouver would remain at C Street. Connections to downtown Vancouver would vary under the two design options under consideration for this area (with C Street ramps and without C Street ramps), as detailed below.

Main Street would be extended between 5th Street and Columbia Way. Vehicles traveling from downtown Vancouver to access SR 14 eastbound would use the new extension of Main Street to the intersection underneath I-5. If coming from the west or south (waterfront) in downtown Vancouver, vehicles would use the Phil Arnold Way/3rd Street extension to the intersection, then continue to SR 14 eastbound. The existing Columbia Way roadway under I-5 would be realigned to the north of its existing location and would intersect both the new Main Street extension and Columbia Street with T intersections.

In addition, the existing overcrossing of I-5 at Evergreen Boulevard would be reconstructed.

Figure 1-23. Downtown Vancouver (Subarea C)



BRT = bus rapid transit; LRT = light-rail transit; NB = northbound; P&R = park and ride; SB = southbound

C Street Ramp Design Options

With C Street Ramps – Recommended Design Option

The design option with C Street ramps would provide access to and from downtown Vancouver similar to existing conditions but with some of the connection points relocated. Access from northbound I-5 to downtown Vancouver would be rebuilt in the same location as the current connection. Downtown Vancouver I-5 access to and from the south would be consolidated at C Street with SR 14 connections to and from downtown at Columbia Street/
W 3rd Street (Figure 1-24).

Without C Street Ramps

Under this design option, downtown Vancouver I-5 access to and from the south would be through the Mill Plain interchange rather than C Street. There would be no eastside loop ramp from northbound I-5 to C Street and no directional ramp on the west side of I-5 from C Street to southbound I-5. The existing eastside loop ramp would be removed. This option would reduce the footprint of the Modified LPA in this area.

The IBR Program recommends advancing the with C Street ramps design option. Both C Street ramp design options would provide important benefits to highway operations and safety and have similar impacts to many other resources, particularly the natural environment. While there would be some short-term construction cost savings and reduced visual impacts without C Street ramps, there would be greater impacts to local traffic as traffic that would have used the C Street ramps would be routed to the Mill Plain interchange, thereby increasing traffic volumes on the local street network and requiring additional mitigation. Both design options received a mix of positive and negative feedback from the public; however, there were more comments in support of the with C Street ramps design option. The with C Street ramps design option also has more support from the local partner agencies.

I-5 Alignment Design Options

Centered I-5 – Recommended Design Option

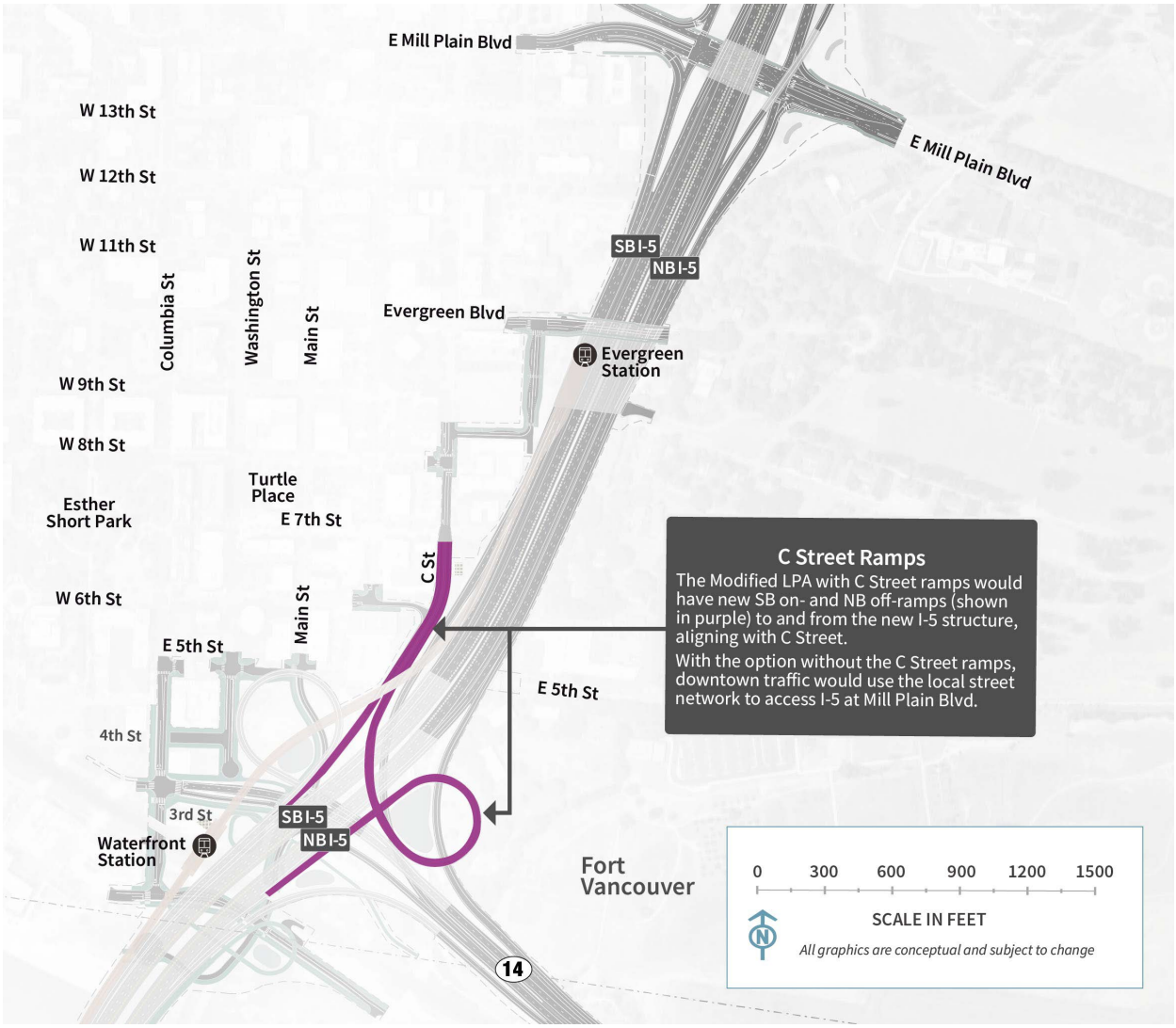
This design option would maintain the location of the existing I-5 mainline alignment through downtown Vancouver between the SR 14 interchange and the Mill Plain Boulevard interchange.

I-5 Shifted West

This design option would shift the I-5 mainline and ramps approximately 40 feet to the west between SR 14 and Mill Plain Boulevard.

The IBR Program recommends advancing the centered I-5 alignment design option. Both I-5 mainline alignments would provide important benefits to highway operations and safety and have similar impacts to many other resources, particularly the natural environment. The westward shift design option would notably increase acquisitions resulting in the displacement of an additional three businesses (with approximately 140 employees) and 33 residential units, and the physical removal of the historic Normandy Apartments. However, the westward shift would reduce the area of acquisition and other impacts to the Vancouver National Historic Reserve (VNHR) Historic District (which includes the Fort Vancouver National Historic Site). While some public comments noted the reduced impacts to the VNHR Historic District from the westward shift design option, others raised concerns about its effects on safety, congestion, and increased residential and business displacements.

Figure 1-24. Modified LPA with C Street Ramps



COLLECTOR-DISTRIBUTOR ROADWAYS

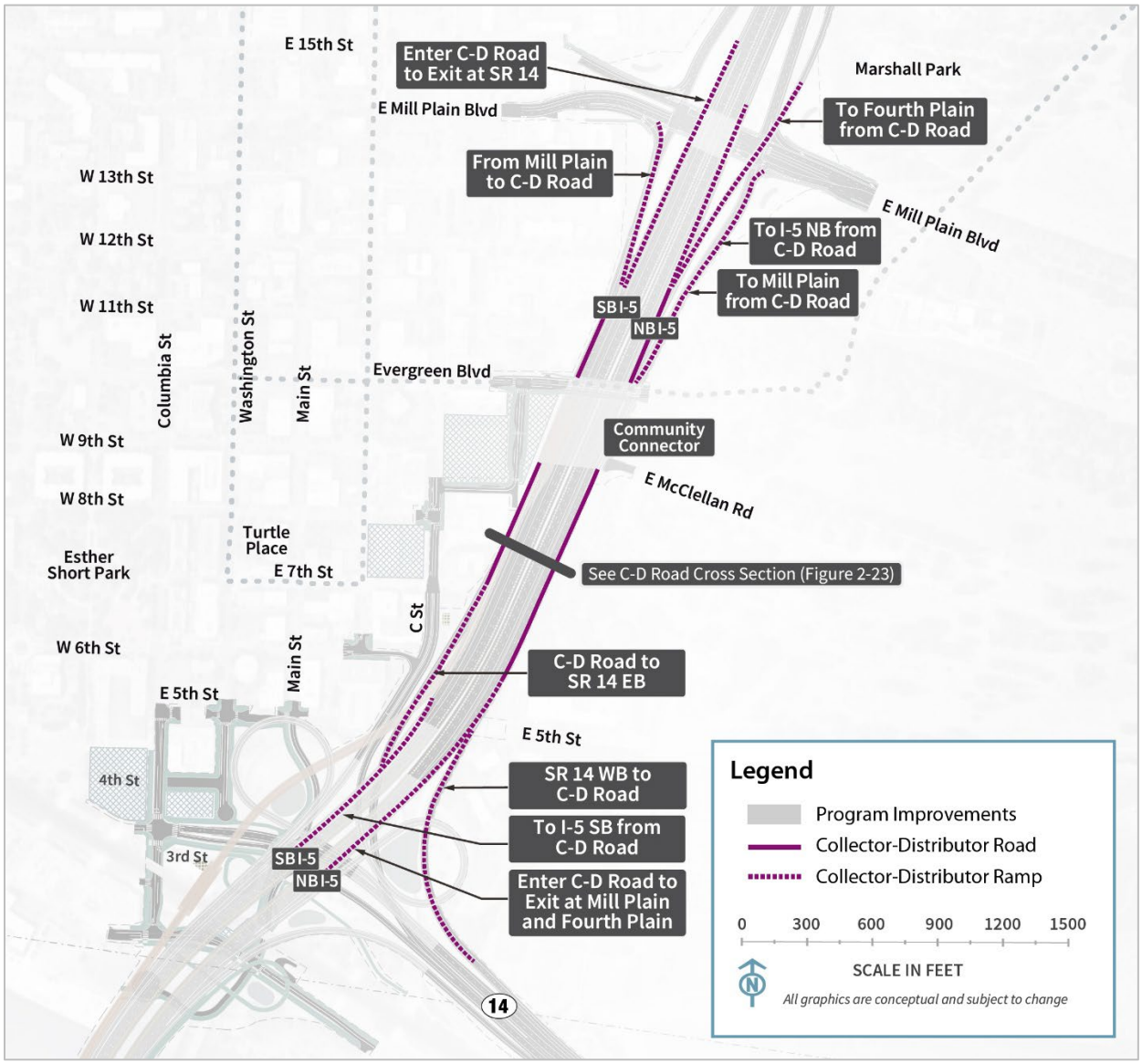
Figure 1-25 shows the location of the collector-distributor (C-D)[11] roadways in downtown Vancouver, and Figure 1-26 shows a typical cross section of the C-D roadways.

The on-ramp from SR 14 westbound would join the I-5 northbound off-ramp to Mill Plain/Fourth Plain Boulevard, forming the northbound C-D roadway between SR 14 and Fourth Plain Boulevard. The C-D roadway would provide access from northbound I-5 to the off-ramps at Mill Plain Boulevard and Fourth Plain Boulevard. The C-D roadway would also provide access from westbound SR 14 to the off-ramps at Mill Plain Boulevard and Fourth Plain Boulevard, and to the on-ramp to northbound I-5.

[11] A collector-distributor roadway parallels and connects the main travel lanes of a highway and frontage roads or entrance ramps.

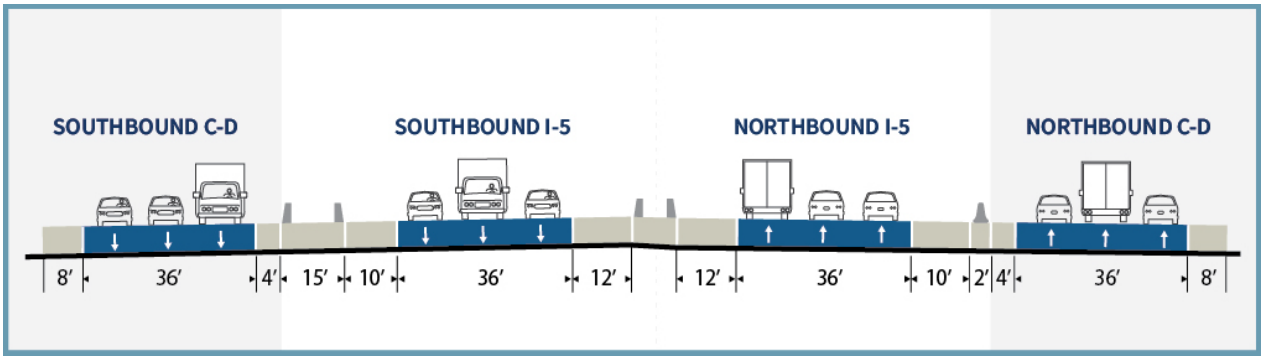
On southbound I-5, the off-ramp to SR 14 would join the southbound I-5 on-ramp from Mill Plain Boulevard to form a C-D roadway. The C-D roadway would provide access from southbound I-5 to the off-ramp to eastbound SR 14 and from Mill Plain Boulevard to the off-ramp to eastbound SR 14 and the on-ramp to southbound I-5.

Figure 1-25. Collector-Distributor Roadways



C-D = collector-distributor; EB = eastbound; NB = northbound; SB = southbound; WB = westbound

Figure 1-26. Typical Cross Section of the Collector-Distributor Roadways



The location of this cross section is shown on Figure 1-25.

1.1.4.2 Transit

LIGHT-RAIL ALIGNMENT AND STATIONS

Under the Modified LPA, the light-rail tracks would exit the highway bridge and be on their own bridge along the west side of the I-5 mainline after crossing the Columbia River (see Figure 1-23). The light-rail bridge would cross over the BNSF Railway tracks. An elevated light-rail station near the Vancouver waterfront (Waterfront Station) would be situated near the overcrossing of the BNSF tracks between Columbia Way and 3rd Street. Access to the elevated station would be primarily by elevator because the station would be situated approximately 90 feet above existing ground level. A stairwell(s) would be provided for emergency egress. The number of elevators and stairwells provided would be based on the ultimate platform configuration, station location relative to the BNSF trackway, projected ridership, and fire and life safety requirements. Passenger drop-off facilities would be located at ground level and would be coordinated with the C-TRAN bus service at this location. Active transportation facilities, described below, would connect to the new Waterfront Station. A new TPSS would be constructed north of the transit platform. The elevated light-rail tracks would continue north, cross over the westbound SR 14 on-ramp and the C Street/6th Street on-ramp to southbound I-5, and- then straddle the southbound I-5 C-D roadway. Transit components in the downtown Vancouver area would be similar between the C Street ramp and I-5 westward shift design options discussed above.

North of the Waterfront Station, the light-rail tracks would continue to the Evergreen Station, which would be the terminus of the light-rail extension (Figure 1-23). The light-rail tracks from downtown Vancouver to the terminus would be entirely on an elevated structure supported by single columns, where feasible, or by straddle bents[12] on either side of the roadway where needed. The Evergreen Station would be located at the same elevation as Evergreen Boulevard and the proposed Community Connector, and it would provide connections to the existing C-TRAN BRT system. Passenger drop-off facilities would be near the station and would be coordinated with the C-TRAN bus service at this location. Active transportation facilities, described below, would connect to the new Evergreen

[12] A straddle bent is a type of bridge support structure that “straddles” vehicle lanes and supports a flyover ramp.

Station. A new TPSS would be located on the south side of 7th Street, approximately 750 feet south of Evergreen Station.

PARK AND RIDES

The Modified LPA would provide parking capacity to accommodate 1,270 vehicles at designated park and rides in Vancouver along the LRT alignment (Figure 1-23) located near the Waterfront and Evergreen LRT stations. Parking capacity would be provided for 570 vehicles near the Waterfront Station and for 700 vehicles near the Evergreen Station.

> Park and rides can expand the catchment area of public transit systems (the geographic area from which a station draws ridership), making transit more accessible to people who live farther away from fixed-route transit service, and attracting new riders who might not have considered using public transit otherwise.

The park and rides would be designed to accomplish the following:

- Support transit ridership.
- Promote station access by walking, biking, rolling, and transit.
- Support City of Vancouver objectives to increase mobility and access for a vibrant downtown.
- Include existing parking facilities in downtown Vancouver to help meet the projected demand for park and rides in areas where City of Vancouver studies show surplus parking supply.

Additional information regarding the park and rides can be found in the Transportation Technical Report.

As presented in the Draft SEIS, the Modified LPA would provide parking capacity for LRT riders by locating a single park and ride near the Waterfront Station with approximately 570 parking spaces; three sites were considered for this facility. Similarly, a single park and ride near the Evergreen Station would provide approximately 700 parking spaces; two sites were considered. Based on further design analysis, public comment received on the Draft SEIS, and coordination with local agencies, the approach to providing parking capacity for LRT riders was adjusted to focus on dispersed parking across more facilities, including using all three sites previously identified near the Waterfront Station and both sites previously identified near the Evergreen Station. The approach to disperse parking capacity across more sites would correlate to smaller sites in terms of structure size above or below ground.

The sites under consideration are described below, and the evaluation of impacts and benefits to developing a single, large park and ride at each of the two LRT station or five smaller park and rides are evaluated in this report.

Waterfront Station Park and Rides

Studies included in Appendix D to the Final SEIS have shown the need for park-and-ride capacity to accommodate 570 vehicles in the vicinity of the Waterfront Station. Three possible sites are analyzed (Figure 1-23):

- 1a. Columbia Way (below I-5). This 0.75-acre site could be developed as a new aboveground one-level parking structure. Access would be via Columbia Way. It could support approximately 70 parking spaces.
- 1b. Columbia Street/SR 14. This 0.50-acre site could be developed as a new aboveground six-level structure along the east side of Columbia Street and north of the SR 14 westbound off-ramp. Access would be via Washington Street. It could accommodate approximately 250 parking spaces. To provide all 570 parking spaces at this site, the structure would need to be 10 to 12 levels.
- 1c. Columbia Street/Phil Arnold Way (Waterfront Gateway Site). This 1.5-acre site could be developed as a new surface lot along the west side of Columbia Street, north of Phil Arnold Way. Access would be via Phil Arnold Way. A surface lot would provide approximately 250 parking spaces. To provide all 570 parking spaces at this site, a new four-level structure would be needed.

The IBR Program recommends advancing 1,270 park-and-ride spaces dispersed across five sites in Vancouver along the light-rail alignment, including three sites near the Waterfront Station and two sites near the Evergreen Station. All of the park and rides would provide similar benefits to the community by increasing the transit stations' catchment areas and making transit more accessible. There could be minor localized differences in traffic patterns and transit ridership depending on the location of spaces. Dispersing the 1,270 parking spaces across five park and rides rather than concentrating the spaces at a single location each near the Waterfront Station and Evergreen Station would promote compatibility with local planning goals and plans for multiuse development, multimodal access, and attractive public spaces. As the FTA's Capital Investment Grant process progresses, the IBR Program team will refine the Program's transit components, which will contribute to further information on parking needs to support transit ridership.

Studies (Appendix D to the Final SEIS) leading to the Modified LPA in 2022 evaluated a mix of light-rail station sites and park and rides and found that 1,270 spaces serving the Waterfront and Evergreen Stations, combined with bus and active transportation improvements, would attract the most riders.

Evergreen Station Park and Rides

Studies included in Appendix D to the Final SEIS have shown the need for park and rides to accommodate 700 vehicles in the vicinity of the Evergreen Station. Two possible sites are analyzed in this technical report (see Figure 1-23):

- 2a. Library Square. This 3.2-acre site could be developed as a new underground three- to four-level structure east of C Street and south of Evergreen Boulevard. It could accommodate approximately 400 parking spaces. To provide all 700 parking spaces at this site, the structure

would require seven or more levels below ground.[13] This site could be combined with Site 2b to provide a total of 700 spaces.

- 2b. Columbia Credit Union. This approximately 1-acre site is an existing parking structure/commercial building and provides an estimated 400 parking spaces to current users on four levels above ground. The parking capacity would not be exclusively available for transit users; however, up to 300 spaces could be used for transit riders. This site could be combined with Site 2a to provide a total of 700 spaces.

1.1.4.3 Active Transportation

Within the downtown Vancouver area, the shared-use path on the northbound (or eastern) bridge would exit the bridge at the SR 14 interchange, loop down on the east side of I-5 via a vertical helix path, cross back below I-5 to the west side of I-5, run beneath the elevated light-rail crossing over BNSF, and then loop down to connect to the Main Street extension at the intersection underneath I-5 with connections to the Waterfront Station from the active transportation facilities. Connections to the Waterfront Renaissance Trail would be made by facilities along Main Street and Columbia Way (Figure 1-23). Access would be provided across state right of way beneath the new bridges to provide a connection between the recreational areas along the city's Columbia River waterfront east of the bridges and existing and future waterfront uses west of the bridges.

Active transportation components in the downtown Vancouver area would be similar for all design options.

As part of the Modified LPA, a Community Connector is proposed to be built over I-5 just south of Evergreen Boulevard and east of the Evergreen Station (Figure 1-23). The structure is proposed to include off-street pathways for active transportation modes including pedestrians, bicyclists, and other micro-mobility modes, and public space and amenities to support the active transportation facilities with connections to the Evergreen Station from the active transportation facilities. The primary intent of the Community Connector is to improve connections between downtown Vancouver on the west side of I-5 and the Vancouver National Historic Reserve on the east side.

1.1.5 Upper Vancouver (Subarea D)

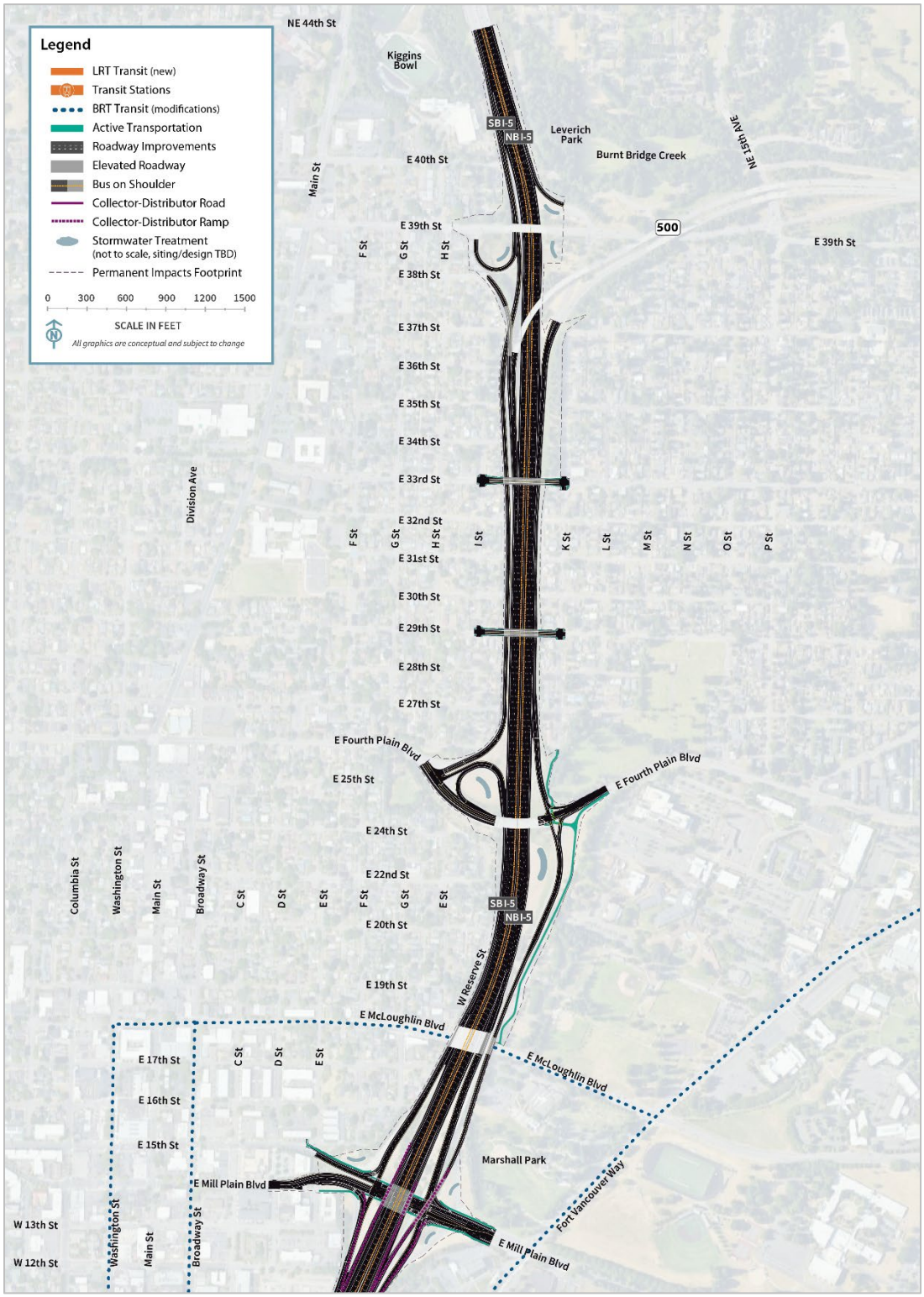
This section discusses the geographic Subarea D (Figure 1-3 shows an overview of the geographic subareas). Figure 1-27 shows all highway and interchange improvements in Subarea D.

1.1.5.1 Highways, Interchanges, and Local Roadways

Within the upper Vancouver area, the IBR Program proposes improvements to three interchanges—Mill Plain, Fourth Plain, and SR 500—as described below.

[13] The maximum depth of an underground parking structure at Library Square is provided for comparative purposes only. An underground parking structure would likely not exceed 3 or 4 levels because of engineering and environmental constraints.

Figure 1-27. Upper Vancouver (Subarea D)



BRT = bus rapid transit; LRT = light-rail transit; TBD = to be determined

MILL PLAIN BOULEVARD INTERCHANGE

The Mill Plain Boulevard interchange is north of the SR 14 interchange (Figure 1-27). This interchange would be reconstructed as a tight-diamond configuration but would otherwise remain similar in function and footprint to the existing interchange. The ramp terminal intersections would be sized to accommodate high, wide, heavy freight vehicles that travel between the Port of Vancouver and I-5. The off-ramp from I-5 northbound to Mill Plain Boulevard would diverge from the C-D road that would continue north, crossing over Mill Plain Boulevard, to provide access to Fourth Plain Boulevard via a C-D roadway. The off-ramp to Fourth Plain Boulevard would be reconstructed and would cross over Mill Plain Boulevard east of I-5, similar to the way it functions today.

FOURTH PLAIN BOULEVARD INTERCHANGE

At the Fourth Plain Boulevard interchange (Figure 1-27), improvements would include reconstruction of the I-5 ramp terminal intersections. The existing bridge for Fourth Plain Boulevard over I-5 would be retained. Northbound I-5 traffic exiting to Fourth Plain Boulevard would first exit to the northbound C-D roadway, which provides off-ramp access to Fourth Plain Boulevard and Mill Plain Boulevard. The westbound SR 14 to northbound I-5 on-ramp also joins the northbound C-D roadway before continuing north past the Fourth Plain Boulevard and Mill Plain Boulevard off-ramps as an auxiliary lane. The southbound I-5 off-ramp to Fourth Plain Boulevard would be braided below the 39th Street on-ramp to southbound I-5. This change would eliminate the existing nonstandard weave between the SR 500 interchange and the off-ramp to Fourth Plain Boulevard. It would also eliminate the existing westbound SR 500 to Fourth Plain Boulevard off-ramp connection. The existing overcrossing of I-5 at 29th Street would be reconstructed to accommodate a widened I-5, provide adequate vertical clearance over I-5, and provide pedestrian and bicycle facilities.

SR 500/39TH STREET INTERCHANGE AREA

The northern terminus of the I-5 improvements would be in the SR 500 interchange area (Figure 1-27). The improvements would primarily be to connect the Modified LPA to existing ramps. The off-ramp from I-5 southbound to 39th Street would be reconstructed to establish the beginning of the braided ramp to Fourth Plain Boulevard and restore the loop ramp to 39th Street. Ramps from existing I-5 northbound to SR 500 eastbound and from 39th Street to I-5 northbound would be partially reconstructed. The existing bridges for 39th Street over I-5 and SR 500 westbound to I-5 southbound would be retained. The 39th Street to I-5 southbound on-ramp would be reconstructed and braided over (i.e., grade separated or pass over) the new I-5 southbound off-ramp to Fourth Plain Boulevard.

The existing overcrossing of I-5 at 33rd Street would also be reconstructed to accommodate a widened I-5, provide adequate vertical clearance over I-5, and provide pedestrian and bicycle facilities.

1.1.5.2 Transit

There would be no LRT facilities in upper Vancouver. Proposed operational changes to bus service, including I-5 bus-on-shoulder service, are described in Section 1.1.7, Transit Operating Characteristics.

1.1.5.3 Active Transportation

Several active transportation improvements would be made in Subarea D consistent with City of Vancouver plans and policies. On the east side of I-5, a new shared-use path would connect E McLoughlin Boulevard to Fourth Plain Boulevard. At the Fourth Plain Boulevard interchange, there would be improvements to provide better bicycle and pedestrian mobility and accessibility; these include bicycle lanes, neighborhood connections, and a connection to the City of Vancouver's planned two-way cycle track on Fourth Plain Boulevard. The reconstructed overcrossings of I-5 at 29th Street and 33rd Street would provide pedestrian and bicycle facilities on those cross streets. No new active transportation facilities are proposed in the SR 500 interchange area. Active transportation improvements at the Mill Plain Boulevard interchange include buffered bicycle lanes and sidewalks, pavement markings, lighting, and signing.

1.1.6 Transit Support Facilities

1.1.6.1 Ruby Junction Light-Rail Operations and Maintenance Facility Expansion

The TriMet Ruby Junction Light-Rail OMF in Gresham, Oregon, would be expanded to accommodate the additional LRVs associated with the Modified LPA's LRT service (the Ruby Junction location relative to the study area is shown in Figure 1-28). Improvements would include additional storage tracks for LRVs and maintenance materials and supplies; expanded LRV maintenance bays; expanded parking and employee support areas for additional personnel; an additional maintenance building for daily cleaning and periodic weather-dependent treatments for LRV maintenance, demolition, and relocation of a maintenance building (Ruby West); tenant improvements and new structures for affected operations; and a third lead track at the northern entrance to the Ruby Junction Light-Rail OMF. Adjacent parcels would be acquired to accommodate maintenance and storage needs required for or impacted by the Modified LPA. Figure 1-28 shows the proposed footprint of the expansion.

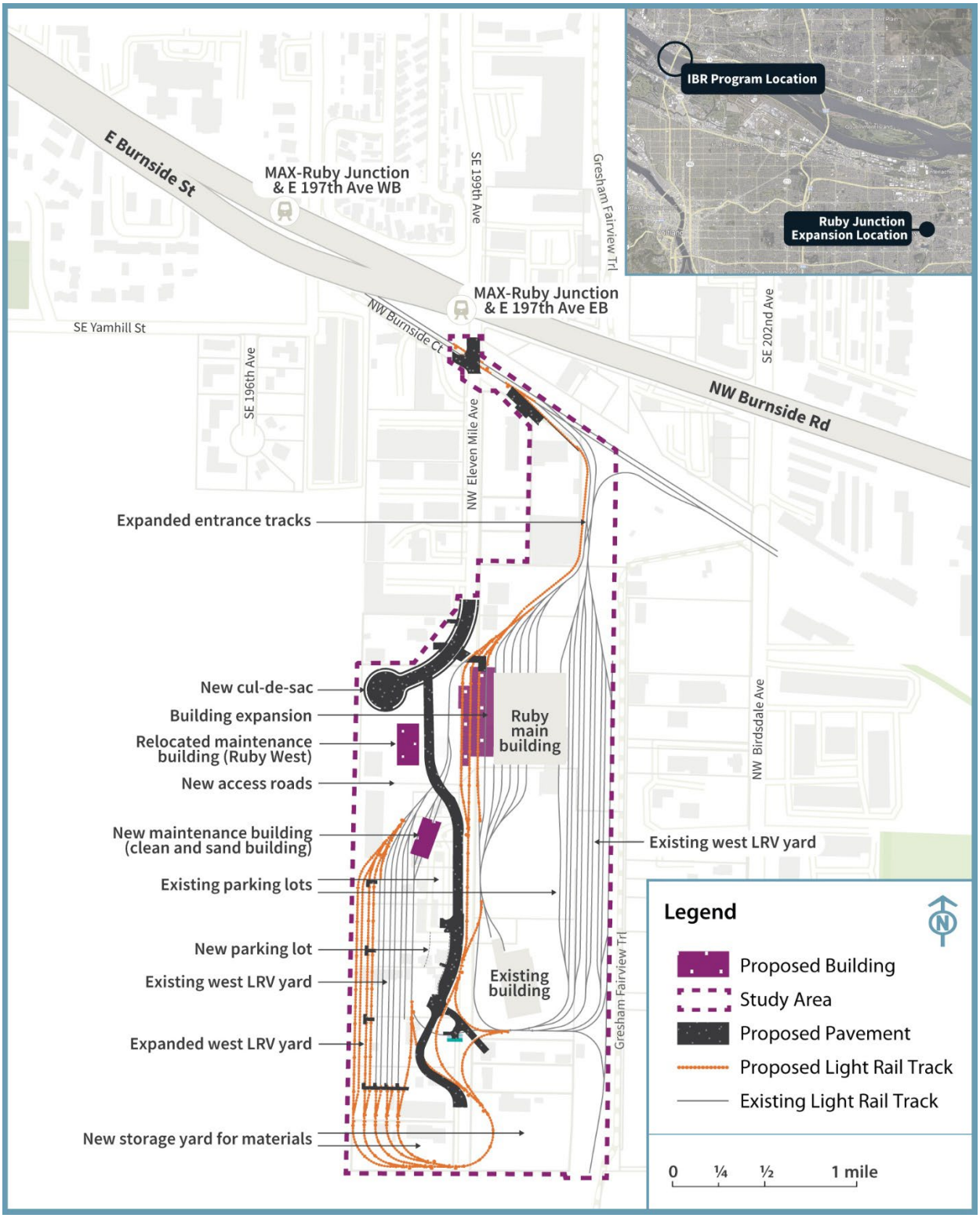
The existing main building would be expanded west to provide additional maintenance bays. Today, Eleven Mile Avenue extends from NW Burnside Road and dead ends at the southern limits of the existing OMF. To make space for the building expansion, the existing Eleven Mile Avenue public right of way would be vacated and would terminate in a new cul-de-sac west of the main building. A new cul-de-sac would be required to meet City of Gresham code requirements for fire access and turnaround. New internal/nonpublic access roads would be constructed to maintain access to TriMet buildings south of the cul-de-sac; these would impact an existing maintenance building (Ruby West), which would be demolished and rebuilt within Ruby Junction Light-Rail OMF.

The existing western LRV storage yard, west of Eleven Mile Avenue, would be expanded to the west to accommodate additional storage tracks and a runaround track (a track constructed to bypass congestion in the maintenance yard). This expansion would require partial demolition of an existing TriMet building (just north of the LRV storage) and would require relocating the material storage yard to the southeastern corner of the campus. Immediately east of the storage yard, a double track LRV maintenance building would be constructed impacting existing parking. Various other surface parking areas in the west yard would also be relocated north of the cul-de-sac.

All tracks in the west LRV storage yard would also be extended southward to connect to the proposed runaround track. The runaround track would connect to existing and proposed tracks adjacent to the existing Ruby Junction building located to the south. The connections to the runaround track would require partial demolition of an existing TriMet building and, full demolition of one existing building and partial demolition of another building on the adjacent private property to the south. These affected functions would be housed in a new replacement building on site.

A third track would be needed at the north entrance to the Ruby Junction Light-Rail OMF to accommodate increased train volumes without decreasing service. The additional track would also reduce operational impacts during construction and maintenance outages for the yard. Constructing the third track would require reconstruction of Burnside Court east of Eleven Mile Avenue. An additional crossover would also be needed on the mainline track where it crosses Eleven Mile Avenue; it would require reconstruction of the existing track crossings for vehicles, bicycles, and pedestrians.

Figure 1-28. Ruby Junction Light-Rail Operations and Maintenance Facility Study Area



EB = eastbound; LRV = light-rail vehicle; WB = westbound

1.1.6.2 Expo Center Overnight Light-Rail Vehicle Facility

An overnight facility for LRVs would be constructed on the southwest corner of the Expo Center property (as shown on Figure 1-29). The inclusion of the Expo Overnight Facility allows TriMet the ability to maintain current service and maintenance operations on their Blue Line system and reduce deadheading between Ruby Junction and the northern terminus of the MAX Yellow Line extension. Deadheading occurs when LRVs travel without paying passengers to move the vehicles to and from service. Currently, Blue Line is maintained through a limited nighttime work window. With the inclusion of the Expo Overnight Facility, trains originating service at Evergreen have substantially less deadhead time, reducing Yellow Line operating costs, and Blue Line maintenance windows are retained.

The facility would provide a yard access track, storage tracks for approximately 13 LRVs, one building for light LRV maintenance and operator facilities, a TPSS, a sand silo, a parking lot for operators and facility staff, space for security personnel, and other associated facilities. This facility and the lead tracks connecting to it would necessitate relocation and reconstruction of the internal circulation road from the Expo Road entrance to approximately 100 feet west of Building E of the Expo Center (including southern areas of the parking lot, including gates and booths). However, it would not affect existing Expo Center buildings.

The overnight facility lead track would connect to the mainline tracks by crossing Expo Road just south of the existing Expo Center MAX Station. The connection tracks would require relocation of one or two existing LRT facilities, including a TPSS building and potentially the existing signals/communication building, which are both just south of the Expo Center MAX Station. Existing artwork at the station may require relocation.

1.1.6.3 Additional Bus Bays at the C-TRAN Operations and Maintenance Facility

Three bus bays would be added to the existing C-TRAN OMF located at 2425 NE 65th Avenue in Vancouver. These additional bus bays, which would not require the acquisition of any new property, would provide maintenance capacity for the additional express bus service on I-5 (Section 1.1.7, Transit Operating Characteristics). Modifications to the facility would accommodate new vehicles as well as maintenance equipment.

Figure 1-29. Expo Center Overnight LRV Facility

1.1.7 Transit Operating Characteristics

1.1.7.1 Light-Rail Transit Operations

Nineteen new LRVs would be purchased to operate the extension of the MAX Yellow Line. These vehicles would be similar to those currently used for the TriMet MAX system. With the Modified LPA including all design options, LRT service in the new and existing portions of the Yellow Line in 2045

would operate with 6.7-minute average headways[14] during the 2-hour morning peak period. Midday and evening headways would be 15 minutes, and late-night headways would be 30 minutes. LRT service would operate between the hours of approximately 5 a.m. (first southbound train leaving Evergreen Station) and 1 a.m. (last northbound train arriving at the station), which is consistent with current service on the Yellow Line. LRVs would be deadheaded at Evergreen Station before beginning service each day. A third track at this northern terminus would accommodate layovers.

1.1.7.2 Express Bus Service and Bus on Shoulder

C-TRAN provides bus service that connects to LRT and augments travel between Washington and Oregon with express bus service to key employment centers in Oregon. Beginning in 2022, the main express route providing service in the I-5 corridor, Route 105, had two service variations. One pattern provides service between Salmon Creek and downtown Portland with a single intermediate stop at the 99th Street Transit Center, and one provides service between Salmon Creek and downtown Portland with two intermediate stops: the 99th Street Transit Center and downtown Vancouver. This route currently provides weekday service with 20-minute peak and 60-minute off-peak headways.

In 2045, for both the No-Build Alternative and Modified LPA, C-TRAN Route 105 would be revised to only provide direct service from the Salmon Creek Park and Ride and 99th Street Transit Center to downtown Portland with no intermediate stops in downtown Vancouver. Under the Modified LPA with all design options, this route would operate at 5-minute peak headways with no service in the off-peak, compared to 10-minute peak headways under the No-Build Alternative. Under both the No-Build Alternative and the Modified LPA, C-TRAN Route 105 intermediate stop service through downtown Vancouver would be replaced with C-TRAN Route 101, which would provide direct service from downtown Vancouver to downtown Portland and would operate at 15-minute peak and 30-minute off-peak headways and 10-minute peak and 30-minute off-peak headways, respectively.

Two other existing C-TRAN express bus service routes would remain unchanged after completion of the Modified LPA. C-TRAN Route 190 would continue to provide service from the Andresen Park and Ride in Vancouver to Marquam Hill in Portland. This route would continue to operate on SR 500 and I-5 within the study area. Route headways would be 10 minutes in the peak periods with no off-peak service. C-TRAN Route 164 would continue to provide service from the Fisher's Landing Transit Center to downtown Portland. This route would continue to operate within the study area only in the northbound direction during PM service to use the I-5 northbound high-occupancy vehicle lane in Oregon before exiting to eastbound SR 14 in Washington. Route headways would be 10 minutes during the peak and 30 minutes during the off-peak. These two routes provide the same routing and frequencies in both the No-Build Alternative and the proposed Modified LPA.

C-TRAN express bus Routes 105 and 190 are currently permitted to use the existing southbound inside shoulder of I-5 from 99th Street to the Interstate Bridge in Vancouver. However, the existing shoulders are too narrow for bus-on-shoulder use in the rest of the I-5 corridor in the study area. The Modified LPA would include inside shoulders on I-5 that would be wide enough (approximately 14 feet on the Columbia River bridges and 11.5 to 12 feet elsewhere on I-5) to allow northbound and southbound buses to operate on the shoulder, except where I-5 would have to taper to match existing inside

[14] Headways are defined as gaps between arriving transit vehicles.

shoulder widths at the north and south ends of the corridor. Figure 1-6, Figure 1-10, Figure 1-23, and Figure 1-27 show the potential bus-on-shoulder use over the Columbia River bridges. Bus on shoulder could operate on any of the Modified LPA bridge configurations and bridge types. Additional approvals (including a continuing control agreement), in coordination with ODOT, may be needed for buses to operate on the shoulder on the Oregon portion of I-5.

After completion of the Modified LPA, two C-TRAN express bus routes operating on I-5 through the study area would be able to use bus-on-shoulder operations to bypass congestion in the general-purpose lanes. C-TRAN Route 105 would operate on the shoulder for the full length of the study area. C-TRAN Route 190 would operate on the shoulder for the full length of the corridor except for the distance required to merge into and out of the shoulder as the route exits from and to SR 500. These two express bus routes (105 and 190) would have a combined frequency of every 3 minutes during the 2045 AM and PM peak periods. To support the increased frequency of express bus service, eight double-decker or articulated buses would be purchased.

With the C Street ramps design option, C-TRAN Route 101 would use bus on shoulder south of the SR 14 interchange but would not use the full extent of bus-on-shoulder lanes that would be included in the Modified LPA because the route would need to begin merging over early to use the C Street off-ramp to access downtown Vancouver. Without the C Street ramps design option, C-TRAN Route 101 would be rerouted to use the Mill Plain interchange to access downtown Vancouver. Under this design option, the Route 101 would also not use the full extent of bus-on-shoulder lanes that would be included in the Modified LPA but would use the bus on shoulder south of Mill Plain Boulevard and begin merging over early to use the Mill Plain off-ramp.

C-TRAN Route 164 would not be anticipated to use bus-on-shoulder operations because of the need to exit to SR 14 from northbound I-5.

1.1.7.3 Local Bus Route Changes

Two TriMet bus routes would be adjusted to accommodate the transit improvements associated with the Modified LPA. TriMet Line 6 bus route would be changed to terminate at the Expo Center MAX Station instead of Hayden Island, where it terminates currently and in the No-Build Alternative. The new Line 6 route would require passengers to transfer to the new LRT connection to access Hayden Island. TriMet Line 6 is anticipated to travel from Delta Park MAX Station north along Expo Road to the Expo Center MAX Station. Table 1-3 shows the existing service and anticipated future changes to TriMet Line 6. In addition to Line 6, TriMet Route 11 could require slight modifications to maintain transfers to the Expo Center MAX Station, depending on the final design of the station and surrounding area.

As part of the Modified LPA, several local C-TRAN bus routes would be changed to better complement the new light-rail extension. Most of these changes would reroute existing bus lines to provide a transfer opportunity at the proposed new Evergreen Station. Table 1-3 shows existing service and anticipated future changes to C-TRAN bus routes. In addition to the changes noted in Table 1-3, other local bus route modifications may move service from Broadway to C Street.

For both TriMet and C-TRAN detailed service planning analysis, including obtaining public feedback for service changes associated with the Modified LPA, would be conducted prior to the start of revenue service.

Table 1-3. Proposed TriMet and C-TRAN Bus Route Changes

Bus Route	Existing Route	Changes with Modified LPA
TriMet Line 6	Connects Goose Hollow, Portland City Center, N/NE Portland, Jantzen Beach, and Hayden Island. Within the study area, service currently runs between Delta Park MAX Station and Hayden Island via I-5.	Route would be revised to terminate at the Expo Center MAX Station. Route is anticipated to travel from the Delta Park MAX Station, north along Expo Road to connect via facilities on the west side of I-5 with the Expo Center MAX Station.
TriMet Line 11	Connects East Columbia, Expo Center, Smith/Bybee lakes, Rivergate and St. Johns via Marine Drive, Lombard, Columbia, Fessenden, and Ivanhoe.	Stops along Marine Drive would be relocated or the line would be rerouted slightly to connect via facilities on the west side of I-5 with the Expo Center MAX Station.
C-TRAN Fourth Plain and Mill Plain bus rapid transit (The Vine)	Runs between downtown Vancouver and the Vancouver Mall Transit Center via Fourth Plain Boulevard, with a second line along Mill Plain Boulevard. In the study area, service currently runs along Washington and Broadway Streets through downtown Vancouver.	Route would be revised to begin/end near the Evergreen Station in downtown Vancouver and provide service along Evergreen Boulevard to Fort Vancouver Way, where it would travel to or from Mill Plain Boulevard or Fourth Plain Boulevard depending on clockwise/counterclockwise operations. The Fourth Plain Boulevard route would continue to serve existing Vine stations beyond Evergreen Boulevard.
C-TRAN #2 Lincoln	Connects the 99th Street Transit Center to downtown Vancouver via Lincoln and Kaufman Avenues. Within the study area, service currently runs along Washington and Broadway Streets between 7th and 15th Streets in downtown Vancouver.	Route would be modified to begin/end near C Street and 9th Street in downtown Vancouver.
C-TRAN #25 St. Johns	Connects the 99th Street Transit Center to downtown Vancouver via St. Johns Boulevard and Fort Vancouver Way. Within the study area, service currently runs along Evergreen Boulevard, Jefferson Street/Kaufman Avenue, 15th Street, and Franklin Street in downtown Vancouver.	Route would be modified to begin/end near C Street and 9th Street in downtown Vancouver.

Bus Route	Existing Route	Changes with Modified LPA
C-TRAN #30 Burton	Connects the Fisher's Landing Transit Center with downtown Vancouver via 164th/162nd Avenues and 18th, 25th, 28th, and 39th Streets. Within the study area, service currently runs along McLoughlin Boulevard and on Washington and Broadway Streets between 8th and 15th Streets.	Route would be modified to begin/end near C Street and 9th Street in downtown Vancouver.
C-TRAN #60 Delta Park Regional	Connects the Delta Park MAX Station in Portland with downtown Vancouver via I-5. Within the study area, service currently runs along I-5, Mill Plain Boulevard, and Broadway Street.	Route would be discontinued.

1.1.8 Tolling

Consistent with the CRC LPA, tolling cars and trucks that would use the new Columbia River bridges is proposed as a method to help fund the bridge construction and future maintenance, as well as to provide different mode, time, and destination choices for trips across the Columbia River. The sections below describe the tolling authority and tolling operations.

1.1.8.1 Tolling Authority

Federal and state laws provide authority to toll the I-5 crossing. The IBR Program plans to toll the new Columbia River bridges under the federal tolling authorization program codified in 23 U.S. Code § 129 (Section 129). Section 129 allows public agencies to impose new tolls on federal-aid interstate highways for the reconstruction or replacement of toll-free bridges or tunnels. In 2023, the Washington State Legislature authorized tolling on the Interstate Bridge, with toll rates and policies to be set by the Washington State Transportation Commission (WSTC). In Oregon, the legislature authorized tolling on the Interstate Bridge in 2013 and gave the Oregon Transportation Commission (OTC) the authority to set toll rates and policies. Subsequently, in January 2025, the OTC reviewed and approved the I-5 tollway project application that designated the IBR Program as a "tollway project" and the facility (the I-5 bridge) as a tollway for construction

Tolling Equipment

Below are the key types of equipment used to collect data for billing purposes.

Transponders: Small tags affixed to vehicles that communicate with tolling equipment as the vehicle passes.

Antenna/Readers: As a vehicle with a transponder enters a toll zone, an antenna transmits a signal between the transponder and the reader. The reader then transmits pertinent information to the toll zone controller.

Automatic Vehicle Classification: Various roadway devices installed overhead and/or in pavement to detect and identify the vehicle type (e.g., truck, bus, personal vehicle, etc.).

License Plate Image Capture Cameras: Cameras and software that capture images of license plates as vehicles pass.

Digital Video Audit System: Various types of cameras monitor traffic flow and equipment locations.

as defined in Oregon Revised Statutes (ORS) 383.003(8) and pursuant to ORS 383.015.

At the beginning of 2024, the OTC and the WSTC entered into a bi-state tolling agreement to establish a cooperative process for setting toll rates and policies. This included the formation of the I-5 Bi-State Tolling Subcommittee, which consists of two commissioners each from the OTC and WSTC, and tasked the subcommittee with developing toll rate and policy recommendations for joint consideration and adoption by each state's commission. At the direction of the commissions, all toll scenarios being analyzed in the next round of tolling analysis (referred to as a level 3 toll traffic and revenue study) for the IBR Program assume a low-income discount. Formal action is still needed by the commissions to implement rates and policies, including discounts and exemptions.

In December 2024, a memorandum of understanding (MOU) was executed by both states that outlined their shared understanding of tolling operations, including cooperation between the state Departments of Transportation and roles and responsibilities for the IBR Program. Toll collection would be managed by WSDOT, including drivers' option to use *Good To Go!* accounts for paying tolls. In addition to the MOU, the two states plan to enter into a separate agreement guiding the sharing and uses of toll revenues, including the order of uses (flow of funds) for bridge construction, debt service, and other required expenditures. WSDOT and ODOT also plan to enter into one or more agreements addressing implementation logistics, toll collection, and operations and maintenance for tolling the bi-state facility.

1.1.8.2 Tolling Operations

The Modified LPA includes a proposal to apply variable tolls on vehicles using the Columbia River bridges with the toll collected electronically in both directions. Tolls would vary by time of day with higher rates during peak travel periods and lower rates during off-peak periods. The IBR Program evaluated multiple toll scenarios with two different variable toll schedules by time of day. For purposes of this National Environmental Policy Act (NEPA) analysis, the lowest toll schedule was analyzed, with tolls assumed to range between $1.50 and $3.15 (state fiscal year 2026 dollars) for passenger vehicles and light trucks (i.e., vehicles with two axels) with a *Good To Go!* account. The assumed toll range and other assumptions are documented in the IBR Program Level 2 Toll Traffic and Revenue Study (IBR 2023). Medium and heavy trucks (i.e., vehicles with more than two axels) would be charged a higher toll than passenger vehicles and light trucks. Passenger vehicles and light trucks without a *Good To Go!* account would pay an additional $2.00 per trip to cover the cost of identifying the vehicle owner from the license plate and invoicing the toll by mail.

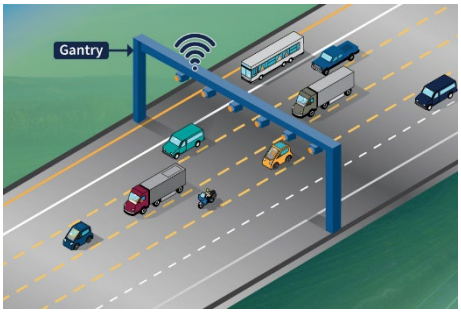
It is assumed that tolling would begin on the existing Interstate Bridge, referred to as "pre-completion tolling," in 2027, allowing time after receiving a Record of Decision to hire a contractor, install tolling equipment, and conduct the rate-setting process. The purpose of pre-completion tolling would be to generate initial capital construction funding on a pay-as-you-go basis. Later, toll revenue would be used to secure a portion of Program financing to pay back bonds or loans. Pre-completion tolling would also help pay current interest on the debt to minimize interest costs. Once the new Columbia River bridges are completed, the traffic and tolling operations would shift from the existing Interstate Bridge over to the new bridges, and 24-hour tolls would be implemented; this is referred to as "post-completion tolling."

The start dates for pre-completion tolling would be determined based on the IBR Program environmental and construction timelines; placeholders for tolling start dates were used in this NEPA analysis. This NEPA analysis assumed that pre-completion tolling on the existing Interstate Bridge would be toll-free overnight between 11 p.m. and 5 a.m. (IBR 2023). The OTC and WSTC are also considering this as an option during the level 3 toll traffic and revenue study; however, a decision has not been made on whether these toll-free hours would be implemented. This toll-free period could help avoid situations where users would be charged during lane or partial bridge closures when construction delays may occur.

Tolls would be collected using an all-electronic toll collection system using transponder pass readers and license plate cameras mounted to structures over the roadway. Each traffic lane and shoulder would have a pass reader and license plate camera to ensure accurate detection of vehicles. Toll collection booths would not be required. Instead, motorists could obtain a pass and set up a *Good To Go!* account that would automatically bill the account holder associated with the pass each time the vehicle crossed the bridge. Customers without passes would be tolled by a license plate recognition system that would bill the address of the owner registered to that vehicle's license plate.

There would be two separate "toll zones," which are the area in which the tolling system would detect and classify passing vehicles and then transmit pertinent information to the toll zone controller (Figure 1-30). There would be one zone for northbound traffic and one zone for southbound traffic. During pre-completion tolling, the toll zones would be located on I-5 in Vancouver, between the Interstate Bridge and the BNSF Railway. The location of the post-completion toll zones would be determined at a later date, but it is anticipated that both toll zones would remain in Vancouver.

Figure 1-30. Toll Zone



One gantry (i.e., overheard structure) would be located in each toll zone (Figure 1-30). Generators and equipment cabinets would be located nearby, which would house various equipment needed to support toll operations. Additional equipment cabinets would be placed throughout the Program area to support tolling operations, such as near the toll rate signage (see below).

As previously noted, a key element of tolling would be variable-rate pricing, where toll rates would differ based on the time of day a vehicle uses the bridge. To accomplish this, toll rate signs would be installed at route decision points on local roads, I-5 on-ramps, and on I-5, including locations north and south of the bridges where drivers make informed route decisions (e.g., I-5/Interstate 205 junction and I-5/Interstate 84 junction). The intent of the toll rate signs is to provide both static and variable pricing information. The static sign would contain details such as direction, wayfinding, or other information. These signs would also include a variable message sign panel that would show toll rate(s) in effect at that time.

1.1.9 Transportation System- and Demand-Management Measures

Many well-coordinated transportation demand-management and system-management programs are already in place in the Portland-Vancouver metropolitan region. In most cases, the impetus for the programs comes from state regulations: Oregon's Employee Commute Options rule and Washington's Commute Trip Reduction law (described in the sidebar).

State Laws to Reduce Commute Trips

Oregon and Washington have both adopted regulations intended to reduce the number of people commuting in single-occupancy vehicles (SOVs). Oregon's Employee Commute Options Program, created under Oregon Administrative Rule 340-242-0010, requires employers with over 100 employees in the greater Portland area to provide commute options that encourage employees to reduce auto trips to the work site. Washington's 1991 Commute Trip Reduction (CTR) Law, updated as the 2006 CTR Efficiency Act (Revised Code of Washington §70.94.521) addresses traffic congestion, air pollution, and petroleum fuel consumption. The law requires counties and cities with the greatest traffic congestion and air pollution to implement plans to reduce SOV demand. An additional provision mandates "major employers" and "employers at major worksites" to implement programs to reduce SOV use.

The physical and operational elements of the Modified LPA provide the greatest transportation demand-management opportunities by promoting other modes to fulfill more of the travel needs in the corridor. These include:

- Major new light-rail line in exclusive right of way, as well as express bus routes and bus routes that connect to new light-rail stations.
- I-5 inside shoulders that accommodate express buses.
- Modern bicycle and pedestrian facilities that accommodate more bicyclists and pedestrians and improve connectivity, safety, and travel time.
- Park and rides.
- A variable-rate toll on the new Columbia River bridges.

In addition to these fundamental elements of the Modified LPA, facilities and equipment would be implemented that could help existing or expanded transportation system–management measures maximize the capacity and efficiency of the system. These include:

- Replacement or expanded variable message signs in the primary study area. These signs alert drivers to incidents and events, allowing them to seek alternate routes or plan to limit travel during periods of congestion.
- Replacement or expanded traveler information systems with additional traffic monitoring equipment and cameras.
- Expanded incident response capabilities, which help traffic congestion to clear more quickly following accidents, spills, or other incidents.
- Queue jumps or bypass lanes for transit vehicles where multilane approaches are provided at ramp signals for on-ramps. Locations for these features will be determined during the detailed design phase.

- Active traffic management strategies including ramp metering and dynamic speed limits. These strategies are intended to manage congestion by controlling traffic flow.

1.1.10 Off-Site Mitigation Sites

The IBR Program will provide off-site mitigation for unavoidable impacts to natural resources, including fish and wildlife species and their habitats, wetlands, surface waters, floodplains, and other regulated habitat features (refer to the Final SEIS, Sections 3.14, Water Quality and Hydrology; 3.15, Wetlands; and 3.16, Ecosystems).[15] Applicable federal, state, and local regulatory frameworks require mitigation sequencing that includes avoidance and minimization of impacts, and compensatory mitigation to achieve "no net loss" of the resource or its functions. Mitigation must fully offset the impacts of the Modified LPA and achieve this "no net loss" standard. The Modified LPA would result in unavoidable impacts to natural resources, which would require mitigation under one or more regulatory frameworks. Mitigation plans and mitigation bank use plans will be prepared to provide compensation for any such unavoidable impacts to regulated resources (wetlands, waters, floodplain, sensitive habitats) and to demonstrate that the IBR Program will achieve "no net loss" of function of these resources. The IBR Program is preparing functional assessments and coordinating with regulatory agencies to quantify the amount and type of compensatory mitigation required to offset Program impacts and achieve "no net loss."

It is anticipated that compensatory mitigation for unavoidable impacts to aquatic and terrestrial habitats and species in Washington will be provided through the purchase of credits from the proposed Wapato Valley Mitigation and Conservation Bank (Figure 1-31). The bank is approximately 876 acres and is located in the Columbia River floodplain at the mouth of the Lewis River, approximately 19 river miles downstream of the Interstate Bridge. Approval of the bank is expected in 2026.

It is anticipated that compensatory mitigation for unavoidable impacts to wetlands, and aquatic and terrestrial habitats and species in Oregon will be provided partially through the purchase of advance mitigation credits at ODOT's proposed Columbia Bottomlands Advance Mitigation/Conservation Site, and partially through the purchase and protection under conservation easement of a site on West Hayden Island (shown on Figure 1-31). The Columbia Bottomlands Advanced Mitigation/Conservation site is located in Scappoose Bay, a slough of Multnomah Channel, in Columbia County, Oregon. The site is located approximately 1 mile upstream of where the Multnomah Channel meets the Columbia River and approximately 20 river miles downstream of the Interstate Bridge. The site has been designed to provide advance mitigation credits for impacts to wetlands and aquatic and terrestrial habitats and species for future ODOT projects. All impacted wetlands and other water features would be mitigated in accordance with current USACE mitigation policies, and the conditions of the Section 404 Permit. All compensatory mitigation plans would be developed in coordination with the USACE and other appropriate agencies as part of the Section 404 permitting process. The USACE and other appropriate agencies would determine the appropriate level of mitigation based upon the functions lost or adversely affected as a result of impacts to aquatic resources.

[15] On-site mitigation is identified and analyzed in relevant subsections of Chapter 3, Existing Conditions and Environmental Consequences of the Final SEIS.

The proposed site on West Hayden Island is approximately 65 acres in size and is located approximately 2.5 river miles downstream of the Interstate Bridge, on the south side of the island adjacent to North Portland Harbor. The site is currently owned by the Oregon Department of State Lands, but ODOT has proposed to purchase this site and place it under a conservation easement. One or more compensatory mitigation projects may also be conducted on the site. The specific activities to be conducted at this site would be developed in coordination with the applicable regulatory agencies for each of the various permit applications.

In addition to the compensatory wetland and habitat mitigation described above, the IBR Program may need to excavate material from within the 100-year floodplain to address the compensatory excavation requirements of the City of Portland's recently updated floodplain ordinance. If such activity is required, it is anticipated that this material would be removed from upland portions of the 65-acre parcel on West Hayden Island described above or from aquatic areas adjacent to this parcel. If such excavation activities are conducted, excavated materials will be disposed of at a location approved to receive that type of material.

Figure 1-31. Potential Compensatory Mitigation Sites

1.2 Modified LPA Construction

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 OTC and WSTC (refer to Section 1.1.8, Tolling).

1.2.1 Construction Components, Packaging Plan, and Duration

Table 1-4 lists the main construction components of the Modified LPA along with the estimated construction durations and descriptions of the associated work. Construction packages are also listed in Table 1-4 and illustrated in Figure 1-32. 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 the 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 the Final SEIS, 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 the Final SEIS Section 3.2, Navigation, for additional information).

Table 1-4. 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

Component and General Location	Estimated Duration	Description	Construction Packages
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 Boulevard.

Figure 1-32. Preliminary Construction Packages

1.2.2 Potential Staging Sites and Casting Yards

Equipment and materials would be staged in the primary study area throughout construction generally within existing or newly purchased right of way, on land vacated by existing transportation facilities (e.g., I-5 on Hayden Island), or on nearby parcels. However, at least one large site could be required for construction offices, equipment maintenance and storage, maintenance of traffic equipment, employee parking, and construction material storage and other needs. Criteria for suitable sites include large, open areas for heavy machinery and material storage, waterfront access for barges (either a slip or a dock capable of handling heavy equipment and material) to convey material to the construction zone, and roadway or rail access for landside transportation of materials by truck or train.

Two potential major staging sites have been identified (see Figure 1-6). Both sites are located on Hayden Island on the west side of I-5. A large portion of both parcels would be required for new right of way for the Modified LPA. Other staging sites may be identified during the design process or by the contractor. Following construction of the Modified LPA, the staging sites could be converted to other uses.

In addition to on-land sites, some staging activities for construction of the new Columbia River and North Portland Harbor bridges would take place on the river itself. Temporary work structures, barges, barge-mounted cranes, derricks, and other construction vessels and equipment would be present on the river during most or all of the bridges' construction period. The IBR Program is working with USACE, USCG, and the Federal Aviation Administration to obtain necessary clearances for these activities.

A casting or staging yard could also be required for construction of the overwater bridges if a precast concrete segmental bridge design is used. A casting yard would require access to the river for barges, a slip or a dock capable of handling heavy equipment and material, a large area suitable for a concrete batch plant and associated heavy machinery and equipment, and access to a highway or railway for delivery of materials. Such a site would likely be between approximately 50 and 100 acres. As with the staging sites, casting yards would be identified during the design process or by the contractor and would be subject to the same contract and permit requirements to implement the best management practices (BMPs) described in Appendix M to the Final SEIS unless more stringent permitting requirements and conditions are required at the time of identification.

All material staging, equipment staging areas, equipment fueling areas, and casting yards would be contained and located outside of environmentally and culturally sensitive areas. To the extent practicable, these sites would be located in upland locations, on areas that are already or have been previously disturbed. These activities would be conducted consistent with the impact minimization BMPs described in Appendix M to the Final SEIS. Construction of the Modified LPA would also include revegetating temporarily disturbed areas consistent with federal, state, and local regulations, and the net result would be no net loss of habitat function in the long term. As with the staging sites, casting or staging yard sites may be identified as the design progresses or by the contractor and would be evaluated via a NEPA re-evaluation or supplemental NEPA document for potential environmental impacts at that time.

1.3 No-Build Alternative

The No-Build Alternative illustrates how transportation and environmental conditions would likely change by the year 2045 if the Modified LPA is not built. This alternative makes the same assumptions as the Modified LPA regarding population and employment growth through 2045, and it assumes that the same transportation and land use projects in the region would occur as planned.

Regional transportation projects included in the No-Build Alternative are those in the financially constrained 2018 *Regional Transportation Plan* (RTP) adopted in December 2018 by the Metro Council (Metro 2018) and in March 2019 (RTC 2019) by the Southwest Washington Regional Transportation Council (RTC) Board of Directors (referred to collectively as the 2018 RTP in this report).[16] The 2018 RTP has a planning horizon year of 2040 and includes projects from state and local plans necessary to meet transportation needs over this time period; financially constrained means these projects have identified funding sources. The Transportation Technical Report lists the projects included in the financially constrained 2018 RTP.

The implementation of regional and local land use plans is also assumed as part of the No-Build Alternative. For the IBR Program analysis, population and employment assumptions used in the 2018 RTP were updated to 2045 in a manner consistent with regional comprehensive and land use planning. In addition to accounting for added growth, adjustments were made within Portland to reallocate the households and employment based on the most current update to Portland's comprehensive plan, which was not complete in time for inclusion in the 2018 RTP.

Other projects assumed as part of the No-Build Alternative include major development and infrastructure projects that are in the planning stage, permitting stage, or partway through phased development. They include the Waterfront Vancouver project, Terminal 1 development, the Renaissance Boardwalk, the Waterfront Gateway project, improvements to the levee system, several restoration and habitat projects, and the Portland Expo Center.

In addition to population and employment growth and the implementation of local and regional plans and projects, the No-Build Alternative assumes that the existing Interstate Bridge would continue to operate as it does today. As the bridge ages, needs for repair and maintenance would potentially increase, and the bridge would continue to be at risk of mechanical failure or damage from a seismic event.

[16] The 2018 RTP was the adopted regional transportation plan available when the IBR Program initiated the SEIS. In 2023, Oregon Metro and RTC updated their respective RTPs as part of their five-year update cycle, as required under 23 CFR § 450.324. The 2023 RTP was adopted by Oregon Metro in 2023 and RTC in 2024, several years after the IBR Program Draft SEIS analysis was initiated in early 2021. To use the regional travel demand model supporting the 2023 RTP, additional refinement and coordination would be necessary for it to be ready for use in a facility-specific study, such as the IBR Program. This refinement and coordination process is lengthy and can take up to a year and a half for a complex project with numerous partner agencies, like the IBR Program. Therefore, the NEPA lead agencies exercised their discretion and determined, based on their technical expertise, that the 2018 RTP and Travel Demand Model continued to be the most appropriate base tool for the purposes of comparing the No-Build Alternative to the Modified LPA and design options in the Final SEIS.

2. METHODS

2.1 Introduction

This chapter describes the methods that were used to support the IBR Program environmental evaluation. This report outlines the approach to identify and evaluate the beneficial and adverse impacts of the Modified LPA on local neighborhoods and associated populations.

This report includes a description of the study area, relevant laws and regulations, and methods for collecting data, assessing impacts, and evaluating possible mitigation measures. The analysis is designed to comply with the NEPA and relevant federal, state, and local laws. These methods are based on those developed for the CRC project, which completed the NEPA process with a signed ROD in 2011[17] and NEPA reevaluations in 2012 (to evaluate an increase in bridge clearance) and 2013 (to evaluate phased construction). The CRC project was discontinued in 2014; the IBR Program is evaluating changes in regulations, policy, and physical conditions that have occurred since the completion of the ROD. The updated methods were used to evaluate the potential environmental impacts associated with the Modified LPA and will be compared to the impacts disclosed in the CRC project ROD.

The methods have been updated for the IBR Program in the following ways:

- Updated effects guidelines to reflect current Social and Community Effects guidelines from section 458.04 of the Washington State Department of Transportation (WSDOT) Environmental Manual (June 2020).
- Included additional local and neighborhood plans that have been completed since the CRC project analysis:
  - North Interstate Corridor Plan, adopted 2008.
  - Rose Village Neighborhood Action Plan, accepted 2012.
  - Hayden Island Plan, adopted 2009.
- Included additional local and neighborhood plans that were excluded from the CRC project analysis but are within the study area:
  - Vancouver City Center Vision & Subarea Plan, adopted 2007.
  - Kenton Downtown Plan, adopted 2001.
- Updated local and neighborhood plans that have been revised since the CRC project analysis:
  - Interstate Corridor Urban Renewal Area (URA), amended 2011.
  - Arnada Neighborhood Action Plan, updated 2009.
  - Central Park Neighborhood Action Plan, updated 2010.

[17] The ROD and supporting environmental documents can be found on the Washington Department of Transportation's website: https://www.wsdot.wa.gov/accountability/ssb5806/environmental-process-and-permitting.htm.

- Esther Short Neighborhood Action Plan, updated 2006.[18]
- Hough Neighborhood Action Plan, updated 2009.
- Lincoln Neighborhood Action Plan, updated 2011.
- West Minnehaha Neighborhood Action Plan, updated 2011.

2.2 Study Area

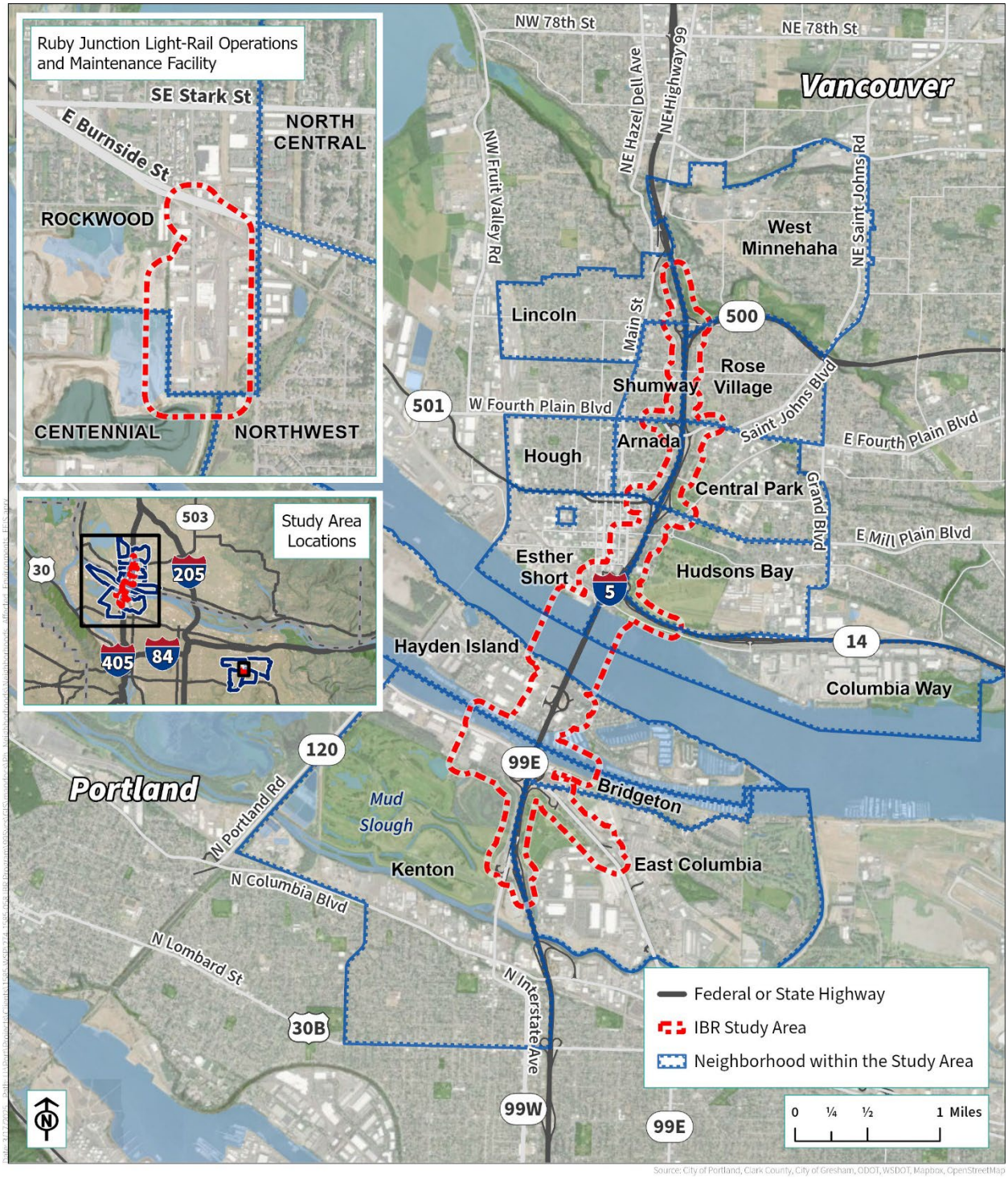
The IBR Program study area runs along a 5-mile segment of Interstate 5 (I-5), approximately between the SR 500 interchange in Washington and the I-5/Columbia Boulevard interchange in Oregon. Most physical changes associated with the Program would occur in this area, though mitigation could still occur outside of it. Temporary construction easements would be established directly adjacent to the proposed construction areas, while larger staging areas and casting yards could be located upstream or downstream of the new Columbia River bridges. The CRC LPA and the IBR Modified LPA also include expansion of the Ruby Junction Light-Rail Operations and Maintenance Facility (OMF) in Gresham, Oregon. The study area is shown in Figure 2-1 and is described in more detail below.

Analysis for the neighborhoods and population assessment is organized at a neighborhood level. The Program team conducted an in-depth analysis of neighborhoods that are expected to experience direct construction or operational effects due to the Program. The neighborhoods within the study area are listed below, and Figure 2-1 maps these neighborhoods. Neighborhoods not specified are not expected to experience direct construction or operational effects from the Modified LPA.

- Vancouver Neighborhoods
  - Arnada
  - Central Park
  - Columbia Way
  - Esther Short
  - Hough
  - Hudson's Bay
  - Lincoln
  - Rose Village
  - Shumway
  - West Minnehaha
- Portland Neighborhoods
  - Bridgeton
  - East Columbia
  - Hayden Island
  - Kenton
- Gresham Neighborhoods
  - Rockwood

[18] The CRC project analysis referenced the 1998 Esther Short Neighborhood Action Plan.

Figure 2-1. Neighborhoods Study Area



The study area is the area most likely to experience direct impacts from construction and operation of the proposed Program. Most direct physical changes would occur in this area, though mitigation could still occur outside of it. The study area is based on the area of potential impact from the CRC project. The IBR analysis focuses on neighborhoods that intersect with or are located within the study area (see Figure 2-1 and the list above). Technical reports for related disciplines were also reviewed to determine whether any impacts would occur outside of the study area. Related disciplines are listed in Section 2.5.10.

2.3 Effects Guidelines

The Program team considered the following in evaluating the Modified LPA's potential effects on neighborhoods and populations:

- Will the Program displace people or community resources, including businesses?
- Will the Program create direct or indirect impacts to social services by displacing them?[19]
- Will the Program separate neighborhood residents from community resources such as educational, religious, health care, day care,[11] cultural, or recreational facilities, and/or commercial services?[20]
- Will the Program change travel patterns, travel time, or accessibility for all modes, including public transit, bicycle, and pedestrian movement, such that it will affect access to community resources?[5]
- Will the Program change community cohesion?[21]
- Is the Program consistent with existing neighborhood plan goals?

Methods for analysis of these factors are described in Section 2.6.

2.4 Relevant Laws and Regulations

Federal and local laws and regulations that potentially affect the definition of impacts to neighborhoods and populations are listed below. Other laws and regulations relating to neighborhoods and population are addressed in the Land Use Technical Report and the Acquisitions Technical Report. Those regulations are not included in this report, as they directly relate to other disciplines.

[19] Updated to reflect current Social and Community Effects guidelines from section 458.04 of Washington State Department of Transportation's (WSDOT's) Environmental Manual (June 2020).
[20] Separation of a neighborhood from its community resources may be caused by operational changes, such as rerouting traffic, pedestrian, or transit service, as well as physical barriers, such as new noise barriers or roadways.
[21] Changes in community cohesion may include major displacements, splitting or isolating a portion of a neighborhood or minority and/or low-income populations from community facilities, separation from services, impacts to traffic circulation, reduction in neighborhood activities, generating new development, or inconsistency with neighborhood plan goals. Updated to reflect current Social and Community Effects guidelines from section 458.04 of WSDOT's Environmental Manual (June 2020).

Some local plans, including Vancouver's neighborhood plans, are not officially adopted by a local jurisdiction. Both adopted and unadopted plans will be reviewed, with greater consideration given to adopted plans and policies.

2.4.1 Federal

2.4.1.1 Federal Aid Highway Act. 1970 (Public Law 91-605, § 1713)

This act specifies the social and economic impacts that must be taken into account in federally funded highway projects:

- Air, noise and water pollution.
- Destruction or disruption of man-made resources, aesthetic values, community cohesion, and availability of public facilities and services.
- Adverse employment effects, and tax and property value losses.
- Injurious displacement of people, businesses, and farms.
- Disruption of desirable community and regional growth.

This technical report focuses specifically on potential impacts to community cohesion.

2.4.1.2 Americans with Disabilities Act of 1990, (Public Law 101-336, 42 United States Code 12101-12213). July 26, 1990. Title II – Public Services; and Title III – Public Accommodations and Services Operated by Private Entities

This act states: "No qualified individual with a disability shall, by reason of such disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination by a department, agency, special purpose district, or other instrumentality of a State or local government." It provides enforceable standards to address discrimination against individuals with disabilities.

This technical report considers potential impacts to people with disabilities in its analyses.

2.4.1.3 Age Discrimination Act of 1975, 42 United States Code 6101

This act provides that "No person in the United States shall, on the basis of age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance." It adds "age" as a protected group with wording similar to Title VI of the Civil Rights Act of 1964. It prohibits discrimination based on age. See also 10 Code of Federal Regulations 1040.1 et seq. and 45 Code of Federal Regulations 90.1 et seq.

This technical report considers potential impacts to elderly people in its analyses.

2.4.2 Local

Plans and policies that primarily entail goals and objectives related to land use planning are covered in the Land Use Technical Report.

2.4.2.1 City of Portland, Bureau of Planning. 1993. Adopted Albina Community Plan

The Albina Community Plan, adopted in 1993, serves as a framework for the inner north and northeast Portland neighborhoods, including most of the neighborhoods within the study area. The Albina Community Plan provides guidance for neighborhoods within the district on land use, transportation, and public service strategies. The Albina Community Plan was consulted to determine whether the Modified LPA falls within the framework of the plan.

2.4.2.2 City of Portland, Prosper Portland. Amended 2011. Interstate Corridor Urban Renewal Area

The Prosper Portland Interstate Corridor URA encompasses 3,990 acres of inner north and northeast Portland, with I-5 running through it. The URA occupies portions of 17 neighborhoods including Bridgeton and Kenton. The Interstate URA's goals and objectives related to neighborhoods and community (housing, transportation, parks and open space, and community facilities) were consulted to determine whether the Modified LPA complies with or contradicts them.

2.4.2.3 City of Portland, Bureau of Planning. 2008. Adopted North Interstate Corridor Plan

The North Interstate Corridor Plan establishes a long-term vision for the Interstate Avenue corridor to fulfill community and regional aspirations along the then-recently built MAX light-rail line. The plan was developed through a year-long public process. Its framework of implementation strategies includes urban design concepts, zoning and regulatory updates, transportation strategies, and community design guidelines. The North Interstate Corridor Plan was consulted to determine whether the Modified LPA supports or conflicts with the plan.

2.4.2.4 City of Portland, Bureau of Planning. 2023. 2035 Comprehensive Plan

Portland's Comprehensive Plan guides how and where land is developed and infrastructure projects are built to prepare for and respond to population and job growth. It addresses future development, and it includes expectations for how and when community members will be involved in land use decisions. It helps coordinate policies and actions across City bureaus as well as with regional and state agencies. The 2035 Comprehensive Plan was consulted to determine whether the Modified LPA supports or conflicts with the plan.

2.4.2.5 City of Vancouver, Community and Economic Development. 2007. Adopted Vancouver City Center Vision & Subarea Plan

The Vancouver City Center Vision & Subarea Plan is intended to "foster and guide continued growth of the approximately 130-block City Center area of Vancouver." The plan area overlaps with the neighborhoods of Arnada, Esther Short, and Hough. The plan defines a vision for this area of downtown Vancouver, along with land use and transportation policies and recommendations to achieve the vision. It includes policies specifically related to I-5 and the Columbia River bridges, with attention to how I-5 impacts downtown land use and multimodal transportation access. Among other things, the plan encourages residential development, support services, arts and culture, and improved transportation connections to support communities in the plan area. The Vancouver City

Center Vision & Subarea Plan was consulted to determine whether the Modified LPA supports or conflicts with the plan.

2.4.2.6 Neighborhood Plans

Neighborhood plans were reviewed and summarized for neighborhoods within the study area in Vancouver and Portland that have official plans: Arnada, Central Park, Esther Short, Hough, Hudson's Bay, Lincoln, Rose Village, Shumway, West Minnehaha, Bridgeton, Hayden Island, and Kenton. The Columbia Way neighborhood in Vancouver and the East Columbia neighborhood in Portland currently do not have official neighborhood plans.

Neighborhood plans were developed under the auspices of the Vancouver Office of Neighborhoods and the Portland Bureau of Planning. Within Vancouver, neighborhood plans are used as guidance but do not have the force of law, as comprehensive plans do. Within Portland, neighborhood plan goals are adopted as part of the comprehensive plan.

Section 2.5 lists the applicable goals for each neighborhood to help identify inconsistencies with plan goals once the Modified LPA is defined. The following neighborhood plans were reviewed:

- City of Vancouver:
  - Arnada Neighborhood Action Plan. Office of Neighborhoods. 2009.
  - Central Park Neighborhood Action Plan. Office of Neighborhoods. 2010.
  - Esther Short Neighborhood Action Plan. Office of Neighborhoods. 2006.
  - Hough Neighborhood Action Plan. Office of Neighborhoods. 2009.
  - Hudson's Bay Neighborhood Action Plan. Office of Neighborhoods. 1998.
  - Lincoln Neighborhood Action Plan. Office of Neighborhoods. 2011.
  - Rose Village Neighborhood Action Plan. Office of Neighborhoods. 2012.
  - Shumway Neighborhood Action Plan. Office of Neighborhoods. 1998.
  - West Minnehaha Neighborhood Action Plan. Office of Neighborhoods. 2011.
- City of Portland:
  - Adopted Bridgeton Neighborhood Plan. Bureau of Planning. 1997.
  - Adopted Hayden Island Plan. Bureau of Planning. 2009.
  - Adopted Kenton Downtown Plan. Bureau of Planning. 2001.
  - Adopted Kenton Neighborhood Plan. Bureau of Planning. 1993.

2.5 Data Collection Methods

2.5.1 Contacts

Analyses of neighborhood and population impacts were accomplished in part through consultation with representatives from the Office of Neighborhoods in Vancouver and the Office of Community and Civic Life in Portland. Representatives from these jurisdictions helped provide more-detailed

information on neighborhood demographics, cohesion, and community resources. Planners from Vancouver and Portland were also contacted for information on long-range planning efforts taking place in the neighborhoods.

2.5.1 Neighborhood Associations

As part of the Program's ongoing community outreach effort, IBR Program staff have coordinated with neighborhood associations and their representatives to elicit input about the Modified LPA. Coordination with neighborhood associations in neighborhoods that intersect the study area is used to identify locally important community resources and discuss potential impacts to neighborhood cohesion due to project construction and/or operation.

2.5.2 Public Involvement Activities

The IBR Program team uses public events as an opportunity to learn more about the neighborhoods and populations expected to be impacted by the Program. This will be coordinated with outreach activities as the Program progresses. Outreach efforts include communities with limited English proficiency. Outreach efforts have also been extended to rural communities that use the existing Interstate Bridge, including community and civic organizations in rural southwest Washington, radio stations on both sides of the river, and local industry groups active in rural areas, including agriculture, forestry, and freight.

Appendix B of the Final SEIS provides detailed information on public outreach activities throughout the duration of the IBR Program. Outreach and engagement with study area communities will continue through the project development process to provide information on detailed design and construction planning and to ensure that impacts are minimized and mitigated to the greatest extent feasible.

2.5.3 Comments on the Draft SEIS

Comments received on the Draft SEIS included feedback about the effects of the Modified LPA on neighborhoods and communities. Some of the comments reflected overall concerns regarding the duration and impacts of construction. There were also a number of specific comments regarding impacts to floating home communities on Hayden Island and impacts to the Esther Short neighborhood in Vancouver from the displacement of 33 residential units at the Normandy Apartments building under the I-5 Westward Shift design option. These comments have been responded to in Appendix Q of the Final SEIS, and revisions have been made to the Final SEIS as needed to address the comments.

2.5.4 Advisory Groups

To achieve the goal of meaningful public involvement in the Program development process, the Program team formed two advisory groups. Group members represent the diverse interests and perspectives of Vancouver, Portland, and Hayden Island neighborhoods. The IBR Program conducted meetings with these groups in September, October, and November of 2024 to discuss outreach strategies, public comment opportunities, and findings related to transportation, community, and

environmental issues. Input from these groups has helped identify community resources, aspects important to neighborhood cohesion, and potential challenges to cohesion. Their feedback has informed the analysis of neighborhoods and communities in the following ways:

- Identified themes related to transportation problems and community priorities and values.
  - Feedback regarding the transportation problems travelers experience with the current Interstate Bridge and the community priorities and values that should shape the Program helped to confirm that the previously identified Purpose and Need for replacing the Interstate Bridge remain valid. Congestion and travel reliability, safety, earthquake vulnerability, impaired freight movement, inadequate bicycle and pedestrian pathways, and limited public transportation were all reaffirmed as community concerns.
- Helped inform the IBR Program's Modified LPA recommendation. Community outreach included an online survey with over 9,600 responses, 300+ listening session participants across multiple sessions, four community working groups, over two dozen public meetings and a community opinion survey. Participants provided input on the following topics relevant to neighborhoods and community cohesion:
  - Transit: Priorities expressed in community feedback included a desire for transit options that improve connectivity across the river and to the regional transit system, ease of access for a variety of users, and transit travel time/reliability. Specific feedback included support for high-capacity transit options; a desire for multiple transportation options that are efficient, reliable, and user-friendly; and preferences for transit stations located at (or near) Expo Center, Hayden Island, Vancouver Waterfront, Vancouver Library (Evergreen), and Clark College.
  - Hayden Island improvements: The community expressed a desire to balance vehicle and freight access, with a preference for minimizing the footprint of I-5 over Hayden Island. Other community feedback included the need to accommodate active transportation safety and access. Washington residents expressed a preference for direct access to Hayden Island, while Oregon residents expressed a preference for island access via Marine Drive and a local access bridge.

2.5.5 Community Resource Mapping

Community resources were identified through a combination of geographic analysis and community engagement. The Program team reviewed the community resources identified in the CRC project planning process, updated them to reflect current conditions, and then refined them based on input from community engagement.

Impact determinations are based on observations, local interviews, and professional judgment. The following is a list of potential community resources and neighborhood activities that could be impacted by the Program.

- Community Resources
  - Parks and playgrounds
  - Public and private schools

    - Recreational facilities
    - Libraries
    - Community centers
    - Commercial areas such as eateries, cafés or shopping centers
    - Places of worship
    - Day care facilities
    - Health care facilities
- Neighborhood Activities
    - Fairs, block parties, or trash pickup
    - Publication of neighborhood newsletters

2.5.6 Spatial Analysis

Geographical information system (GIS) data from Metro's Regional Land Information System and Clark County's GIS service, ClarkView, provided the names, locations, and boundaries of neighborhoods within the study area.

2.5.7 Census Data

The following data from the most current U.S. Census helped to determine the population and demographics for each neighborhood within the study area:

- Total population.
- Percentage of minority and ethnicity populations compared to city and county percentages.
- Percentage of population with income below the poverty level compared to city and county percentages.
- Percentage of population with disabilities compared to city and county percentages.
- Median home value compared to city and county median home values.
- Percentage of households with five or more residents compared to city and county percentages.
- Percentage of owner-occupied housing compared to city and county percentages.
- Percentage of housing units with no vehicle compared to city and county percentages.
- Age distributions compared to city and county distributions.

Census data were considered alongside supplemental data, including input from public meetings and community outreach, to help the Program team better understand each neighborhood's character and which concerns are important to each community.

2.5.8 Additional Community Context

Historic context statements for the Hough District nomination to the Washington Heritage Register and the Esther Short Neighborhood Action Plan were reviewed, as well as other applicable documents describing neighborhood histories identified through interviews with Vancouver representatives or contained within neighborhood plans.

The Albina Community Plan was reviewed for information on the history of Portland's Black community.

TriMet's Community History Project, Intersections (2003), was referenced for oral histories of North Portland neighborhoods. The book discusses such events as the Vanport Floods, construction of the Memorial Coliseum, and development of Swan Island, as well as the impacts these events had on surrounding neighborhoods.

Carl Abbott's book *Greater Portland* was reviewed for further historical references, including information on the construction of I-5 and relevant demographic information about North Portland neighborhoods.

2.5.9 Crime Statistics

Crime rate statistics for the neighborhoods or precincts were determined by contacting the Clark County Sheriff's Office Crime Analysis Unit, City of Vancouver Police Department, City of Gresham Police Department, and the Portland Police Bureau.

2.5.10 Other Technical Reports

Data for this technical report were also sourced from other technical reports. The following technical reports were reviewed for neighborhoods and population information, as described below:

- The Acquisitions Technical Report describes the potential land acquisitions, displacements, and relocations necessary for the Program, as well as available housing in the area and the housing needs of displaced people.
- The Air Quality Technical Report estimates the effects of air pollution and air toxics in neighborhoods.
- The Economics Technical Report describes effects on local and regional businesses located in the neighborhoods.
- The Ecosystems Technical Report assesses effects on aquatic and terrestrial species and habitats including trees and vegetation.
- The Historic Built Environment Technical Report identifies historic resources within the neighborhoods that may contribute to neighborhood cohesion.
- The Land Use Technical Report identifies comprehensive plan designations, zoning codes, and other applicable land use laws for the neighborhoods.
- The Noise and Vibration Technical Report describes the effects of noise levels in the neighborhoods.

- The Parks and Recreation Technical Report identifies parks within neighborhoods that serve as resources to the community.
- The Public Services Technical Report identifies important resources within neighborhoods, such as hospitals and fire stations.
- The Transportation Technical Report identifies effects on traffic circulation patterns on local and collector streets. It also identifies effects on transit service, including changes to transit routes, level of service, ridership capacity, and frequency of stations. This report includes crash data for roadways within the study area.
- The Visual Quality Technical Report identifies viewsheds and visual resources within the neighborhoods.

2.5.11 Summary of Information Sources

Table 2-1 summarizes the information sources that were used to inform the analysis of neighborhood and population impacts.

Table 2-1. Summary of Information Sources

Source	Information to Be Used
Metro Regional Land Information System	Names, locations, and boundaries of neighborhoods within the study area.
Clark County GIS	Names, locations, and boundaries of neighborhoods within the study area.
U.S. Census Bureau year 2020 data if available, otherwise 2010 data	Total population.
	Percentage of minority and ethnicity populations, compared to city and county percentages.
	Age distributions, compared to city and county distributions.
	Percentage of population with income below the poverty level, compared to city and county percentages.
	Percentage of population with disabilities, compared to city and county percentages.
	Median home value, compared to city and county median home values.
	Percentage of households with five or more residents, compared to city and county percentages.
	Percentage of owner-occupied housing, compared to city and county percentages.
	Percentage of housing units with no vehicle, compared to city and county percentages.

Source	Information to Be Used
Clark County Sheriff's Office Crime Analysis Unit	Crime rate statistics.
City of Gresham Police Department	Crime rate statistics.
City of Portland Police Bureau	Crime rate statistics.
City of Vancouver Police Department	Crime rate statistics.
Vancouver Office of Neighborhoods	Information on neighborhood demographics, cohesion, and community resources.
Portland Office of Community and Civic Life	Information on neighborhood demographics, cohesion, and community resources.
City of Vancouver Office of Long-Range Planning	Information on neighborhood demographics, cohesion, and community resources.
City of Portland Bureau of Planning	Information on neighborhood demographics, cohesion, and community resources.
Alternatives Design	Alternatives designs in relation to neighborhoods and accessibility.
Traffic Models	Traffic counts for preconstruction traffic circulation patterns, modeled traffic circulation patterns for during and post construction.
Preconstruction Land Use Survey	Preconstruction land use survey to identify existing land use before potential displacement.

2.6 Analysis Methods Approach

This section describes the methods employed to measure impacts to neighborhoods and population. This approach is summarized in Table 2-2 with a list of performance measures. The subsections below provide additional detail.

Table 2-2. Summary of Analysis Approach

Evaluation Category	Measure	Data Sources
Displacements	Assess short- and long-term property impacts to populations, businesses, and other community resources.	• Preconstruction land use survey • Acquisitions Technical Report
Access to Social Services	Assess short- and long-term impacts to access social services.	• Preconstruction land use survey • Acquisitions Technical Report • Public Services Technical Report • Transportation Technical Report

Evaluation Category	Measure	Data Sources
Access to Community Resources	Assess short- and long-term impacts to access community services, including educational, religious, health care, day care, cultural, recreational facilities, commercial services, and other resources identified by community members. This includes operational barriers, such as rerouting, and physical barriers, such as new walls or roadways.	• Preconstruction land use survey • Inventory of community resources • Acquisitions Technical Report • Historic Built Environment Technical Report • Public Services Technical Report • Transportation Technical Report • Utilities Technical Report • Visual Quality Technical Report
Travel Impacts	Assess short- and long-term transportation impacts to reach community resources, including impacts to transportation options, travel time, and accessibility for all modes. This includes operational barriers, such as rerouting, and physical barriers, such as new walls or roadways.	• Preconstruction land use survey • Inventory of community resources • Acquisitions Technical Report • Historic Built Environment Technical Report • Public Services Technical Report • Transportation Technical Report
Community Cohesion	Assess preconstruction community cohesion based on neighborhood profiles. Identify potential impacts to community cohesion, which can include major displacements, separation of populations from community resources, reduction in neighborhood activity, and inconsistency with community plans.	• Preconstruction land use survey • Inventory of community resources • Acquisitions Technical Report • Historic Built Environment Technical Report • Public Services Technical Report • Transportation Technical Report • Local crime rate statistics • Census data • Local and neighborhood plans
Community Benefits	Assess potential benefits to neighborhoods and populations based on — but not limited to — community cohesion, transportation access, economic opportunities, environmental effects, and health effects.	• Air Quality Technical Report • Economics Technical Report • Noise and Vibration Technical Report • Parks and Recreation Technical Report • Public Services Technical Report • Transportation Technical Report • Community input
Plan Consistency	Assess consistency with existing local and neighborhood plan goals.	• Local and neighborhood plans

2.6.1 Neighborhood Profiles

Profiles for each of the neighborhoods in the study area were prepared. These profiles included characteristics that help identify the neighborhoods and populations most susceptible to impacts from the Program. Some of the characteristics included:

- Total population.
- Household size.
- Percentage of minority and ethnicity populations compared to city and county.
- Age distribution compared to city and county.
- Percentage of households with incomes below the poverty level compared to city and county.
- Percentage of population with disabilities compared to city and county.
- Median assessed home value.
- Percentage of owner-occupied housing compared to city and county.
- Percentage of households without access to a vehicle.
- Crime rate statistics.
- Inventory of community resources.
- Neighborhood cohesion.

2.6.2 Long-Term Benefits and Effects

Long-term impacts may include major displacements, separation of a neighborhood from its community resources, impacts to traffic circulation patterns, impacts to cohesion, and inconsistencies with neighborhood plan goals. Separation of a neighborhood from its community resources may be caused by operational changes, such as rerouting traffic, pedestrians, or public transit service, as well as by physical barriers, such as new noise barriers or roadways. The methods used to determine impacts to neighborhoods and population vary depending on the impact being assessed, but in all cases, the analysis seeks to understand the affected community's perception of the severity of the impacts and proposed mitigation measures.

2.6.2.1 Displacements

Information on displacements was sourced from the IBR Program's Acquisitions Technical Report. Program staff analyzed right of way data to determine whether or not major displacements of people or community resources would occur within the neighborhoods. Additional analyses were performed to identify day care facilities, senior housing facilities, and neighborhood resources that may be displaced or otherwise impacted.

2.6.2.2 Separation of a Neighborhood from its Community Resources

Program staff analyzed the Modified LPA to determine if the project would separate neighborhoods from community resources. Separations can include both physical and operational barriers. The Acquisitions Technical Report was also referenced to determine whether community resources would be displaced.

2.6.2.3 Impacts to Traffic Circulation

Impacts to traffic circulation patterns were determined by referencing the Transportation Technical Report, with particular attention to local or collector streets and the accessibility of surrounding land uses. If effects were considered substantial based on the thresholds for those disciplines, the same effects were considered potentially significant for the neighborhoods where the effects took place.

2.6.2.4 Effects on Cohesion

Neighborhood cohesion describes the livability of a neighborhood, and more specifically, the opportunities for residents to connect to one another within the neighborhood. These opportunities can be offered through gathering places such as schools, community centers, parks, or shopping centers. High home ownership rates can also contribute to cohesion because there may be more long-term residents in neighborhoods with high home ownership rates than in neighborhoods with high rental rates. Crime rates may affect cohesion because they are important factors in determining how safe residents feel in their homes and neighborhoods. Urban form, the street grid, and the presence of sidewalks also help create opportunities for residents to connect while walking or recreating in the neighborhood. Smaller block sizes, sidewalks, and well-connected streets encourage neighborhood cohesion.

Displacements, separation of a neighborhood from its resources, impacts to traffic circulation, or inconsistencies with neighborhood goals could all impact cohesion. In addition to these factors, a reduction in neighborhood activities also could affect cohesion. These indicators of cohesion were assessed in the neighborhood profiles using input from the community resource mapping process, crime data, census data, tax assessor information, and information gathered through the public involvement process. See Section 2.5.5 for more information on the community resource mapping process and public involvement efforts.

2.6.2.5 Inconsistencies with Neighborhood Plan Goals

Inconsistencies with neighborhood plan goals were determined through reviews of neighborhood plans to understand if the Modified LPA would conflict with plan goals or would prevent future implementation of the goals.

2.6.3 Temporary Effects

Short-term impacts to neighborhoods and population are most likely to result from temporary access changes to neighborhoods and community resources and from short-term construction activities that could increase noise levels and affect air quality. Data for access changes were sourced from the traffic analysis. Information regarding noise levels was obtained from the Noise and Vibration Technical Report, and air quality data were obtained from the Air Quality Technical Report.

2.6.4 Indirect Effects

Indirect impacts are potential effects related to the project, but not part of it, that may be separated by distance or time but are still reasonably foreseeable. For example, the IBR extension of light-rail

across Hayden Island and into Vancouver may have the potential to encourage transit-oriented development (TOD) or redevelopment in light-rail station areas. Similarly, the project may encourage the completion of missing transportation links such as bicycle facilities, sidewalks, or trails, which although not part of the project, could be implemented by others to connect with project improvements. Both redevelopment and new active transportation links could affect nearby neighborhoods and community resources.

Local comprehensive plan policies and zoning would guide the types of indirect development that could occur in a given location; however, a major transportation infrastructure investment could affect such plans and zoning decisions over time. Redevelopment projects and non-IBR active transportation improvements would be separate actions from IBR and would be required to go through their own environmental review. The analysis of potential indirect effects on neighborhoods due to TOD has been coordinated with the analysis of land use and economic conditions, and the analysis of future mobility projects linking to the light-rail facility has been coordinated with the transportation analysis.

2.7 Approach to Mitigation Measures

Mitigation measures were identified to address Program impacts. For example, if the Modified LPA poses a barrier to neighborhood access, the Program team identified potential mitigation that could improve connectivity. These measures will be reviewed with the city of Portland, city of Vancouver, Clark County, federal lead agencies, affected neighborhoods, the Oregon Department of Transportation (ODOT), and WSDOT as the design and NEPA processes move forward. Final mitigation commitments will be dependent on regulations, feasibility, cost, effectiveness, and other considerations.

3. AFFECTED ENVIRONMENT

3.1 Introduction

This chapter presents the existing conditions of the neighborhoods and population most likely to experience effects from project-related construction or operational changes. The assessment describes the general characteristics of each neighborhood, including neighborhood cohesion and demographics, and identifies important community resources within the neighborhoods.

Neighborhood cohesion describes the livability of a neighborhood, and more specifically, the opportunities for residents to connect to one another within the neighborhood. These opportunities can be offered through gathering places such as schools, community centers, parks, or main street shops. High home ownership rates can also indicate longer tenure in the neighborhoods, which serves to strengthen cohesion. Crime rates may affect cohesion because they are important factors in determining how safe residents feel in their homes and neighborhoods. Urban form, the street grid, and the presence of sidewalks also help create opportunities for residents to connect while walking or recreating in the neighborhood. Smaller block sizes, sidewalks, and well-connected streets encourage neighborhood cohesion.

The study area and associated neighborhoods are divided into two sections: Oregon and Washington. Within each section, neighborhoods are described from north to south. The names and definitions of race/ethnicities and demographic categories analyzed were taken from those used by the U.S. Census Bureau. Because of rounding, percentages for demographics may not sum to 100.

3.2 Oregon Study Area

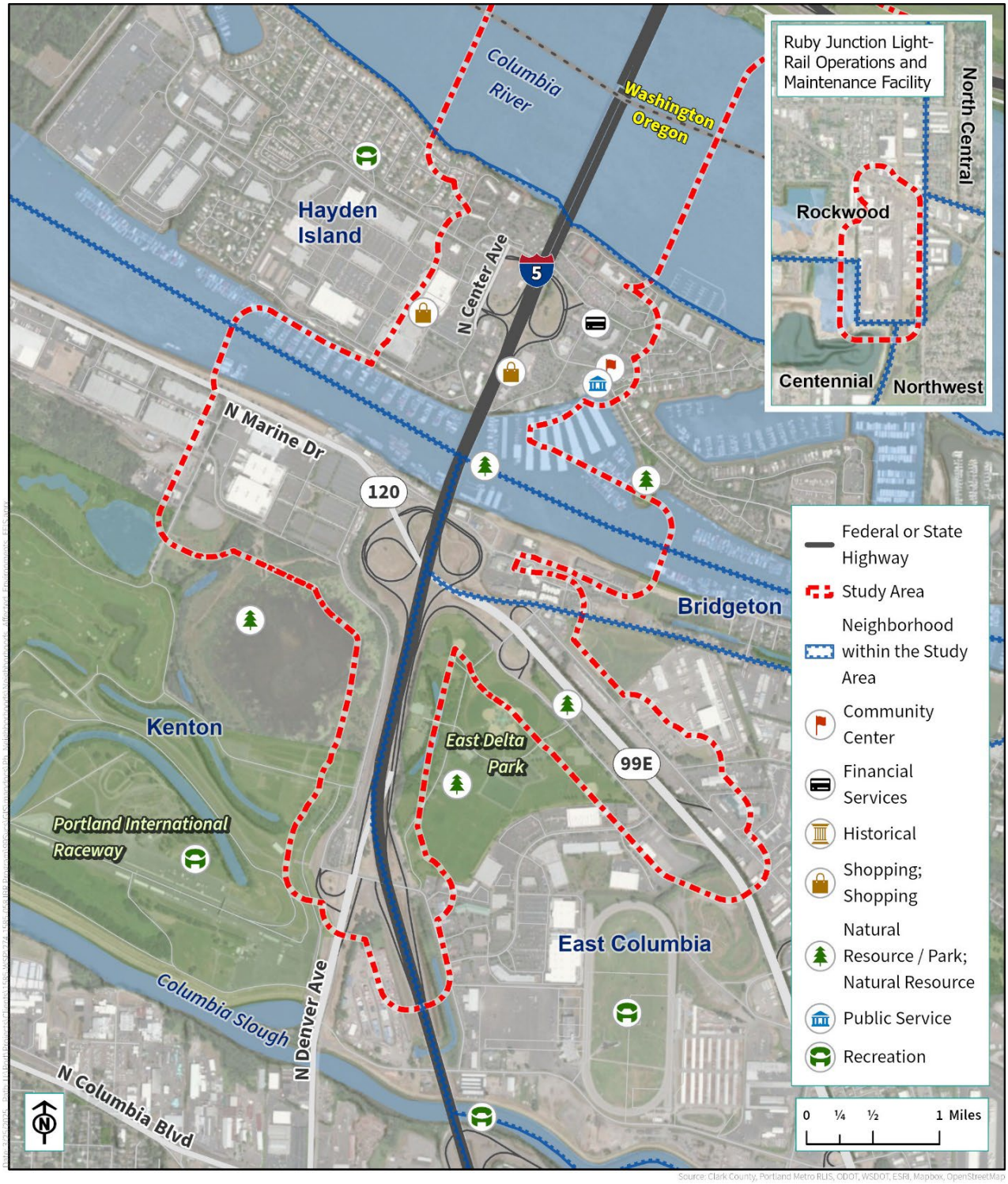
Neighborhoods within the Oregon study area are shown on Figure 3-1.

3.2.1 Hayden Island Neighborhood Profile

3.2.1.1 Hayden Island Neighborhood Characteristics

The Hayden Island neighborhood is located on Hayden Island in the Columbia River and extends from the eastern end of the island west to the BNSF railroad tracks one mile west of I-5. I-5 bisects Hayden Island, separating land uses on either side of the corridor both visually and physically. The interchange and I-5 corridor create a barrier to travel in the neighborhood, and there are minimal travel connections across I-5. Traffic patterns associated with the interchange and regional traffic accessing the Jantzen Beach Center also reduce connectivity. The neighborhood is only accessible via I-5 or boat, and it is dominated by commercial uses lining both sides of I-5 including retail, service, and office space.

Figure 3-1. Neighborhoods in Oregon Study Area



The ODOT Commerce and Compliance Division operates a commercial vehicle licensing and permitting center on Hayden Island directly adjacent to I-5 on N Center Avenue. A large mall (Jantzen Beach Center) and other large retailers are located directly west of I-5, while single- and multifamily residential uses are concentrated to the east of I-5. A number of hotels and restaurants are located on Hayden Island. A large manufactured home community, called the Jantzen Beach RV Park, is located on the central northwest side of the island. Both recreational vehicles and manufactured homes are currently located on the property. A second manufactured home community is located to the west of the Jantzen Beach Center on the south side of the island.

Small marinas are located around the island with floating homes, boat houses, and small, marine-related commercial businesses concentrated on the south side of the island in North Portland Harbor. The floating home communities in this area are a unique feature of the island's residential population. Jantzen Beach Moorage, Inc., located just west of the I-5 crossing of North Portland Harbor, has moorage for 177 floating homes, while the Jantzen Bay Marina provides floating home moorage just east of the I-5 crossing. Floating home residents use North Portland Harbor to travel to and from their residences as well as other points accessible by waterway travel.

Recreational areas on Hayden Island include a private community center between Arbor Drive and Alder Avenue, as well as Lotus Isle Park on Tomahawk Island Drive. The community's only supermarket, Safeway, closed in 2018 leaving residents of Hayden Island without a full grocery store. However, groceries are available at the Target in the Jantzen Beach Shopping Center, and simple groceries are available at the Plaid Pantry on N Hayden Island Drive. The only bank in the neighborhood, Wells Fargo on Jantzen Drive, closed in 2020. Now, financial services on Hayden Island are limited to a handful of automated teller machine. Portland Fire & Rescue Station 17 on N Tomahawk Island Drive provides firefighting and emergency response services with a fire engine, fire boat, and rescue boat.

C-TRAN bus Routes 105 (I-5 Express) and 190 (Marquam Hill Express) cross Hayden Island via I-5, but they do not make any service stops within the community. C-TRAN Route 60 (Delta Park Regional) serves the Jantzen Beach Main Stop. It is the only C-TRAN service to the island, and it offers connections to the Delta Park/Vanport MAX Station to the south and downtown Vancouver to the north. TriMet Line 6 (Martin Luther King Jr. Boulevard), which has its northern terminus on Hayden Island, offers a local bus connection to North Portland neighborhoods and downtown Portland. A multiuse path along I-5 between Portland and Vancouver connects to Hayden Island; it provides a nonmotorized connection to the mainland on either side of the river.

In 2019, the Hayden Island neighborhood reported 727 criminal offenses (552 offenses per 1,000 residents), which include crimes against property, individuals, and society (PPB n.d.). This is nearly 6 times higher than Portland's overall rate of 93 per 1,000 residents. This high crime rate is mainly caused by a high volume of "Larceny Offenses" crimes (414 reported offenses). These crimes can likely be attributed to the large shopping center at Jantzen Beach where larcenies are reported by store officials. As a result, the overall crime rate probably does not accurately portray crime rates in areas outside of the shopping center.

In early 2009, the City of Portland Bureau of Planning and Sustainability published the *Hayden Island Plan* (City of Portland 2009). The plan includes goals, objectives, proposed comprehensive plan and zoning changes, and an implementation strategy. For an overview of goals for the neighborhood, please refer to Section 3.5. The Hayden Island Neighborhood Network board meets on the second Thursday of every month at the Oxford Suites Portland or online.

3.2.1.2 Hayden Island Demographics

Table 3-1 compares race/ethnicity demographics for the Hayden Island neighborhood, Multnomah County, and Portland. The neighborhood has higher percentages of residents who identify as White, American Indian and Alaska Native, or Hispanic or Latino. Hayden Island has notably lower percentages of residents who identify as Black or African American, or Asian.

Table 3-1. Hayden Island Race/Ethnicity

Area	Total Population	White Alone	Black or African American Alone	American Indian and Alaska Native Alone	Asian Alone	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races (Not Hispanic)	Hispanic or Latino Alone
Hayden Island	2,367	69.3%	0.9%	0.8%	1.7%	0.8%	0.5%	11.4%	14.8%
Multnomah County	803,863	66.2%	5.4%	0.6%	7.4%	0.6%	0.5%	6.4%	13.1%
Portland	642,715	67.0%	5.7%	0.4%	8.0%	0.5%	0.5%	6.5%	11.3%

Source: American Community Survey 5-Year (2019-2023), Table B03002

Table 3-2 presents additional neighborhood data for Hayden Island. Compared with the city and county, the neighborhood has a slightly lower percentage of families living below the poverty level, a higher percentage of low-income residents, and a lower percentage of large families. Hayden Island has a lower percentage of residents with a disability compared with Multnomah County or Portland. The percentage of owner-occupied housing units is substantially higher than for the county or the city, while the home value index is substantially lower for Hayden Island. The percentage of households without access to a motor vehicle is two-thirds or less than the percentage for Multnomah County or Portland. Table 3-3 displays age ranges for Hayden Island residents. Hayden Island has less residents under 4 years old and a higher percentage of 65 and older residents than the city or the county.

Table 3-2. Hayden Island Demographics and Characteristics

Area	Families below Poverty Level	Low-Income Population (<2x poverty level)	Disabled [a]	Large Families [b]	Owner-Occupied Housing	Home Value Index [c]	Housing Units with No Vehicle
Hayden Island	6.7%	30.4%	10.5%	3.0%	80.3%	$306,846	8.5%
Multnomah County	7.3%	26.6%	13.7%	11.1%	54.1%	$485,658	12.7%
Portland	7.1%	26.0%	13.2%	9.8%	52.8%	$516,471	13.7%

Source: American Community Survey 5-Year (2019-2023), Tables B17010, C17002, S1810, B11016, B25044

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per family household.

c Zillow Home Value Index, January 2024. https://www.zillow.com/research/data/.

Table 3-3. Hayden Island Age Characteristics

Area	Total Population	0–4 Years	5–17 Years	18–64 Years	65 and Older
Hayden Island	2,367	2.2%	8.1%	58.4%	31.3%
Multnomah County	803,863	4.7%	17.9%	63.0%	14.4%
Portland	642,715	4.3%	16.7%	64.8%	14.2%

Source: American Community Survey 5-Year (2019-2023), Table B01001

Cohesion on Hayden Island appears to be moderate based on the concentration of residential communities on the island and the shared resources for houseboats at the marinas. The beaches and natural spaces provide places for residents to connect. However, cohesion on Hayden Island may be hindered by the limited number of neighborhood-oriented businesses, the large buildings and parking lots, traffic impacts from the shopping centers, the lack of a grocery store, and the lack of schools. Cohesion may also be reduced by the street network, which is oriented toward large block sizes and a sparse street grid. This encourages auto use and provides fewer opportunities for residents to connect while walking or biking.

3.2.2 Bridgeton Neighborhood Profile

3.2.2.1 Bridgeton Neighborhood Characteristics

The Bridgeton neighborhood is located east of I-5 on North Portland Harbor. Residential uses are concentrated at the eastern end of the neighborhood, both on land in rowhouses and detached single-family dwellings, and on the river in floating homes. Industrial uses can be found directly adjacent to I-5 around the Marine Drive interchange. There is a small commercial node at Marine Drive and I-5. The neighboring sloughs and the Columbia River are important community resources that provide recreational uses.

TriMet bus Line 11 (Rivergate and Marine Drive) serves the Bridgeton neighborhood along Marine Drive and points west such as the Port of Portland Terminal 6. C-TRAN bus Routes 105 (I-5 Express) and 190 (Marquam Hill Express) and TriMet Line 6 (Martin Luther King Jr. Boulevard) all run through the neighborhood via I-5, but they do not make any service stops within the community. There is a multiuse path and bicycle lane along Marine Drive, and there is a multiuse pathway along North Portland Harbor.

For 2019, Bridgeton reported 153 criminal offenses (50 offenses per 1,000 residents; PPB n.d.). This is roughly 54% of the Portland average of 93 offenses per 1,000 residents. The most prevalent type of offense in Bridgeton is "Larceny Offenses" (69 reported offenses), and the second highest is "Motor Vehicle Theft" (25 reported offenses).

The *Bridgeton Neighborhood Plan* was adopted by the Portland City Council in November 1997(City of Portland 1997). For an overview of neighborhood plan goals, please refer to Section 3.5. Bridgeton is also within the "impact area" of the *Albina Community Plan* (City of Portland 1993). The Bridgeton Neighborhood Association meets online on the second Tuesday of every month. The neighborhood association is active, and meetings are well attended.

3.2.2.2 Bridgeton Demographics

Table 3-4 compares race/ethnicity demographics for the Bridgeton neighborhood, Multnomah County, and Portland. The percentage of residents who identify as Black or African American is approximately three times that found in Multnomah County or in Portland. The percentage of the population that is American Indian and Alaska Native is also slightly higher in Bridgeton than in the county or city. There are substantially lower percentages of Asian Alone and Hispanic or Latino residents than in the county and city.

Table 3-4. Bridgeton Race/Ethnicity

Area	Total Population	White Alone	Black or African American Alone	American Indian and Alaska Native Alone	Asian Alone	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino Alone
Bridgeton	1,072	68.5%	16.3%	0.7%	3.3%	<0.1%	0.9%	8.9%	3.1%
Multnomah County	803,863	66.2%	5.4%	0.6%	7.4%	0.6%	0.5%	6.4%	13.1%
Portland	642,715	67.0%	5.7%	0.4%	8.0%	0.5%	0.5%	6.5%	11.3%

Source: American Community Survey 5-Year (2019-2023), Table B03002

Table 3-5 presents additional neighborhood data for Bridgeton. The percentage of families below the poverty level is twice those for the neighborhood than for Multnomah County or Portland and the percentage of residents with low incomes is slightly higher for the neighborhood than for Multnomah

County or Portland. Bridgeton has a substantially lower percentage of large families. The home value index for the neighborhood is lower than for the county or the city. The percentage of homes that lack access to a motor vehicle is much lower for Bridgeton than for Multnomah County or Portland. Table 3-6 displays age ranges for Bridgeton residents. Bridgeton has fewer residents under 4 years old and a higher percentage of 65 and older residents than the city or the county.

Table 3-5. Bridgeton Demographics and Characteristics

Area	Families below Poverty Level	Low-Income Population (<2x poverty level)	Disabled [a]	Large Families [b]	Owner-Occupied Housing	Home Value Index [c]	Housing Units with No Vehicle
Bridgeton	15.7%	27.3%	11.6%	5.0%	57.0%	$373,990	1.8%
Multnomah County	7.3%	26.6%	13.7%	11.1%	54.1%	$485,658	12.7%
Portland	7.1%	26.0%	13.2%	9.8%	52.8%	$516,471	13.7%

Source: American Community Survey 5-Year (2019-2023), Tables B17010, C17002, S1810, B11016, B25044

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per family household.

c Zillow Home Value Index, January 2024. https://www.zillow.com/research/data/.

Table 3-6. Bridgeton Age Characteristics

Area	Total Population	0–4 Years	5–17 Years	18–64 Years	65 and Older
Bridgeton	1,072	2.1%	12.0%	59.9%	26.0%
Multnomah County	803,863	4.7%	17.9%	63.0%	14.4%
Portland	642,715	4.3%	16.7%	64.8%	14.2%

Source: American Community Survey 5-Year (2019-2023), Table B01001

Cohesion in Bridgeton appears moderate based on the concentration of residences and shared resources for houseboats at the marinas. Recreational resources in the area provide residents with an opportunity to connect to one another. However, cohesion in Bridgeton may be hindered by the limited number of neighborhood-oriented businesses, the lack of a grocery store, and the lack of schools. The street network may also hinder cohesion, as sidewalks are not present on many streets and the street grid is sparse (many streets are dead ends), limiting opportunities for residents to connect.

3.2.3 East Columbia Neighborhood Profile

3.2.3.1 East Columbia Neighborhood Characteristics

The East Columbia neighborhood is located directly east of I-5 and extends from Marine Drive south to the Columbia Slough. East Columbia contains a variety of land uses including residential, large recreational uses, industrial uses, retail, and large areas of wetlands.

Several residential pockets of single-family homes and manufactured homes are located in the neighborhood, including:

- Between NE Martin Luther King Jr. Boulevard and NE Vancouver Way at the south edge of the neighborhood.
- Along NE Gertz Road toward the east side of the neighborhood.
- Off NE 13th Avenue along NE Meadow Drive, NE South Shore Road, NE Faloma Road, and NE Mariner's Loop.
- Between NE Marine Drive and NE Mariner's Loop.
- Along NE Marine Drive east of the border of Bridgeton.

These residential areas are primarily on the east side of the neighborhood, while construction from the Program would occur along the west edge of the neighborhood. Residential areas are surrounded by large areas of park, industrial, and commercial land uses.

East Delta Park (the portion of Delta Park east of I-5) is on the western boundary of the neighborhood. Delta Park is nearly 90 acres and was acquired in 1950. It features the Delta Park – Owens Sports Complex with seven lighted softball fields and nine soccer fields (four with artificial turf). The complex also hosts eight sand volleyball courts, a playground, picnic tables, an off-leash dog area, and nature trails. Columbia Edgewater Country Club and Golf Course is on the east edge of the neighborhood.

Industrial and commercial areas in East Columbia include trucking companies, small industrial businesses, and large retailers. Along N Hayden Meadows Drive, south of Delta Park, is a Lowe's Home Improvement store, a Walmart, and a Dollar Tree, among other retailers. Portland Meadows had operated a horse racing venue in the neighborhood, but it closed in 2019 and the main building was demolished in 2020. An Amazon delivery station now operates in what had been the parking lot for the racetrack.

TriMet bus Lines 6 (ML King Jr. Boulevard) and 11 (Rivergate/Marine Dr) serve the East Columbia neighborhood. Line 6 runs on Vancouver Way and Hayden Meadows Drive, where it runs north to Hayden Island via I-5. The Line 11 northern terminus is the Jubitz Truck Stop, and the route connects East Columbia, the Expo Center, Smith and Bybee lakes, Rivergate, and St. Johns via Marine Drive, Lombard, Columbia, Fessenden, and Ivanhoe. C-TRAN bus Routes 105 (I-5 Express) and 190 (Marquam Hill Express) run through the neighborhood via I-5, but they do not make service stops within the community.

In 2019, East Columbia reported 560 criminal offenses (183 offenses per 1,000 residents; PPB n.d.). This is nearly double Portland's overall rate of 93 per 1,000 residents. The most frequent offense in East Columbia is "Larceny Offenses" (238 reported offenses) and second highest is "Assault Offenses" (73 reported offenses).

The East Columbia Neighborhood Association meets online quarterly or in person and has an active website. At this time, the neighborhood does not have a neighborhood plan. However, East Columbia is within the "impact area" of the 1993 *Albina Community Plan* (City of Portland 1993).

3.2.3.2 East Columbia Demographics

Table 3-7 compares race/ethnicity demographics for the East Columbia neighborhood, Multnomah County, and Portland. The percentages of residents who identify as Black or African American, American Indian and Alaska Native, or Hispanic or Latino are slightly higher than for the county or the city. The percentage of residents who identify as Asian are notably higher than for the county or the city. The percentage of residents who identify as White in East Columbia are lower than in Multnomah County or Portland.

Table 3-7. East Columbia Race/Ethnicity

Area	Total Population	White Alone	Black or African American Alone	American Indian and Alaska Native Alone	Asian Alone	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino Alone
East Columbia	970	47.4%	5.8%	0.7%	21.9%	0.6%	0.0%	9.2%	14.4%
Multnomah County	803,863	66.2%	5.4%	0.6%	7.4%	0.6%	0.5%	6.4%	13.1%
Portland	642,715	67.0%	5.7%	0.4%	8.0%	0.5%	0.5%	6.5%	11.3%

Source: American Community Survey 5-Year (2019-2023), Table B03002

Table 3-8 presents additional neighborhood data for East Columbia. The percentage of families below the poverty level is slightly higher than those for the county or the city, while the percentage of low-income residents is lower than those for the county or the city. The percentage of large families is lower in East Columbia than in Multnomah County or Portland. The portion of owner-occupied housing units is higher in the neighborhood than in the county or city, while the home value index and the percentage of homes without access to a vehicle are lower. The age characteristics of East Columbia are similar to those of the county and the city, except that East Columbia has fewer residents under 4 years old and a higher percentage of residents 65 and older than the city or the county (Table 3-9).

Table 3-8. East Columbia Demographics and Characteristics

Area	Families below Poverty Level	Low-Income Population (<2x poverty level)	Disabled [a]	Large Families [b]	Owner-Occupied Housing	Home Value Index [c]	Housing Units with No Vehicle
East Columbia	8.2%	21.3%	11.6%	9.0%	85.4%	$441,748	3.0%
Multnomah County	7.3%	26.6%	13.7%	11.1%	54.1%	$485,658	12.7%
Portland	7.1%	26.0%	13.2%	9.8%	52.8%	$516,471	13.7%

Source: American Community Survey 5-Year (2019-2023), Tables B17010, C17002, S1810, B11016, B25044

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per family household.

c Zillow Home Value Index, January 2024. https://www.zillow.com/research/data/.

Table 3-9. East Columbia Age Characteristics

Area	Total Population	0–4 Years	5–17 Years	18–64 Years	65 and Older
East Columbia	970	2.9%	16.7%	63.1%	17.3%
Multnomah County	803,863	4.7%	17.9%	63.0%	14.4%
Portland	642,715	4.3%	16.7%	64.8%	14.2%

Source: American Community Survey 5-Year (2019-2023), Table B01001

Cohesion in the East Columbia neighborhood appears to be moderate based on the urban form and neighborhood characteristics. Although cohesion within individual residential areas is likely high, these areas are separated by other large land uses and there are few community resources such as grocery stores, services, cafés, or restaurants, at which neighborhood residents can gather. Although Delta Park serves as a recreational resource, its large size makes it a regional attraction serving residents from around the Portland-Vancouver metropolitan area, rather than solely residents of East Columbia. The street grid is also oriented toward auto travel, limiting opportunities for residents to connect.

3.2.4 Kenton Neighborhood Profile

3.2.4.1 Kenton Neighborhood Characteristics

The Kenton neighborhood is located between I-5 and the BNSF railroad tracks that parallel N Portland Road. It extends from N Portland Harbor on the north to N Lombard Street to the south. Kenton contains a wide range of uses including residential, commercial, industrial, and recreational. Single-family residential development is concentrated south of Columbia Boulevard with commercial, industrial, and recreational uses located to its north. Multifamily residential dwellings are scattered

throughout the neighborhood, but a majority are found among densely packed commercial structures along Interstate Avenue and Lombard Street. The Columbia Boulevard Wastewater Treatment Plant is located on the Columbia Slough at the west edge of the neighborhood.

The northern portion of Kenton contains multiple regional resources, including Portland International Raceway, Heron Lakes Golf Course, and the Expo Center. The large Paul Bunyan statue at the intersection of N Interstate Avenue and N Argyle Street, the Kenton Neighborhood Rose Garden, and the Historic Kenton Firehouse are important cultural resources that provide identity to the community. Peninsula Elementary, Portland Village School, and Alliance High School at Kenton are all located within Kenton. West Delta Park (the portion of Delta Park west of I-5) and the Vanport Wetlands serve as natural resources, as does Kenton Park on Brandon Avenue. There are many historic resources including the historic site of Vanport, the Kenton commercial shopping district on N Denver Avenue, the Victorian Belle Mansion on N McClellan Street, and the Kenton Firehouse on N Brandon Avenue. The Multnomah County Library Kenton branch on N Denver Avenue provides a public service to the community, while the Wells Fargo Bank, Umpqua Bank, and Chase Bank provide financial services. Many religious institutions are in the neighborhood: Peninsula Open Bible Church, Celebration Tabernacle, Peninsula Baptist Church, Abundant Life Church, Kenton Church, and Interstate Bible Chapel.

Kenton is served by the TriMet MAX Yellow Line light-rail that runs along N Interstate Avenue and N Denver Avenue. TriMet operates multiple bus lines in Kenton including Line 4 (Fessenden) via N Lombard Street and N Willis Boulevard, 35 (Macadam/Greeley) via N Peninsular Avenue and N Willis Boulevard, and 75 (Cesar Chavez/Lombard) via Lombard Street. Line 6 enters the Kenton neighborhood on I-5 and stops at the Delta Park/Vanport MAX Station. C-TRAN bus Route 60 (Delta Park Regional) also stops in Kenton at the Delta Park/Vanport MAX Station. C-TRAN bus Routes 105 (I-5 Express) and 190 (Marquam Hill Express) run through Kenton via I-5, but they do not make service stops within the neighborhood.

Kenton has a network of bicycle routes. Dedicated bicycle lanes are located on N Denver Avenue, N Interstate Avenue, and N Expo Road. Multiuse paths run along N Columbia Boulevard, N Marine Drive, the Columbia Slough Trail, and N Portland Road. The more residential southern portion of Kenton is covered by a grid of Neighborhood Greenways including along N Terry Street, N Wabash Avenue, N Hamlin Avenue, N Fenwick Avenue, N Delaware Avenue, N Peninsular Avenue, N Chautauqua Boulevard, N Willis Boulevard, and N Kilpatrick Street. N Broadacre Street and N Force Avenue in the north portion of the neighborhood are designated bicycle routes, but they lack dedicated facilities for biking.

In 2019, the Kenton neighborhood reported 745 criminal offenses (288 per 1,000 residents; PPB n.d.). This is triple Portland's overall rate of 93 per 1,000 residents. The three most-reported offenses were "Larceny Offenses" (271), "Motor Vehicle Theft" (125) and "Assault Offenses" (115).

The *Kenton Neighborhood Plan* (City of Portland 2001) was adopted by the Portland City Council in October 1993 and amended by the Kenton Downtown Plan in January 2001. For an overview of neighborhood plan goals, please refer to Section 3.5. The Kenton Neighborhood Association meets on the second Wednesday of every month, either in person or online, and it has an active website. Kenton is also part of the *North Interstate Corridor Plan* (City of Portland 2008), and it is within the "impact area" of the *Albina Community Plan* (City of Portland 1993).

3.2.4.2 Kenton Demographics

Table 3-10 compares race/ethnicity demographics for the Kenton neighborhood, Multnomah County, and Portland. The percentages of residents who identify as Asian or Black or African American are lower for Kenton than for the county or the city, while the percentage of residents that identify as Hispanic or Latino Alone is higher in the neighborhood than in Multnomah County or Portland.

Table 3-10. Kenton Race/Ethnicity

Area	Total Population	White Alone	Black or African American Alone	American Indian and Alaska Native Alone	Asian Alone	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino Alone
Kenton	7,825	66.7%	4.8%	0.4%	3.3%	1.9%	0.3%	6.8%	15.7%
Multnomah County	803,863	66.2%	5.4%	0.6%	7.4%	0.6%	0.5%	6.4%	13.1%
Portland	642,715	67.0%	5.7%	0.4%	8.0%	0.5%	0.5%	6.5%	11.3%

Source: American Community Survey 5-Year (2019-2023), Table B03002

Table 3-11 presents additional neighborhood data for Kenton. The percentages of families below the poverty level and residents with low incomes are somewhat lower than in the city and county. The portion of large families is also lower in the neighborhood. The percentage of homes that are owner-occupied is notably higher in Kenton than in Multnomah County or Portland. The home value index for Kenton is lower than for the county or city. Table 3-12 identifies age ranges for Kenton residents. Kenton has a higher percentage of residents between ages 5 and 17 than the city or county.

Table 3-11. Kenton Demographics and Characteristics

Area	Families below Poverty Level	Low-Income Population (<2x poverty level)	Disabled [a]	Large Families [b]	Owner-Occupied Housing	Home Value Index [c]	Housing Units with No Vehicle
Kenton	6.5%	22.6%	9.8%	9.8%	66.9%	$451,501	13.2%
Multnomah County	7.3%	26.6%	13.7%	11.1%	54.1%	$485,658	12.7%
Portland	7.1%	26.0%	13.2%	9.8%	52.8%	$516,471	13.7%

Source: American Community Survey 5-Year (2019-2023), Tables B17010, C17002, S1810, B11016, B25044

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per family household.

c Zillow Home Value Index, January 2024. https://www.zillow.com/research/data/.

Table 3-12. Kenton Age Characteristics

Area	Total Population	0–4 Years	5–17 Years	18–64 Years	65 and Older
Kenton	7,825	4.8%	19.5%	66.5%	9.2%
Multnomah County	803,863	4.7%	17.9%	63.0%	14.4%
Portland	642,715	4.3%	16.7%	64.8%	14.2%

Source: American Community Survey 5-Year (2019-2023), Table B01001

Cohesion in Kenton appears to be high based on urban form and places for residents to connect. With several schools, community gathering places, parks, and a compact urban form, residents have many opportunities to connect. A downtown shopping area and new streetscape improvements add to the cohesiveness of the community. In the residential areas, a compact street grid and an abundance of sidewalks provide many opportunities for residents to connect.

3.2.5 Rockwood Neighborhood Profile

3.2.5.1 Rockwood Neighborhood Characteristics

Although the principal Modified LPA components would be located along I-5 and near the Columbia River bridges, expansion of the Ruby Junction Light-Rail OMF in Gresham, Oregon, would be necessary to support the expansion of light-rail service to Vancouver. The proposed maintenance facility is within the Rockwood neighborhood in Gresham.

Rockwood is bounded on the west by the Gresham city limits (approximately NE 162nd Avenue), on the north by NE Glisan Street, on the east by NE 202nd Avenue/Birdsdale Avenue, and on the south,

beginning with NW Eleven Mile Avenue and continuing to SE Market Street. The Ruby Junction Light-Rail OMF is in the southeast corner of the Rockwood neighborhood.

The Rockwood neighborhood has primarily residential land use with a mixture of single- and multifamily residences. Commercial land use is located along neighborhood arterials such as E Burnside Street, SE Stark Street, and SE 181st Street, and land use is industrial in the southeast corner. The neighborhood includes multiple parks such as Yamhill, Davis, Pat Pfeifer, Rockwood Central, and Vance. It also includes multiple schools such as Davis Elementary, H.B. Lee Middle School, Reynolds Middle School, and Reynolds High School. The neighborhood has a large number of places of worship including Ascension Lutheran Church, Kidane Mihret Ethiopian Orthodox Tewahedo Church, Rockwood United Methodist Church, Rockford Worship Center, St. Anne Catholic Church, and Unity Gresham, among others.

The neighborhood is served by the TriMet MAX Blue Line as well as bus Lines 25 (Glisan/Rockwood), 87 (Airport Way/181st), and 74 (162nd Ave).

In 2019, the Rockwood neighborhood reported 1,227 criminal offenses (89 per 1,000 residents; Gresham Police Department n.d.). This is nearly double Gresham's overall rate of 56 reported offenses per 1,000 residents. The three most-reported offenses in Rockwood were "Larceny Offenses" (276), "Assault Offenses" (269), and "Motor Vehicle Theft" (242).

The Rockwood Neighborhood Association board meets monthly. The neighborhood does not have a neighborhood or community plan.

3.2.5.2 Rockwood Demographics

Table 3-13 compares race/ethnicity demographics for the Rockwood neighborhood, Multnomah County, and Portland. A much higher percentage of residents identify as Hispanic or Latino in Rockwood than in Multnomah County or in Portland. Also, there are higher percentages of residents who identify as Black or African American, Asian, or Native Hawaiian and Other Pacific Islander in the neighborhood compared with the county and city. The population of residents who identify as White is lower in the neighborhood compared with the county and city.

Table 3-13. Rockwood Race/Ethnicity

Area	Total Population	White Alone	Black or African American Alone	American Indian and Alaska Native Alone	Asian Alone	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino Alone
Rockwood	13,586	41.4%	6.8%	0.2%	8.6%	1.0%	1.1%	4.6%	36.5%
Multnomah County	803,863	66.2%	5.4%	0.6%	7.4%	0.6%	0.5%	6.4%	13.1%
Portland	642,715	67.0%	5.7%	0.4%	8.0%	0.5%	0.5%	6.5%	11.3%

Source: American Community Survey 5-Year (2019-2023), Table B03002

Table 3-14 presents additional neighborhood data for Rockwood. The portion of families that are below the poverty level is much higher in Rockwood than in Multnomah County or Portland, as is the percentage of low-income residents. The percentage of large families is higher in the neighborhood than in the county or city, and the percentage of housing units that is owner-occupied is lower in Rockwood. Table 3-15 displays age characteristics for Rockwood residents. Rockwood residents' age distribution is younger than the county or city.

Table 3-14. Rockwood Neighborhood Demographics and Characteristics

Area	Families below Poverty Level	Low-Income Population (<2x poverty level)	Disabled [a]	Large Families [a]	Owner-Occupied Housing	Home Value Index [c]	Housing Units with No Vehicle
Rockwood	22.5%	41.9%	17.9%	20.9%	42.7%	$382,491 [d]	16.7%
Multnomah County	7.3%	26.6%	13.7%	11.1%	54.1%	$485,658	12.7%
Portland	7.1%	26.0%	13.2%	9.8%	52.8%	$516,471	13.7%

Source: American Community Survey 5-Year (2019-2023), Tables B17010, C17002, S1810, B11016, B25044

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per family household.

c Zillow Home Value Index, January 2024. https://www.zillow.com/research/data/

d Neighborhood-specific value unavailable for Rockwood. Reported home value is for Zip code 97233, which includes Ruby Junction and much of Rockwood neighborhood.

Table 3-15. Rockwood Age Characteristics

Area	Total Population	0–4 Years	5–17 Years	18–64 Years	65 and Older
Rockwood	13,586	9.1%	23.9%	58.2%	8.8%
Multnomah County	803,863	4.7%	17.9%	63.0%	14.4%
Portland	642,715	4.3%	16.7%	64.8%	14.2%

Source: American Community Survey 5-Year (2019-2023), Table B01001

Neighborhood cohesion appears moderate in Rockwood based on the urban form and neighborhood characteristics. The neighborhood has multiple places for people to come together including parks, schools, churches, and neighborhood-oriented businesses. However, the neighborhood is large, is divided by busy arterial roads, and has many automobile-oriented businesses that can reduce the potential for neighborhood cohesion. The street grid also consists of larger block sizes, many dead ends, and inconsistent sidewalks, which promote travel by auto and reduce opportunities for residents to connect. It is possible that smaller areas of the neighborhood are better connected than the overall neighborhood.

3.3 Washington Study Area

Neighborhoods within the Washington study area are shown on Figure 3-2.

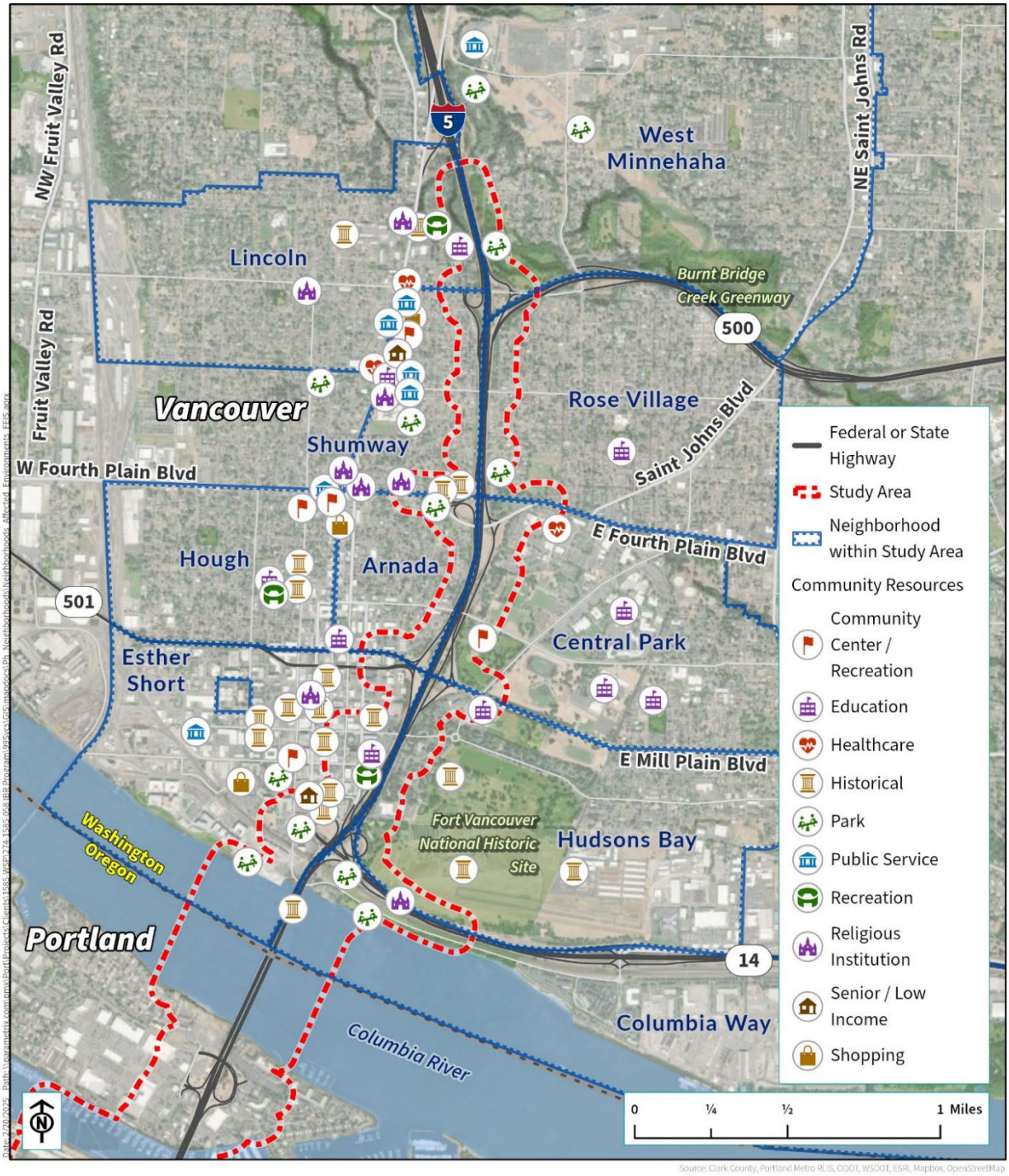
3.3.1 West Minnehaha Neighborhood Profile

3.3.1.1 West Minnehaha Neighborhood Characteristics

West Minnehaha extends from SR 500 to NE Minnehaha Street at the city limits and is bordered by NE St. Johns Road to the east and I-5 and Highway 99 to the west. This mid-twentieth century neighborhood is composed primarily of single-family residential development with a concentration of multifamily and commercial uses at the eastern edge of the neighborhood between St. Johns and St. James Roads. Offices and power facilities for the Bonneville Power Administration are located at the 270-acre Ross Complex on the west side of the neighborhood. A large transmission line corridor runs from northwest to southeast through the neighborhood effectively creating two separate areas of residential development and a somewhat discontinuous street grid.

Schools in the neighborhood include Minnehaha Elementary, the private Lakeshore Montessori preschool and kindergarten, and the private Hosanna Christian School. The neighborhood is home to Leverich Park, Arnold Park, the Burnt Bridge Creek Greenway, and the Ellen Davis Trail. Other park resources include Arnold Park, West Minnehaha Neighborhood Park, and Ike Memorial Park, which is a well-used dog park between NE 15th and NE 18th Streets north of NE 49th Street. The Community of Christ Church: Garden Grove Branch, Connection Church, Minnehaha Church of Christ, and the First Evangelical Church also serve the West Minnehaha community.

Figure 3-2. Neighborhoods in the Washington Study Area



The West Minnehaha neighborhood is served by C-TRAN bus Routes 25 (St. Johns), 71 (Highway 99), and 190 (Marquam Hill Express). Route 25 runs along NE St. James and St. Johns Roads at the eastern perimeter of the neighborhood, and Route 190 stops at the BPA/Ross Park and Ride on NE 15th and Ross Streets. Route 105 (I-5 Express) also runs along the perimeter of West Minnehaha via I-5, but it does not stop within the community. Bicycle facilities are mainly limited to the perimeter of the neighborhood. Multiuse paths include the Burnt Bridge Creek Greenway and Ellen Davis Trail. There are bicycle lanes along Minnehaha Street, Highway 99, NE 15th Avenue, and NE St. James Road. East-west roads NE 54th Street and NE 49th Street are designated bicycle routes, but they lack dedicated facilities.

In 2019, the West Minnehaha neighborhood reported 222 criminal offenses (120 offenses per 1,000 residents; VPD 2021). This is roughly 50% higher the Vancouver average of 79 per 1,000 residents. The three most-reported offenses were “Theft” (62 reported offenses), “Assault, Simple” (25 reported offenses), and “Violate No Contact Order” (24 reported offenses).

The *West Minnehaha Neighborhood Action Plan* (City of Vancouver 2011b) was endorsed by the Vancouver City Council in 1998 and amended in September 2011. For an overview of neighborhood plan goals, please refer to Section 3.5. The West Minnehaha Neighborhood Association holds occasional meetings.

3.3.1.2 West Minnehaha Demographics

Table 3-16 compares race/ethnicity demographics in West Minnehaha to Clark County and Vancouver. Compared with the county and city, West Minnehaha has higher percentages of residents who identify as Native Hawaiian and Other Pacific Islander or Two or More Races. West Minnehaha has lower percentages of people who identify as Asian.

Table 3-16. West Minnehaha Race/Ethnicity

Area	Total Population	White Alone	Black or African American Alone	American Indian and Alaska Native Alone	Asian Alone	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino Alone
West Minnehaha	4,361	75.5%	1.5%	0.3%	0.7%	2.5%	0.1%	9.6%	9.9%
Clark County	510,516	73.5%	2.0%	0.3%	4.7%	0.8%	0.6%	6.1%	12.0%
Vancouver	192,696	65.4%	3.0%	0.4%	5.2%	1.8%	0.5%	6.5%	17.2%

Source: American Community Survey 5-Year (2019-2023), Table B03002

Table 3-17 presents additional neighborhood data for West Minnehaha. The percentage of families below the poverty level is lower than the overall city or county; however, the percentage of people with low incomes is slightly higher than the county but lower than the city. The percentage of the population reporting a disability is similar to the percentages in Clark County and Vancouver. The percentage of households that have five or more people in West Minnehaha is substantially higher

than in Clark County or Vancouver. The percentage of owner-occupied housing is lower than in Clark County and higher than in Vancouver. Table 3-18 displays age ranges for West Minnehaha residents, which generally follow trends for the county and city. Home values are less in the neighborhood than in Vancouver or Clark County.

Table 3-17. West Minnehaha Demographics and Characteristics

Area	Families below Poverty Level	Low-Income Population (<2x poverty level)	Disabled [a]	Large Families [b]	Owner-Occupied Housing	Home Value Index [c]	Housing Units with No Vehicle
West Minnehaha	0.9%	22.8%	15.0%	33.7%	62.6%	$465,982	0.4%
Clark County	5.8%	21.7%	13.0%	16.4%	66.2%	$523,789	4.7%
Vancouver	7.5%	27.9%	15.1%	14.9%	49.9%	$486,897	7.0%

Source: American Community Survey 5-Year (2019-2023), Tables B17010, C17002, S1810, B11016, B25044

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per family household.

c Zillow Home Value Index, January 2024. https://www.zillow.com/research/data/.

Table 3-18. West Minnehaha Age Characteristics

Area	Total Population	0–4 Years	5–17 Years	18–64 Years	65 and Older
West Minnehaha	4,361	5.0%	23.4%	57.6%	14.0%
Clark County	510,516	5.7%	23.1%	54.9%	16.3%
Vancouver	192,696	5.5%	21.4%	57.1%	16.0%

Source: American Community Survey 5-Year (2019-2023), Table B01001

Cohesion in West Minnehaha appears to be moderate. The schools, parks, and places to worship in the neighborhood help to foster cohesion. However, the large geographic area of the neighborhood, large Bonneville Power Administration site and transmission corridor, and limited connectivity within the neighborhood may limit cohesion. The street grid is sparse and consists of many dead ends as well as inconsistent sidewalks, resulting in fewer opportunities for residents to connect.

3.3.2 Lincoln Neighborhood Profile

3.3.2.1 Lincoln Neighborhood Characteristics

The Lincoln neighborhood extends from I-5 to the BNSF railroad tracks and from NW 45th Street on the north to the alley between W 34th and 33rd Streets on the south. The border at the southeast

corner is set back to Main Street and E 39th Street where it meets the Shumway neighborhood. Lincoln is the northernmost of the early Vancouver neighborhoods, with some homes dating back to the 1930s. Lincoln is almost entirely composed of single-family residential development, with higher-density multifamily residential development along Main Street and E 39th Street and a commercial center at their intersection.

Lincoln has many community resources including Lincoln Elementary School, Discovery Middle School, several preschools, and the Kiggins Bowl athletic field. PeaceHealth Urgent Care is located in Lincoln on Main Street and serves the entire downtown area with emergency medical care. WSDOT has a facility on Main Street. Historic resources in the neighborhood include the Covington House on Main Street and the City of Vancouver water tower located on NW 42nd and Washington Streets. There are two open spaces in Lincoln: a small neighborhood park called Hidden Park and the area where the water tower is located. The First Presbyterian Church, Unity of Vancouver, and Trinity Lutheran all serve the community.

C-TRAN bus Routes 2 (Lincoln), 6 (Fruit Valley/Grand), 31 (Hazel Dell), and 71 (Highway 99) serve the Lincoln neighborhood along NW Kauffman Avenue, W 39th Street, NW Lincoln Avenue, and Main Street, respectively (Routes 31 and 71 both serve Main Street). Route 105 (I-5 Express) runs along the eastern edge of Lincoln via I-5, but it does not stop within the neighborhood. There are bicycle lanes along W 39th Street, and Columbia Street. Bicycle routes are designated on shared roadways along NW 45th Street, W 33rd Street, and NW Kauffman Avenue.

The Lincoln neighborhood reported 198 criminal offenses in 2019 (156 offenses per 1,000 residents; VPD 2021). This is nearly double the Vancouver average of 79 per 1,000 residents. The three most-reported offenses were “Theft” (56 reported offenses), “Assault, Simple” (25 reported offenses), and “Burglary” (18 reported offenses).

The *Lincoln Neighborhood Action Plan* (City of Vancouver 2011a) was endorsed by the Vancouver City Council in 1998 and updated in June 2011. For an overview of neighborhood plan goals, please refer to Section 3.5. The Lincoln Neighborhood Association had been inactive from summer 2020 until March 2022 when they elected new officers and began scheduling events again. They have an active Facebook page and mailing list.

3.3.2.2 Lincoln Demographics

Table 3-19 compares race/ethnicity demographics in the Lincoln neighborhood with those of Clark County and Vancouver. There is a higher percentage of residents who identify as White in the neighborhood than in the county or the city. Lincoln has lower percentages of Asian, Native Hawaiian and Other Pacific Islander, and Two or More Races residents than either the county or city.

Table 3-19. Lincoln Race/Ethnicity

Area	Total Population	White Alone	Black or African American Alone	American Indian and Alaska Native Alone	Asian Alone	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino Alone
Lincoln	3,939	75.3%	3.0%	1.4%	2.0%	0.0%	0.0%	6.0%	12.3%
Clark County	510,516	73.5%	2.0%	0.3%	4.7%	0.8%	0.6%	6.1%	12.0%
Vancouver	192,696	65.4%	3.0%	0.4%	5.2%	1.8%	0.5%	6.5%	17.2%

Source: American Community Survey 5-Year (2019-2023), Table B03002

Table 3-20 presents additional neighborhood data for Lincoln. Home values in Lincoln are slightly lower than those in Clark County, but they are higher than those in Vancouver. The percentage of families living below the poverty line is similar to Vancouver, though the percentage of the population that is low income in the neighborhood is substantially higher than in the city or in the county (Table 3-20). The percentage of residents with a disability in Lincoln is higher than in Clark County and slightly higher than in Vancouver. The neighborhood has a lower percentage of large families and higher percentage of houses without a vehicle than Clark County and but lower than Vancouver. Home values in the neighborhood are lower than those in the county and in the city. The percentage of owner-occupied housing is higher than the city and lower than the county. Table 3-21 displays age ranges for Lincoln residents. The proportions of the population that are between 18 and 64 years and 65 and older are higher compared to the county and the city, but the proportion of persons aged 5 to 17 years is lower.

Table 3-20. Lincoln Demographics and Characteristics

Area	Families below Poverty Level	Low-Income Population (<2x poverty level)	Disabled [a]	Large Families [b]	Owner-Occupied Housing	Home Value Index [c]	Housing Units with No Vehicle
Lincoln	12.4%	25.6%	14.4%	8.2%	60.1%	$476,980	6.3%
Clark County	5.8%	21.7%	13.0%	16.4%	66.2%	$523,789	4.7%
Vancouver	7.5%	27.9%	15.1%	14.9%	49.9%	$486,897	7.0%

Source: American Community Survey 5-Year (2019-2023), Tables B17010, C17002, S1810, B11016, B25044

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per family household.

c Zillow Home Value Index, January 2024. https://www.zillow.com/research/data/.

Table 3-21. Lincoln Age Characteristics

Area	Total Population	0–4 Years	5–17 Years	18–64 Years	65 and Older
Lincoln	3,939	5.8%	18.4%	58.8%	17.0%
Clark County	510,516	5.7%	23.1%	54.9%	16.3%
Vancouver	192,696	5.5%	21.4%	57.1%	16.0%

Source: American Community Survey 5-Year (2019-2023), Table B01001

Cohesion in Lincoln appears to be moderately high based on the presence of several schools, places of worship, and parks, as well as the well-connected street network, which helps to foster cohesion in the neighborhood. However, the relatively high crime rate and few neighborhood-oriented businesses may limit cohesion.

3.3.3 Shumway Neighborhood Profile

3.3.3.1 Shumway Neighborhood Characteristics

The Shumway neighborhood is located immediately west of I-5 between E 39th Street and E Fourth Plain Boulevard, with a western boundary of Main Street. The northern portion of the neighborhood appears to be carved out of the Lincoln neighborhood. Shumway is one of the earliest neighborhoods in Vancouver with some homes dating back to the early twentieth century. Shumway consists mainly of single-family residential development with multifamily housing located along Main and 39th Streets. The intersections of Main Street with E Fourth Plain Boulevard and E 39th Street are zoned for commercial uses.

Many resources are located along Main Street including Vancouver Fire Department Station 1, the Knights of Pythias Retirement Center for low-income senior residents, and Clark County's only YWCA. The Safeway in Shumway is one of the closest supermarkets to downtown Vancouver. The Oaks at Timberline is a rehabilitation center located on E 33rd Street. The Little Acorn Preschool and Kindergarten, the Vancouver School of Arts and Academics public high school, and the West Arts Academy School of Music draw students from the surrounding region interested in specific academic subjects and artistic pursuits. Shumway Park serves as a recreation resource for the community as do the athletic fields associated with the high school. There are many historic resources located in Shumway including historic houses such as the Bailey-Dickerson House at 2613 H Street and the Swan House across the street. Vancouver First United Methodist Church, First Church of Christ Scientist, Vancouver Lord Church (Korean), Church of Christ the Savior, and St. Luke's Episcopal Church all serve the neighborhood.

C-TRAN bus Route 6 (Fruit Valley/Grand) runs along the neighborhood's southern boundary on E Fourth Plain Boulevard. Routes 31 (Hazel Dell) and 71 (Highway 99) run through Shumway along Main Street. Routes 105 (I-5 Express) and 190 (Marquam Hill Express) run along the eastern boundary via I-5, but they do not stop within the community. There are bicycle lanes on E 39th Street and the western portion of E Fourth Plain Boulevard. Shumway has designated bicycle routes on shared streets along F Street, E 29th Street, and E 33rd Street.

Shumway reported 157 offenses in 2019 (156 offenses per 1,000 residents; VPD 2021). This is nearly double the Vancouver average of 79 per 1,000 residents. The three most-reported offenses were "Theft" (46 reported offenses), "Violate No Contact Order" (16 reported offenses), and "Assault, Simple" (14 reported offenses).

The *Shumway Neighborhood Plan* (City of Vancouver 1998b) was adopted by the Vancouver City Council in 1998. For an overview of neighborhood plan goals, please refer to Section 3.5. The Shumway Neighborhood Association had been active prior to 2020 with regular meetings, newsletters, and annual events. After a 2-year pause, the association has again been meeting regularly since March 2022.

3.3.3.2 Shumway Demographics

Table 3-22 compares race/ethnicity data for Shumway to Clark County and Vancouver. The percentages of residents who identified as White and American Indian and Alaska Native Alone are higher in Shumway than in Clark County or Vancouver. Meanwhile, the percentages of people who identify as Asian or Two or More Races are lower than in the county or city.

Table 3-22. Shumway Race/Ethnicity

Area	Total Population	White Alone	Black or African American Alone	American Indian and Alaska Native Alone	Asian Alone	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino Alone
Shumway	1,177	79.9%	0.9%	2.9%	3.6%	0.0%	0.0%	5.0%	13.7%
Clark County	510,516	73.5%	2.0%	0.3%	4.7%	0.8%	0.6%	6.1%	12.0%
Vancouver	192,696	65.4%	3.0%	0.4%	5.2%	1.8%	0.5%	6.5%	17.2%

Source: American Community Survey 5-Year (2019-2023), Table B03002

Table 3-23 presents additional neighborhood data for Shumway. A much lower proportion of Shumway's families live below the poverty line than in the county or in the city. The percentage of housing units that are owner-occupied is lower than in the county or but higher than in the city. The neighborhood median home value is lower than both the county and city. The rate of housing units with no vehicle is higher in Shumway than in Clark County and in Vancouver. Table 3-24 displays age ranges for Shumway residents. The neighborhood has a smaller percentage of residents under age 18 and larger percentage of 18- to 64-year-olds than the city or the county.

Table 3-23. Shumway Demographics and Characteristics

Area	Families below Poverty Level	Low-Income Population (<2x poverty level)	Disabled [a]	Large Families [b]	Owner-Occupied Housing	Home Value Index [c]	Housing Units with No Vehicle
Shumway	2.6%	21.0%	15.4%	10.0%	60.8%	$458,853	8.8%
Clark County	5.8%	21.7%	13.0%	16.4%	66.2%	$523,789	4.7%
Vancouver	7.5%	27.9%	15.1%	14.9%	49.9%	$486,897	7.0%

Source: American Community Survey 5-Year (2019-2023), Tables B17010, C17002, S1810, B11016, B25044

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per family household.

c Zillow Home Value Index, January 2024. https://www.zillow.com/research/data/

Table 3-24. Shumway Age Characteristics

Area	Total Population	0–4 Years	5–17 Years	18–64 Years	65 and Older
Shumway	1,177	3.9%	14.4%	64.9%	16.8%
Clark County	510,516	5.7%	23.1%	54.9%	16.3%
Vancouver	192,696	5.5%	21.4%	57.1%	16.0%

Source: American Community Survey 5-Year (2019-2023), Table B01001

Cohesion in Shumway appears to be moderately high based on the presence of schools, places of worship, parks, YWCA, and Safeway, as well as the well-connected internal street network, which helps to foster cohesion in the neighborhood. However, the relatively high crime rate and few neighborhood-oriented businesses may limit cohesion.

3.3.4 Rose Village Neighborhood Profile

3.3.4.1 Rose Village Neighborhood Characteristics

The Rose Village neighborhood (historically known as Rosemere) is bordered by I-5 to the west, Grand Boulevard to the east, SR 500 to the north, and E Fourth Plain Boulevard to the south. The neighborhood is composed almost entirely of single-family residences. However, high-density multifamily development and community commercial centers are found along the perimeter and along St. Johns Boulevard, which runs diagonally (southwest-northeast) through the neighborhood. The west end of Vancouver's International District — home to a variety of multicultural businesses and activities—begins at the southeast corner of Rose Village and runs along Fourth Plain Boulevard. Two

cemeteries—Vancouver Barracks National Cemetery and Mother Joseph Catholic Cemetery—are at the southwest corner of the neighborhood.

Community resources include Washington Elementary School and neighborhood parks such as Ida Bell Jones Park and Leach Park. Many places of worship are located in the neighborhood including the Kingdom Hall of Jehovah's Witnesses, Iglesia Monte Sinai, Holy Apostles Orthodox Christian Church, Revival Tab Ministries, Memorial Lutheran Church-LCMS, The Way To Salvation Church, La Luz Del Mundo Vancouver, New Life Friends Church, River City Church, and United Pentecostal Church.

Rose Village is served by C-TRAN Connector: Rose Village, which has a scheduled route with dial-a-ride and connecting service in the neighborhood along E 33rd Street, Grand Boulevard, and E Fourth Plain Boulevard. Route 6 (Fruit Valley/Grand) and The Vine run along Fourth Plain Boulevard, and Route 25 (St. Johns) runs along St. Johns Boulevard. Routes 105 (I-5 Express) and 190 (Marquam Hill Express) run on the western edge of Rose Village via I-5, but they do not stop within the community. Route 190 also runs along the northern border of Rose Village on SR 500. Bicycle lanes run through Rose Village along E 33rd Street, St. Johns Boulevard, Fort Vancouver Way, and Grand Boulevard. There are designated bicycle routes on shared roadways along E 29th Street and the northern section of P Street.

Rose Village reported 493 criminal offenses in 2019 (85 offenses per 1,000 residents; VPD 2021). This is slightly higher than the Vancouver average of 79 per 1,000 residents.

The *Rose Village Neighborhood Action Plan* (City of Vancouver 2012) was accepted by the Vancouver City Council in 2012. The Rose Village Neighborhood Association had been active with meetings, newsletters, and Facebook posts prior to summer 2020. After a nearly 2-year hiatus, the Rose Village Neighborhood Association started holding monthly meetings again in May 2022.

3.3.4.2 Rose Village Demographics

Table 3-25 compares race/ethnicity data for Rose Village to Clark County and Vancouver. The percentages of residents in the neighborhood who identified as Native Hawaiian and Other Pacific Islander, Two or More Races, or Hispanic or Latino Alone are higher in the neighborhood than in the county or city. The percentages of residents who identified as White or Asian in Rose Village are lower for than Clark County or Vancouver.

Table 3-25. Rose Village Race/Ethnicity

Area	Total Population	White Alone	Black or African American Alone	American Indian and Alaska Native Alone	Asian Alone	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino Alone
Rose Village	6,313	51.8%	1.3%	0.2%	3.9%	2.3%	0.7%	7.2%	32.6%
Clark County	510,516	73.5%	2.0%	0.3%	4.7%	0.8%	0.6%	6.1%	12.0%
Vancouver	192,696	65.4%	3.0%	0.4%	5.2%	1.8%	0.5%	6.5%	17.2%

Source: American Community Survey 5-Year (2019-2023), Table B03002

Table 3-26 presents additional neighborhood data for Rose Village. The neighborhood has higher percentages of families below the poverty level and low-income populations than in Clark County or Vancouver. The neighborhood also has a lower percentage of owner-occupied housing and a lower home value index. Rose Village has higher percentages of large families than Clark County or Vancouver and fewer owner-occupied housing units compared to the city and the county. Table 3-27 displays age ranges for Rose Village residents. Compared to the city and the county, the neighborhood has higher percentages of residents under age 4 and between the ages of 18 and 64.

Table 3-26. Rose Village Demographics and Characteristics

Area	Families below Poverty Level	Low-Income Population (<2x poverty level)	Disabled [a]	Large Families [b]	Owner-Occupied Housing	Home Value Index [c]	Housing Units with No Vehicle
Rose Village	8.2%	34.2%	16.0%	18.7%	43.9%	$366,811	5.6%
Clark County	5.8%	21.7%	13.0%	16.4%	66.2%	$523,789	4.7%
Vancouver	7.5%	27.9%	15.1%	14.9%	49.9%	$486,897	7.0%

Source: American Community Survey 5-Year (2019-2023), Tables B17010, C17002, S1810, B11016, B25044

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per family household.

c Zillow Home Value Index, January 2021. https://www.zillow.com/research/data/.

Table 3-27. Rose Village Age Characteristics

Area	Total Population	0–4 Years	5–17 Years	18–64 Years	65 and Older
Rose Village	6,313	6.3%	23.7%	62.3%	7.7%
Clark County	510,516	5.7%	23.1%	54.9%	16.3%
Vancouver	192,696	5.5%	21.4%	57.1%	16.0%

Source: American Community Survey 5-Year (2019-2023), Table B01001

Cohesion in Rose Village appears to be moderately high based on the presence of Washington Elementary School, neighborhood parks, places of worship, and an internally connected street grid, which helps to foster cohesion. The connection to Vancouver's International District, which has a community organization (Fourth Plain Forward[22]) and holds regular events, also provides opportunities for residents to interact. However, the relatively high crime rate and few neighborhood-oriented businesses may limit cohesion.

3.3.5 Hough Neighborhood Profile

3.3.5.1 Hough Neighborhood Characteristics

The Hough neighborhood is located west of Main Street between W 15th Street and W Fourth Plain Boulevard, with the BNSF tracks as its western boundary. It is one of the earliest neighborhoods in Vancouver with many homes dating back to the early twentieth century.

Hough has a mix of single-and multifamily housing within a perimeter of largely nonresidential land uses. Main Street along the eastern boundary includes restaurants, specialty stores, and personal services. Along the western boundary (BNSF) are industrial uses and higher density housing. Mill Plain Boulevard, to the south, includes professional offices and runs along the edge of a campus of government buildings, while W Fourth Plain Boulevard, on the north, is mostly residential.

Hough Elementary School and John Ball Park are major community resources in this neighborhood. The commercial corridor on Main Street includes the Vancouver Housing Authority, Wells Fargo Bank, and businesses that serve the local area. Historic resources in Hough include the Steffan House and Charles Zimmerman House; both are located on Columbia Street. Hough is also home to a historic district that encompasses approximately 20 blocks north of W Mill Plain Boulevard between Daniels Street and Markle Avenue. The Renewed Hope Ministries, Word of Life Church-Vancouver, New Hope Center Vancouver Foursquare Church, Compass Church, Iona Community Anglican Church, and the First Christian Church-Disciples of Christ all serve the community.

The neighborhood is served by C-TRAN bus Routes 2 (Lincoln), which runs along Kauffman Avenue and W Mill Plain Boulevard; 6 (Fruit Valley/Grand), which runs along W Fourth Plain Boulevard; and 25 (St. Johns), which runs along W Mill Plain Boulevard. There are bicycle lanes on Columbia Street, W Fourth Plain Boulevard, W Mill Plain Boulevard, the east portion of W McLoughlin Boulevard, and W

[22] https://www.fourthplainforward.org/

15th Street. There are bicycle routes on shared roadways along Lincoln Avenue, Kauffman Avenue, Franklin Street, and Columbia Street.

The Hough neighborhood reported 196 criminal offenses in 2019 (122 offenses per 1,000 residents; VPD 2021). This is roughly 50% higher than the Vancouver average of 79 per 1,000 residents. The three most-reported offenses were "Theft" (45 reported offenses), "Assault, Simple" (32 reported offenses), and "Vandalism" (27 reported offenses).

The *Hough Neighborhood Action Plan* (City of Vancouver 2009b) was accepted by the Vancouver City Council in 1996 and updated in 2009. For an overview of neighborhood plan goals, please refer to Section 3.5. The Hough Neighborhood Association meets quarterly and has an active Facebook page.

3.3.5.2 Hough Demographics

Table 3-28 compares race/ethnicity demographics in Hough to those of Clark County and Vancouver. The percentage of residents who identified as White is higher in the neighborhood than in the county or the city. The percentage of Black or African American Alone is higher than Clark County but similar to Vancouver. The percentage of Two or More Races is higher in Hough than in the county or city. The proportions of almost all other races/ethnicities are lower among Hough residents than in Clark County or Vancouver. The percentage of neighborhood residents who identify as Asian is less than a third of the percentage of county or city residents, while the percentage of residents who identify as Hispanic or Latino Alone is less than a sixth of that in the county or city.

Table 3-28. Hough Race/Ethnicity

Area	Total Population	White Alone	Black or African American Alone	American Indian and Alaska Native Alone	Asian Alone	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino Alone
Hough	2,924	84.4%	2.9%	0.2%	1.1%	0.0%	0.0%	9.6%	1.9%
Clark County	510,516	73.5%	2.0%	0.3%	4.7%	0.8%	0.6%	6.1%	12.0%
Vancouver	192,696	65.4%	3.0%	0.4%	5.2%	1.8%	0.5%	6.5%	17.2%

Source: American Community Survey 5-Year (2019-2023), Table B03002

Table 3-29 provides additional demographic data for the Hough neighborhood. It has a higher percentage of families below the poverty level than either the county or the city, a higher percentage of low-income populations, a higher percentage of residents with a disability, and a substantially higher percentage of households with no vehicle access. Table 3-30 displays age ranges for Hough residents. The percentage of neighborhood residents over age 65 is higher than the county or the city.

Table 3-29. Hough Demographics and Characteristics

Area	Families below Poverty Level	Low-Income Population (<2x poverty level)	Disabled [a]	Large Families [b]	Owner-Occupied Housing	Home Value Index [c]	Housing Units with No Vehicle
Hough	13.3%	36.8%	18.7%	7.3%	41.4%	$462,071	23.9%
Clark County	5.8%	21.7%	13.0%	16.4%	66.2%	$523,789	4.7%
Vancouver	7.5%	27.9%	15.1%	14.9%	49.9%	$486,897	7.0%

Source: American Community Survey 5-Year (2019-2023), Tables B17010, C17002, S1810, B11016, B25044

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per family household.

c Zillow Home Value Index, January 2024. https://www.zillow.com/research/data/.

Table 3-30. Hough Age Characteristics

Area	Total Population	0–4 Years	5–17 Years	18–64 Years	65 and Older
Hough	2,924	6.2%	19.6%	55.5%	18.7%
Clark County	510,516	5.7%	23.1%	54.9%	16.3%
Vancouver	192,696	5.5%	21.4%	57.1%	16.0%

Source: American Community Survey 5-Year (2019-2023), Table B01001

Cohesion in Hough appears to be moderate based on the presence of neighborhood-oriented businesses along Main Street, Hough Elementary School, and John Ball Park, which provide opportunities for residents to connect. The dense street grid network supports non-auto travel, but some neighborhood streets do not have sidewalks, which may limit some opportunities for residents to connect. The relatively high crime rate may also adversely affect cohesion.

3.3.6 Arnada Neighborhood Profile

3.3.6.1 Arnada Neighborhood Characteristics

The Arnada neighborhood is located immediately west of I-5 between E Fourth Plain Boulevard and E 15th Street, with Main Street as its western boundary. It is one of the earliest neighborhoods in Vancouver.

Arnada is primarily composed of single-family residential development. Its commercial areas are along Main Street, Broadway Street, and E McLoughlin Boulevard. The business district, or Uptown Village, is located on Main Street, between E McLoughlin and Fourth Plain Boulevards. The blocks

south of E McLoughlin Boulevard are in large part located in the commercial downtown district, which promotes a mix of retail, office, civic, and housing uses.

Arnada Park, the only park in the neighborhood, is located near the E Fourth Plain Boulevard interchange and serves as a recreational resource for the community. The historic Carnegie Library is on Main Street and has been converted into the Clark County Historical Museum. The Vancouver District United Methodist Church and Arnada Abbey serve the community.

C-TRAN bus Route 30 (Burton) runs through the heart of the neighborhood on E McLoughlin Boulevard. Route 6 (Fruit Valley/Grand) runs along the northern boundary of the neighborhood on E Fourth Plain Boulevard, while Routes 31 (Hazel Dell) and 71 (Battle Ground) run on Broadway and Washington Streets. Routes 2 (Lincoln), 37 (Mill Plain/Fisher's), 41 (SR 14), and 105 (I-5 Express) serve the community via E 15th Street on the southern boundary of the neighborhood. Route 30 (Burton) and The Vine serve the southeastern corner of the neighborhood via E McLoughlin Boulevard. Route 190 (Marquam Hill Express) runs along the eastern boundary via I-5, but does not stop in the neighborhood.

Bicycle lanes are on E McLoughlin Boulevard, E Fourth Plain Boulevard, the southern segment of C Street, and on E 15th Street; the E 15th Street bicycle lanes disappear between D Street and Main Street. F Street is a designated bicycle route on a shared roadway.

The Arnada neighborhood reported 134 offenses in 2019 (194 offenses per 1,000 residents; VPD 2021). The three most-reported offenses were "Theft" (28 reported offenses), "Burglary" (16 reported offenses), and "Violate No Contact Order" (15 reported offenses). This is roughly 2.5 times the Vancouver average of 79 per 1,000 residents.

The *Arnada Neighborhood Action Plan* (City of Vancouver 2009a) was endorsed by Vancouver City Council in 1996 and updated in 2009. For an overview of neighborhood plan goals, please refer to Section 3.5. The Arnada Neighborhood Association meets monthly, has an active Facebook page, and publishes a newsletter regularly.

3.3.6.2 Arnada Demographics

Table 3-31 compares race/ethnicity data for Arnada to Clark County and Vancouver. The neighborhood has a notably higher percentage of American Indian and Alaska Native residents than Clark County or Vancouver. The percentage of residents who identified as Some Other Race is higher than in the county and city. Native Hawaiian and Other Pacific Islander populations have lower percentages in the neighborhood than in the city or county, with zero percent being reported in the neighborhood.

Table 3-31. Arnada Race/Ethnicity

Area	Total Population	White Alone	Black or African American Alone	American Indian and Alaska Native Alone	Asian Alone	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino Alone
Arnada	1,179	72.1%	3.3%	1.9%	4.7%	0.0%	1.1%	3.8%	13.1%
Clark County	510,516	73.5%	2.0%	0.3%	4.7%	0.8%	0.6%	6.1%	12.0%
Vancouver	192,696	65.4%	3.0%	0.4%	5.2%	1.8%	0.5%	6.5%	17.2%

Source: American Community Survey 5-Year (2019-2023), Table B03002

Table 3-32 presents additional neighborhood data for Arnada. The neighborhood has higher percentages of households below the poverty level than Clark County or Vancouver. The percentage of owner-occupied housing is less than the county or city. The percentage of large families in the neighborhood is far lower than in the city or county. The neighborhood home value is similar to home value in the city but less than in the county. Arnada has a higher percentage of housing units without vehicles than either the city or the county. Table 3-33 displays age ranges for Arnada residents. The percentage of neighborhood residents between ages 18 and 64 is higher than the city or county, and other age ranges are lower.

Table 3-32. Arnada Demographics and Characteristics

Area	Families below Poverty Level	Low-Income Population (<2x poverty level)	Disabled [a]	Large Families [b]	Owner-Occupied Housing	Home Value Index [c]	Housing Units with No Vehicle
Arnada	10.0%	26.6%	13.8%	0.6%	39.1%	$490,458	10.8%
Clark County	5.8%	21.7%	13.0%	16.4%	66.2%	$523,789	4.7%
Vancouver	7.5%	27.9%	15.1%	14.9%	49.9%	$486,897	7.0%

Source: American Community Survey 5-Year (2019-2023), Tables B17010, C17002, S1810, B11016, B25044

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per family household.

c Zillow Home Value Index, January 2024. https://www.zillow.com/research/data/

Table 3-33. Arnada Age Characteristics

Area	Total Population	0–4 Years	5–17 Years	18–64 Years	65 and Older
Arnada	1,179	4.6%	15.5%	66.8%	13.1%
Clark County	510,516	5.7%	23.1%	54.9%	16.3%
Vancouver	192,696	5.5%	21.4%	57.1%	16.0%

Source: American Community Survey 5-Year (2019-2023), Table B01001

Cohesion in Arnada appears to be moderately high based on the presence of neighborhood-oriented businesses along Main Street that provide opportunities for residents to connect. The dense street grid and presence of sidewalks on many streets also foster neighborhood cohesion. However, the relatively high crime rate, limited park space, and lack of schools may limit cohesion.

3.3.7 Central Park Neighborhood Profile

3.3.7.1 Central Park Neighborhood Characteristics

The Central Park neighborhood is located immediately east of I-5 between E Mill Plain and E Fourth Plain Boulevards, with a western boundary of Grand Boulevard. It is an early Vancouver neighborhood. Some homes in this neighborhood were originally built for officers and soldiers based at Fort Vancouver.

East of Reserve Street, Central Park has a mix of single- and multifamily residential development. Land west of Reserve Street is primarily occupied by large campuses that combine open space, high concentrations of people, and activity centers: Clark College, Hudson's Bay High School, Marshall Park, the Luepke Senior Center and Marshall Center, and the Vancouver Veterans Affairs (VA) Hospital. The hospital provides healthcare through its Medical Center and Center for Community Health. The Washington State School for the Blind and Lupine Experiential School are in the neighborhood. Vancouver Vineyard Church and The Potter's House of Christian Fellowship Church serve the Central Park neighborhood.

The Central Park neighborhood is served by C-TRAN bus Routes 6 (Fruit Valley/Grand) along E Fourth Plain Boulevard and Grand Boulevard, 30 (Burton) along E McLoughlin Boulevard, 37 (Mill Plain/Fisher's) along E Mill Plain Boulevard, 25 (St. Johns) along Fort Vancouver Way, and The Vine runs along E Mill Plain Boulevard, Fort Vancouver Way, and E Fourth Plain Boulevard. Routes 105 (I-5 Express) and 190 (Marquam Hill Express) run along the eastern perimeter via I-5, but they do not stop within the neighborhood.

Bicycle lanes are on Reserve Street, Fort Vancouver Way, and Grand Boulevard. Bicycle lanes are also west of Reserve Street on E McLoughlin Boulevard and E Mill Plain Boulevard. The Clark College campus has a network of multiuse paths.

The Central Park neighborhood reported 299 offenses in 2019 (152 offenses per 1,000 residents; VPD 2021). This is nearly double the Vancouver average of 79 per 1,000 residents. The three most-reported offenses were "Theft" (77 reported offenses), "Assault, Simple" (42 reported offenses), and "Violate No Contact Order" (30 reported offenses).

The *Central Park Neighborhood Action Plan* (City of Vancouver 2010) was adopted in 2000 and updated in April 2010. For an overview of neighborhood plan goals, please refer to Section 3.5. The Central Park Neighborhood Association has held regular meetings in the past, but the last record of a neighborhood meeting was in May 2021.

3.3.7.2 Central Park Demographics

Table 3-34 compares race/ethnicity demographics in Central Park to Clark County and Vancouver. The percentages of residents who identified as Black or African American or Some Other Race Alone are higher in the neighborhood than in the county or city. The percentages for most other race/ethnicity categories are lower in Central Park than in Clark County or Vancouver.

Table 3-34. Central Park Race/Ethnicity

Area	Total Population	White Alone	Black or African American Alone	American Indian and Alaska Native Alone	Asian Alone	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino Alone
Central Park	2,643	61.6%	4.8%	0.0%	0.3%	0.0%	1.6%	3.4%	1.6%
Clark County	510,516	73.5%	2.0%	0.3%	4.7%	0.8%	0.6%	6.1%	12.0%
Vancouver	192,696	65.4%	3.0%	0.4%	5.2%	1.8%	0.5%	6.5%	17.2%

Source: American Community Survey 5-Year (2019-2023), Table B03002

Table 3-35 presents additional neighborhood data for Central Park. The percentages of families below the poverty level and low-income populations are substantially higher than the county or the city. The percentage of owner-occupied housing is substantially lower in the neighborhood than in Clark County or Vancouver. The home value index is also lower in the neighborhood than the county or city. The percentage of households without access to a vehicle is higher in Central Park than the county or city. Table 3-36 displays age ranges for Central Park residents. The percentages of neighborhood residents between the ages of 0 and 4 and ages 18 and 64 are higher than the city or county.

Table 3-35. Central Park Demographics and Characteristics

Area	Families below Poverty Level	Low-Income Population (<2x poverty level)	Disabled [a]	Large Families [b]	Owner-Occupied Housing	Home Value Index [c]	Housing Units with No Vehicle
Central Park	21.6%	56.3%	17.9%	9.2%	25.2%	$388,342	8.3%
Clark County	5.8%	21.7%	13.0%	16.4%	66.2%	$523,789	4.7%
Vancouver	7.5%	27.9%	15.1%	14.9%	49.9%	$486,897	7.0%

Source: American Community Survey 5-Year (2019-2023), Tables B17010, C17002, S1810, B11016, B25044

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per family household.

c Zillow Home Value Index, January 2024. https://www.zillow.com/research/data/.

Table 3-36. Central Park Age Characteristics

Area	Total Population	0–4 Years	5–17 Years	18–64 Years	65 and Older
Central Park	2,643	7.1%	20.5%	64.1%	8.3%
Clark County	510,516	5.7%	23.1%	54.9%	16.3%
Vancouver	192,696	5.5%	21.4%	57.1%	16.0%

Source: American Community Survey 5-Year (2019-2023), Table B01001

Cohesion in Central Park appears to be moderately low based on the neighborhood association's limited recent activity. The parks and schools in the neighborhood provide places for residents to connect. However, the limited connectivity within the neighborhood, large institutions (Clark College and VA hospital) on the west side of the neighborhood, few neighborhood-oriented businesses, and relatively high crime rate may limit neighborhood cohesion.

3.3.8 Esther Short Neighborhood Profile

3.3.8.1 Esther Short Neighborhood Characteristics

The Esther Short neighborhood is located immediately west of I-5 and extends from 15th Street to the Columbia River. The BNSF railroad tracks run along the western border of this neighborhood. Esther Short includes Vancouver's downtown core. It is one of the earliest neighborhoods in Vancouver. The southern edge of the neighborhood along the Columbia River is in the process of redevelopment as a relatively high-density mixed-use area known as the Columbia Waterfront.

Esther Short is primarily composed of commercial development, which is concentrated in the downtown area. Some light industry is located in the western portion of the neighborhood with heavy

industry along the railroad tracks and a portion of the Columbia River. Most of the residential development is in the form of condominiums and apartments near Esther Short Park, in the northwest corner of the neighborhood, and in the mixed-use developments in the Columbia Waterfront.

Community facilities in the neighborhood include an Amtrak train station and the regionally important Esther Short Park. The park is the site of many festivals, concerts, and the Vancouver Farmers Market. Vancouver Waterfront Park, located on along the north shore of the Columbia River in the Esther Short neighborhood, is another regionally significant park and includes walking trails, park areas, and restaurants, as well as areas of mixed-use development. The Clark County Public Service Center, Washington State Patrol Forensics Building, and other government buildings are concentrated on a government campus along Franklin Street in the northwest corner of the neighborhood. City Hall is located by the intersection of Esther Street and W 6th Street. The Vancouver Community Library is located near the Regal Cinemas on C Street. Smith Tower offers senior and low-income housing.

This neighborhood has the highest concentration of historic resources in the county including the Lowell M. Hidden House, the Vancouver Telephone Exchange, the Evergreen Hotel, the Heritage Building, the Langsdorf House, the Elks Building, the House of Providence (also known as Providence Academy), the Lloyd DuBois House, the Chumasero-Smith House, and the Slocum House in Esther Short Park. St. Paul Lutheran Church, the Proto-Cathedral of St. James the Greater, the Christian Science Reading Room, Crown and Anchor Church, and Union Chapel all serve the community.

Esther Short is well connected to the C-TRAN transit network because it includes the downtown core. These bus routes make service stops in the neighborhood:

- 2 (Lincoln)
- 25 (St. Johns and Fruit Valley)
- 30 (Burton)
- 31 (Hazel Dell)
- 32 (Evergreen/Andresen)
- 37 (Mill Plain/Fisher's)
- 41 (SR 14)
- 60 (Delta Park Regional)
- 71 (Highway 99)
- 105 (I-5 Express)
- The Vine (Fourth Plain)

Route 190 (Marquam Hill Express) runs along the eastern perimeter via I-5, but it does not stop within the neighborhood.

The Columbia River Renaissance Trail runs along the Columbia River into the neighborhood from the east and continues west through the newly developed Waterfront Park to approximately W Columbia Way and Boise Place. The entrance to the Interstate Bridge southbound sidewalk/bicycle facility is at the southeast corner of the neighborhood near the intersection of Columbia Street and W Columbia Way. Bicycle lanes are on Columbia Street, C Street, and W 8th Street into the southern portion of

Jefferson Street. E Mill Plain Boulevard and E 15th Street also have bicycle lanes, though they are not continuous through the neighborhood. There are designated bicycle routes on shared roadways along Franklin Street and Evergreen Boulevard.

Esther Short had 713 reported offenses in 2019 (690 offenses per 1,000 residents; VPD 2021). This is nearly 10 times the Vancouver average of 79 per 1,000 residents. The three most-reported offenses were "Theft" (153 reported offenses), "Assault, Simple" (90 reported offenses), and "Violate No Contact Order" (75 reported offenses). It is likely that this high crime rate poorly characterizes the neighborhood, as all of the crimes committed at the County Court House and Jail are recorded as taking place within this neighborhood.

The *Esther Short Neighborhood Action Plan* (City of Vancouver 2006) was accepted by Vancouver City Council in 2006. For an overview of neighborhood plan goals, please refer to Section 3.5. The Esther Short Neighborhood Association has an active Facebook page and had been meeting regularly through February 2020. After a 2-year pause, the Esther Short Neighborhood Association began meeting regularly again in May 2022. The association has an active Facebook page.

3.3.8.2 Esther Short Demographics

Table 3-37 compares race/ethnicity demographics in Esther Short to Clark County and Vancouver. Compared to Vancouver and Clark County, the neighborhood has higher percentages of Black residents, American Indian and Native Alaskan residents, Asian residents, and residents who identify as Some Other Race. The neighborhood has lower percentages of Two or More Races and Hispanic or Latino residents than the county or city.

Table 3-37. Esther Short Race/Ethnicity

Area	Total Population	White Alone	Black or African American Alone	American Indian and Alaska Native Alone	Asian Alone	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino Alone
Esther Short	3,590	72.5%	7.2%	1.6%	5.7%	0.0%	0.7%	5.9%	6.4%
Clark County	510,516	73.5%	2.0%	0.3%	4.7%	0.8%	0.6%	6.1%	12.0%
Vancouver	192,696	65.4%	3.0%	0.4%	5.2%	1.8%	0.5%	6.5%	17.2%

Source: American Community Survey 5-Year (2019-2023), Table B03002

Table 3-38 presents additional neighborhood data for Esther Short. The percentage of families below poverty level is slightly higher than Clark County and Vancouver. The percentage of low-income residents in the neighborhood is also higher than the county or the city. Over one-quarter of Esther Short residents reported a disability, which is more than the city and over twice the percentage reported for the county. The percentage of large families in the neighborhood is substantially less than the percentage in the county or the city. The percentage of owner-occupied households is far lower than the county or the city, and the percentage of housing units with no vehicle is far higher

than the county or the city. The home value index is substantially lower in Esther Short than in Clark County or Vancouver. Table 3-39 displays age ranges for Esther Short residents. The percentage of neighborhood residents under age 18 is much lower than the city or county.

Table 3-38. Esther Short Demographics and Characteristics

Area	Families below Poverty Level	Low-Income Population (<2x poverty level)	Disabled [a]	Large Families [b]	Owner-Occupied Housing	Home Value Index [c]	Housing Units with No Vehicle
Esther Short	7.6%	37.7%	27.3%	1.5%	15.3%	$397,237	31.0%
Clark County	5.8%	21.7%	13.0%	16.4%	66.2%	$523,789	4.7%
Vancouver	7.5%	27.9%	15.1%	14.9%	49.9%	$486,897	7.0%

Source: American Community Survey 5-Year (2019-2023), Tables B17010, C17002, S1810, B11016, B25044

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per family household.

c Zillow Home Value Index, January 2024. https://www.zillow.com/research/data/.

Table 3-39. Esther Short Age Characteristics

Area	Total Population	0–4 Years	5–17 Years	18–64 Years	65 and Older
Esther Short	3,590	1.8%	4.6%	72.3%	21.3%
Clark County	510,516	5.7%	23.1%	54.9%	16.3%
Vancouver	192,696	5.5%	21.4%	57.1%	16.0%

Source: American Community Survey 5-Year (2019-2023), Table B01001

Cohesion in Esther Short appears to be moderately high based on the redeveloped waterfront, Esther Short Park, neighborhood-oriented businesses, library, and places of worship that all provide places for residents to connect. However, the neighborhood's high amount of commercial and industrial land use and relatively high crime rate may limit cohesion.

3.3.9 Hudson's Bay Neighborhood Profile

3.3.9.1 Hudson's Bay Neighborhood Characteristics

Hudson's Bay neighborhood is located east of I-5 between Mill Plain Boulevard and SR 14. The eastern edge is at Grand Boulevard. It is one of the earliest neighborhoods in Vancouver with many homes dating back to the 1820s through 1840s.

Hudson's Bay is home to large public facilities and open spaces such as Officers Row, Memory/Mill Plain Park, the Fort Vancouver National Historic Site, and a portion of Pearson Field. The southeast corner of the neighborhood has a mix of industrial and commercial land uses including a Fred Meyer, which is one of the closest supermarkets to downtown. Limited commercial uses are also located along E Evergreen Boulevard, east toward Grand Boulevard. Residential development is primarily east of Reserve Street with a few housing units in the restored vintage structures on Officers Row. High-density multifamily residential development is scattered throughout the neighborhood with a majority located south of Evergreen Boulevard. Hudson's Bay has relatively few single-family residential structures that are a combination of late nineteenth and early twentieth century two-story frame houses and 1930s style bungalows.

Additional resources in Hudson's Bay include the Fort Vancouver Regional Libraries' Mill Plain Library (temporarily closed at the time of writing) and district office at E Mill Plain Boulevard and Fort Vancouver Way. The Vancouver Police Department has a station at E Evergreen Boulevard and Anderson Street. Allen's Crosley Lanes bowling alley on E Evergreen Boulevard is the only bowling alley close to downtown Vancouver.

The Hudson's Bay neighborhood is served by C-TRAN bus Route 32 (Evergreen-Andresen) along E Evergreen Boulevard. Route 37 (Mill Plain/Fisher's) runs along the northern perimeter of Hudson's Bay on E Mill Plain Boulevard, and Route 41 (SR 41) runs along its southern boundary via SR 14. Route 6 (Fruit Valley/Grand) runs along the eastern boundary via Grand Boulevard. Route 25 (St. Johns and Fruit Valley) runs through the northwest corner of the neighborhood on Fort Vancouver Way and E Evergreen Boulevard. Routes 105 (I-5 Express) and 190 (Marquam Hill Express) run along the western perimeter via I-5, but they do not stop within the neighborhood.

A multiuse path runs along the west edge of the Fort Vancouver National Historic Site (south of E 5th Street) and crosses SR 14 via the Vancouver Land Bridge into the Columbia Way neighborhood, where it connects with the Columbia River Renaissance Trail. Another multiuse path runs south from E 5th Street along the east edge of Pearson Field and crosses SR 14 into the Columbia Way neighborhood. Bicycle lanes are on Fort Vancouver Way, Grand Boulevard, E Evergreen Boulevard (between Reserve Street and X Street), and E Mill Plain Boulevard (west of Reserve Street). There are designated bicycle routes on shared roadways along E 5th Street and Columbia House Boulevard.

Hudson's Bay reported 229 offenses in 2019 (130 offenses per 1,000 residents; VPS 2021). This is 65% higher than the Vancouver average of 79 per 1,000 residents. The three most-reported offenses were "Theft" (76 reported offenses), "Assault, Simple" (22 reported offenses), and "Motor Vehicle Theft" (18 reported offenses).

The *Hudson's Bay Neighborhood Action Plan* (City of Vancouver 1998a) was accepted by Vancouver City Council in 1998. For an overview of neighborhood plan goals, please refer to Section 3.5. The Hudson's Bay Neighborhood Association is active but meets infrequently, and their Facebook page is updated only occasionally.

3.3.9.2 Hudson's Bay Demographics

Table 3-40 compares race/ethnicity demographics in Hudson's Bay to Clark County and Vancouver. Compared with the county and city, the neighborhood has lower percentages of residents that

identified as Black or African American, Asian, Native Hawaiian and Other Pacific Islander, or Hispanic and Latino Alone. The percentage of residents who identify as Two or More Races is higher than in the city or county.

Table 3-40. Hudson's Bay Race/Ethnicity

Area	Total Population	White Alone	Black or African American Alone	American Indian and Alaska Native Alone	Asian Alone	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino Alone
Hudson's Bay	2,319	75.8%	1.6%	0.5%	2.8%	0.0%	1.6%	9.2%	8.4%
Clark County	510,516	73.5%	2.0%	0.3%	4.7%	0.8%	0.6%	6.1%	12.0%
Vancouver	192,696	65.4%	3.0%	0.4%	5.2%	1.8%	0.5%	6.5%	17.2%

Source: American Community Survey 5-Year (2019-2023), Table B03002

Table 3-41 presents additional neighborhood data for Hudson's Bay. A substantially lower percentage of families in Hudson's Bay are below the poverty level compared with Clark County or Vancouver. The neighborhood also has relatively lower percentages of large families (reported at zero percent) and owner-occupied housing. The percentage of households without access to a motor vehicle in Hudson's Bay is higher than in the county but roughly similar to the city. Table 3-42 displays age ranges for Hudson's Bay residents. The percentage of neighborhood residents under age 18 is lower than the city or county.

Table 3-41. Hudson's Bay Demographics and Characteristics

Area	Families below Poverty Level	Low-Income Population (<2x poverty level)	Disabled [a]	Large Families [b]	Owner-Occupied Housing	Home Value Index [c]	Housing Units with No Vehicle
Hudson's Bay	0.5%	23.4%	17.5%	0.0%	36.0%	$411,189	7.7%
Clark County	5.8%	21.7%	13.0%	16.4%	66.2%	$523,789	4.7%
Vancouver	7.5%	27.9%	15.1%	14.9%	49.9%	$486,897	7.0%

Source: American Community Survey 5-Year (2019-2023), Tables B17010, C17002, S1810, B11016, B25044

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per family household.

c Zillow Home Value Index, January 2024. https://www.zillow.com/research/data/.

Table 3-42. Hudson's Bay Age Characteristics

Area	Total Population	0–4 Years	5–17 Years	18–64 Years	65 and Older
Hudson's Bay	2,319	5.2%	14.2%	63.3%	17.3%
Clark County	510,516	5.7%	23.1%	54.9%	16.3%
Vancouver	192,696	5.5%	21.4%	57.1%	16.0%

Source: American Community Survey 5-Year (2019-2023), Table B01001

Cohesion in Hudson's Bay appears to be moderately low based on land use and connectivity in the neighborhood, which limit opportunities for cohesion. Large land uses (Fort Vancouver and Pearson Field) and industrial and commercial areas occupy much of the west and south sides of the neighborhood, so the residential area is concentrated on the east side of the neighborhood. E Mill Plain Boulevard creates a barrier between the north and south portions of the neighborhood. There are few neighborhood-oriented businesses and gathering places. A relatively high crime rate also hinders cohesion.

3.3.10 Columbia Way Neighborhood Profile

3.3.10.1 Columbia Way Neighborhood Characteristics

The Columbia Way neighborhood is located east of I-5, between SR 14 and the Columbia River, and extends east to include Marine Park. Industrial and commercial uses comprise most of Columbia Way, with a mix of light and heavy industrial uses in the central portion of the neighborhood. Columbia Way is home to historically important parks and recreational resources including Waterfront Park, Marine Park, Old Apple Tree Park, and Surprise Beach. The Vancouver Water Resources Center is north of Marine Park at the east edge of the neighborhood. Residences are focused in a single area along the shoreline just east of Waterfront Park where there is a mix of single-family town homes and multifamily structures.

The Columbia Way neighborhood is served by C-TRAN bus Route 41 (SR 14) along SR 14. A multiuse path runs along the edge of the Columbia River through Fort Vancouver Waterfront Park and Marine Park; the path transitions to sidewalk on Columbia Way to avoid the industrial land use in the central part of the neighborhood.

Columbia Way reported 97 offenses in 2019 (68 offenses per 1,000 residents; VPD 2021). This is lower than the Vancouver average of 79 per 1,000 residents.

The Columbia Way Neighborhood Association is currently inactive, and has not published a neighborhood action plan.

3.3.10.2 Columbia Way Demographics

Table 3-43 compares race/ethnicity demographics in Columbia Way to Clark County and Vancouver. Columbia Way has a substantially higher proportion of residents who identify as Asian than in the county or city. The percentage of residents who identify as other races/ethnicity categories, except for

White, are lower in the neighborhood than the county or city. The percentage of White residents in the neighborhood is similar to the percentage in Clark County and higher than in Vancouver.

Table 3-43. Columbia Way Race/Ethnicity

Area	Total Population	White Alone	Black or African American Alone	American Indian and Alaska Native Alone	Asian Alone	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino Alone
Columbia Way	1,177	73.1%	0.0%	1.9%	10.4%	0.0%	0.0%	3.6%	11.0%
Clark County	510,516	73.5%	2.0%	0.3%	4.7%	0.8%	0.6%	6.1%	12.0%
Vancouver	192,696	65.4%	3.0%	0.4%	5.2%	1.8%	0.5%	6.5%	17.2%

Source: American Community Survey 5-Year (2019-2023), Table B03002

Table 3-44 presents additional neighborhood data for Columbia Way. The percentage of families below the poverty level is much lower in Columbia Way than in Clark County or Vancouver. The percentage of large families (reported at zero percent) is far lower than the county or the city. The home value index in Columbia Way is lower than in Clark County or Vancouver. The percentage of households without access to a vehicle is higher in the neighborhood than the county or city. Table 3-45 displays age ranges for Columbia Way residents. The percentage of neighborhood residents under age 18 is much lower than the city or county.

Table 3-44. Columbia Way Demographics and Characteristics

Area	Families below Poverty Level	Low-Income Population (<2x poverty level)	Disabled [a]	Large Families [b]	Owner-Occupied Housing	Home Value Index [c]	Housing Units with No Vehicle
Columbia Way	1.0%	13.5%	16.7%	0.0%	51.5%	$416,059	7.5%
Clark County	5.8%	21.7%	13.0%	16.4%	66.2%	$523,789	4.7%
Vancouver	7.5%	27.9%	15.1%	14.9%	49.9%	$486,897	7.0%

Source: American Community Survey 5-Year (2019-2023), Tables B17010, C17002, S1810, B11016, B25044

a Disability is defined by the existence of a physical, mental, or emotional condition lasting 6 months or more in household members 5 years of age and older, that makes it difficult to perform activities including working and leaving home.

b Large family means five or more people per family household.

c Zillow Home Value Index, January 2024. https://www.zillow.com/research/data/.

Table 3-45. Columbia Way Age Characteristics

Area	Total Population	0–4 Years	5–17 Years	18–64 Years	65 and Older
Columbia Way	1,977	1.8%	7.0%	54.4%	36.8%
Clark County	510,516	5.7%	23.1%	54.9%	16.3%
Vancouver	192,696	5.5%	21.4%	57.1%	16.0%

Source: American Community Survey 5-Year (2019-2023), Table B01001

Cohesion in Columbia Way appears to be low based on the neighborhood's urban form and neighborhood characteristics. Although it has a low crime rate and contains several parks, the parks are not near the residential area. The large amount of industrial land use, few neighborhood-oriented businesses, and lack of schools or places of worship limit the potential for cohesion. A minimal street grid also results in few opportunities for residents to connect while walking or biking, further limiting cohesion.

3.4 Homeless Populations

Counts of homeless populations do not necessarily reflect the actual number of homeless people within the limits of the IBR primary study area, as these counts change over time due to the transient nature of homeless populations. An unknown number of homeless individuals and families live in the IBR Program study area. Multnomah and Clark Counties have Point-in-Time Count data that provides a census of the homeless population every two years; however, the geographic area for this data is too large to determine a count for the primary study area (Clark County's figures are only available at the county level and Multnomah County's street count areas include all of Portland and other portions of the county. Table 3-46 shows homeless population counts for these areas.

Table 3-46. Multnomah County Homeless Populations for Geographic Areas Containing the IBR Study Area

Geographic Area	Homeless Population
Inner Northeast Portland	123 households
North Portland	226 households
Clark County	669 persons

Sources: Point-in-Time Counts for Multnomah County (Multnomah County Joint Office of Homeless Services 2022) and Clark County (Clark County Council for the Homeless 2024)

3.5 Description of Relevant Neighborhood Plan Goals for Portland and Vancouver

This section is a general description of the goals and objectives listed in City of Portland and City of Vancouver neighborhood plans for the neighborhoods in the IBR study area. It is intended to offer an understanding of ways in which the project may help neighborhoods accomplish their goals or may hinder neighborhoods' abilities to meet their goals. Topics covered in each neighborhood's goals and objectives are listed in Table 3-47 and Table 3-48. Under each category shown in the tables, the following specific goals and objectives are common to many of the neighborhoods:

- Transportation and Traffic
    - Reduce speeding in the neighborhood.
    - Improve walking and biking connectivity and safety.
    - Reduce transportation-related noises and odor.
    - Reduce cut-through traffic.
    - Maintain or enhance neighborhood on-street parking.
    - Maintain or improve transit service for the neighborhood.
    - Reduce truck traffic in the neighborhood.
    - Support development of light-rail transit.
- Community Image and Character
    - Support neighborhood amenities.
    - Support cultural activities.
    - Enhance attractiveness.
    - Protect neighborhood trees and encourage tree planting and landscaping.
    - Encourage property maintenance.
    - Create opportunities for people to interact, become acquainted, and strengthen their sense of community.
    - Ensure new construction is consistent with the character of the neighborhood.
    - Prevent and reduce graffiti and other vandalism.
- Land Use
    - Maintain a balance between commercial and residential land uses.
    - Support density adjacent to transit.
    - Minimize the adverse impact of new multifamily/small business developments in the neighborhood.
    - Encourage owner-occupied housing and businesses.
    - Provide services and jobs within walking distance of residences.

    - Encourage the IBR Program to restore land for urban uses as part of the Interstate Bridge replacement.
- Historic and Cultural
    - Preserve the neighborhood's historic character.
    - Encourage adaptive reuse of existing or historic structures.
    - Ensure new construction is consistent with the neighborhood's historic character.
- Recreation and Open Space
    - Establish safe and accessible recreational facilities.
    - Develop and maintain open space within the residential areas of the neighborhood.
    - Ensure that individuals, owners, and government agencies protect the Columbia River from contaminants including oil and other hazardous materials.
    - Protect natural resource values of the Columbia and Bridgeton Sloughs.
    - Maintain North Portland Harbor as a scenic corridor.
- Public Facilities
    - Improve streets, storm drains, and lighting in the neighborhood to ensure safe travel.
    - Improve multimodal facilities such as bus stops, sidewalks, and ADA infrastructure.
    - Provide multimodal access to and within the neighborhood for all levels of ability.
- Noise Reduction
    - Mitigate traffic noise from I-5.
- Economic Development
    - Encourage businesses to stay in neighborhoods.
    - Encourage new businesses to locate in the neighborhood.
    - Support business and retail revitalization.
    - Encourage owner-occupied businesses.
- Public Safety
    - Improve neighborhood pedestrian safety and accessibility.
    - Improve street lighting in the neighborhood.
    - Improve and maintain sidewalks and street crossings.
- Housing
    - Preserve the neighborhood's existing housing stock.
    - Minimize the adverse impacts of new multifamily housing.
    - Maintain housing affordability.
    - Concentrate housing density near transit.
    - Encourage a variety in housing types.

Table 3-47. Summary of Portland Relevant Adopted Neighborhood and Community Plan Goals [a]

Neighborhood Action Plan, Year Adopted or Amended	Housing	Transportation and Traffic	Community Image and Character	Land Use	Historic and Cultural	Recreation and Open Space	Public Facilities	Noise Reduction	Economic Development	Public Safety
Albina Community Plan, 1993	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Bridgeton, 1997	Yes	Yes	No	Yes	Yes	No	No	No	Yes	Yes
Hayden Island, 2009	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Kenton Neighborhood Plan, 2001	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
North Interstate Corridor Plan, 2008	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No

a Goals identified in applicable City of Portland Neighborhood Plans

Table 3-48. Summary of Vancouver Relevant Adopted Neighborhood Action Plan Goals and Objectives [a]

Neighborhood Action Plan, Year Adopted or Amended	Housing	Transportation and Traffic	Community Image and Character	Land Use	Historic and Cultural	Recreation and Open Space	Public Facilities	Noise Reduction	Economic Development	Public Safety
Arnada, 2009	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Central Park, 2010	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes
Esther Short, 2006	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes
Hough, 2009	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes
Hudson's Bay, 1998	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Lincoln, 2011	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rose Village, 2012	Yes	Yes	Yes	No	No	No	Yes	No	No	Yes
Shumway, 1998	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes
West Minnehaha, 2011	No	Yes	Yes	No	No	Yes	No	No	Yes	Yes

a Goals and objectives identified in applicable City of Vancouver Neighborhood Action Plans

4. LONG-TERM BENEFITS AND EFFECTS

4.1 Introduction

This chapter evaluates the potential long-term effects of the Modified LPA on each of the neighborhoods described in Chapter 3, Affected Environment. The Oregon and Washington sections of the chapter each begin with a description of how infrastructure changes resulting from the Modified LPA would affect local traffic in the study area. This is followed by an evaluation of project-related displacements, property impacts, and changes in circulation and access for individual neighborhoods and the resulting effects on community cohesion. Temporary effects are described in Chapter 4.6.

4.2 No-Build Alternative

Under the No-Build Alternative, existing neighborhoods, community facilities, and social resources would not be impacted by the IBR Program. Neighborhoods in the study area would continue to develop according to local and regional plans, although their development might not be fully consistent with the goals of plans that assume improved mobility and transit access in the I-5 corridor and expanded transit access; for example, the goals of the Hayden Island Plan would likely not be realized without the construction of a high-capacity transit station on the island. The Land Use Technical Report contains more information on local land use plans. Community cohesiveness would not be negatively impacted by construction activities such as noise, vibration, or transportation disruptions, but study area neighborhoods would not benefit from reduced congestion, improved mobility, increased transit connectivity, improved active transportation connections, or potentially improved access to employment opportunities.

4.3 Oregon Long-Term Benefits and Effects

4.3.1 Effects on Portland Local Streets

The Modified LPA would result in changes to intersection operations in the study area. In most locations, intersection operations on Portland local streets under all design options of the Modified LPA would be similar to or better than operations under the No-Build Alternative. Some intersections would experience reduced operations, primarily along arterials connecting to I-5. The Transportation Technical Report includes more-detailed information on transportation impacts. The anticipated changes in intersection operations would not be anticipated to impact neighborhood cohesion.

4.3.2 Overview of Effects on Oregon Neighborhoods

Six questions are posed in Section 2.3, Effects Guidelines, as ways to evaluate the Modified LPA's potential effects on neighborhoods and populations. Answers for these questions, applied to each Oregon neighborhood in the study area, are summarized in Table 4-1. As seen in the table, the Modified LPA is not anticipated to impact community cohesion in neighborhoods, except for Hayden

Island. For the Hayden Island neighborhood, the Modified LPA is anticipated to bring substantial changes to the neighborhood that may affect community cohesion. This assessment is described in more detail in the following sections.

Tolling of the new Columbia River bridges could result in economic burdens for households in study area neighborhoods, along with other users of the bridges. Additional context about the economic effects of tolling is provided in Section 4.6 of the Economics Technical Report.

Table 4-1. Overview of Potential Effects on Oregon Neighborhoods

	Hayden Island	Bridgeton	East Columbia	Kenton	Rockwood
Will the Program displace people or community resources, including businesses?	Residential and business displacement	Business displacement	Impacts to Delta Park	Residential and business displacement	Business displacement
Will the Program create direct or indirect impacts to social services by displacing them?	No	No	No	No	No
Will the Program separate neighborhood residents from community resources?	No	No	No	No	No
Will the Program change travel such that it will affect access to community resources?	No	No	No	No	No
Will the Program change community cohesion?	Yes, positively and negatively	No	No	No	No
Is the Program consistent with existing neighborhood plan goals?	Yes	Yes	N/A	Yes	N/A

4.3.3 Hayden Island

Because I-5 is such a prominent component of Hayden Island, this neighborhood would be affected by changes resulting from the Modified LPA. Hayden Island would have high-level visual impacts due to the reconfiguration of the Columbia River bridges, ramps, roadways, and the addition of a new light-rail transit line under the southbound bridge. Bridge, ramp, and elevated lane structures on Hayden Island would be higher and more visible to adjacent viewers, but existing land cover and vegetation would block most views for residential viewers. However, elements of the Modified LPA would be more visible to residential viewers from floating homes on North Portland Harbor who

would perceive a decrease in natural harmony. (Visual changes are discussed in greater detail in the Visual Quality Technical Report.)

4.3.3.1 Displacements and Property Impacts

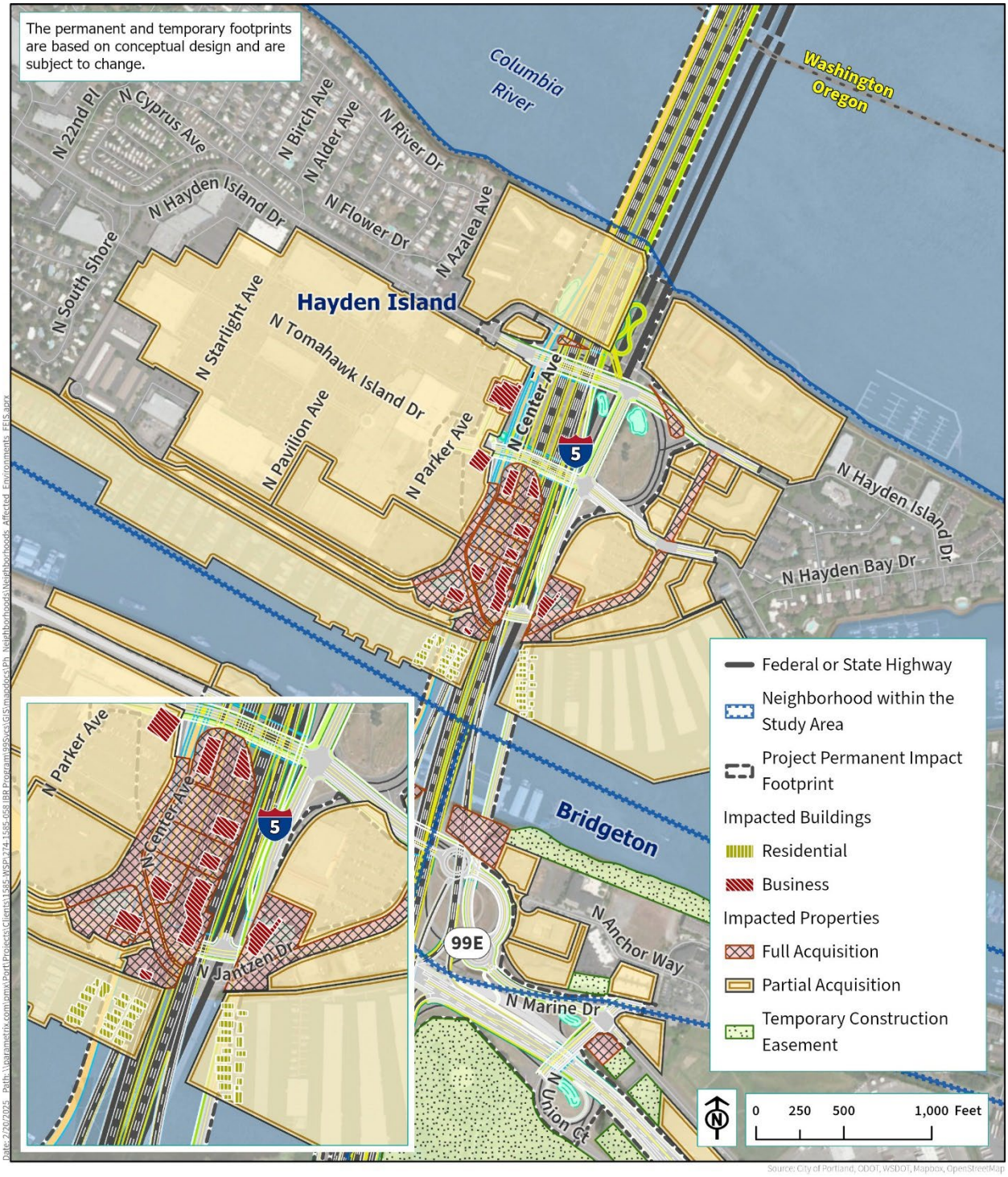
All design options of the Modified LPA would require the displacement of 39 floating homes in North Portland Harbor. Nineteen of these residential displacements would be in the Columbia Crossings moorage to the east of the bridge; 20 residential displacements would occur in the Jantzen Beach Moorage to the west of the bridge; and 8 floating homes would be displaced on the south side of the harbor, just west of the bridge. The displacement of 39 homes represents approximately 9% of an estimated 519 total floating homes in North Portland Harbor. The displacements of the floating homes in North Portland Harbor would reduce cohesion within the floating home community. Additionally, existing access at the east end of the Jantzen Beach Moorage property would be replaced with an exit-only or right-in/right-out turn only access, with the remaining access located at the far west end of the property. The replacement of the existing east access could reduce connectivity in North Portland Harbor, depending upon the type of ingress and egress provided.

The Modified LPA would also displace 28 businesses on Hayden Island. Many of these businesses are restaurants, including Denny's, BJ's Restaurant & Brewhouse, McDonald's, Café Del Toro, JayBee's Chicken Palace, and several more. Most of these restaurants are directly adjacent to the current location of the highway. Displacing restaurants within this island community would require residents to travel off the island to eat at similar restaurants either on the Oregon mainland or in Vancouver. While not a standard category of long-term effects on a neighborhood, this reduction in restaurant availability could impact neighborhood cohesion (potential redevelopment of the Jantzen Beach Center could reduce this impact).

The displacement of these businesses also has the potential to affect wage-earning opportunities for those seeking service industry employment on Hayden Island. Food preparation and service-related employers are more likely to offer entry level positions (e.g., dishwashers, cooks, hosts, and counter attendants). According to the U.S. Bureau of Labor Statistics (2021), the average hourly wage of food preparation and service workers within the Portland-Vancouver-Hillsboro Metropolitan Statistical Area is $16.70, which is a salary of approximately $34,735 per year for a full-time employee. Some of these displaced businesses may choose to not relocate locally. Even with relocation assistance, some of the employees may be unable to retain their jobs. For example, an employee may be unable to make a longer commute or might have to accept a new job during the transition period of relocation for economic reasons. This could result in the displacement of neighborhood residents seeking employment in the food preparation and service-related industries; these residents may choose to relocate closer to employment opportunities if there are fewer opportunities on Hayden Island. This could result in impacts to neighborhood cohesion. (See Section 3.4, Land Use and Economics, of the SEIS and the Economics Technical Report for information on the economic effects of these business closures.) In addition, bridge openings associated with the single-level movable-span configuration would cause backups that would reduce reliability for all travel modes, similar to the No-Build Alternative, which would negatively affect neighborhood cohesion on Hayden Island.

For a map of displacements on Hayden Island, please see Figure 4-1.

Figure 4-1. Displacements Caused by the Modified LPA, Hayden Island



4.3.3.2 Transportation and Access

The Modified LPA would improve on-island traffic circulation through the improvement of local arterials and the connection of Tomahawk Island Drive under I-5. It would also reduce the duration of congestion in this area of I-5. The current substandard and difficult-to-navigate bicycle and pedestrian connection to the existing Interstate Bridge would be improved, and a light-rail transit station would serve the island. There would also be more options for access to the island because drivers, bicyclists, and pedestrians could travel between the island and the Portland mainland via the new local arterial bridge rather than being limited to I-5. Neighborhood cohesion would be improved by the additional opportunities for residents to connect via a more continuous street system, improved pedestrian and bicycle facilities, and transit connections.

4.3.4 Bridgeton

4.3.4.1 Displacements and Property Impacts

No residences would be displaced in the Bridgeton neighborhood as a result of the Modified LPA. Four marine-related businesses adjacent to the east side of I-5 would be displaced. Relocation of these businesses may be difficult because much of the Columbia River area in the vicinity of freeway access is built up for either residential or industrial/commercial use. ODOT would provide relocation assistance to displaced businesses. These businesses were not identified as a community resource. For a map of displacements in the Bridgeton neighborhood, please see Figure 4-2. The Program would not separate residents from any identified local community resources or impact the neighborhood's community cohesion.

4.3.4.2 Transportation and Access

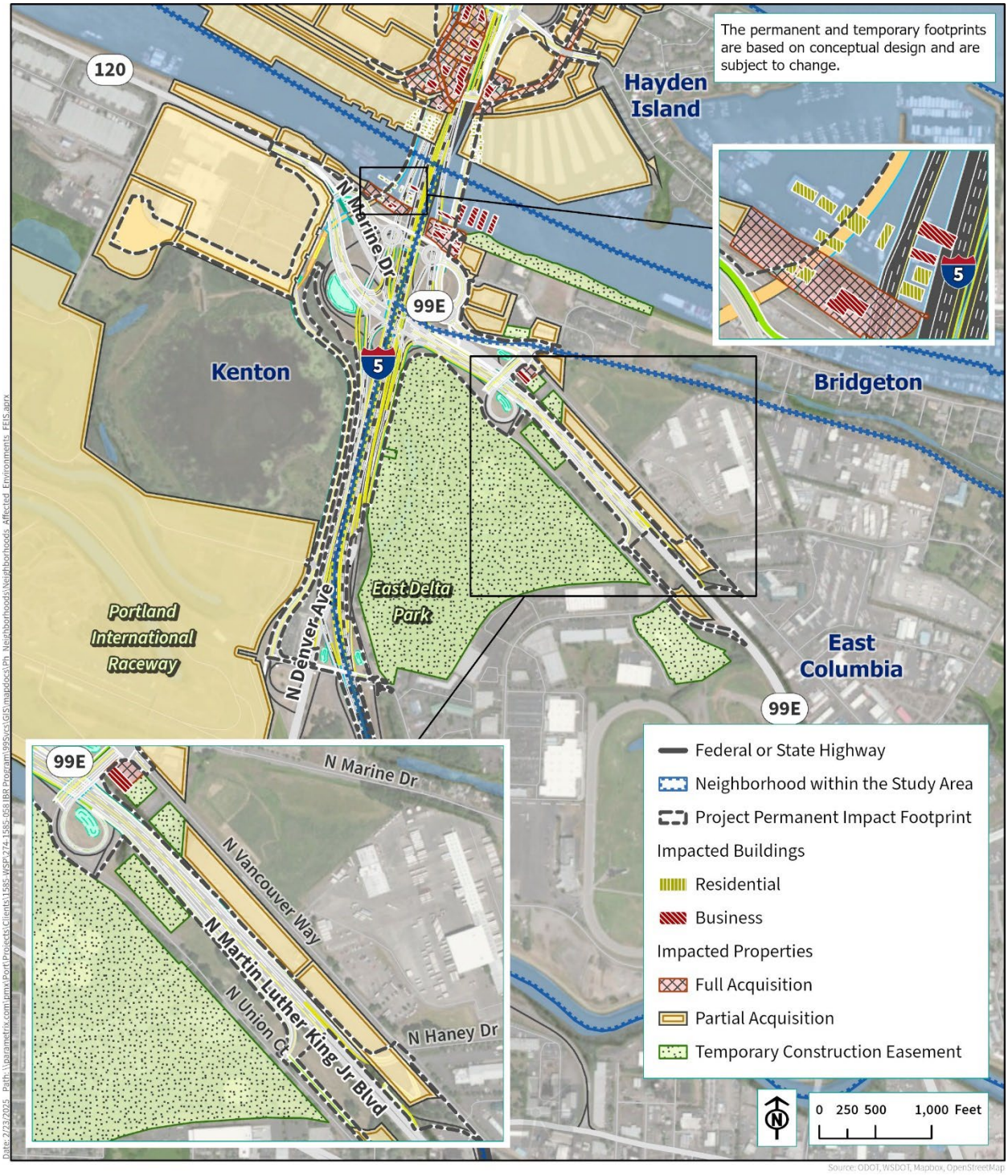
The Marine Drive interchange improvements and associated surface street improvements included as part of the Modified LPA would improve traffic access to and from I-5. The improvements in the interchange area include a new multiuse bicycle and pedestrian path connecting the Bridgeton neighborhood to the existing Expo Center light-rail station. This would provide opportunities for residents to connect via improved pedestrian and bicycle facilities.

4.3.5 East Columbia

4.3.5.1 Displacements and Property Impacts

The Modified LPA would fully acquire one parcel occupied by a retail business (Anderson Signs) at the corner of N Marine Way and N Vancouver Way. Two parcels currently occupied by a business (United Rentals) would be partially acquired to provide an access road and sidewalk from N Vancouver Way to OR 99E. This business would be able to operate on the remainder of the parcels. For a map of displacements in the East Columbia neighborhood, please see Figure 4-2.

Figure 4-2. Displacements Caused by the Modified LPA, Oregon Mainland



No residences or community resources would be displaced in the East Columbia neighborhood. The Modified LPA would not separate residents from any identified local community resources or impact the neighborhood's community cohesion.

4.3.5.2 Transportation and Access

The Marine Drive interchange improvements and associated surface street improvements included as part of the Modified LPA would improve traffic access to and from I-5. As noted for the Bridgeton neighborhood, the Modified LPA would create a new multiuse path connection to the Expo Center light-rail station that would also benefit the residents of East Columbia. These improvements could improve community cohesion by providing additional opportunities for residents to connect via the multiuse path and better access to the transit station.

4.3.6 Kenton

Long-term impacts in Kenton would be focused at the north end of the neighborhood near the Expo Center and North Portland Harbor.

4.3.6.1 Displacements and Property Impacts

The Modified LPA would displace several structures on the south shore of North Portland Harbor, including eight floating homes and two residential units on land. Three businesses would also be displaced. The Modified LPA would permanently displace approximately 386 parking spaces at the Expo Center; however, the Expo Center is not considered a neighborhood community resource. These displacements would not be anticipated to substantially affect neighborhood cohesion.

4.3.6.2 Transportation and Access

The Program would not separate neighborhood residents from community resources or decrease access to transit and bicycle or pedestrian opportunities. The new multiuse path connection would provide access from the Expo Center to the Bridgeton neighborhood; this would expand bicycle and pedestrian opportunities. The light-rail extension would improve transit connections from Kenton to Hayden Island and Vancouver. This could improve community cohesion by providing additional opportunities for residents to connect via expanded bicycle and pedestrian facilities.

4.3.7 Rockwood

Although the principal Modified LPA components would be located along I-5, expansion of the TriMet Ruby Junction Light-Rail OMF in Gresham, Oregon, would be necessary to support the expansion of light-rail service to Vancouver. The maintenance center is within the Rockwood neighborhood in Gresham.

4.3.7.1 Displacements and Property Impacts

Six parcels would be fully or partially acquired for the expansion of the maintenance center. Within those four parcels, five businesses would be displaced. The affected businesses are light industrial. For a map of displacements in the Rockwood neighborhood, please see Figure 4-3. These displacements are not anticipated to substantially alter neighborhood cohesion.

Figure 4-3. Displacements Caused by the Modified LPA, Ruby Junction Light-Rail OMF

4.3.7.2 Transportation and Access

The expansion of the Ruby Junction Light-Rail OMF would occur within an area of existing light industrial development; it would not separate neighborhood residents from community resources or decrease access to transit and bicycle or pedestrian opportunities. No impacts to community cohesion are expected.

4.4 Washington Long-Term Benefits and Effects

4.4.1 Effects on Vancouver Local Streets

The Modified LPA would result in changes to intersection operations in the study area. In most locations, intersection operations on Vancouver local streets under the Modified LPA would be similar to or better than operations under the No-Build Alternative. Some intersections would experience reduced operations, primarily along arterials connecting to I-5 or near park and rides. The Transportation Technical Report includes more-detailed information on transportation impacts. The changes in intersection operations would not be anticipated to impact neighborhood cohesion.

4.4.2 Overview of Effects on Vancouver Neighborhoods

Six questions are posed in Section 2.3, Effects Guidelines, as ways to evaluate the Modified LPA's potential effects on neighborhoods and populations. Answers for these questions, applied to each Washington neighborhood in the study area, are summarized in Table 4-2.

As seen in the table, the Modified LPA is not anticipated to impact community cohesion in the neighborhoods listed. This assessment is described in more detail in the following sections.

Tolling of the new Columbia River bridges could result in economic burdens for households in study area neighborhoods, along with other users of the bridges. Additional discussion of the economic effects of tolling is provided in Section 4.6 of the Economics Technical Report.

Table 4-2. Overview of Anticipated Effects on Vancouver Neighborhoods

	West Minnehaha	Lincoln	Shumway	Rose Village	Hough	Arnada	Central Park	Esther Short	Hudson's Bay	Columbia Way
Will the Program displace people or community resources, including businesses?	No	No	Residential Displacements	No	No	No	Impacts to Marshall Park	Business displacements Residential displacements (design options)	No	No
Will the Program create direct or indirect impacts to social services by displacing them?	No	No	No	No	No	No	No	No	No	No
Will the Program separate neighborhood residents from community resources?	No	No	No	No	No	No	No	No	No	No
Will the Program change travel such that it will affect access to community resources?	No	No	No	No	No	No	Yes (without C Street Ramps)	Yes (without C Street Ramps)	No	No
Will the Program change community cohesion?	No	No	No	No	No	No	No	Yes (without C Street Ramps)	No	No
Is the Program consistent with existing neighborhood plan goals?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

4.4.3 West Minnehaha

4.4.3.1 Displacements and Property Impacts

The Modified LPA would not displace any people or businesses within the West Minnehaha neighborhood.

4.4.3.2 Transportation and Access

The Modified LPA would not affect access to any community resources and would not have long-term impacts to bicycle or pedestrian facilities. No impacts to community cohesion are anticipated.

4.4.4 Lincoln

4.4.4.1 Displacements and Property Impacts

The Modified LPA would not displace residences, businesses, or community resources in the Lincoln neighborhood. The Modified LPA would require a partial acquisition along the eastern property edge of the Kiggins Sports Fields/Stadium at Discovery Middle School, but no structures would be displaced and long-term use of the site would not be affected by the construction of a retaining wall adjacent to the highway in the southeast corner of the property. The expanded I-5 corridor in this area would be closer to Discovery Middle School and could increase noise levels, but any such impacts are not anticipated to affect community cohesion since use of the property would remain unchanged and impacts would be minimal and/or mitigated. For more information about potential impacts at this location, please refer to the Parks and Recreation, Air Quality, and Noise and Vibration Technical Reports.

The E 39th Street interchange improvements would result in the off-ramp lanes being located closer to several homes that are adjacent to the corridor. These parcels would experience increases in noise; more details are in the Air Quality and Noise and Vibration Technical Reports. Because these impacts are isolated to a small number of housing units in the neighborhood, they are not anticipated to substantially alter neighborhood cohesion.

Figure 4-4 displays displacements in neighborhoods in the Upper Vancouver area.

4.4.4.2 Transportation and Access

The Modified LPA would not affect access to any community resources and would not have long-term impacts to bicycle or pedestrian facilities. No impacts to community cohesion are anticipated.

4.4.5 Shumway

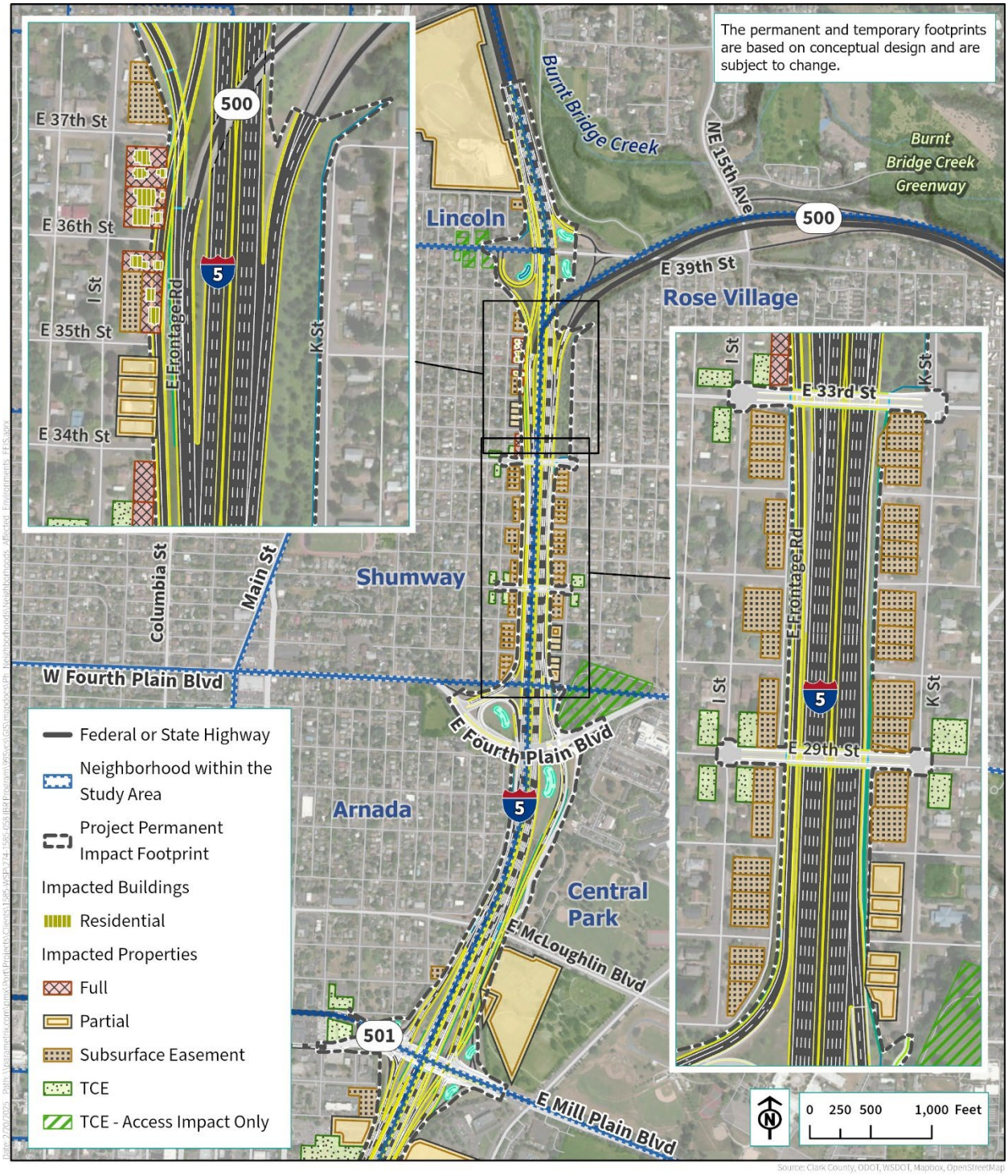
4.4.5.1 Displacements and Property Impacts

The Modified LPA would require seven residential displacements and partial acquisitions from 10 other residential parcels for permanent right of way (see Figure 4-4). Residents along I-5 could experience additional noise impacts from the highway due to the closer proximity of travel lanes. If sound walls are installed to mitigate for increased noise, the walls could result in visual impacts compared to the existing low walls along I-5 in this area. Nineteen parcels would require subsurface easements, but these easements would not result in residential displacements or building impacts. Proximity to the highway could also result in high visual sensitivity for residences adjacent to the corridor. Given that this would be experienced by a small number of residential units in the neighborhood, it is unlikely that these changes would have a notable adverse effect on neighborhood cohesion. Additionally, light and glare would be anticipated to improve under the Modified LPA. Impacts from noise and vibration and visual impacts would be mitigated wherever feasible. For more information on noise and visual impacts and mitigation, please see the Noise and Vibration Technical Report and the Visual Quality Technical Report. No other residents or community resources would be impacted by the Program.

4.4.5.2 Transportation and Access

The Modified LPA would not increase traffic through the neighborhood or decrease access to bicycle or pedestrian facilities.

Figure 4-4. Displacements Caused by the Modified LPA, Upper Vancouver Area



4.4.6 Rose Village

4.4.6.1 Displacements and Property Impacts

The Modified LPA would not displace any residences in the Rose Village neighborhood but would result in some partial acquisitions from eight residential parcels for permanent right of way as shown on Figure 4-4. This would not be anticipated to substantially alter neighborhood cohesion. Seventeen parcels would require subsurface easements but would result in no residential displacements or building impacts.

As in the Shumway neighborhood, residents near I-5 in Rose Village could experience additional noise impacts from the highway due to the closer proximity of travel lanes. If sound walls are installed to mitigate for increased noise, the walls would be evaluated for visual impacts. It is unlikely that these changes would have a notable adverse effect on neighborhood cohesion, as they would be experienced by only a small number of residential units in the neighborhood. Proximity to the highway would likely not result in notable visual impacts to residences, as vegetation and land cover would be anticipated to hide most views. Additionally, light and glare would be anticipated to improve under the Modified LPA. Impacts from noise and vibration and aesthetics would be mitigated wherever feasible. No other residents or community resources would be impacted by the Program. For more information on noise and visual quality impacts, please see the Noise and Vibration Technical Report and the Visual Quality Technical Report.

4.4.6.2 Transportation and Access

The Program would improve bicycle and pedestrian facilities within the neighborhood at the Fourth Plain interchange and undercrossings of I-5 at E 29th Street and E 33rd Street. This could improve neighborhood cohesion by providing additional opportunities for residents to connect via a better-connected street grid and improved bicycle and pedestrian facilities.

4.4.7 Hough

4.4.7.1 Displacements and Property Impacts

The Modified LPA would not displace any residences or community resources in the Hough neighborhood and would not require the acquisition of any property. The improvements would not separate residents from community resources or adversely impact community cohesion. There would be minimal noise and visual impacts, as the neighborhood is located farther from the corridor. For more information on noise, air quality, and visual quality impacts, please see the Noise and Vibration Technical Report, the Air Quality Technical Report, and the Visual Quality Technical Report.

4.4.7.2 Transportation and Access

The Modified LPA would not increase traffic through the neighborhood or decrease access to bicycle or pedestrian facilities.

4.4.8 Arnada

4.4.8.1 Displacements and Property Impacts

The Program would not displace any residences or community resources in the Arnada neighborhood and would not result in any permanent property acquisitions. Proximity to the highway could result in high visual sensitivity for residences adjacent to the corridor. Given the small number of residential units in the neighborhood that would experience changes, it is unlikely that these changes would have a notable adverse effect on neighborhood cohesion. Additionally, light and glare would be expected to improve under the Modified LPA. Impacts from noise and vibration and aesthetics would be mitigated wherever feasible. Impacts to noise and vibration are expected to be similar to the No-Build conditions. Please see the Noise and Vibration Technical Report, the Air Quality Technical Report, and the Visual Quality Technical Report for more information.

4.4.8.2 Transportation and Access

The Modified LPA would not separate residents from any community resources, and the introduction of light-rail in Vancouver would improve transit access to Portland. The Program is not anticipated to adversely affect community cohesion.

4.4.9 Central Park

4.4.9.1 Displacements and Property Impacts

In the Central Park neighborhood, no residences would be displaced by the Modified LPA. However, construction of a retaining wall along I-5 would require the acquisition of permanent right of way from part of one identified recreational community resource, Marshall Park, which includes the Marshall Community Center and the Luepke Senior Center. The retaining wall would displace horseshoe pits, landscaping, and trees that serve as a buffer between the community center and I-5. However, the community center and senior center would not be affected by the Modified LPA. While the park is located in the Central Park neighborhood, the affected portion of the park is adjacent to I-5 and not located within a residential area. According to the Parks and Recreation analysis, traffic noise levels from I-5 are predicted to remain roughly similar to existing conditions, and long-term character, use, and enjoyment of the existing facilities would not be affected. Therefore, these impacts would not be anticipated to substantially alter neighborhood cohesion.

4.4.9.2 Transportation and Access

The introduction of light-rail transit with a station southwest of the Central Park neighborhood would increase transit access to the neighborhood including access to Clark College, Marshall Park, and the community and senior centers. New bicycle facilities would also improve connections to and from Marshall Park. Residents would not be separated from any community resources by the project, and the changes would improve community cohesion by providing additional opportunities for residents to connect via improved bicycle and pedestrian facilities.

4.4.10 Esther Short

4.4.10.1 Displacements and Property Impacts

The Modified LPA with a centered mainline would displace three businesses in Esther Short near the SR 14 interchange. No residences would be displaced in the neighborhood. The Modified LPA would also require partial acquisition of 14 parcels adjacent to I-5, E Evergreen Boulevard, and the SR 14 interchange. The Modified LPA with a centered mainline would also result in partial impacts to access for an additional nine parcels. Figure 4-5 shows acquisitions and displacements in neighborhoods in the downtown Vancouver area.

Compared to the centered mainline, shifting the I-5 mainline west would require two additional property acquisitions: the Normandy Apartments, where 33 residential units would be displaced, and the Regal City Center complex, where three businesses would be displaced. This is a notable effect, especially for those living in these units. However, these displacements are not anticipated to substantially alter neighborhood cohesion because the Normandy Apartments are located at the edge of the neighborhood in an otherwise nonresidential area. Moreover, the displaced businesses, which do not provide community services, make up a small portion of overall commercial property in the neighborhood.

Each of the park and rides would have similar impacts, but there would be varying numbers of acquisitions depending on which park and ride is selected, as shown in Table 4-3. Three sites are being considered for the Waterfront Park and Ride; depending on the site(s) selected, there would be up to eight parcels acquired with up to eight business displacements. Two sites are being considered for the Evergreen Park and Ride; depending on the site(s) selected, there would be up to five parcels acquired. No businesses or residential units would be displaced for the Evergreen Park and Ride. The impacts associated with the park and rides would not negatively impact neighborhood cohesion.

Table 4-3. Summary of Acquisitions and Displacements for Park and Rides

Park and Ride	Site	Full Parcel Acquisitions	Partial Parcel Acquisitions	Displacements
Waterfront	1	3	0	7 businesses
	2	1	0	0
	3	4	0	1 business
Evergreen	1	5	0	0
	2	0	0	0

Under the Modified LPA, two multistory apartments—the Normandy Apartments at Seventh and C Streets and the Fort Apartments (previously the Fort Vancouver Motel) at the southwest corner of the Mill Plain interchange—are anticipated to experience a slight increase in noise levels due to the closer proximity of I-5 travel lanes. Noise levels exceeding the FHWA Noise Abatement Criteria already exist at these two buildings. Please see the Noise and Vibration Technical Report for discussion of

noise impacts and mitigation for the Modified LPA. These impacts are not anticipated to alter neighborhood cohesion.

The single-level fixed-span and single-level movable-span configurations would have a lower profile than the double-deck fixed-span configuration at the bridge landing in downtown Vancouver. The single-level configurations would provide more flexibility in potential locations for the Vancouver Waterfront Station compared to the double-deck fixed-span configuration.

Bridge openings associated with the single-level movable-span configuration could cause backups that would reduce reliability for all travel modes similar to the No-Build Alternative. These backups could spill into neighborhood streets, limiting circulation within the neighborhood, impeding access to community facilities, and, thereby, negatively affecting neighborhood cohesion.

The design option eliminating the C Street ramps would redirect traffic from downtown Vancouver to the Mill Plain Boulevard interchange. This would result in additional traffic delay at intersections near the Mill Plain Boulevard interchange, which could reduce neighborhood cohesion in the Esther Short neighborhood by substantially increasing travel delay for residents and people accessing the neighborhood.

4.4.10.2 Transportation and Access

The introduction of light-rail transit adjacent to I-5 in the Esther Short neighborhood would not separate residents from any community resources and would increase access to transit for neighborhood residents. The Esther Short neighborhood is planned to become a part of a more densely developed urban core for downtown Vancouver, and the light-rail station would support that transition. The *Esther Short Neighborhood Action Plan* (City of Vancouver 2006) specifically states that the neighborhood supports the concept and development of light-rail transit.

The Modified LPA is not anticipated to adversely impact neighborhood community cohesion because residents would not be separated from identified resources, access to transit would increase, and planning for downtown density would be supported by the project.

4.4.11 Hudson's Bay

4.4.11.1 Displacements and Property Impacts

The Modified LPA would not displace any businesses or residences in the Hudson's Bay neighborhood. There would be partial acquisitions of five parcels that are part of Fort Vancouver. The western edge of the parcels on which the Vancouver Barracks Post Hospital and Western Federal Lands Headquarters buildings are located would be acquired to accommodate I-5 and associated on- and off-ramps (see Figure 4-5). It is anticipated that this would not impact either building. The parcel that the Vancouver Police Department is located on would also experience minor acquisitions to accommodate the expansion of I-5; similarly, this is not anticipated to displace the existing building or affect use of the site. On the south side of the Fort Vancouver property where the Vancouver Land Bridge is located, there would be some permanent acquisition of the parcel to accommodate the I-5 on-ramp from SR 14. This acquisition is not anticipated to affect the Vancouver Land Bridge or substantially alter use of the parcel. These impacts would not be anticipated to alter neighborhood cohesion.

4.4.11.2 Transportation and Access

The Modified LPA would not separate neighborhood residents from community resources and would not decrease access to bicycle or pedestrian facilities, including the Vancouver Land Bridge. The neighborhood would have increased access to transit and improved connection to the Portland region due to the introduction of light-rail.

4.4.12 Columbia Way

4.4.12.1 Displacements and Property Impacts

The Modified LPA would permanently acquire three parcels near the SR 14 interchange; these acquisitions would displace one businesses and no residences. The project would require partial acquisition of seven parcels adjacent to I-5 and the SR 14 interchange, as shown on Figure 4-5. There would be no residential or community resource displacements in the Columbia Way neighborhood; neighborhood cohesion would not be substantially altered.

4.4.12.2 Transportation and Access

The Modified LPA would not create separation between neighborhood residents and community resources. The neighborhood would have increased access to transit and improved connection to the Portland region due to the introduction of light-rail in Vancouver. No impacts to community cohesion are anticipated.

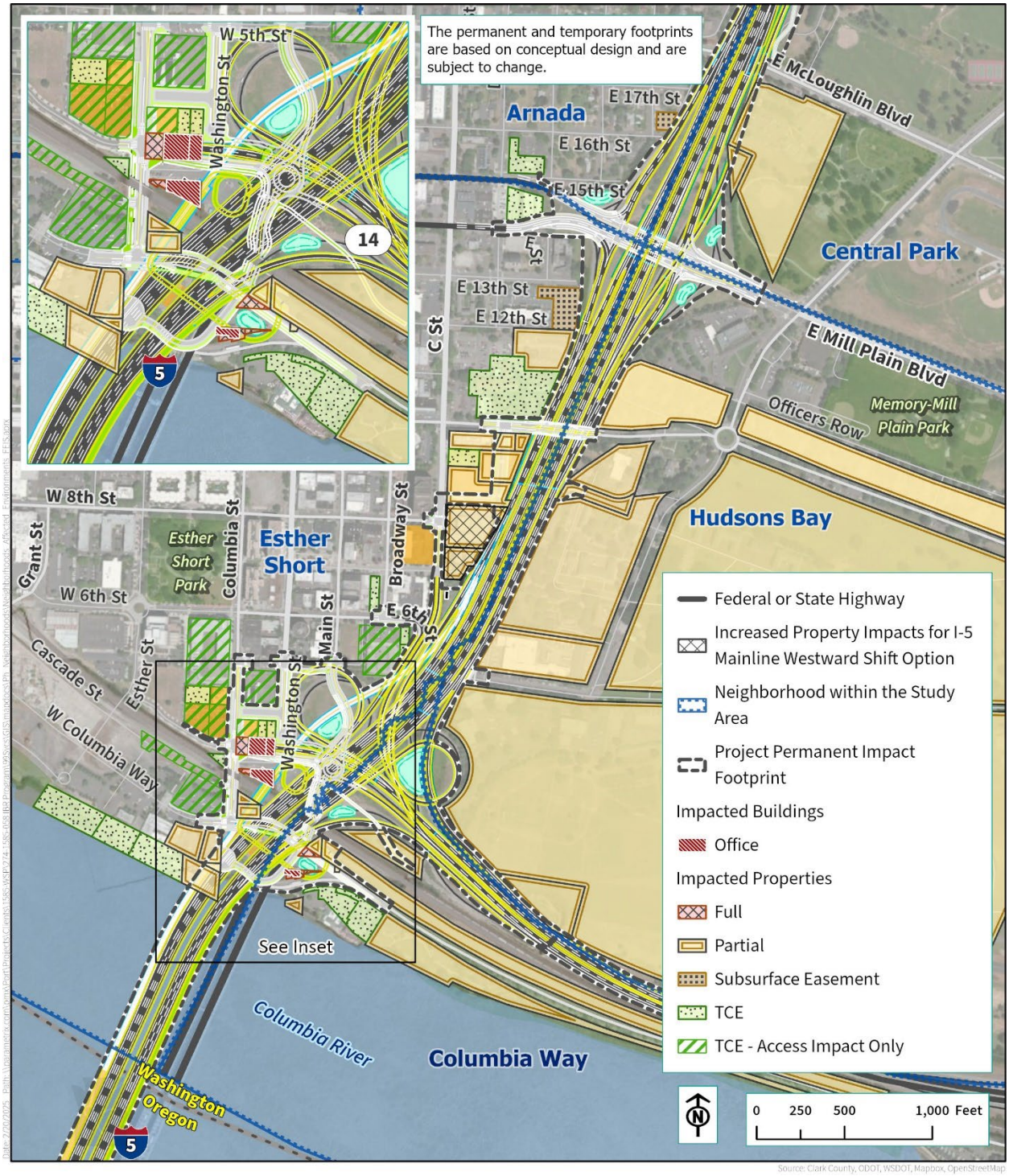
4.4.13 SR 14 Interchange without C Street Ramps

This design option would have similar impacts as the Modified LPA, except that traffic would be redirected from downtown Vancouver to the Mill Plain Boulevard interchange. This would result in additional traffic delay at intersections near the Mill Plain Boulevard interchange, which could reduce neighborhood cohesion in the Esther Short neighborhood by substantially increasing travel delay for residents and people accessing the neighborhood. The Transportation Technical Report includes additional information about the traffic impacts associated with this design option. The additional traffic delay near the Mill Plain Boulevard interchange could reduce neighborhood cohesion in Esther Short by substantially increasing travel delay for residents and people accessing the neighborhood.

4.5 Homeless Populations

Construction of the Modified LPA would also likely affect homeless individuals and families living in the IBR Program area during construction. Those living within existing or to-be-acquired right of way would be required to move, and those living nearby could experience construction effects such as noise, vibration, and pollution. Because homeless populations are transient, data limitations on the numbers and locations of homeless populations make it difficult to determine the degree of impact; however, the IBR Program would coordinate with local jurisdictions to determine whether homeless persons living in the primary study area will be affected by construction activities. The IBR Program would coordinate with local jurisdiction and other organizations offering services to homeless populations to discuss appropriate actions to minimize such effects.

Figure 4-5. Displacements Caused by the Modified LPA, Downtown Vancouver Area



4.6 Community Benefits from the Modified LPA

Benefits to study area communities from the Modified LPA include increased access to high-capacity transit, increased availability of active transportation, and highway and driving travel time reductions. The Modified LPA would provide communities with increased mobility and accessibility choices—in particular, the high-capacity transit and active transportation program elements. These new transportation improvements would help address existing gaps in the transit and active transportation network for those who depend on modes other than automobile transportation. Improvements to the highway would also benefit those who drive to work or to access services. Section 3.1, Transportation, of the Draft and Final SEIS and the Transportation Technical Report provide additional information on transportation system improvements with the Modified LPA.

4.6.1 High-Capacity Transit

The community benefit analysis used demographic and jobs data to examine how the Modified LPA's light-rail alignment would affect transit riders' mobility. Specifically, the analysis estimated how many jobs (a proxy for access to both employment and services) would be within a 45-minute trip on the 2045 transit network. The 45-minute threshold is consistent with a similar analysis conducted by the Portland Bureau of Transportation (Portland Bureau of Transportation 2020). The analysis found that, while transit access improvements would differ from one part of the study area to another, access to jobs via transit would increase by at least 67% during the morning peak commute period and at least 43% during the midday period, with substantially greater increases in some areas.

4.6.2 Active Transportation

Active transportation components of the Modified LPA would provide new and safe connections for people of all abilities and would improve the quality of existing connections. Experiences could differ by age and ability level, depending on the grade, height, and distance of the active transportation facilities. The bridge configurations would have the following different impacts on active transportation:

- People walking, bicycling, or rolling on the shared-use path would be more exposed to noise from highway vehicles on the single-level fixed-span and single-level movable-span configurations compared to the double-deck configuration. Blind and low-vision individuals could experience the greatest noise interference, as they use sound to aid navigation.
- The single-level configurations would have a lower bridge height over the Columbia River than the double-deck configuration, which would decrease the length and steepness of the uphill and downhill grades for all users on the shared-use path.
- Some users might prefer the single-level fixed-span and single-level movable-span configurations because they provide visibility to active transportation users from passing vehicles, thereby potentially providing an increased sense of security. In comparison, with the double-deck fixed-span configuration, active transportation users would travel on the lower bridge deck and would not be visible from passing vehicles on the upper decks.

- With the single-level movable-span configuration, active transportation users could experience additional travel delays when bridge openings occurred. These delays would be similar to the No-Build Alternative. However, fewer bridge openings are anticipated with the Modified LPA single-level movable-span configuration because it would have increased vertical navigation clearance in the closed position that would allow more vessels to travel under the bridge in the closed position compared to the existing Interstate Bridge.

4.6.3 Highway and Driving Improvements

Due to reduced congestion under the Modified LPA, study area residents would be able to reach an average of 18% to 20% more jobs during the morning peak and an average of about 3% more jobs during the midday within a 45-minute commute compared to the No-Build Alternative. In other words, they would be able to drive farther within the same period of time, thereby increasing the number of jobs to which they could commute. This increase in access equates to about 180,000 to 197,000 jobs during the morning peak and 35,800 to 44,000 jobs during the midday. Across the entire Portland-Vancouver metropolitan area, average access improvements from the Modified LPA would be 3% to 4% (an additional 30,000 to 37,000 jobs) during the morning peak and about 1% (an additional 11,400 to 13,700 jobs) during the midday compared to the No-Build Alternative. The addition of a second auxiliary lane in each direction would have a slightly greater increase in jobs access for all demographic groups due to faster travel times within the corridor from less congestion.

5. TEMPORARY EFFECTS

5.1 Introduction

The Modified LPA would result in the types of temporary effects listed below, which have the potential to impact neighborhoods:

- Temporary property acquisitions for construction staging areas. These acquisitions would be returned to the landowner after construction is complete. The locations of staging areas are subject to change based on final engineering designs.
- Temporary increases in noise levels, reduced air quality (e.g., fugitive dust, vehicle exhaust), and increase in truck traffic during construction, particularly in the areas immediately adjacent to I-5.
- Temporary adverse effects on visual quality (e.g., construction equipment and activities blocking views, high-visibility signage, lighting during nighttime work).
- Traffic detours, delays, and spillover into neighborhoods during construction.
- Sidewalk disruptions and closures (which could impede access and mobility for disabled persons).
- Detours and delays for floating home residents in the vicinity of the North Portland Harbor bridge who travel to and from their homes by boat.
- Detours and delays for bicyclists and pedestrians. Temporary routes could be narrower and require out-of-direction travel.

Most neighborhoods in the study area would not experience impacts as a result of temporary construction staging acquisitions for the Program. The Hayden Island neighborhood could experience some temporary impacts from the use of the Thunderbird Hotel site for staging because of its proximity to more densely populated areas. These could include noise from the movement of construction equipment and construction materials on the site. The neighborhood may also experience a temporary increase in truck traffic traveling to and from the site. All neighborhoods in the study area could experience temporary noise and increases in truck traffic during construction, particularly in the areas immediately adjacent to I-5. Given that the potential construction duration could be up to 15 years, neighborhood quality and cohesion could be negatively impacted during construction for neighborhoods adjacent to the corridor. However, construction effects in most neighborhoods are likely to be intermittent and temporary, since work would occur in different portions of the corridor at different times.

Construction of the Modified LPA would also likely affect homeless individuals and families living in the IBR Program area during construction. Those living within existing or to-be-acquired right of way would be permanently displaced, and those living nearby may experience construction effects such as noise, vibration, and pollution. Because homeless populations are transient, data limitations on the numbers and locations of homeless populations make it difficult to determine the degree of impact. However, the IBR Program would coordinate with local jurisdictions to determine whether homeless persons living in the primary study area will be affected by construction activities. The IBR Program

would coordinate with local jurisdiction and other organizations offering services to homeless populations to discuss appropriate actions to minimize such effects.

Temporary effects on neighborhoods would not differ among the Modified LPA design options.

5.2 Oregon Temporary Effects

5.2.1 Hayden Island

Residents of Hayden Island are anticipated to experience noise and vibration impacts due to construction equipment, vibratory compaction equipment, and pile driving during bridge construction. Air quality would be affected on Hayden Island by exhaust from construction equipment. Residents living in floating homes would be susceptible to construction-related noise and air quality effects due to their proximity to both the highway and transit alignments, as well as the use of water-based construction equipment such as boats and barge-mounted cranes. In addition, residents in floating homes would be susceptible to wave action from construction activities, including barge movements. Floating home residents in the vicinity of the North Portland Harbor bridge replacement may need to use detour routes when traveling to and from their homes by boat during construction.

Construction activities for the highway and interchanges would result in traffic delays on I-5 during construction. Bicycle and pedestrian connections to the island would be maintained during construction, but could have detours and could be narrower than they are today. These transportation impacts would have the greatest impact to Hayden Island residents as they have no route to bypass the construction activity. As a result, residents would experience increased travel times while construction activity is underway.

Construction noise, vibration, and dust would tend to discourage community activities and the use of social resources near construction areas. Wave propagation from in-water construction activities such as barge movements could disturb floating home residents and could potentially damage property. These impacts would reduce cohesion and neighborhood quality for the duration of construction on Hayden Island.

5.2.2 Bridgeton

The Bridgeton neighborhood would experience detours and delays due to construction on the Marine Drive interchange. Access to Delta Park and the Delta Park/Vanport MAX Station could be impacted during construction with delays or additional out-of-direction travel for people traveling from the north or east. Efforts would be made to maintain access and minimize disruption. Bridgeton may also experience traffic spillovers due to motorists traveling along Marine Drive to the I-205 bridge to avoid delays due to construction of the Columbia River bridges. Traffic congestion and detours could negatively impact neighborhood cohesion during construction by reducing access to community resources for residents.

Residents of Bridgeton and visitors in the hotels adjacent to the corridor are anticipated to experience noise and vibration impacts due to construction equipment, vibratory compaction equipment, and

pile driving during bridge construction. Air quality would be affected by exhaust from construction equipment.

5.2.3 East Columbia

The East Columbia neighborhood may experience detours and delays due to construction on the Marine Drive interchange. East Columbia may also experience traffic spillovers due to motorists traveling along Marine Drive to the I-205 bridge to avoid delays due to construction of the Columbia River bridges. Traffic impacts could negatively impact neighborhood cohesion during construction by reducing access to community resources for residents. Residents in East Columbia would not experience impacts from noise, vibration, or changes in air quality.

5.2.4 Kenton

The Kenton neighborhood may experience traffic spillovers and traffic detours and delays due to construction on the Marine Drive interchange. Traffic congestion and detours could negatively impact neighborhood cohesion during construction by reducing access to community resources for residents. Residents in Kenton would not experience impacts from noise, vibration, or changes in air quality.

5.3 Washington Temporary Effects

5.3.1 West Minnehaha

Temporary effects are anticipated to be limited to the western border of the West Minnehaha neighborhood, as I-5 is its western boundary, and to Leverich Park in the southwest corner of the neighborhood. Temporary property acquisitions in West Minnehaha (temporary construction easements) may occur due to highway construction on I-5 and SR 500. The Program would require temporary easements adjacent to I-5 and E 39th Street for construction. The temporary construction easements could have temporary effects, such as detours, access changes, noise, and visual quality changes, that would reduce neighborhood cohesion and livability during the construction period.

Residents are anticipated to experience noise and vibration impacts due to construction equipment and vibratory compaction. Air quality may be affected in the western portion of the neighborhood due to exhaust from construction equipment. Construction activities for the transit and highway alignments would result in traffic delays and may create spillover traffic in other parts of the neighborhood. Construction noise, vibration, and dust could discourage community activities and the use of social resources near construction areas. These impacts would reduce cohesion and neighborhood quality for the duration of construction.

5.3.2 Lincoln

Minor temporary property acquisitions (construction easements) would occur in the Lincoln neighborhood at the Kiggins Bowl property due to construction of the highway alignment. The temporary construction easements could have temporary effects, such as detours, access changes,

noise, and visual quality changes, that would reduce neighborhood cohesion and livability during the construction period.

People at Discovery Middle School and residents of Lincoln near the highway may experience noise and vibration impacts due to construction equipment and vibratory compaction. Air quality may be affected in the eastern portion of the neighborhood due to exhaust from construction equipment. Construction activities would result in traffic delays and out-of-direction travel due to minimal east-west crossing opportunities of I-5; this would increase travel times for residents. Construction noise, vibration, and dust could discourage community activities and the use of social resources near construction areas. These impacts would reduce cohesion and neighborhood quality for the duration of construction. Traffic congestion and detours could also negatively impact neighborhood cohesion during construction by reducing access to community resources for residents.

5.3.3 Shumway

In Shumway, temporary effects would most likely be limited to the eastern and southern boundaries of the neighborhood. Minor temporary construction easements of several residential properties would occur to accommodate construction of the highway alignment on I-5, interchanges, and overcrossings. The temporary construction easements could have temporary effects, such as detours, access changes, noise, and visual quality changes, that would reduce neighborhood cohesion and livability during the construction period. Residents are anticipated to experience noise and vibration impacts due to construction equipment and vibratory compaction. Air quality may be affected in the eastern portion of the neighborhood due to exhaust from construction equipment. Construction noise, vibration, and dust could discourage community activities and the use of social resources near construction areas. These impacts would reduce cohesion and neighborhood quality for the duration of construction.

Construction activities would result in traffic delays and out-of-direction travel due to minimal east-west crossing opportunities of I-5; this would increase travel times for residents. Traffic congestion and detours could negatively impact neighborhood cohesion during construction by reducing access to community resources for residents.

5.3.4 Rose Village

Temporary effects would be limited to the western border of the Rose Village neighborhood as I-5 is its western boundary. Temporary property acquisitions (construction easements) would occur to accommodate roadway improvements on E 29th Street at two residential properties. Residents in the western portion of the neighborhood would experience noise and vibration impacts due to construction equipment and vibratory compaction. Air quality may also be affected in the western portion of the neighborhood due to exhaust from construction equipment. Construction noise, vibration, and dust could discourage community activities and the use of social resources near construction areas. These impacts would reduce cohesion and neighborhood quality for the duration of construction. Construction activities for the highway would result in traffic delays and out-of-direction travel due to minimal east-west crossing opportunities of I-5; this would increase travel times for residents. Additionally, construction on I-5 may create spillover traffic in other parts of

the neighborhood. Traffic congestion and detours could negatively impact neighborhood cohesion during construction by reducing access to community resources for residents.

5.3.5 Hough

Construction activities for the highway could result in traffic delays and out-of-direction travel due to minimal east-west crossing opportunities of I-5; this would increase travel times for residents. Traffic congestion and detours could negatively impact neighborhood cohesion during construction by reducing access to community resources for residents.

5.3.6 Arnada

Minor temporary property acquisitions (construction easements) from commercial and public park (Arnada Park) properties would occur in the Arnada neighborhood to accommodate construction of I-5 and the E Mill Plain Boulevard Interchange. The temporary construction easements could have temporary effects, such as detours, access changes, noise, and visual quality changes, that would reduce neighborhood cohesion and livability during the construction period.

Residents near I-5 are likely to experience noise and vibration impacts due to construction equipment and vibratory compaction. Air quality may also be affected in the neighborhood due to exhaust from construction equipment. Construction noise, vibration, and dust could discourage community activities and use of social resources near construction areas. These impacts would reduce cohesion and neighborhood quality for the duration of construction. Construction activity would result in traffic delays; this would increase travel times for residents. Traffic congestion and detours could negatively impact neighborhood cohesion during construction by reducing access to community resources for residents.

5.3.7 Central Park

There would be temporary property acquisitions (construction easements) at Marshall Community Park and Center, along the Clark College Recreation Fields, and at the Vancouver Veteran's Affairs Hospital within the Central Park neighborhood. The temporary construction easements could have temporary effects, such as detours, access changes, noise, and visual quality changes, that would reduce neighborhood cohesion and livability during the construction period.

The neighborhood may experience traffic spillovers, delays, and detours due to roadway and transit construction along I-5. Traffic congestion and detours could negatively impact neighborhood cohesion during construction by reducing access to community resources for residents. Residents in the neighborhood would not experience impacts from noise, vibration, or changes in air quality because there are no homes in close proximity to the project construction.

5.3.8 Esther Short

Temporary property acquisitions (construction easements) would occur in the Esther Short neighborhood due to construction of the highway along the I-5 alignment, the interchanges, and the overcrossing at E Evergreen Boulevard. The temporary construction easements could have temporary

effects, such as detours, access changes, noise, and visual quality changes, that would reduce neighborhood cohesion and livability during the construction period.

Residents within the neighborhood would experience noise and vibration impacts due to construction equipment and vibratory compaction. Air quality may be affected in the neighborhood due to exhaust from construction equipment. Construction noise, vibration, and dust could discourage community activities and the use of social resources near construction areas. These impacts would reduce cohesion and neighborhood quality for the duration of construction. Construction activities for the highway and transit alignments would result in traffic delays and out-of-direction travel due to minimal east-west crossing opportunities of I-5; this would increase travel times for residents. Additionally, construction on I-5 may create spillover traffic into other parts of the neighborhood. Traffic congestion and detours could negatively impact neighborhood cohesion during construction by reducing access to community resources for residents.

5.3.9 Hudson's Bay

Temporary property acquisitions (construction easements) would occur in the Hudson's Bay neighborhood due to construction of the highway along the I-5 alignment, the interchanges, and the overcrossing at E Evergreen Boulevard. The temporary construction easements could have temporary effects, such as detours, access changes, noise, and visual quality changes, that would reduce neighborhood cohesion and livability during the construction period. The Hudson's Bay neighborhood may experience traffic spillovers and traffic delays, out-of-direction travel, and detours due to construction on I-5. Traffic congestion and detours could negatively impact neighborhood cohesion during construction by reducing access to community resources for residents. Residents in the neighborhood would not experience impacts from noise, vibration, or changes in air quality.

5.3.10 Columbia Way

Temporary property acquisitions (construction easements) would occur in the Columbia Way neighborhood due to construction of the highway along the I-5 alignment and the SR 14 interchange. The temporary construction easements could have temporary effects, such as detours, access changes, noise, and visual quality changes, that would reduce neighborhood cohesion and livability during the construction period. The neighborhood may experience traffic detours and delays due to construction on I-5, which would increase travel times. The neighborhood would experience traffic spillovers as motorists may use SR 14 through Columbia Way to I-205 to avoid delays from construction on I-5. The Vancouver Land Bridge over SR 14 is not anticipated to be impacted. Traffic congestion and detours could negatively impact neighborhood cohesion during construction by reducing access to community resources for residents. Residents in the neighborhood would not experience impacts from noise, vibration, or changes in air quality.

6. INDIRECT EFFECTS

The Modified LPA would have the indirect effect of facilitating growth within the study area compared to No-Build by providing new light rail service and reducing traffic congestion for general-purpose and transit vehicles. The greatest potential effects on growth would be in proposed station areas, particularly in the Hayden Island and Esther Short neighborhoods, which have the greatest potential to support transit-oriented development. Such development is anticipated and encouraged in the adopted plans for these neighborhoods. Under the No-Build Alternative, light rail would not be extended to Vancouver, and transit-oriented development would not occur. Other indirect effects could include increased noise and pollution in neighborhoods directly adjacent to the corridor, including Esther Short, Arnada, and Rose Village. Shumway and Lincoln, which are also adjacent to the corridor, could experience increased noise and pollution during construction.

The Hayden Island neighborhood would have the greatest potential to experience indirect effects from the Modified LPA because transit-oriented development is anticipated to replace some of the dispersed, auto-oriented shopping centers that exist today. The potential redevelopment of the Jantzen Beach Center into higher-density mixed-use development is perhaps the most significant change that could occur on the island, and this is consistent with the 2009 *Hayden Island Plan* (City of Portland 2009). This potential redevelopment would increase cohesion on the island by providing new opportunities for high-density housing and for smaller-scale commercial services. Developing housing options in the center of the island close to transit would allow people to live closer to commercial services and encourage them to walk, bicycle, or take light-rail to those services. Creating a less auto-oriented environment for residents to travel between home and their services provides more opportunities for residents to interact with one another and easily access potential new community resources. Similarly, if smaller-scale commercial services were to develop close to housing and transit, this would encourage residents to use services provided in their neighborhood rather than needing to travel off the island to access the same services. Though improved transit and the potential for transit-oriented development are anticipated to bring benefits to neighborhood cohesion, the larger freeway is not likely to benefit neighborhood cohesion. Reduced congestion and improved travel times on I-5 may encourage more automobile trips to Hayden Island for Washington residents to shop tax-free at the large retailers such as Target and Home Depot that are located on the island. This increase in auto access could reduce neighborhood cohesion due to increased traffic congestion on Hayden Island and associated noise and air pollution. The Modified LPA would also enlarge the physical size of I-5 and its ramps. Already a large presence in the neighborhood, a wider and taller freeway would be more visually imposing as seen from adjacent properties. These changes would negatively impact neighborhood cohesion.

In Vancouver's Esther Short neighborhood, potential new TOD would add to cohesion in similar ways as on Hayden Island. New housing and commercial services, particularly around light-rail transit stations, would give residents the opportunity to walk, bicycle, or take transit to services close to their homes, therefore providing more chances for residents to interact with one another and use community resources. The Esther Short neighborhood has an action plan that is specifically supportive of TOD-like development. The *Esther Short Neighborhood Action Plan* (City of Vancouver 2006) Vision Statement calls for "mixed use development, like that developed around Esther Short Park since 1997," to "flourish throughout the downtown and on the waterfront." Similar to the

Hayden Island neighborhood, these changes would be less likely to occur under the No-Build Alternative, making it inconsistent with current planning for the area. Recent mixed-use developments along the waterfront have been increasing density in the neighborhood.

Indirect effects on neighborhoods would not vary among the Modified LPA design options.

7. AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

Table 7-1 lists temporary and long-term avoidance and minimization measures. **Error! Reference source not found.** lists temporary mitigation measures. No long-term mitigation measures within control of the IBR Program were identified. Avoidance, minimization, and mitigation measures for acquisitions, air quality, and visual quality that could potentially affect neighborhoods and communities are described in the Acquisitions Technical Report, Air Quality Technical Report, and Visual Quality Technical Report and are not included in the tables below.

Table 7-1. Avoidance and Minimization Measures

Temporary or Long-Term	Impact Type	Avoidance and Minimization Measure
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.
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.
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 OTC and the WSTC. 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 NEPA Record of Decision.

Table 7-2. Mitigation Measures

Temporary or Long-Term	Impact Type	Mitigation Measure
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.
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.
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.
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.
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.

8. PERMITS AND APPROVALS

The IBR Program would comply with the Uniform Relocation and Real Property Acquisitions Policies Act of 1970 as amended, as described in the Acquisitions Technical Report.

9. REFERENCES

City of Portland. 1993. Albina Community Plan. Available at <https://www.portland.gov/sites/default/files/2019-10/albina_community_plan_0.pdf>. Accessed October 4, 2022.

City of Portland. 1997. Bridgeton Neighborhood Plan. Available at <https://www.portland.gov/sites/default/files/2020-01/bridgeton-neighborhood-plan-1997.pdf>. Accessed October 4, 2022.

City of Portland. 2001. Kenton Neighborhood Plan. Available at <https://www.portland.gov/sites/default/files/2020-01/kenton-downtown-plan-2001.pdf>. Accessed October 4, 2022.

City of Portland. 2008. North Interstate Corridor Plan. Available at <https://www.portland.gov/sites/default/files/2020-01/north-interstate-corridor-plan-2008.pdf>. Accessed October 4, 2022.

City of Portland. 2009. Hayden Island Plan. Available at <https://www.portlandoregon.gov/transportation/article/522797>. Accessed October 4, 2022.

City of Vancouver. 1998a. Hudson's Bay Neighborhood Action Plan. Available at <https://www.cityofvancouver.us/sites/default/files/fileattachments/city_manager039s_office/neighborhood/8275/hudsonsbaynap_1998.pdf>. Accessed October 4, 2022.

City of Vancouver. 1998b. Shumway Neighborhood Action Plan. Available at <https://www.cityofvancouver.us/sites/default/files/fileattachments/city_manager039s_office/neighborhood/8905/shumwaynap_1998.pdf>. Accessed October 4, 2022.

City of Vancouver. 2006. Esther Short Neighborhood Action Plan. Available at <https://www.cityofvancouver.us/sites/default/files/fileattachments/city_manager039s_office/neighborhood/8232/esthershortupdatednapfinal06.pdf>. Accessed October 4, 2022.

City of Vancouver. 2009a. Arnada Neighborhood Action Plan. Available at <https://www.cityofvancouver.us/sites/default/files/fileattachments/city_manager039s_office/neighborhood/8176/arnadafinalmayl09.pdf>. Accessed October 4, 2022.

City of Vancouver. 2009b. Hough Neighborhood Action Plan. Available at <https://www.cityofvancouver.us/sites/default/files/fileattachments/city_manager039s_office/neighborhood/8272/hough_nap_nov09_final.pdf>. Accessed October 4, 2022.

City of Vancouver. 2010. Central Park Neighborhood Action Plan. Available at <https://www.cityofvancouver.us/sites/default/files/fileattachments/city_manager039s_office/neighborhood/8210/central_park_nap_apr_10.pdf>. Accessed October 4, 2022.

City of Vancouver. 2011a. Lincoln Neighborhood Action Plan. Available at <https://www.cityofvancouver.us/sites/default/files/fileattachments/city_manager039s_office/neighborhood/8290/lincoln_nap_6.11_final.pdf>. Accessed October 4, 2022.

City of Vancouver. 2011b. West Minnehaha Neighborhood Action Plan. Available at <https://www.cityofvancouver.us/sites/default/files/fileattachments/city_manager039s_office/neighborhood/8915/w_minnehaha_nap_as_amended_sept_2011.pdf>. Accessed October 4, 2022.

City of Vancouver. 2012. Rose Village Neighborhood Action Plan. Available at <https://www.cityofvancouver.us/sites/default/files/fileattachments/city_manager039s_office/neighborhood/8902/approved_rose_village_neighborhood_action_plan2012-04-24.pdf>. Accessed October 4, 2022.

Gresham Police Department. Not Dated. Gresham Police Crimes 2019 and 2020. Provided November 18, 2021.

IBR (Interstate Bridge Replacement Program). 2023. Level 2 Toll Traffic and Revenue Study. Available at <https://www.interstatebridge.org/media/sh2lube2/ibr_level-2_tr_report_final_remediated.pdf>. Accessed December 22, 2025.

IBR. 2025. "Detailed Bridge Lift Data 2007 – 2025."

Metro. 2018. 2018 Regional Transportation Plan. Available at <https://www.oregonmetro.gov/regional-transportation-plan>. Accessed April 5, 2023.

PPB (Portland Police Bureau). Not Dated. Monthly Portland Neighborhood Offense Statistics. Available at <https://www.portland.gov/police/open-data/crime-statistics>. Accessed October 15, 2021.

RTC (Regional Transportation Commission). 2019. Regional Transportation Plan for Clark County. Available at <https://www.rtc.wa.gov/programs/rtp/clark/>. Accessed June 6, 2023.

USBLS (U.S. Bureau of Labor Statistics). 2021. Occupational Employment and Wages in Portland-Vancouver-Hillsboro — May 2021. Available at <https://www.bls.gov/regions/west/news-release/occupationalemploymentandwages_portlandor.htm>. Accessed February 3, 2023.

USCB (U.S. Census Bureau). 2022. American Community Survey (ACS) 5 -Year Estimates, 2016–2020. Available at <https://www.census.gov/programs-surveys/acs>. Accessed October 4, 2022.

USCG (U.S. Coast Guard). 2022. Preliminary Navigation Clearance Determination for the Interstate Bridge Replacement Program. Letter to Thomas D. Goldstein, PE, IBR Program Oversight Manager, FHWA, from B. J. Harris, Chief, Waterways Management Branch, Coast Guard District 13. June 17. Available at <https://www.interstatebridge.org/media/fi2b3xei/ibr_next_steps_bridge_permitting_june2022_remediated.pdf>. Accessed September 25, 2023.

USCG. 2026. Preliminary Navigation Clearance Determination for the Interstate Bridge Replacement Program. Letter to Carley Francis, Interim IBR Program Administrator, IBR Program, from Brian L Dunn, Chief, Office of Bridge Programs. January 16, 2026. Available at <https://www.interstatebridge.org/media/2ildjsdp/ibrp_pncd_2026.pdf>. Accessed January 16, 2026.

VPD (Vancouver Police Department). 2021. Reported Crime 2019–2020 by Select Neighborhoods. Prepared November 5, 2021.

Zillow. 2021. Home Value Index. Available at: <https://www.zillow.com/research/data/>.