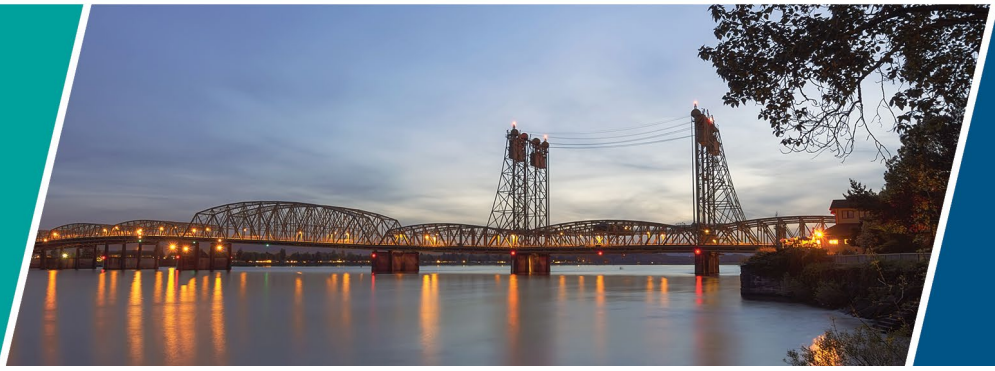
Interstate BRIDGE Replacement Program

Considering the importance of our natural environment



Land Use Technical Report

March 2026

Oregon

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Land Use Technical Report

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AASHTO	American Association of State Highway and Transportation Officials
BMP	best management practice
BRT	bus rapid transit
CCFS	Columbia Corridor Flood Safety
C-D	collector-distributor
CFR	Code of Federal Regulations
CRC	Columbia River Crossing
CTR	Commute Trip Reduction
C-TRAN	Clark County Public Transit Benefit Area Authority
DSL	Oregon Department of State Lands
GIS	geographic information system
HOV	high-occupancy vehicle
I-5	Interstate 5
IBR	Interstate Bridge Replacement
LPA	Locally Preferred Alternative
LRT	light-rail transit
LRV	Light-rail vehicle
MAX	Metropolitan Area Express
Metro	Oregon Metro
NAVD 88	North American Vertical Datum of 1988
NEPA	National Environmental Policy Act
ODOT	Oregon Department of Transportation
OHP	Oregon Highway Plan

Acronym/Abbreviation	Definition
OMF	Operations and Maintenance Facility
ORS	Oregon Revised Statutes
OTC	Oregon Transportation Commission
OTP	Oregon Transportation Plan
PMLS	Portland Metro Levee System
PNCD	Preliminary Navigation Clearance Determination
ROD	record of decision
RTC	Southwest Washington Regional Transportation Council
RTP	regional transportation plan
SEIS	Supplemental Environmental Impact Statement
SOV	single-occupancy vehicle
SR	State Route
STS	Oregon Statewide Transportation Strategy
TPSS	traction power substation
TPR	transportation planning rule
TriMet	Tri-County Metropolitan Transportation District
TSP	transportation system plan
UFSWQD	Urban Flood Safety and Water Quality District
UGB	urban growth boundary
USACE	U.S. Army Corpsof Engineers
U.S.C.	United States Code
USCG	U.S. Coast Guard
V/C	volume-to-capacity
VCCV	Vancouver City Center Vision and Subarea Plan

Acronym/Abbreviation	Definition
VNHR	Vancouver National Historic Reserve
WSDOT	Washington State Department of Transportation
WSTC	Washington State Transportation Commission
WTP	Washington Transportation Plan

1. PROGRAM OVERVIEW

This technical report identifies, describes, and evaluates short-term and long-term effects related to land use from the Interstate Bridge Replacement (IBR) Program. The construction and operation of transportation infrastructure can have effects on land uses within or near the project footprint. 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 measures 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 States 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 project study area and the methods of data collection and evaluation used for the analysis (Chapter 2).
- Describe existing land use and applicable land use plans and policies sites 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 (Chapters 7 and 8).
- Identify federal, state, and local permits that would be required (Chapter 9).

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

[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.

facility improvements to comply with the Americans with Disabilities Act. These are referred to in this document as "active transportation improvements."

- Variable-rate tolling, including signage and equipment, for motorists using the river crossing as a demand-management and financing tool.

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

- **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.

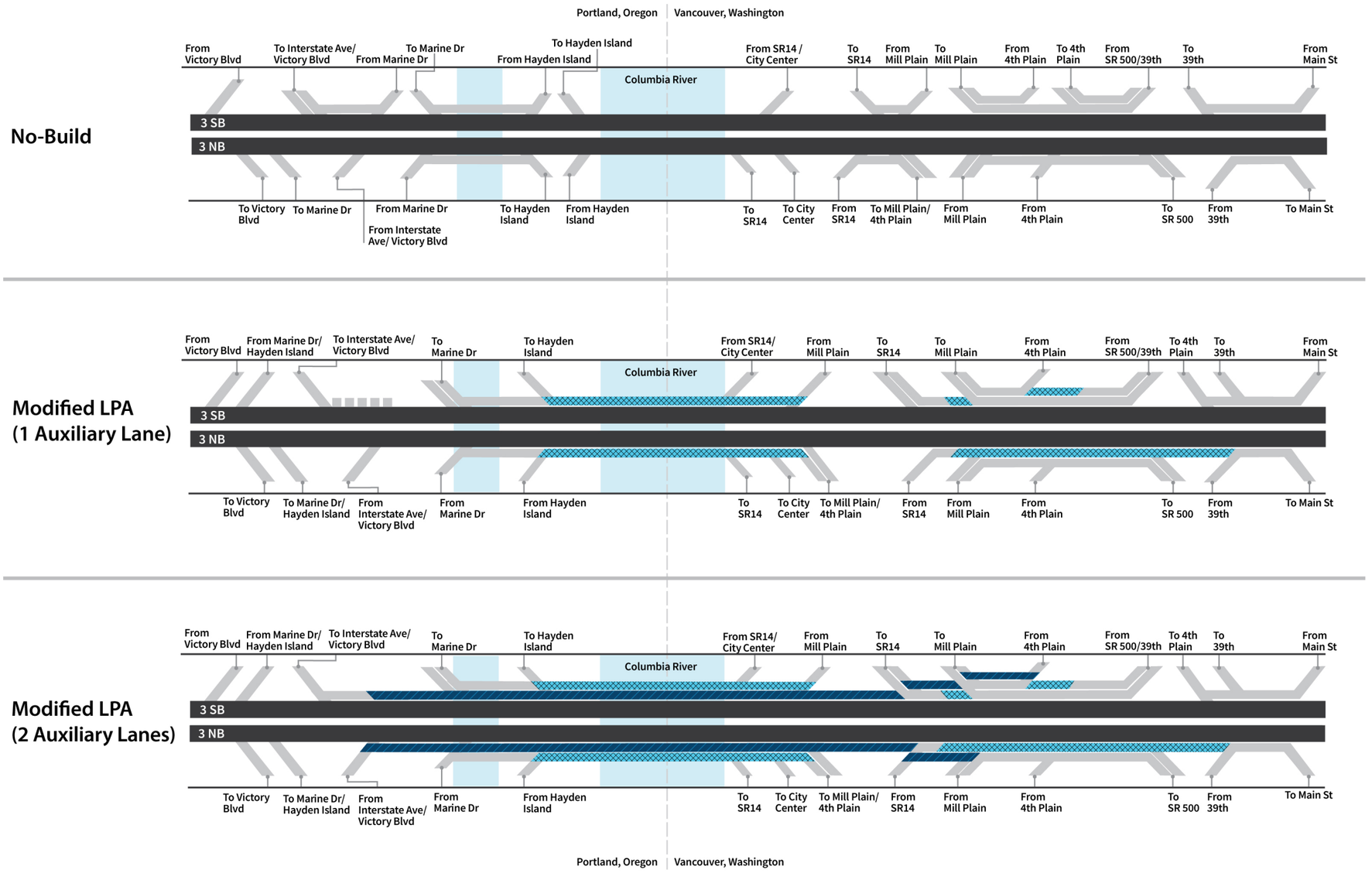
The Modified LPA would also include shoulders (11- to 14-foot inside shoulders and 10- to 14-foot outside shoulders) to be consistent with the design standards of the Oregon Department of Transportation (ODOT) and Washington State Department of Transportation (WSDOT). The inside shoulder would be used 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.

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:

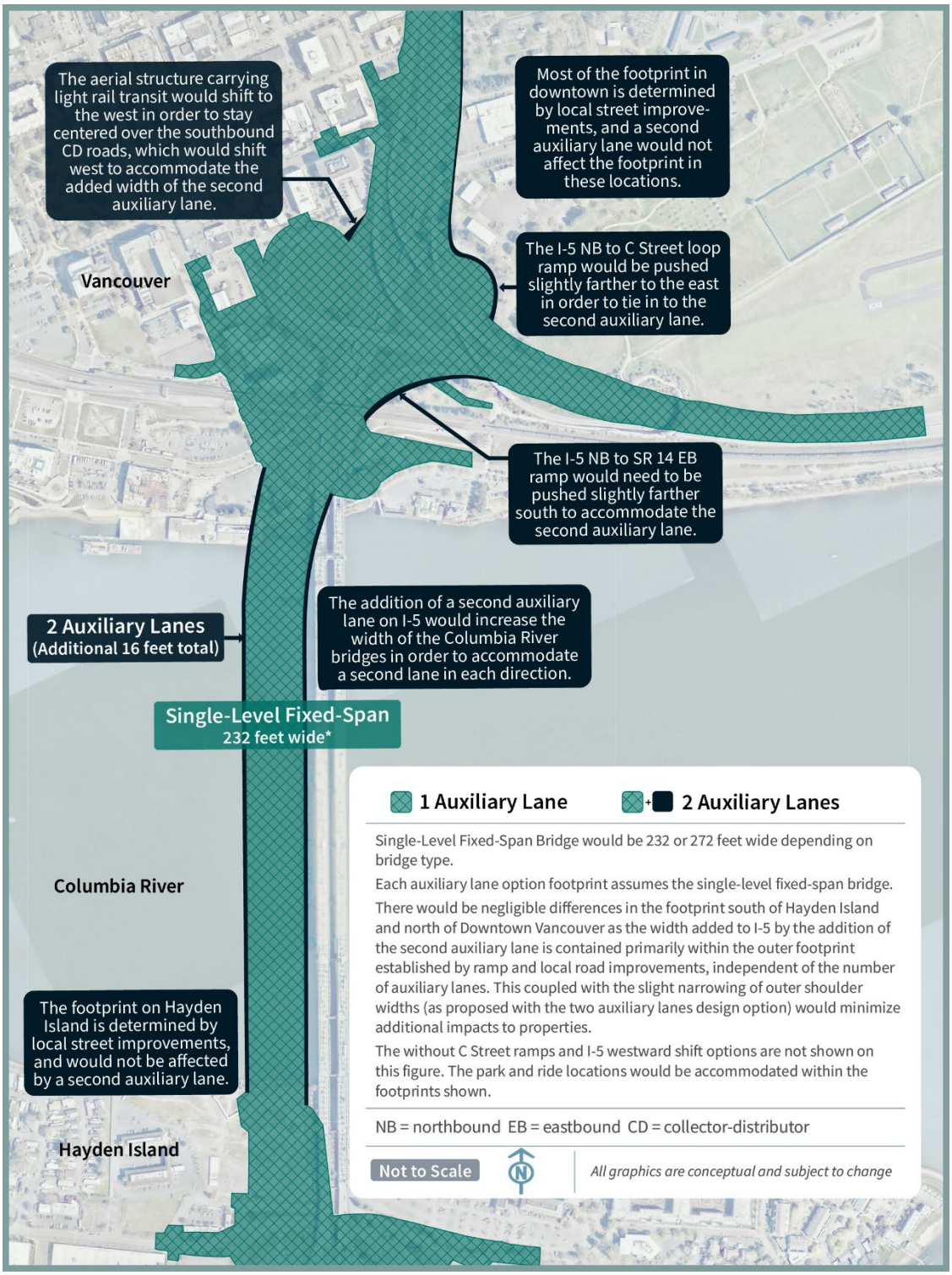
Collector Distributor Lanes not shown.

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).

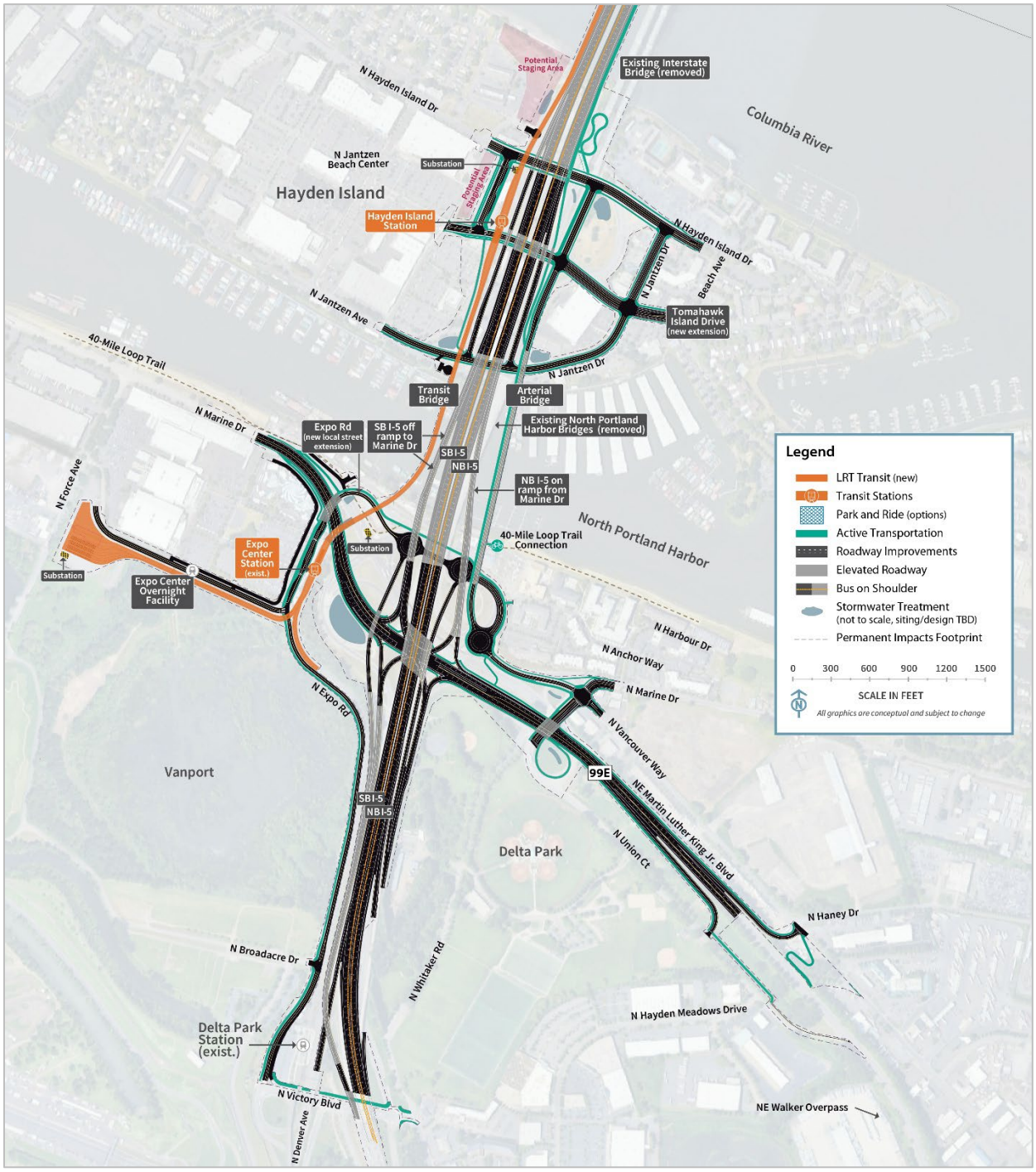
The levee systems are shown on Figure 1-7, and intersections with Modified LPA components are described throughout this section (Section 1.1.2, Portland Mainland and Hayden Island (Subarea A)), where appropriate. Within Subarea A, the IBR Program study area intersects with PEN 1 to the west of I-5 and 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”).

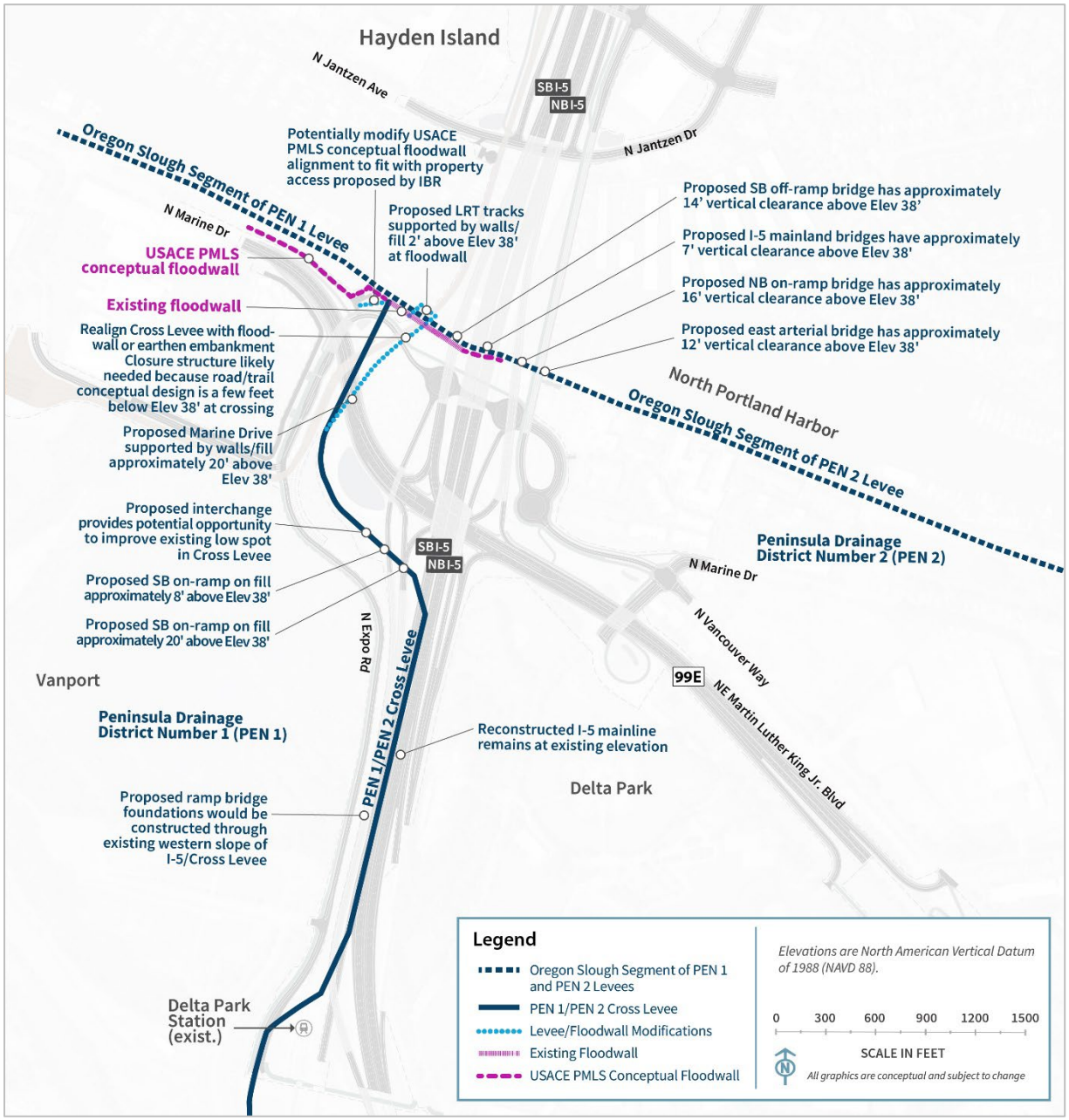
[4] The portion of the original Denver Avenue levee alignment within the Marine Drive interchange area is no longer considered part of the levee system by UFSWQD.

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.

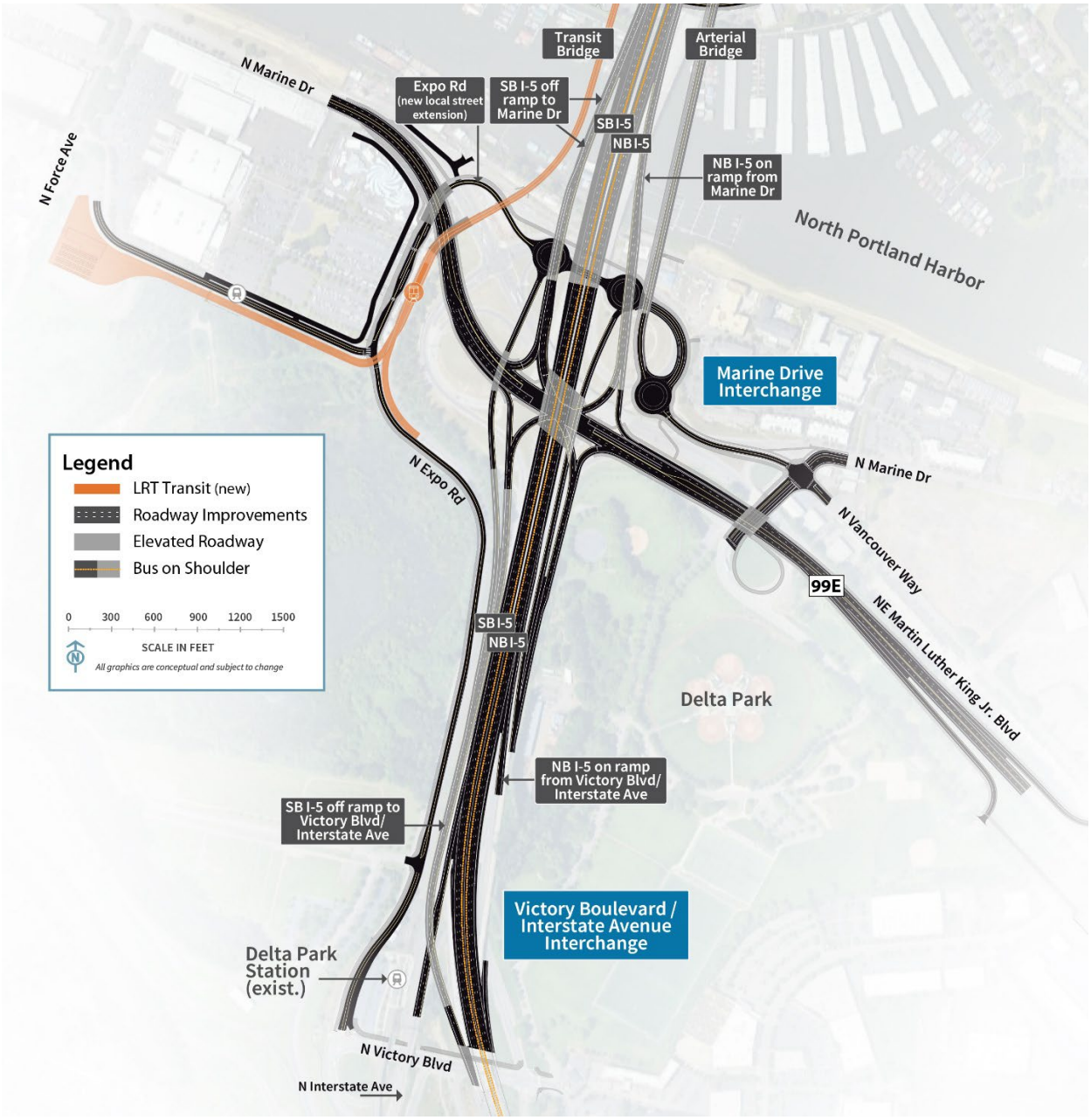
The existing I-5 mainline between Victory Boulevard/Interstate Avenue and Marine Drive is part of the Cross Levee (see Figure 1-7). The Modified LPA would require some pavement reconstruction of the mainline in this area; however, the improvements would mostly consist of pavement overlay, and the profile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

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.

[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



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 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.

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

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.

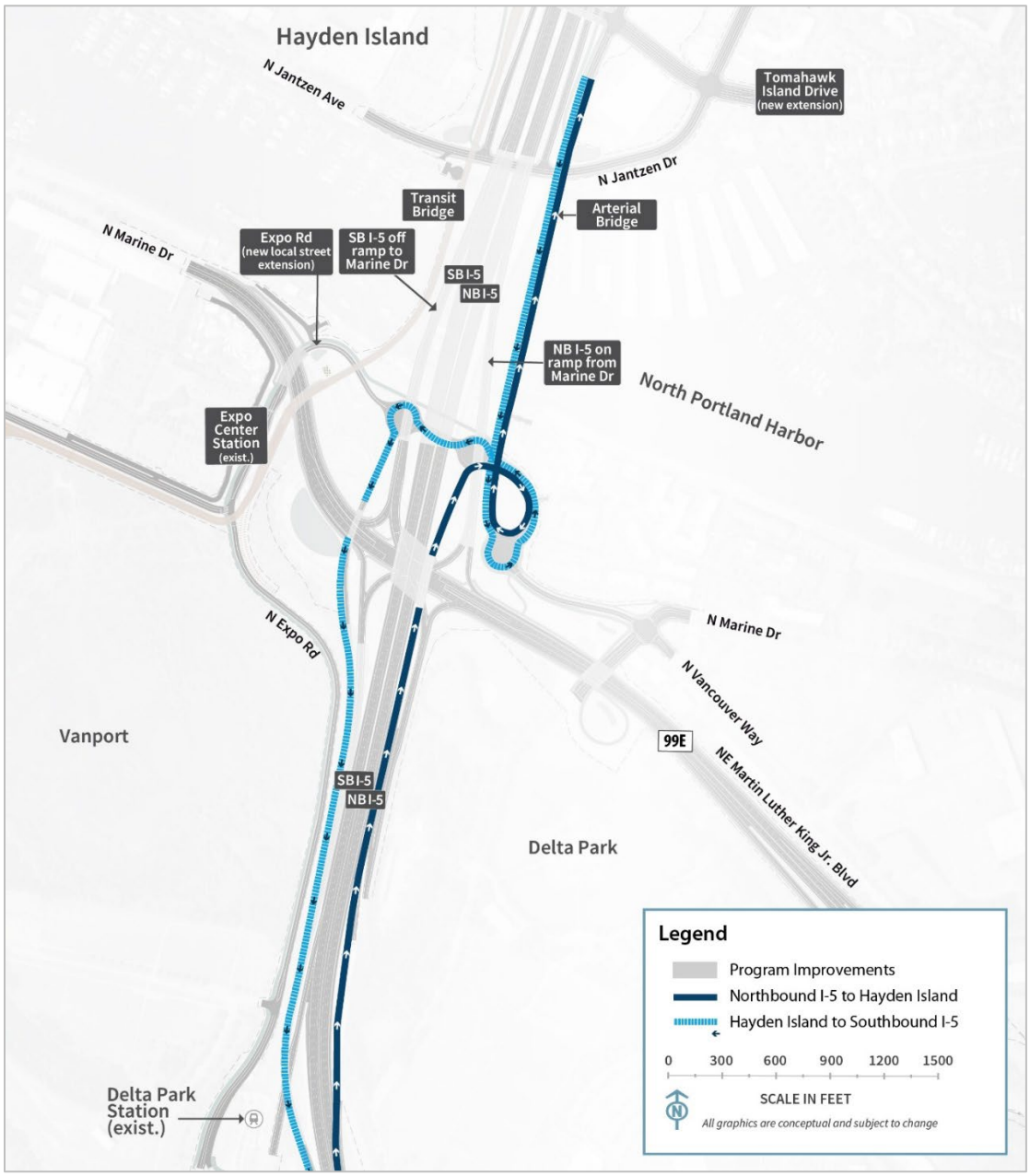
HAYDEN ISLAND INTERCHANGE AREA

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

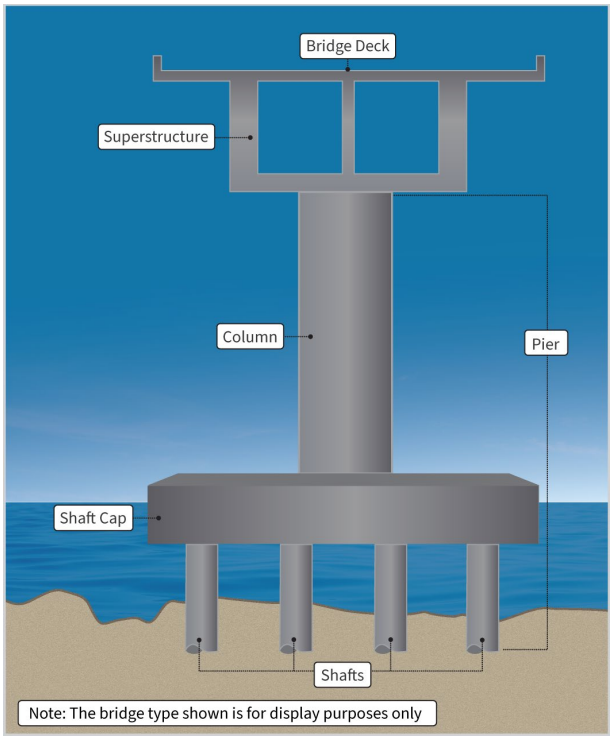
The two existing parallel northbound and southbound I-5 bridges that cross the Columbia River were constructed in 1917 and 1958, respectively. When the 1958 bridge was constructed, pier 5 of the 1917 bridge was removed and the profile was raised to match the new bridge. For the IBR Program, the two existing 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 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

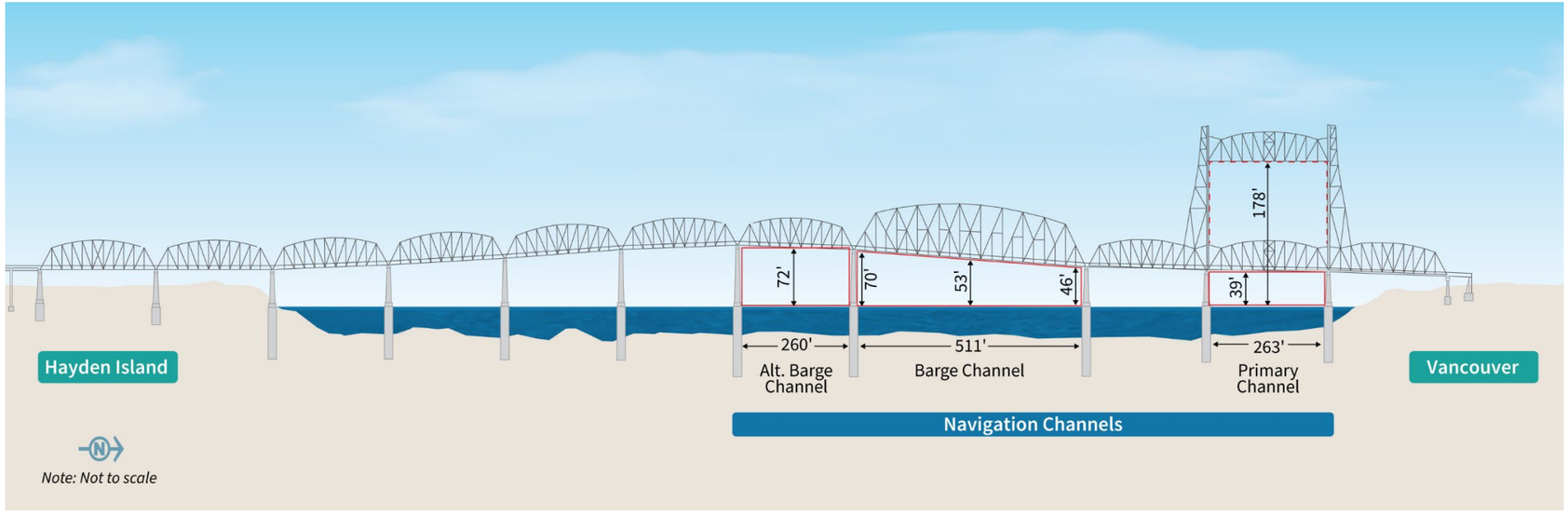
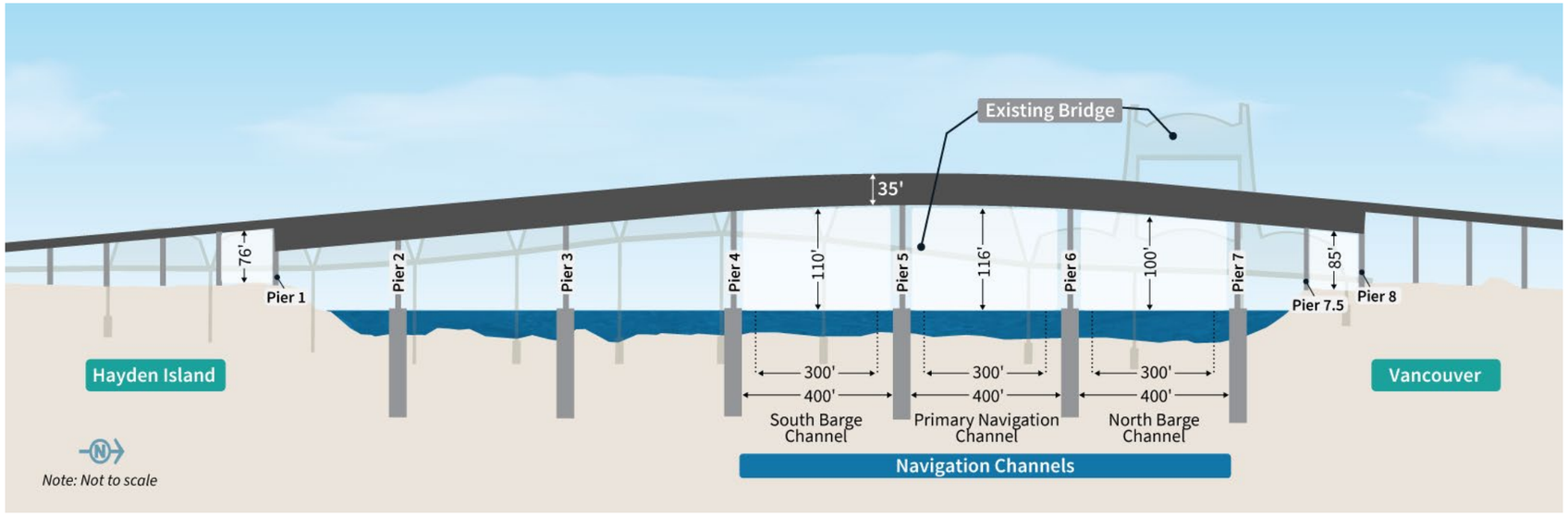


Figure 1-13. Navigation Clearances and Proposed Profile of the Modified LPA Columbia River Bridges with a Double-Deck Fixed-Span Configuration



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]

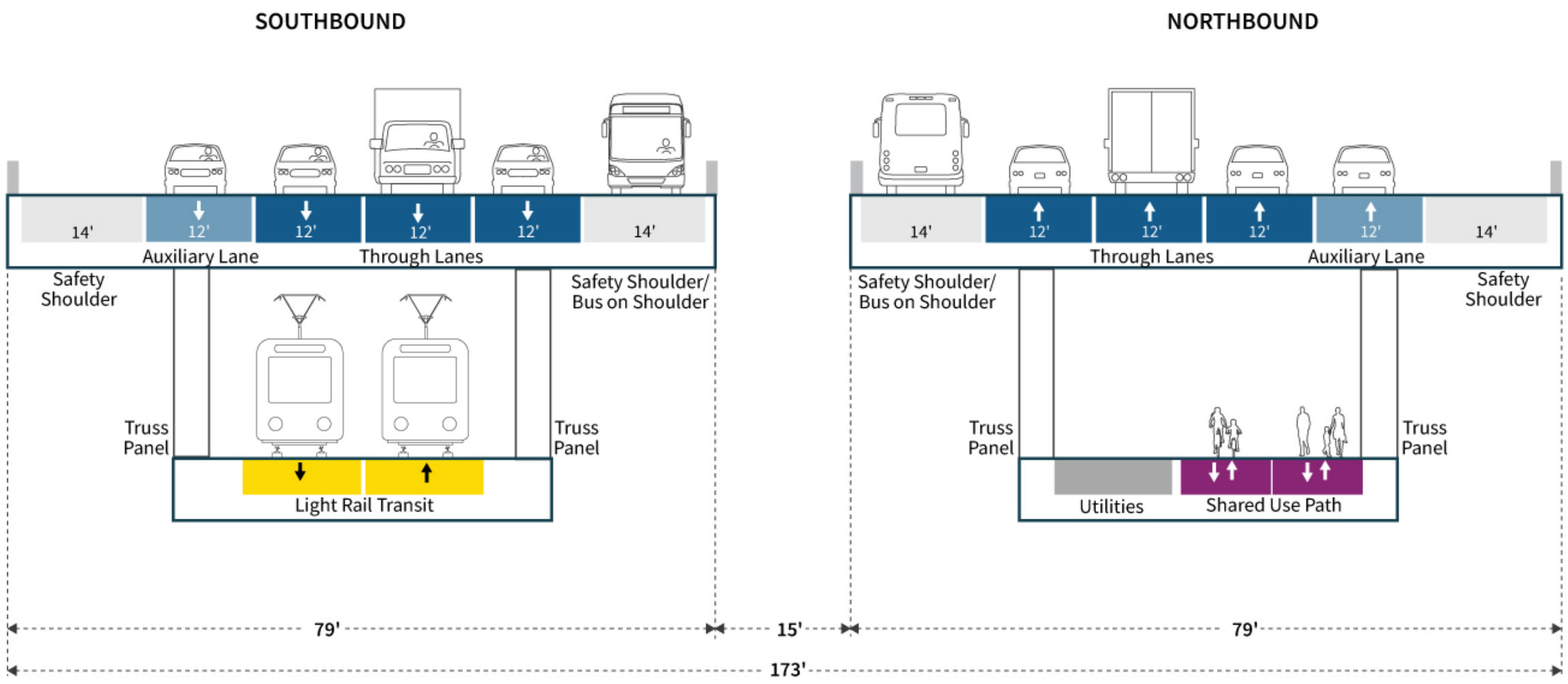
Figure 1-14. Conceptual Drawing of a Double-Deck Fixed-Span Configuration

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.

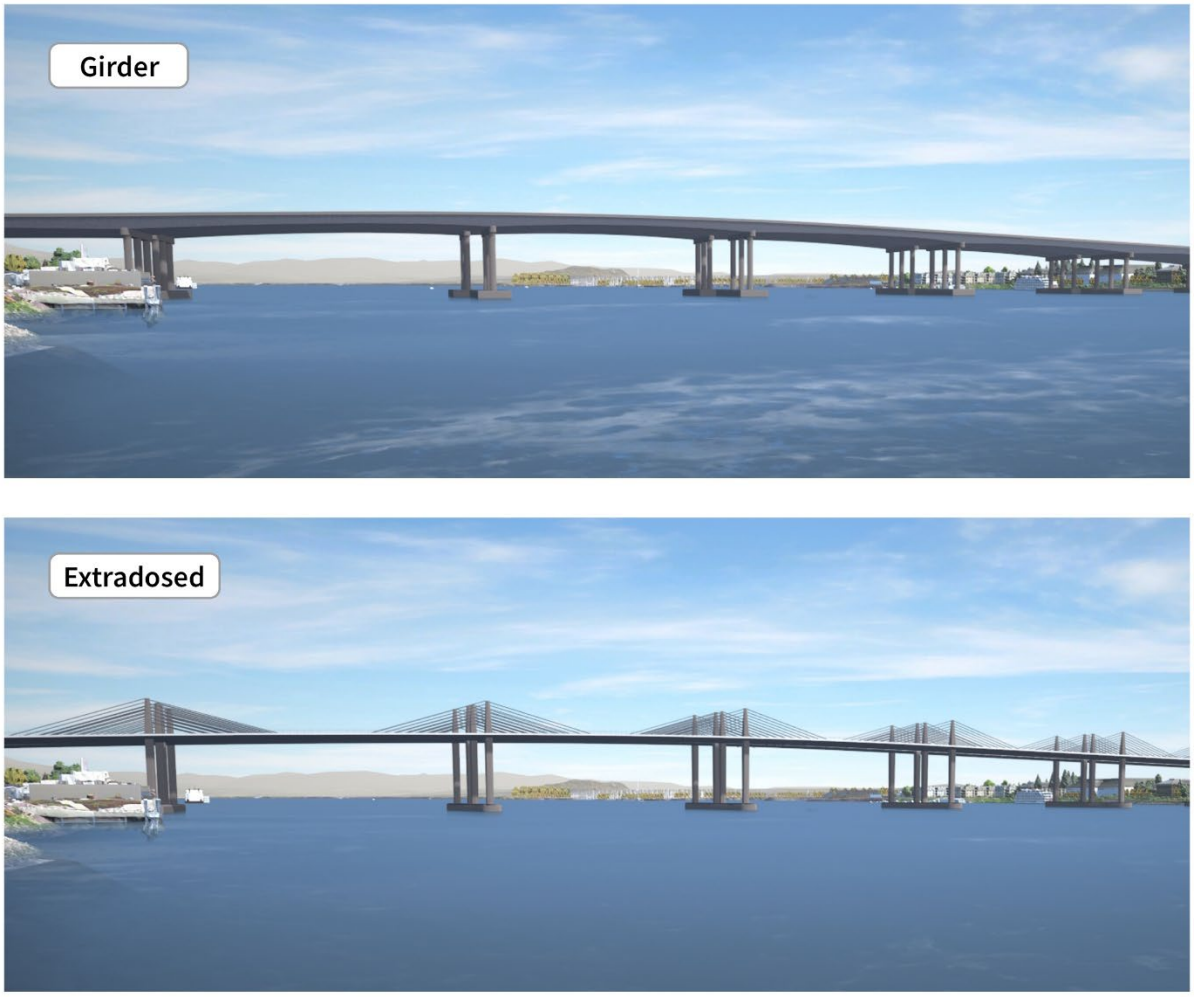
[10] The Draft SEIS also included a finback as a single-level fixed-span bridge type. As the design of the various bridge types progressed, it was determined that the finback would have higher risks associated with increased cost and construction schedule because this bridge type is less common and applying 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.

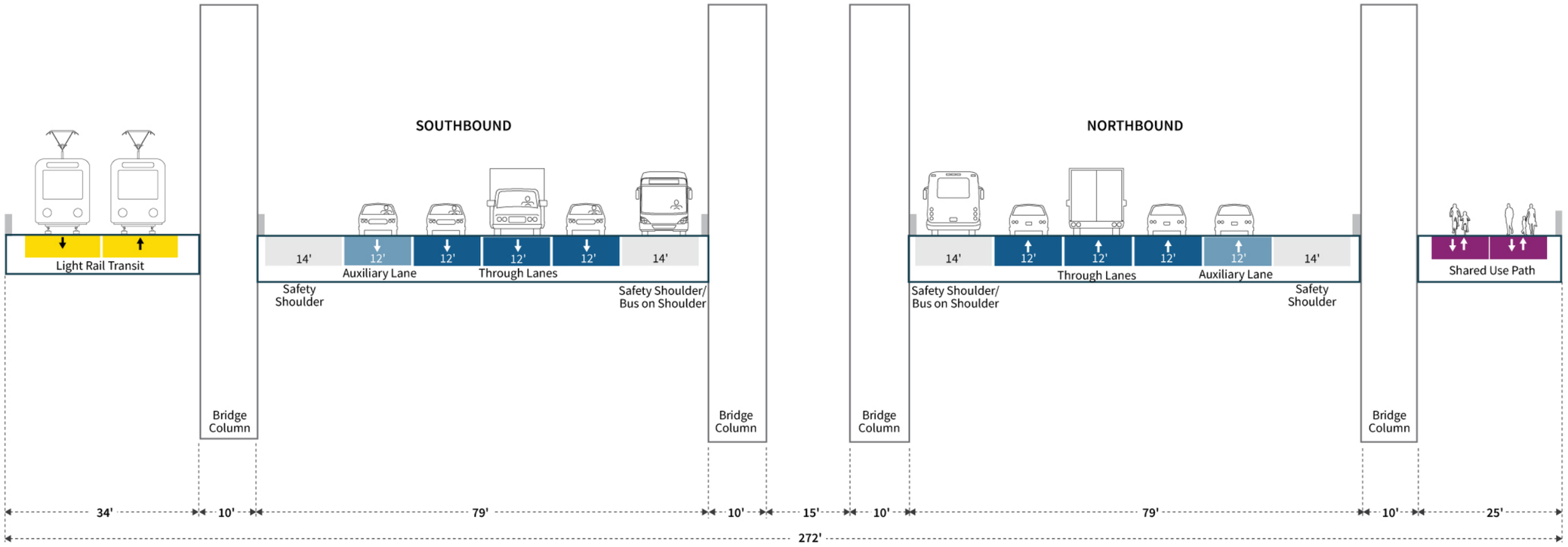
This bridge configuration would be expected to have an approximate grade of 3% on both the Oregon and Washington sides of the bridge. All vertical profiles would follow AASHTO, WSDOT, and ODOT design standards.

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



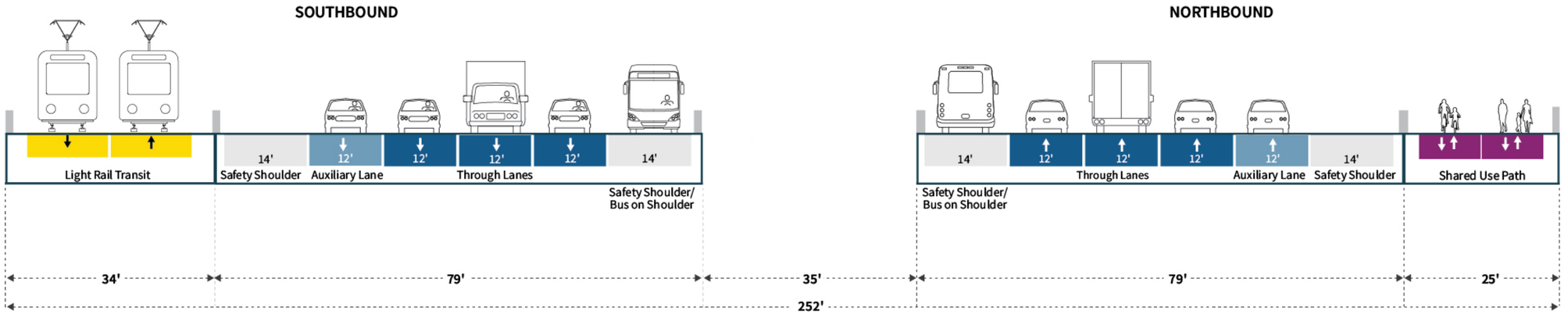
Note: Visualizations are for illustrative purposes only. They do not reflect property impacts or represent final design. Visualization is looking southeast from Vancouver.

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.

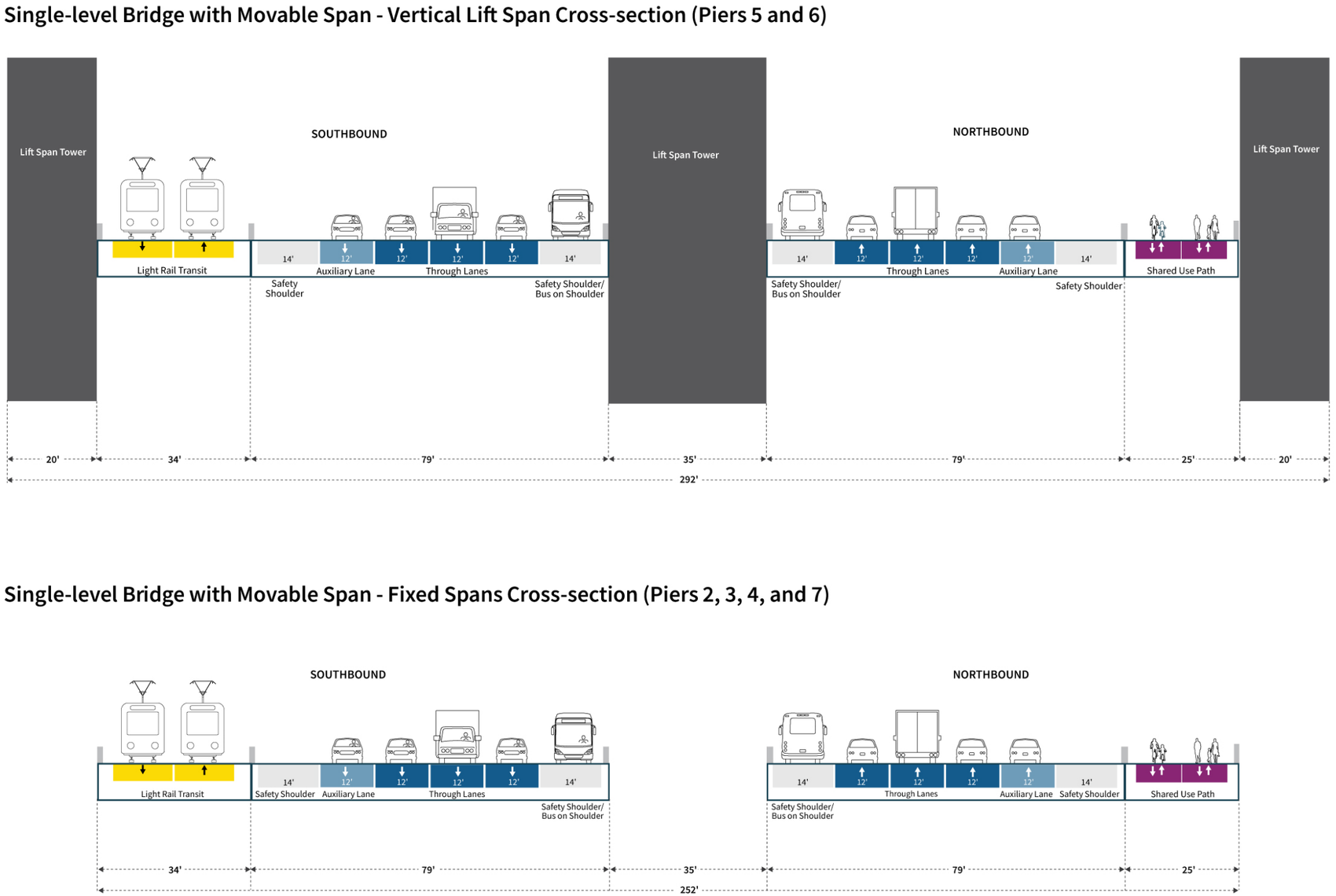
There would be six in-water pier sets and two piers on land per bridge. The vertical lift span would have 22 in-water drilled shafts each for Piers 5 and 6; the shaft caps for these piers would be approximately 50 feet by 312 feet to accommodate the vertical lift spans. Piers 2, 3, 4, and 7 would have 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

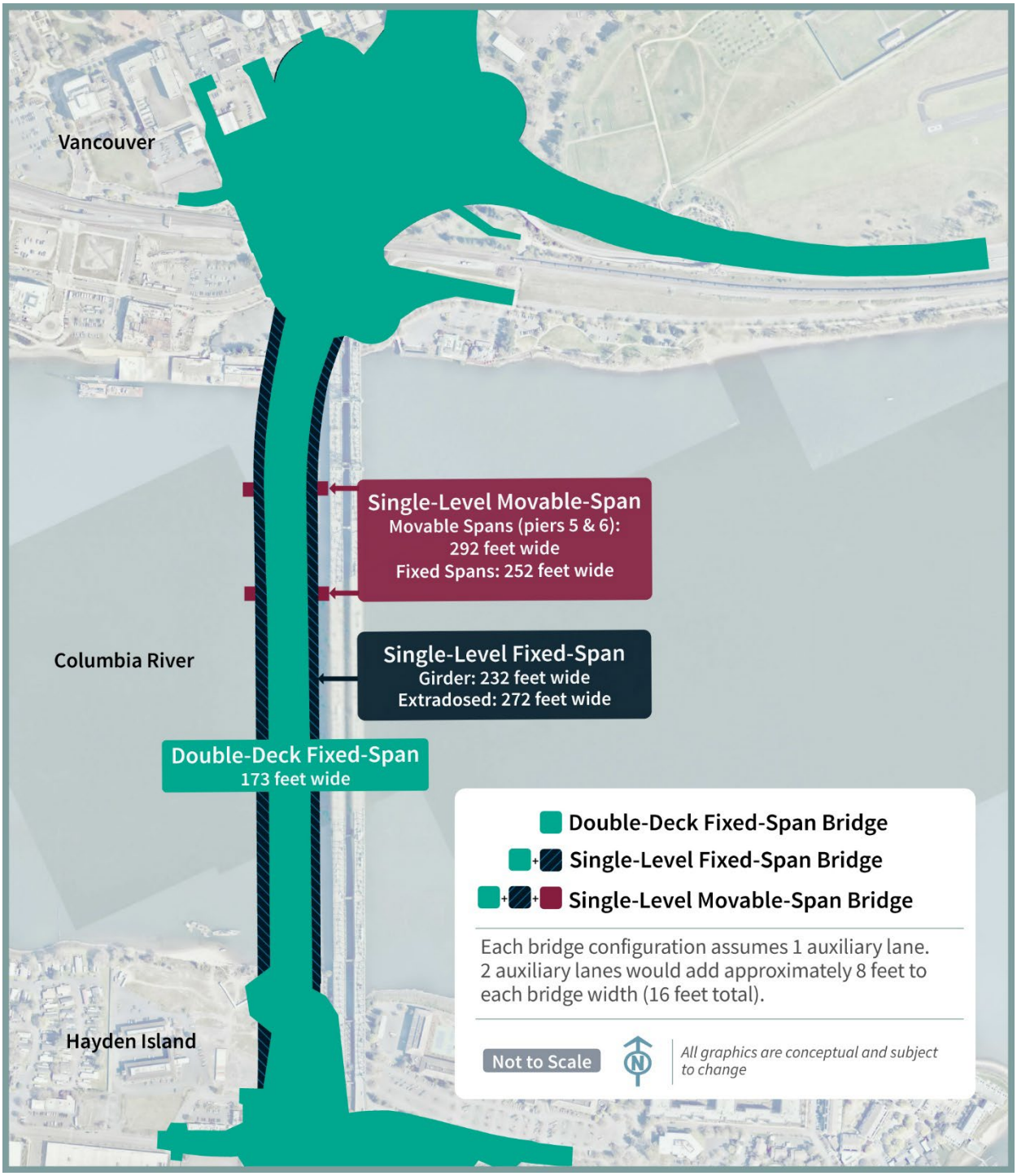
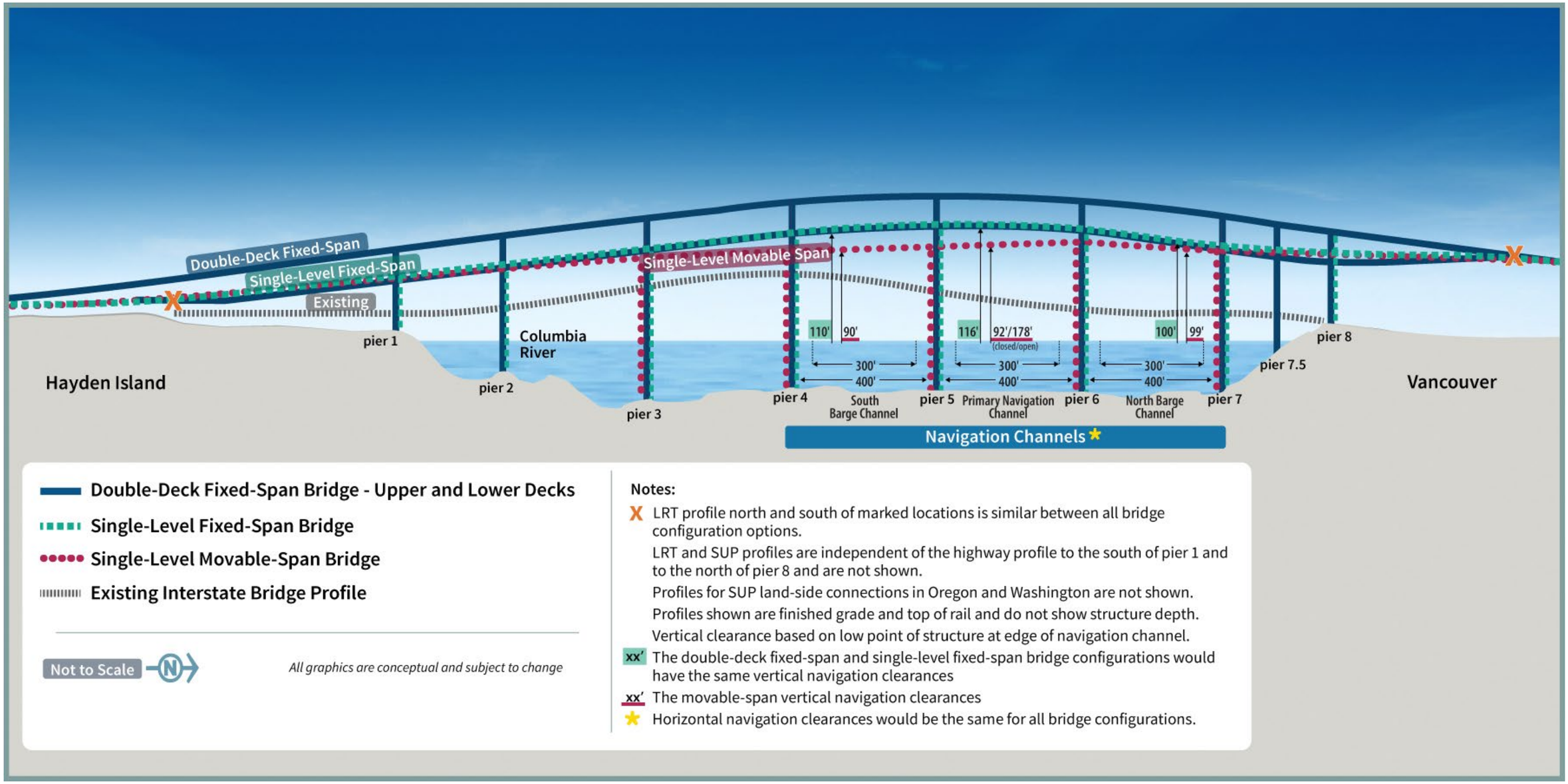


Figure 1-22. Bridge Configuration Profile Comparison



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 vehicle and transit

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
				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
ck 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).

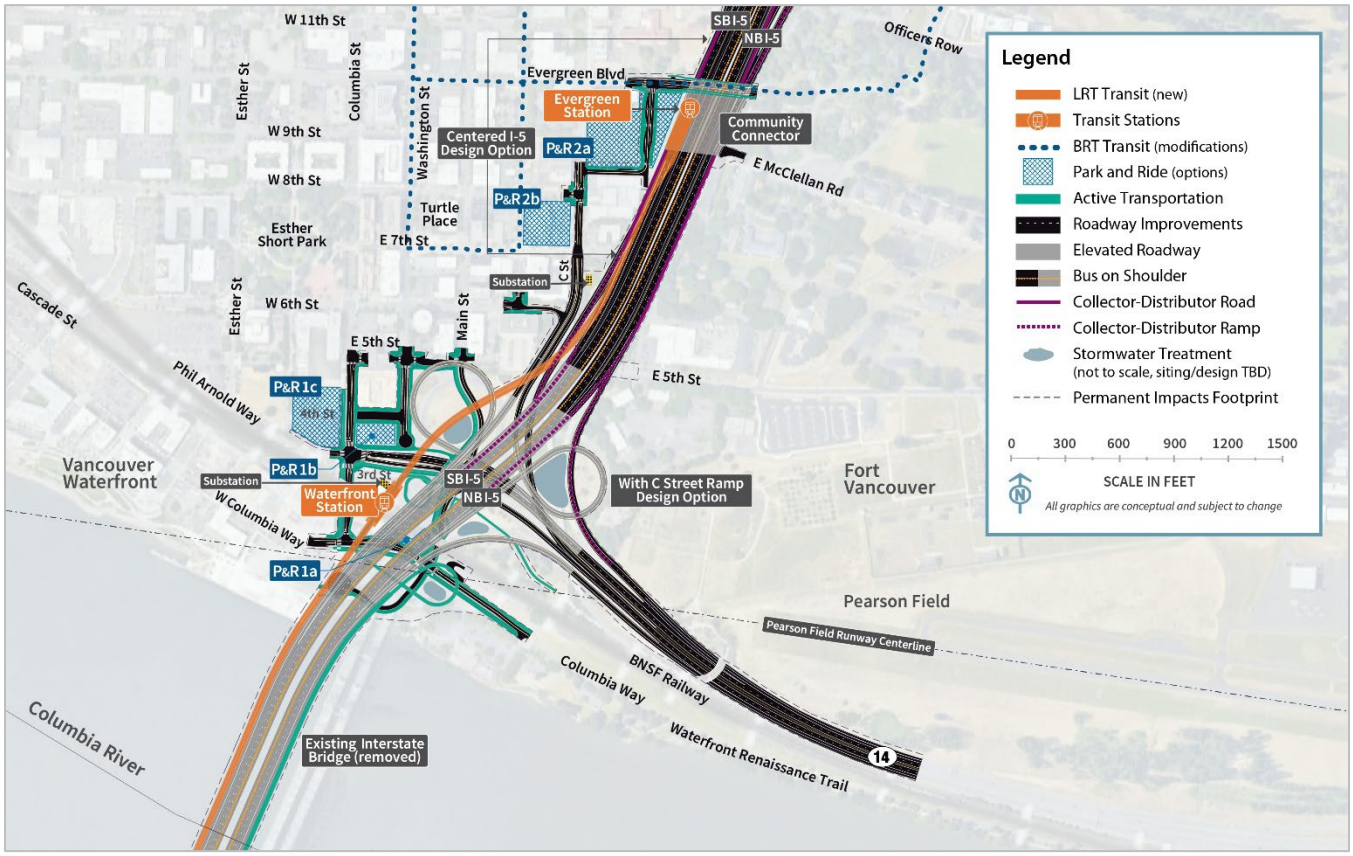
SR 14 INTERCHANGE/DOWNTOWN VANCOUVER

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.

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.

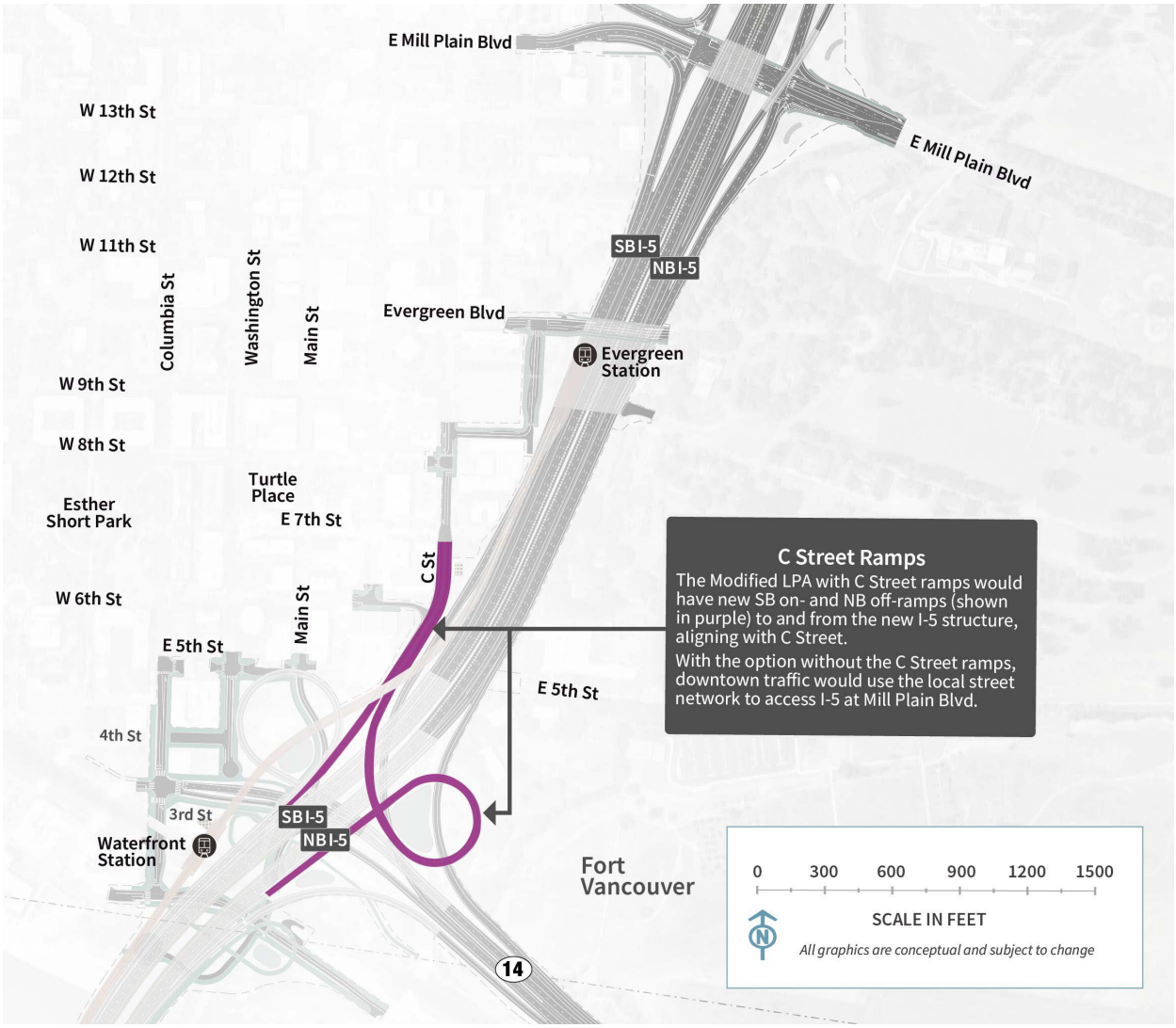
I-5 Shifted West

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 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.

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

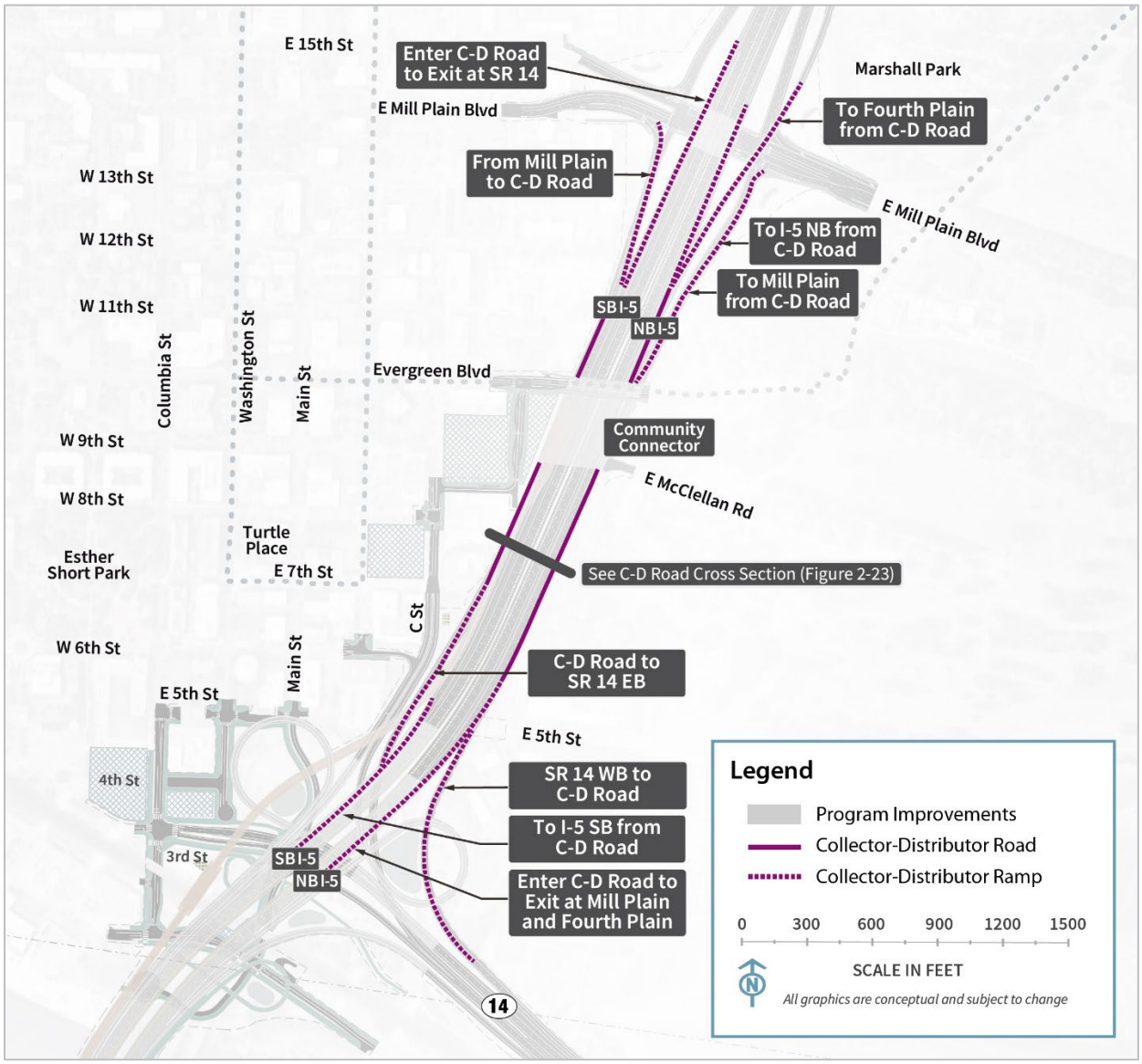
Figure 1-25 shows the location of the collector-distributor (C-D)[11] roadways in downtown Vancouver, and Figure 1-26 shows a typical cross section of the C-D roadways.

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.

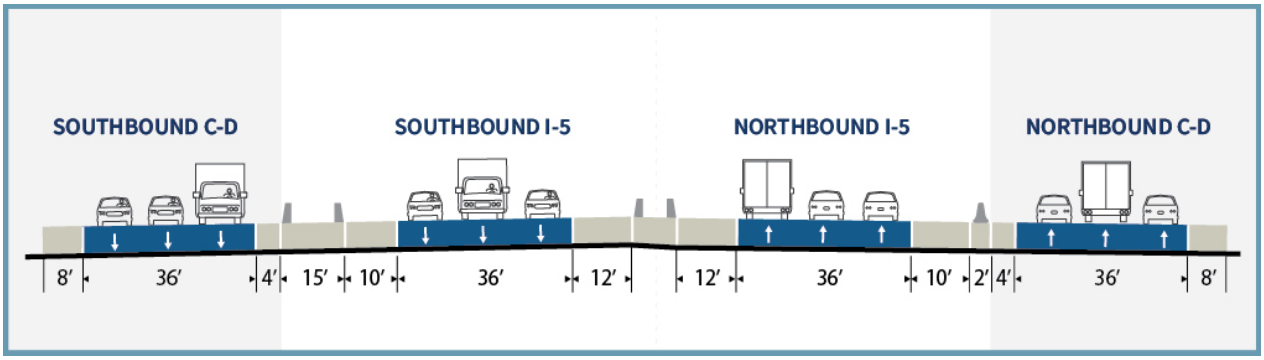
On southbound I-5, the off-ramp to SR 14 would join the southbound I-5 on-ramp from Mill Plain Boulevard to form a C-D roadway. The C-D roadway would provide access from southbound I-5 to the off-ramp to eastbound SR 14 and from Mill Plain Boulevard to the off-ramp to eastbound SR 14 and the on-ramp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

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.

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.

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)

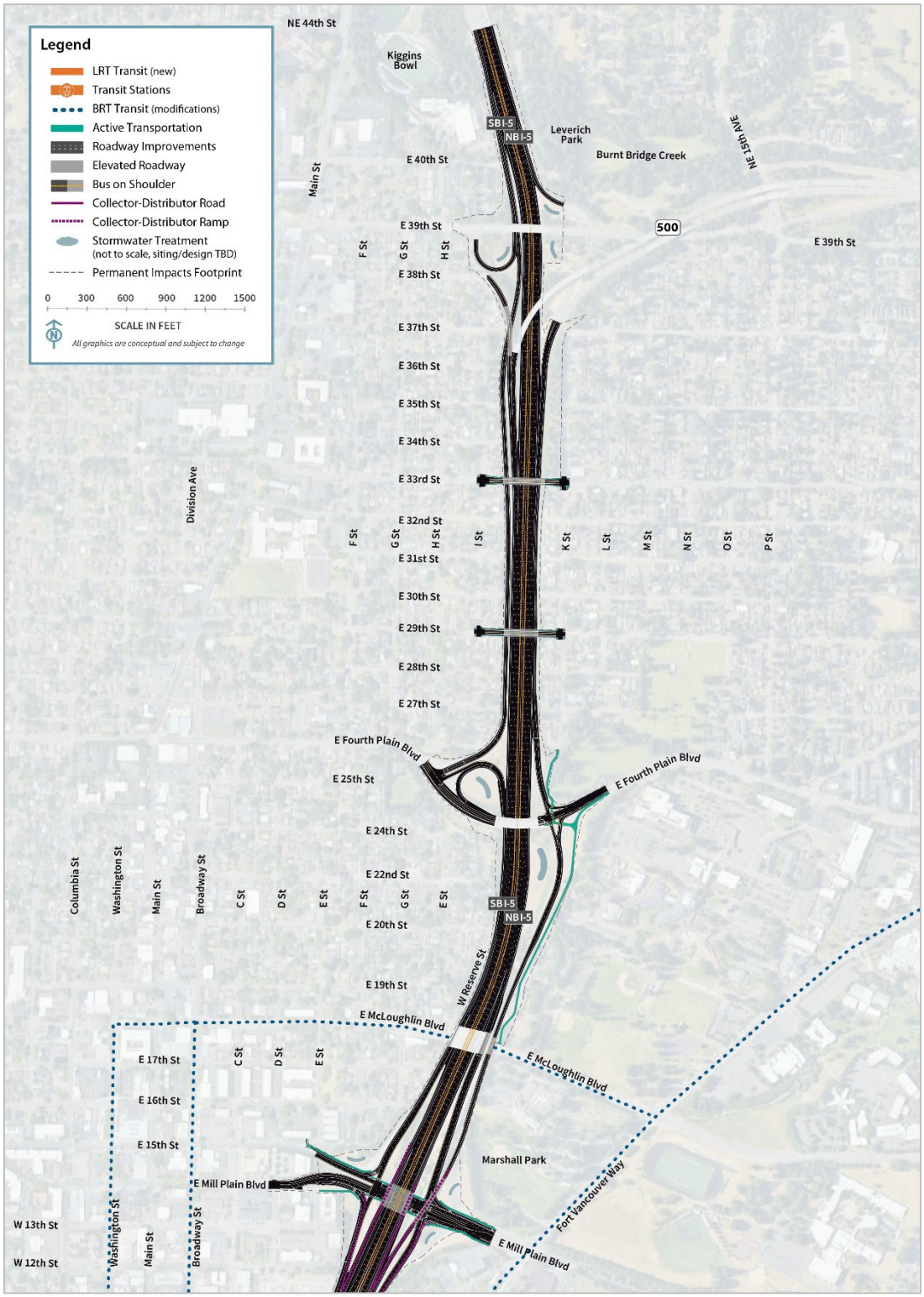
This section discusses the geographic Subarea D (Figure 1-3 shows an overview of the geographic subareas). Figure 1-27 shows all highway and interchange improvements in Subarea D.

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.

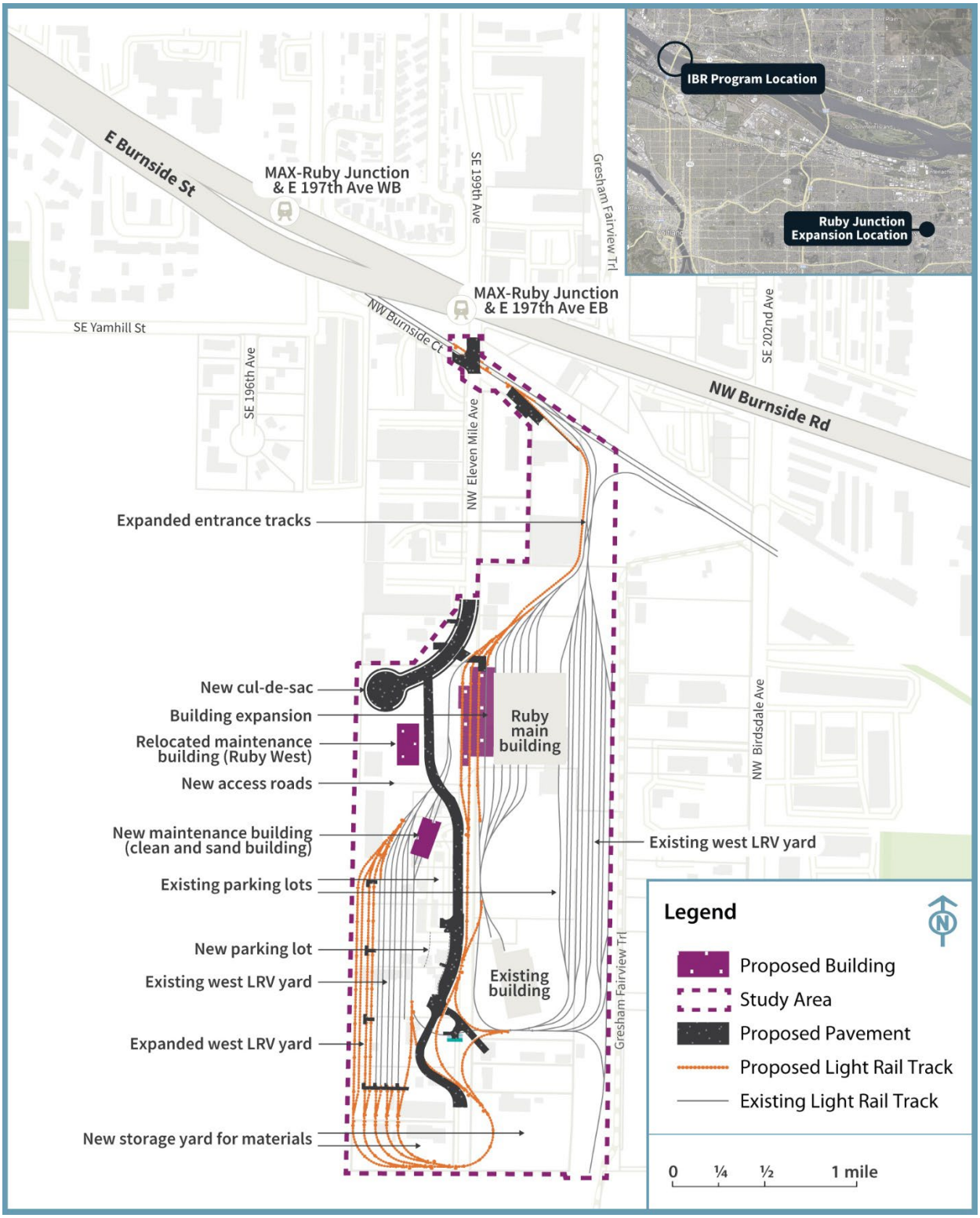
The existing main building would be expanded west to provide additional maintenance bays. Today, Eleven Mile Avenue extends from NW Burnside Road and dead ends at the southern limits of the existing OMF. To make space for the building expansion, the existing Eleven Mile Avenue public right of way would 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 (U.S.C.) § 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

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.

tollway for construction 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 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 memorandum, 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.

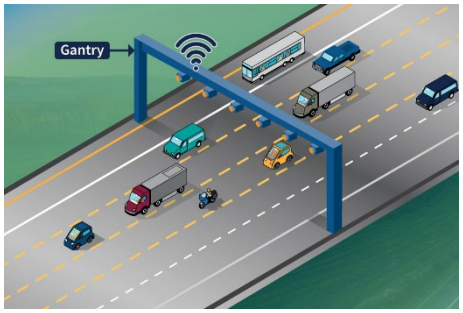
It is assumed that tolling would begin on the existing Interstate Bridge, referred to as "pre-completion tolling," in 2027, allowing time after receiving a Record of Decision to hire a contractor, install tolling equipment, and conduct the rate-setting process. The purpose of pre-completion tolling would 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

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

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.

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 outlines the proposed approach to collect and evaluate the beneficial and adverse impacts of the Modified LPA on land use. It 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 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, followed by NEPA reevaluations in 2012 (to modify bridge clearance over the Columbia River) 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.

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

- Maps and tables have been provided showing acreage to be converted to transportation use (also see the Acquisitions Technical Report).
- Federal, state, regional and local plans, policies and regulations have been updated.
- Zoning for Clark County, the City of Vancouver, and the City of Portland has been updated.
- Updated environmental guidance from ODOT and WSDOT has been incorporated.

2.2 Study Area

The primary study area for the IBR Program runs along a 5-mile segment of Interstate 5 (I-5), approximately between the State Route (SR) 500 interchange in Washington and the I-5/Columbia Boulevard interchange in Oregon. The primary study area is shown in Figure 2-1. The primary study area includes temporary construction easements that would be established directly adjacent to the proposed construction areas, while larger staging areas and casting yards could be located farther from the Modified LPA's construction footprint. The Modified LPA, and thus the primary study area, also includes the areas where expansion of the Ruby Junction Light-Rail OMF is proposed in Gresham, Oregon. Most of the direct physical changes associated with the Modified LPA would occur within the primary study area, although mitigation could still occur outside of it. As a result, the analysis of potential land use impacts in the following sections contains detailed discussion of the Modified LPA's relationship to and consistency with relevant laws, plans, and regulations.

In addition to the primary study area, the land use analysis evaluated the potential for impacts within a broader secondary study area, extending from the I-5/I-84 interchange in the south to approximately the I-5/I-205 interchange in the north and including a 1-mile buffer on both the east and west sides of the I-5 right of way (see Figure 2-2). Because major transportation projects can affect regional growth trends and patterns in the absence of a robust system of land use controls, the secondary study area was identified to evaluate where indirect effects (e.g., traffic and development changes) could potentially occur. The IBR Program team relied primarily on secondary data (including, but not limited

to, future traffic projections, housing statistics, geographic information system [GIS] databases, and census data) to evaluate the potential for indirect land use effects in the secondary study area. The analysis of the secondary study area included general consideration of existing and planned land uses in the Portland metropolitan and Clark County areas but did not include detailed review for consistency with state, regional, and locally adopted plans.

Figure 2-1. Primary Study Area

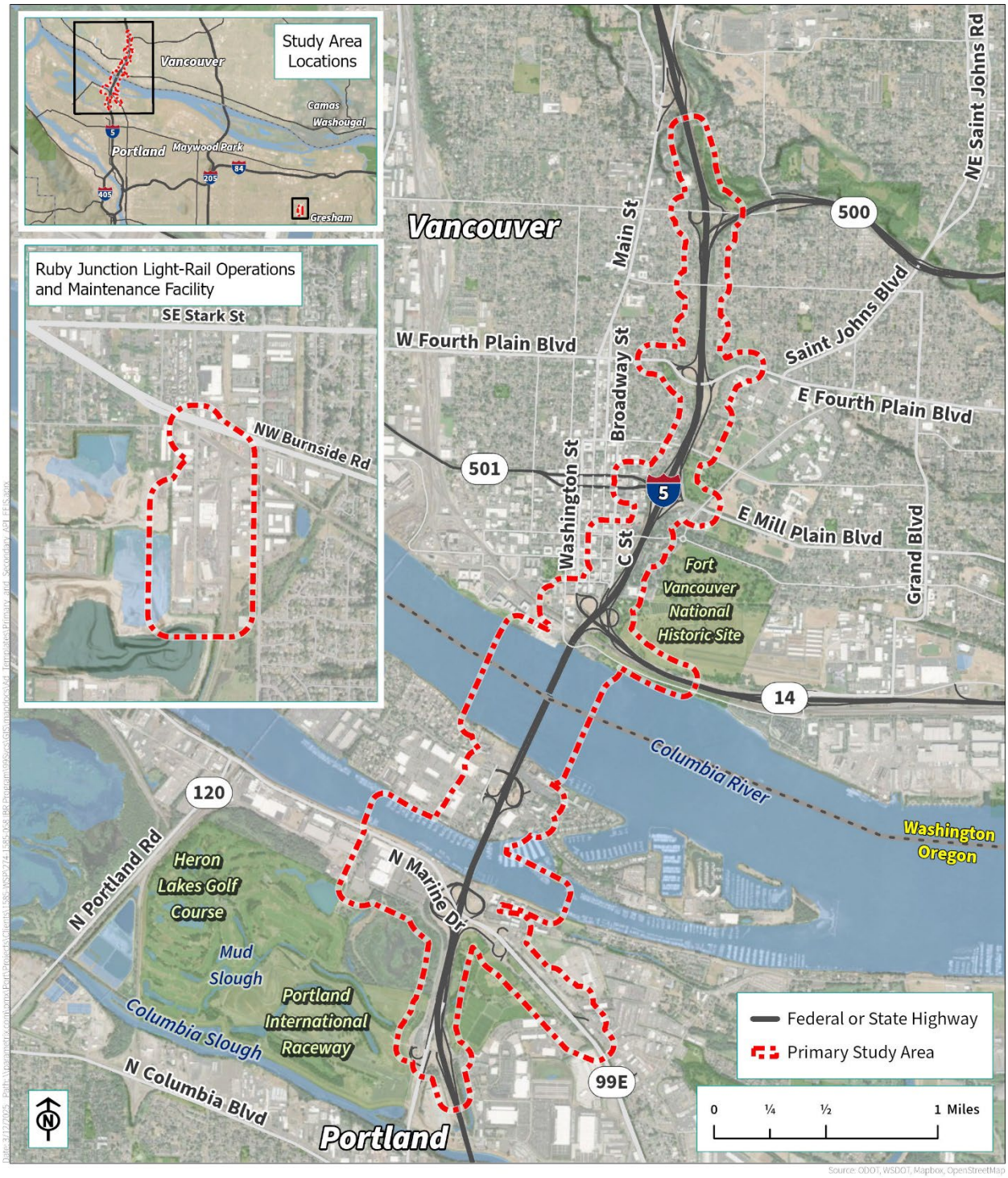


Figure 2-2. Secondary Study Area

2.3 Relevant Laws and Regulations

The following plans, policies, regulations, and zoning designations provide updated state, regional, and local guidance for the IBR Program's land use analysis.

2.3.1 Federal

- Rivers and Harbors Act – Section 10 of the Rivers and Harbors Act (33 U.S.C. 410 et seq.) administered by the U.S. Army Corps of Engineers.
- National Historic Preservation Act (16 U.S.C. § 470 et seq.) Section 106.
- National Trails System Act (16 U.S.C. § 1241-1251).
  - Oregon National Historic Trail.
  - Lewis and Clark National Historic Trail.
- U.S. DOT Act Section 4(f) 49 U.S.C. § 303(c).
  - This is addressed in the Section 4(f) Evaluation; refer to the SEIS for additional information.

2.3.2 State

- Oregon Statewide Planning Goals.
  - Goal 12 Transportation.
  - Goal 6 Air, Water, and Land Resources Planning
  - Goal 2 Land Use Planning.
- Oregon Transportation Plan (OTP).
  - The current OTP was adopted in 2023 and defines the state's long-range transportation policy through the year 2050 for the movement of people and goods across the state.
- Oregon Highway Plan (OHP) – updates through 2015.
  - The OHP is in the process of being updated at the time of writing this report. Adoption is anticipated in 2027. The new OHP will help implement the goals and strategies of the 2023 OTP as they apply to the roadway system.
- Oregon's State Agency Coordination (SAC) Rule [OAR 731-015-0075 (1) through (8)] requires ODOT to analyze a project's compatibility and compliance with state land use goals and local comprehensive plans within the context of a Draft EA or EIS. The SAC rule sets forth parameters for coordination with planning officials from all applicable local, state, regional, and federal planning agencies. The rule also mandates that the Oregon Transportation Commission must adopt a finding of compatibility with applicable comprehensive plans before project design can be approved.
- Washington Transportation Plan.
  - Phase 2 Implementation 2017–2040.
    - Replacing 2007–2026 long-range transportation plan.

  - 2040 and Beyond.
- Washington Growth Management Act (GMA).
- Washington state laws governing statewide transportation planning (RCW 47.06) and regional transportation planning organizations (RCW 47.80) require WSDOT to cooperate with city and county governments and planning agencies, transit agencies, and other appropriate local planning entities when planning improvements to highways of statewide significance, including the Interstate system.

2.3.3 Regional

- Metro 2040: Regional Framework Plan Chapters 1 (Land Use) and 2 (Transportation), as updated.
- Metro's 2018 Regional Transportation Plan – 2018 updates.
- C-TRAN 2030 Transit Development Plan – 2016 updates.
- Regional Transportation Plan for Clark County – 2019 updates.

2.3.4 Local

- Multnomah County Comprehensive Plan – 2016 updates.
- City of Portland 2035 Comprehensive Plan, as amended through May 2023.
- City of Portland. The Portland Plan, April 2012.
- City of Portland Transportation System Plan.
  - With City of Portland Comprehensive Plan 2016 updates.
- City of Portland Enhanced Transit Corridors Plan, adopted June 20, 2018.
- City of Portland Central City 2035 Plan.
  - Adopted in July 2018, was appealed and re-adopted on July 8, 2020.
  - Central City 2035 – N/NE Quadrant Plan – Lloyd Center 2012 updates.
- Portland Development Commission Interstate Corridor Urban Renewal Plan – Amended and Restated through July 27, 2011.
- Bridgeton Neighborhood Plan (1997).
- Kenton Neighborhood Plan (1993), as amended by the Kenton Downtown Plan (2001).
- Hayden Island Plan (2009).
- Hayden Island Plan District (HI), Portland Zoning Code Chapter 33.532.
- Portland International Raceway Plan District (PIR), Portland Zoning Code Chapter 33.566.
- East Columbia Neighborhood Natural Resources Management Plan (1990).
- Peninsula Drainage District No. 1 Natural Resources Management Plan (1997).
- City of Gresham 2035 Transportation System Plan
- City of Vancouver Comprehensive Plan – 2011–2013 updates.

  - The Vancouver Comprehensive Plan update process was initiated in 2022 and is currently anticipated to conclude in 2025. The updated 2025–2045 Comprehensive Plan will guide development in the City of Vancouver for 20 years following adoption. Washington's GMA requires the City to adopt an updated plan and changes to its zoning code by December 31, 2025.
- Vancouver Moves: City of Vancouver 2024–2044 Transportation System Plan.
- City of Vancouver Strategic Plan (2023–2029)
- Vancouver City Center Vision & Subarea Plan (2007).
- Vancouver Downtown Design Guidelines (draft guidelines issued September 2024; adoption anticipated in 2025).
- City of Vancouver Heritage Tree Program – 2011 updates.
- City of Vancouver Shoreline Master Program – 2017 and 2019 updates.
- Port of Vancouver Waterfront Development Master Plan, November 2015.
- Clark County Comprehensive Growth Management Plan (2015–2035) – 2016 updates.
- Vancouver Downtown Access, Mobility, and Parking Plan, February 2025.

2.3.5 Plans and Policies Changed or Removed from the CRC Land Use Technical Report

- U.S. Department of Transportation, Federal Transit Administration 2004 – New Starts Guidelines and Standards for Assessment of Transit Supportive Land Use.
  - Rather than using this document to specifically analyze local codes and policies against the approach presented in the report, the updated technical report used this document for general guidance.

2.3.6 Applicable City of Portland, City of Gresham, and Multnomah County Zoning and Overlays

The following City of Portland Comprehensive Plan and zoning designations are located within the study area. See Figure 3-12.

- Multi-Dwelling – Neighborhood (MD-N)
  - Residential Multi-Dwelling (RM1)
- Mixed Use – Neighborhood (MU-N)
  - Commercial Employment (CE)
  - Commercial Mixed Use 1 (CM1)
  - Commercial Mixed Use 2 (CM2)
- Manufactured Dwelling Park (MDP)
  - Residential Manufactured Dwelling Park (RMP)
- Industrial Sanctuary (IS)

  - General Industrial 2 (IG2)
- Open Space (OS)
- Mixed Employment (ME)
  - General Employment 2 (EG2)
- Single-Dwelling Residential - Farm and Forest (RF)
  - MUF-19 (Multnomah County)[17]
- Overlays.
  - Aircraft Landing (h)
  - Airport Noise Impact (x)
  - Environmental Conservation (c)
  - Design (d)
  - Prime Industrial (k)
  - Historic Resources
- The following City of Gresham Comprehensive Plan and zoning designations are located within the study area.
  - Heavy Industrial (HI)
  - SC-RJ Ruby Junction Station Center – Ruby Junction Overlay

2.3.7 Applicable Clark County/City of Vancouver Zoning

The following Clark County/City of Vancouver comprehensive plan and zoning designations are located within the study area. See Figure 3-4 and Figure 3-5.

- Commercial (COM)
  - City Center (CX)
  - Community Commercial (CC)
  - General Commercial (CG)
  - Neighborhood Commercial (CN)
- Open Space/Green Space
  - Parks
- Residential
  - Urban Low Density Residential
- Low Density Residential (R-9)
  - Urban High Density Residential

[17] Lands designated MUF-19 are limited to proposed mitigation sites on West Hayden Island, which is governed by the City of Portland Comprehensive Plan but is under Multnomah County zoning jurisdiction.

- Higher Density Residential (R-22, R-18, and R-30)
  - Public Facilities
    - Central Park Mixed Use (CPX)
  - Industrial
    - Light Industrial (LI)
  - Water
- Overlays
  - Transit Overlay (Tier One and Tier Two)
  - Central Park Plan District
  - Historic Reserve Conservation
  - Social and Health Conservation
  - Noise Impact Overlay District
  - Education and Recreation Conservation
  - Heritage Overlay District
  - Central City Plan District
  - Shoreline Plan District
  - Airport Approach Zone
  - Airport Transition Zone
  - Airport Height Overlay District
  - Hough Neighborhood Overlay District

2.4 Effects Guidelines

The approach for evaluating potential land use effects of the Modified LPA is based on guidelines developed by the U.S. Department of Transportation and Federal Highway Administration (1987), WSDOT, and ODOT. WSDOT guidelines are presented in the *Environmental Manual* (WSDOT 2020). ODOT is in the process of updating the EA and EIS components of its *NEPA Manual* (ODOT 2021); therefore, ODOT will rely on the FHWA guidelines for evaluating potential land use effects of the Modified LPA. The analysis included a check for consistency with state, regional, and local plans and regulations. Potential land use effects evaluated by this approach include:

- Effects from converting land area to a transportation use from other non-transportation uses:
  - Property acquisitions and relocations.
- Changes in noise levels, vibration, dust, or visual changes inconsistent with existing land uses.
- Conflicts or inconsistencies with local plans or zoning resulting from the Modified LPA.

Changes in development intensities or changes in the mix of land uses resulting from loss of land area for project construction were also evaluated.

2.5 Data Collection

This Land Use Technical Report was prepared using information obtained from a variety of sources. Agency and environmental documents, local maps, project drawings, aerial photographs, and field visits provided information on existing conditions in the study area. The WSDOT *Environmental Manual*, federal guidance documents, and other materials were employed to structure the analysis. Neighborhood, local, regional, and state plans and development regulations were reviewed to identify goals and policies pertaining to transportation and land use.

2.5.1 Data Sources and Approach

For this evaluation, the Program team examined the land use planning context in both Oregon and Washington—specifically in the Portland-Vancouver metropolitan area. The team reviewed the general historical development of the area and recent development trends. GIS and preliminary project designs were used to analyze the changes in land use that could result from the Modified LPA, including indirect impacts to land use such as displacements indirectly influencing development or redevelopment on surrounding parcels.

The Program team conducted field visits to verify and correct information gathered from the Metro Regional Land Information System and the Clark County GIS Services and Assessment for existing land uses. Local agencies were consulted to verify the accuracy of land use and zoning maps.

The collection of land use data included:

- Reviewing the Program's consistency with state, regional, and local plans and policies including comprehensive plans, transportation plans, zoning ordinances, subarea plans, shoreline management master plans, and site-specific master or facility plans. The Program team contacted relevant agencies to discuss any potential plan or ordinance amendments to identify inconsistencies with applicable plans and development regulations.
- Interviewing local, regional, and state planning agencies and other relevant agencies to gather data and interpret policies.
- Identifying special districts, centers, and overlays, such as Vancouver's Central Park, through a review of relevant policies and correspondence with local planning agencies. This included a review of planned developments, connectivity, access to the interstate and transit systems, and noise and air quality.
- Reviewing required permits and development regulations for areas in the primary study area that may be impacted by construction activities. To conduct the permitting review, the team considered allowed uses, buffers around sensitive areas, demolition of significant structures, and other regulated actions.

2.6 Analysis Methods

2.6.1 Long-Term Operational Impacts

To analyze long-term land use impacts, the Program team compared conceptual designs and operational plans to the information collected on existing land uses, zoning, comprehensive plan designations, designated special districts, overlays, and subarea plans. The findings from other IBR Program technical reports including the Transportation, Acquisitions, Economics, and Air Quality Technical Reports, were reviewed to identify land use impacts. Long-term land use impacts were classified as either direct or indirect, as discussed below.

2.6.1.1 Direct Land Use Impacts

The analysis of direct land use impacts included evaluation of the following:

- The extent to which property acquisitions and relocations of existing uses within the primary study area could change land uses by converting from a non-transportation use to a transportation use including necessary changes to zoning, special district plans, and overlays. The types of property impacts that are considered include:
  - Acquisition (land, subsurface, airspace).
    - Full acquisition, with or without displacement of the use.
    - Partial acquisition of the parcel, with or without displacement of the use.
  - Easement (land, subsurface, airspace).
    - Permanent.
    - Temporary.
- In addition to the land required to accommodate new or improved transportation facilities, acquisition of land, of space underground (subsurface), or of space in the air (airspace) could be required for the long-term maintenance of these facilities. These impacts could be a permanent acquisition where the agency obtains complete ownership of the property, or they could be a permanent easement where the agency would obtain some rights to the land, air, or subsurface, but not ownership.
- Temporary acquisitions would be required to construct the highway, transit, and bicycle and pedestrian features of the Modified LPA. These temporary acquisitions could be obtained via easement or lease where the project would obtain certain rights, such as the right to access or store materials on the property, but not ownership of the property. There are three types of temporary acquisitions that would likely be required: construction easements, staging areas, and casting yards. Please refer to the Acquisitions Technical Report for more information on permanent and temporary acquisitions.
- The compatibility of new uses (such as roadway or transit facilities) with surrounding existing or planned uses and whether such uses could disrupt or divide the physical arrangement of a community.
- Visual, noise, vibration, and air quality changes inconsistent with existing land uses.

The long-term effects analysis included review of relevant state, regional, and local plans to determine plan consistency.

- The Modified LPA was evaluated for consistency with state, regional, and local plans and implementing regulations including comprehensive plans, transportation plans, zoning ordinances, subarea plans, shoreline management master plans, and site-specific master or facility plans.
- The Program team contacted relevant agencies to discuss potential plan or ordinance changes to identify inconsistencies with applicable plans and development regulations.

2.6.1.2 Indirect Impacts

40 Code of Federal Regulations (CFR) § 1508.8 defines indirect effects as follows:

> *Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.*

This analysis considered how direct impacts, such as displacements, could indirectly influence development or redevelopment on surrounding parcels. The analysis also considered whether the transportation improvements could potentially result in induced growth by reviewing local plans to determine the prevailing comprehensive plan and zoning designations within the primary and secondary study areas, along with the extent to which the IBR Program's proposed transportation improvements have been incorporated into regional growth management planning.

2.6.2 Short-Term Construction Impacts

The land use analysis estimated short-term construction impacts based on conceptual designs for the Modified LPA, construction plans developed for the CRC LPA, and the findings from other technical reports.

The analysis included evaluation of the impacts of construction activities to surrounding uses, special districts, overlays, and plan areas. These include activities with impacts to access, noise, air pollution, traffic, neighborhoods, economics, historic resources, ecosystems, and others. Such impacts could include changes to land uses resulting from temporary reduction or loss of accessibility to businesses or residences, disturbance of livability, or disruption of significant public activities or events.

2.6.3 Mitigation

Where potential impacts are identified, the Program team conducted an analysis to identify potential and appropriate mitigation measures, including measures that may be identified in other disciplines, with the intent of identifying mitigation measures directly related to the impacts. The measures will be further refined through work with the participating and sponsoring agencies and in keeping with adopted federal and state guidelines.

3. AFFECTED ENVIRONMENT

3.1 Introduction

This chapter describes the existing land uses, recent and pending development, planned land uses, zoning and overlay districts, and development trends in the primary and secondary study areas as shown in Figure 3-1 through Figure 3-8. It identifies the state, regional, and local transportation and land use plans and development regulations that apply to the project. This chapter also identifies the current land use patterns and zoning districts within the study area.

Sophisticated transportation and land use plans and development regulations that implement those plans are part of this region's character. Oregon's statewide planning laws, described below, and Washington State's GMA agree on general principles of compact urban form, preservation of rural areas, use of urban growth boundaries, and multimodal transportation systems. Regional plans help to tailor these goals for the Portland-Vancouver area. Local plans refine the goals further and establish policies to implement them. Zoning and other development regulations are adopted through ordinances to implement these planning principles. Zoning in the study area includes numerous overlays for the protection of historic, scenic, environmental, and other resources.

3.2 Oregon

The primary study area in Oregon is largely characterized by commercial land uses with smaller amounts of vacant land, multifamily residential, and parks or open space. The Oregon portion of the secondary study area comprises several neighborhoods and is largely residential. Commercial development is the dominant land use along the major transportation corridors such as Interstate Avenue and Martin Luther King Jr. Boulevard. Figure 3-1 through Figure 3-3 show the existing land uses in the primary and secondary study areas of the areas in Portland that would be affected by the proposed project.

3.2.1 Existing Land Uses

The southern portion of the secondary study area, as shown in Figure 3-2, includes the Lloyd District, which is a mix of residential and commercial land uses and includes regional facilities such as the Moda Center, the Veterans Memorial Coliseum, and the Oregon Convention Center. This area is a major employment center for the region and includes several large office buildings which house the Bonneville Power Administration, State of Oregon, Oregon Metro (Metro), Tri-County Metropolitan Transportation District (TriMet) offices, the Lloyd Center Mall, and various small businesses. Residential uses also make up a large amount of the southern portion of the secondary study area. Light-rail runs east-west along NE Holladay Street in the Lloyd District and travels north along Interstate Avenue. This light-rail service is part of the existing MAX light-rail transit system, which runs between Gresham and Hillsboro, traveling through downtown Portland, and connects to the Portland International Airport. The MAX light-rail also runs north-south from the Expo Center through Union Station, Pioneer Square, and Portland State University, ending in Milwaukie. The area is also well served by a large number of bus routes.

Figure 3-1. Existing Land Uses, Portland-Vancouver Area

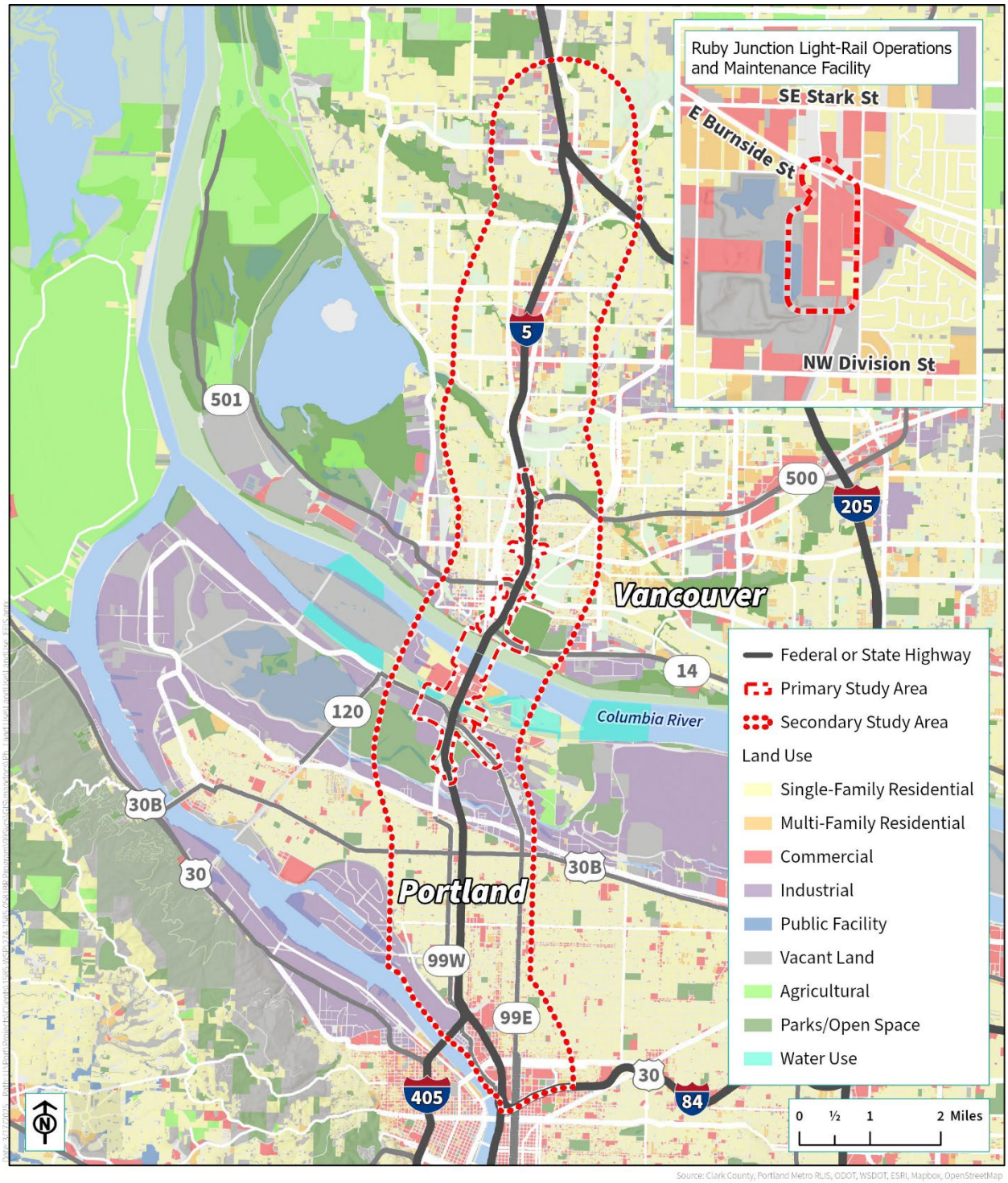


Figure 3-2. Existing Land Uses, North Portland/East Central Portland

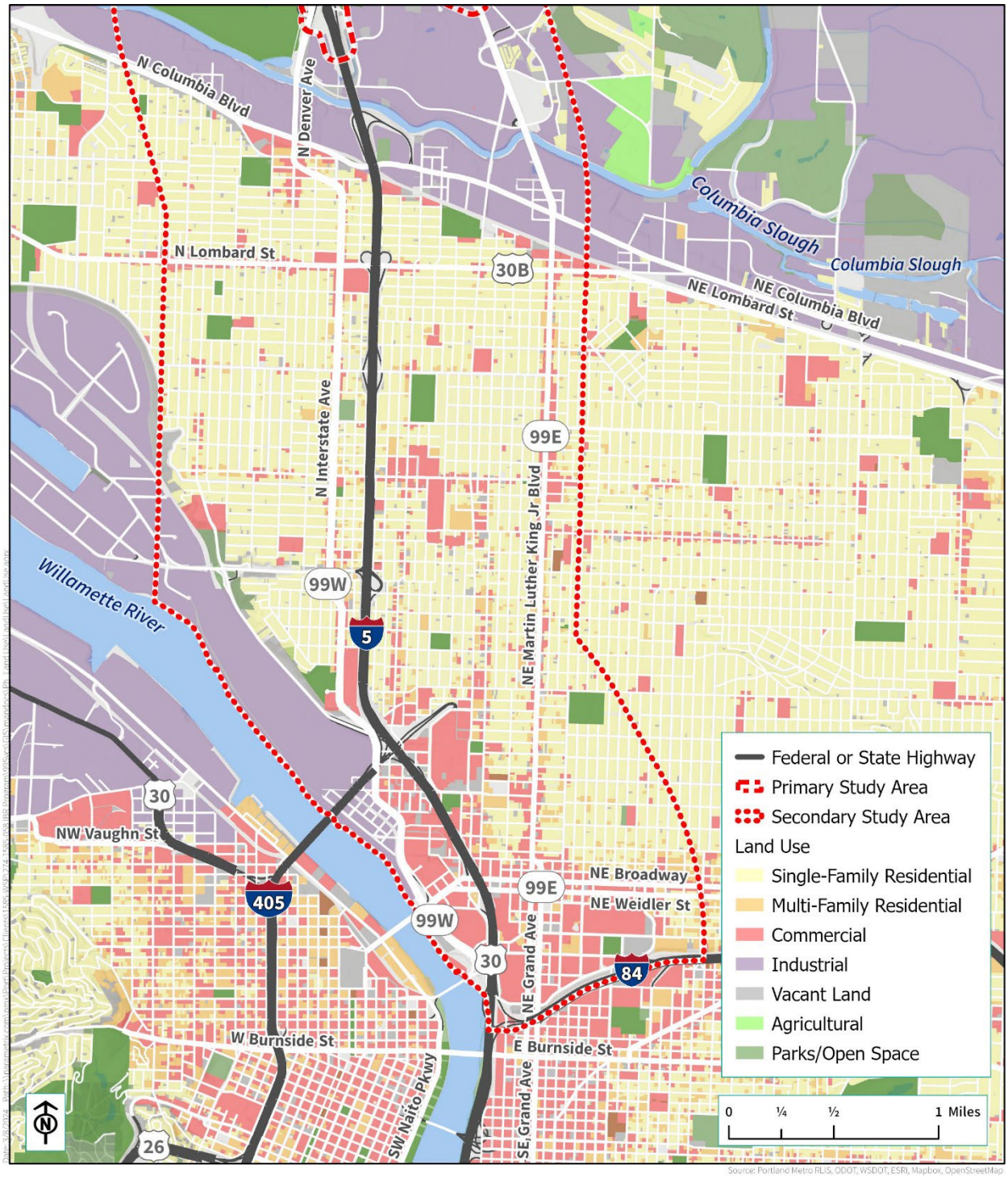
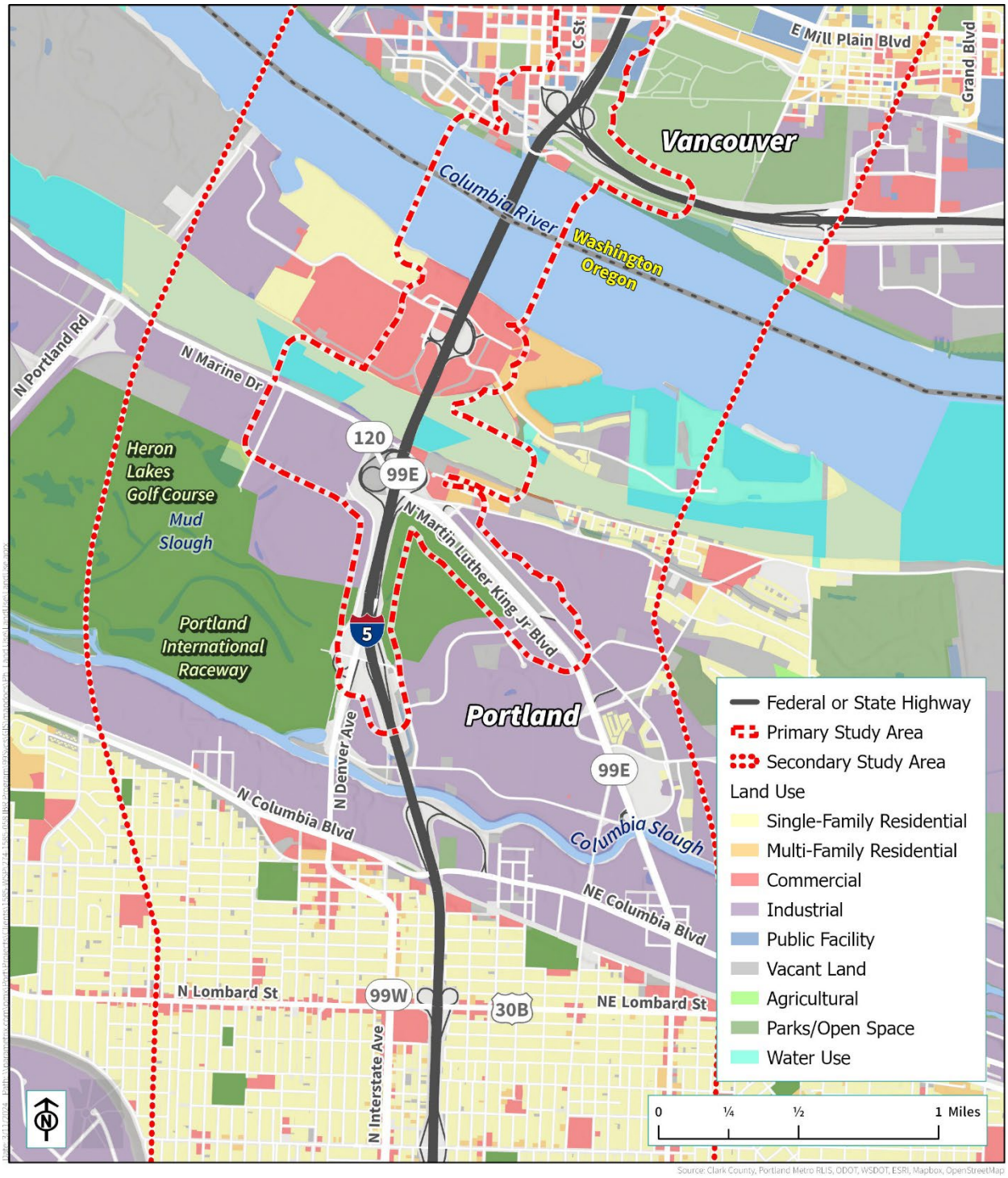


Figure 3-3. Existing Land Uses, Columbia Boulevard/Hayden Island/Columbia River



The area of North Portland between N Columbia Boulevard and the Columbia River, as shown in Figure 3-3, is primarily industrial and commercial uses. Multifamily housing, parks, public facilities, and open space are also present. Some regionally important land uses in this area are the Portland International Raceway, the Expo Center, and an Amazon delivery facility that occupies the site of the former Portland Meadows horse racing track. This area includes the Columbia Slough, Hayden Island, and Delta Park, which contains large wetlands west of I-5 (see the Wetlands and Other Waters Technical Report) as well as a variety of recreational facilities (see the Parks and Recreation Technical Report). Currently, the MAX light-rail line ends at the Expo Center just south of the Columbia River. Historically, the city of Vanport was located south of the Expo Center.

Hayden Island (Figure 3-3) is only accessible via I-5. N Hayden Island Drive is the main road within the neighborhood. The west side of Hayden Island and the far eastern tip of the island are predominantly open space, and the western side is unincorporated. In the eastern portion of the study area, the primary uses are commercial, including the Jantzen Beach Center (a large shopping mall) and surrounding retailers. Residential uses in the area include multifamily residential developments, manufactured homes, and floating homes associated with small marinas. The Columbia River forms the boundary between Oregon and Washington. It is lined on both sides by marinas, homes, hotels, restaurants, and public facilities.

3.2.2 Recent and Pending Development

Information on recent and pending development was compiled using desktop GIS-based resources and the City of Portland's PortlandMaps website.

Recent and pending development within the primary study area that has taken place since the publication of the CRC Final EIS is described below. Projects are listed from south to north.

- Portland Expo Center Redevelopment (Expo Future)– The Expo Center is located west of I-5, north of N Expo Road, and south of N Marine Drive. Following a development opportunity study, Metro recommended redevelopment of the Expo Center into a sports and cultural complex. No schedule or timeline is currently available for this project.
- Harbor Sky Lot 1 Development – A five-story, 113-apartment building has been completed and is currently undergoing inspections (as of fall 2022) at 1245 N Anchor Way.
- Harbor Sky – A multifamily building was built in 2017 east of I-5 along the riverfront at 1055 N Anchor Way.
- Marine View – A multifamily building was built in 2016 at 905 N Marine Drive.
- Floor and Décor – A new 80,000-square-foot, single-story flooring retail store was built in 2021; it is directly east of and adjacent to I-5.
- Jantzen Beach Center Redevelopment – The commercial center, located west of I-5, north of N Jantzen Avenue, and south of N Hayden Island Drive, was recently redeveloped and includes several available spaces for lease.
- Retail – A new commercial retail building was built in 2013 west of and adjacent to I-5 at 12235 N Center Avenue.

- Wood Springs Inn – This proposed development is in the planning phase and underwent early assistance consultation with the Portland Bureau of Planning and Sustainability (BPS) in January 2021. As proposed, the project would consist of a 123-room hotel constructed along the north property boundary of the Thunderbird Hotel parcel, adjacent to the existing I-5 southbound bridge. The project would also include a 4,000-square-foot retail store and gas station abutting the N Hayden Island Drive right of way. The proposed site for this project is also identified as a potential staging or casting location for the Modified LPA. As of January 2023, BPS had no record of this proposed development proceeding beyond early assistance consultation to subsequent phases of development review.
- Jantzen Bay Marinas – Relocation of two marina docks and piles, including 88 boat slips, and the addition of berths for 24 floating-home slips immediately east of the existing Interstate Bridge fronting North Portland Harbor. The project includes proposed mitigation along the Jantzen Bay Marina riverbank, removal of the existing boat ramp for additional parking, relocation of an existing fuel dock, and upsizing of an existing lift station (if needed). This project underwent an early assistance consultation with BPS in October 2020, but no formal permitting or land use reviews have been initiated.

3.3 Washington

3.3.1 Existing Land Uses

Downtown Vancouver, as shown on Figure 3-4, includes the central business district (south of Mill Plain Boulevard and west of I-5), residential areas, and the Central Park neighborhood, which includes National Park Service property and the Vancouver National Historic Reserve. Land uses in the area are primarily commercial including retail, offices, industrial, governmental, and residential uses. The downtown serves as the governmental and cultural center of Clark County and southwest Washington. Community facilities located in the downtown area include an Amtrak train station, C-TRAN BRT facilities (including Turtle Place Transit Station), Esther Short Park, and government offices. The current I-5 corridor is a significant division in the downtown area with the commercial/office center on the west and the Vancouver National Historic Reserve and Clark College on the east. A robust network of bus routes serves the downtown and inner neighborhoods of Vancouver.

North of the central city, commercial development is centered around I-5 and Highway 99, as shown on Figure 3-5. Spreading east and west away from I-5, much of the secondary study area is designated single-family residential with some multifamily districts scattered along major roadways. Public facilities, parks, and open spaces are found throughout the secondary study area. The Vancouver urban growth boundary is just to the north of the secondary study area, approximately at the intersection of I-5 and 209th Street.

Figure 3-4. Existing Land Uses, Vancouver

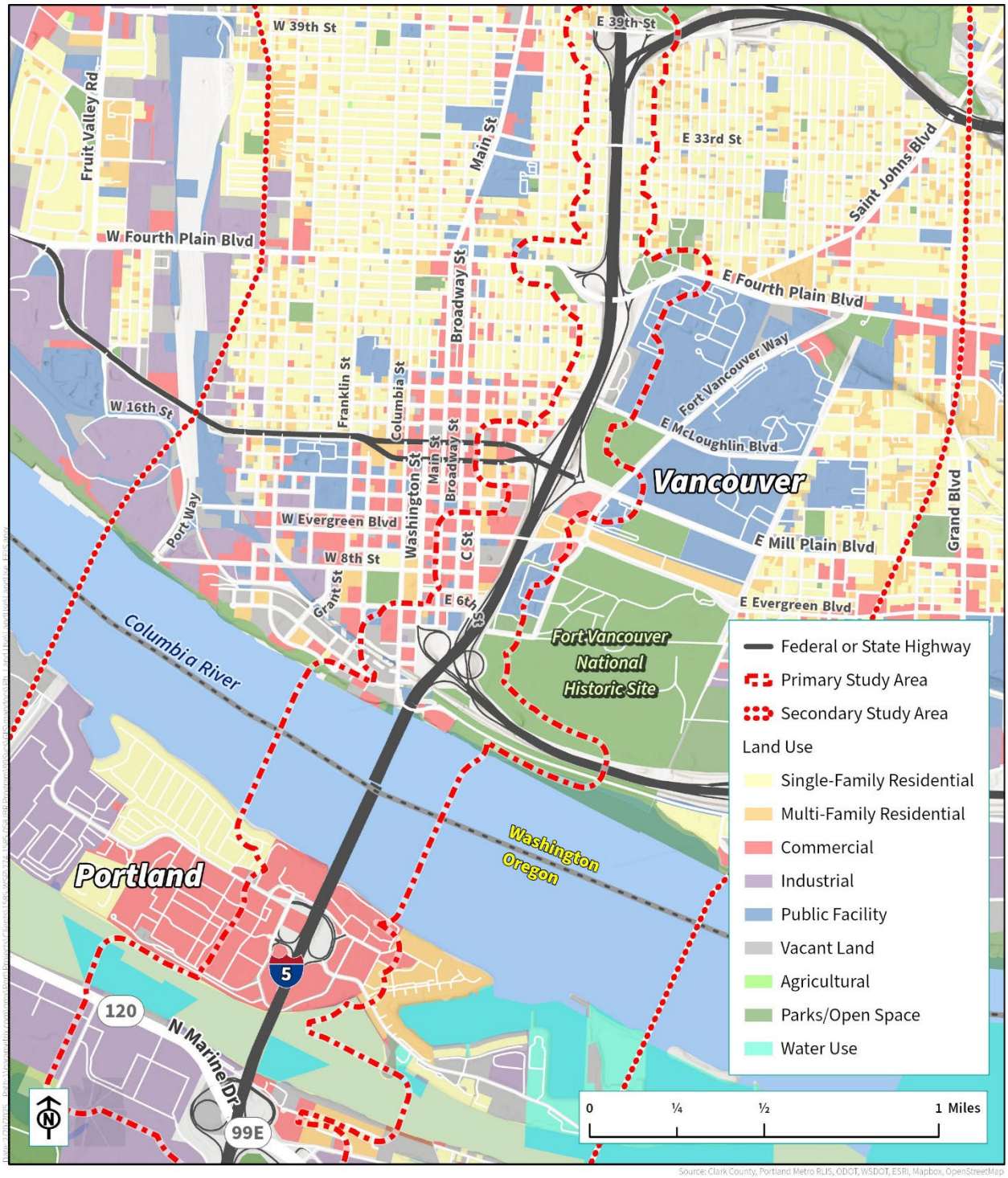
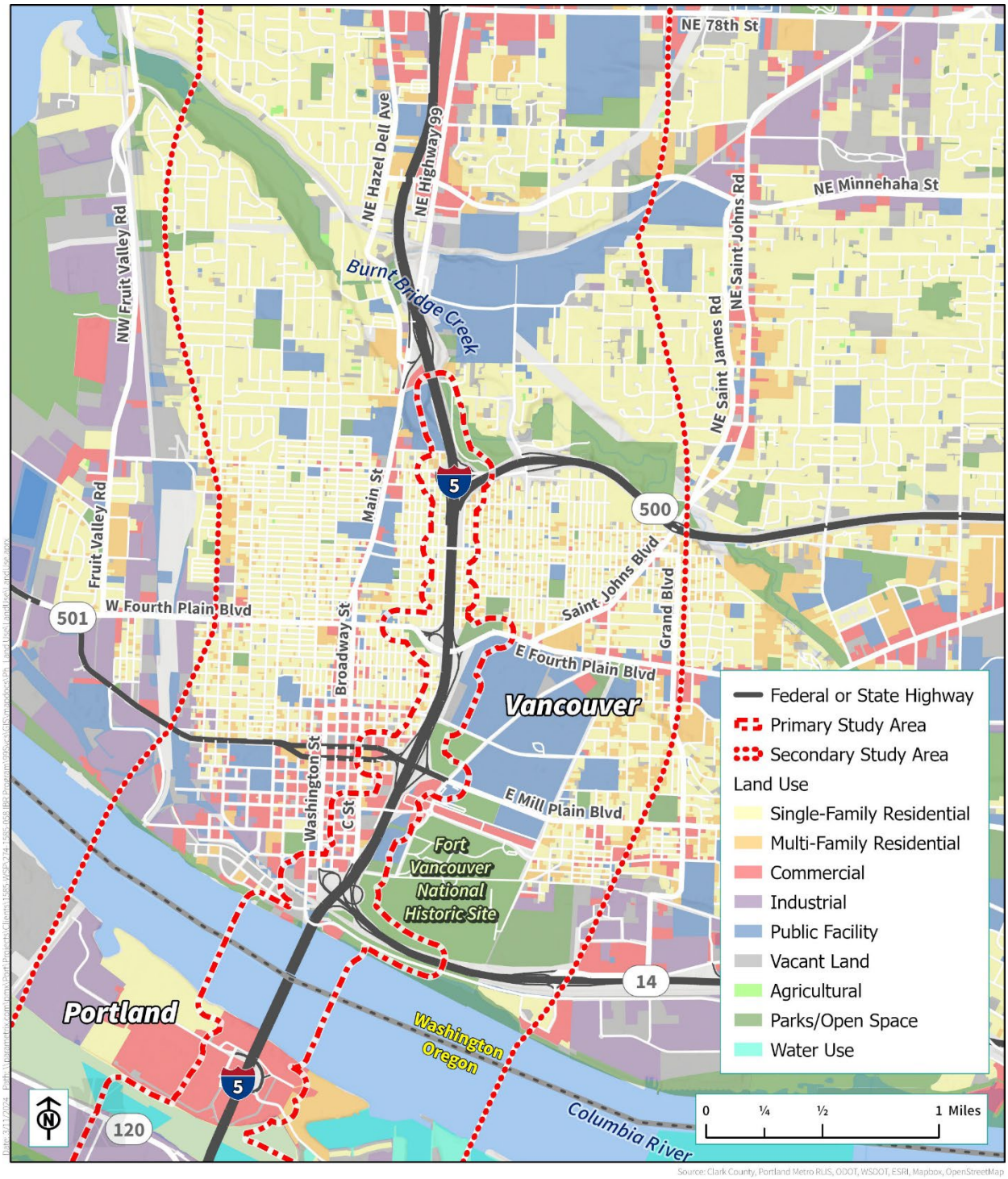


Figure 3-5. Existing Land Uses, Clark County



The uptown commercial district (between Mill Plain and Fourth Plain Boulevards on Main Street) is a transitional area between downtown and the lower-density land to the north. Residential uses predominate with major transportation corridors (primarily Fourth Plain Boulevard and Main Street) supporting commercial uses. The neighborhoods directly on each side of I-5—Arnada, Shumway and Rose Village—have many vintage homes and a tight street grid. The current municipal boundaries of the City of Vancouver run roughly along 63rd Street.

Hazel Dell is primarily a suburban residential area and includes areas north of 63rd Street and south of Salmon Creek and 119th Street. The residential areas are heavily single-family with larger lots than are found in areas farther south. The commercial areas (along Highway 99 and Hazel Dell Avenue) have frequent bus service but are primarily auto-oriented. Infill development has maintained a healthy pace in the Felida and Hazel Dell areas with single housing units as well as very small subdivisions being built on previously overlooked parcels. A major C-TRAN park-and-ride is located west of I-5 and adjacent to the north side of the Hazel Dell Town Center.

The northernmost portion of the secondary study area is suburban in character and has been developed more recently. It includes some undeveloped areas with a rural character. Residential areas are predominantly large-lot single-family parcels. Commercial areas along 134th Street and Highway 99 are auto-oriented. This area includes a number of regional facilities—the Clark County Fairgrounds, the Clark County Amphitheater, and Legacy Salmon Creek Hospital. The Washington State University Vancouver campus is located just outside the secondary study area. I-5 and I-205 come together in this area, as do 134th Street, Salmon Creek Avenue (serving the University), and Highway 99. The confluence of these major roadways has resulted in significant congestion, which has led to development moratoria in the area twice in the past. A large C-TRAN park-and-ride, the Salmon Creek Park and Ride, is located between 136th Street and 139th Street.

3.3.2 Recent and Pending Development

Information on recent and pending development was compiled from desktop review of planned projects listed on the City of Vancouver's Be Heard public engagement website (City of Vancouver 2022a), the City of Vancouver's Building and Permitting Services website (City of Vancouver 2022b), and in the *Vancouver Waterfront Master Plan* (Columbia Waterfront LLC 2022). Information from desktop resources was verified and updated through email correspondence with City of Vancouver staff (Turner 2023).

The character of development in downtown Vancouver has changed greatly during the past decade. The focus of the downtown and waterfront areas has broadened from employment-related uses to tourism and recreation development, retail shopping, meeting and convention activities, housing, and entertainment. Along with revitalizing overall downtown activity, development has emphasized new residential opportunities and revitalization of the retail core and central waterfront. New and growing uses in the downtown include hotels, eateries, bars/taverns, and personal services.

The Vancouver City Center Vision and Subarea Plan (VCCV), adopted in 2007, continues to guide development in and around downtown Vancouver. The Historic Trust is a nonprofit that maintains and preserves the City-owned Officers Row and West Vancouver Barracks historic properties as well as the Providence Academy located west of I-5 and Officers Row. In 2015, the Port of Vancouver

developed the Port of Vancouver Waterfront Development Master Plan to define a vision for the Columbia River waterfront and guide future development.

Esther Short Park and Propstra Square are located in downtown Vancouver between Esther and Columbia Streets and 6th and 8th Streets. Esther Short Park is the oldest public square in Washington and is considered the oldest city park in the West. Private donations of $3.6 million and City investment of $2 million were used in 1998 to redevelop the park, which features new a plaza (Propstra Square), gardens, and amenities. The site is active year-round with a variety of events, programs, concerts, food vendors, and other activities.

Specific recent and ongoing development projects in this area, from south to north, include:

- Waterfront Vancouver – This development is located west of I-5 along the waterfront. The project's master plan consists of a pier and parks/open space, hotels, 3,300 new residential units, 1.25 million square feet available for office space, and 250,000 square feet for restaurants and retail space (Columbia Waterfront LLC 2022). The planned 32-acre Waterfront Vancouver development is partially complete, with over 180,000 square feet of office and retail space, 183 hotel rooms, and 1,900 dwelling units in operation.
- Port of Vancouver Terminal 1 – This development consists of approximately 10 acres of land located west of I-5 along the waterfront. The master plan provides a schedule of completion in 2027, with the first three blocks completed in 2023. Currently existing development includes the AC Marriott Hotel and the ZoomInfo headquarters, totaling 360,000 square feet of office space, 15,000 square feet of retail space, and 150 hotel rooms.
- Waterfront Gateway – A 6.4-acre City-owned site located west of I-5 between the Columbia River waterfront and historic downtown. The properties are situated south of W 6th Street, north of the railroad berm, west of Columbia Street, and east of Grant Street. Future development is anticipated to include office, commercial, retail, and housing space in a multistory mixed-use environment.
- Kirkland Renaissance Boardwalk Project – This project is located at 101 and 111 SE Columbia Way, to the east of I-5 along the waterfront. It is a mixed-use development consisting of 217 residential units and 115,000 square feet of commercial space; it has received preliminary approval.
- Hurley Building Condominium – A commercial office condominium building built in 2018; it is located at 275 W 3rd Street.
- 210 W 3rd Street – A commercial office space remodel completed in 2021.
- 400 Washington Street Apartments – An approximately 40,000-square-foot apartment building located in downtown Vancouver, west of I-5. The project is currently under construction and will contain 186 units and 5,500 square feet of ground floor commercial space.
- 101 E 6th Street – Commercial office building built in 2015.
- Vancouver Center Condo – Multifamily mixed-use building with apartments and retail built in 2019 at 608 Washington Street.

- Block 10 – A six-story, mixed-use building at 815 Columbia Street including 110 multifamily units, 79,000 square feet of office space, and 10,000 square feet of retail. The project was completed in 2022 and is now occupied.
- Vancouver Community Library – The new library was completed in 2011 and consists of 80,000 square feet of space.
- Providence Academy Site Redevelopment and Aeon (formerly Aegis) – The west end of the Providence Academy site was sold to a private developer to create a mixed-use urban campus. Proceeds of the sale have gone in part towards the preservation and historic rehabilitation of the Providence Academy building (located adjacent to I-5). Phase 1 of Aeon consisted of 147 apartments, 6,000 square feet of commercial space, and a 5,000-square-foot public plaza. Phase 2 consists of 195 apartments and a 266-space parking structure. Phase 2 has received land use approval but has not started construction.
- New Seasons Downtown Vancouver – Projected to open in fall 2023, the New Seasons grocery store will encompass 26,000 square feet at 1506 Main Street north of Mill Plain Boulevard.
- Vancouver Innovation, Technology and Arts Elementary School – A new elementary school located east of the I-5 corridor at 1111 Fort Vancouver Way.
- Several multifamily buildings have been built around Mill Plain Boulevard and to the north, primarily to the west of I-5.
- Vancouver Barracks – The federally established Vancouver National Historic Reserve includes many buildings previously used by the United States military.

  In 2012, the East and South Barracks were transferred from the U.S. Army to the National Park Service. The National Park Service completed a master plan for the East and South Barracks in 2012 which envisioned a mix of public offices and museum space, with nonprofit and private-sector offices, businesses, shops, and restaurants. Rehabilitation and infrastructure improvements were conducted on the Vancouver Barracks between 2013 and 2020. In 2018, design and archaeological work was conducted to move the Vancouver Barracks toward the “public-service campus” envisioned in the master plan.

3.4 Transportation and Land Use Plans

This section discusses the applicable plans and implementing regulations against which the project has been reviewed for consistency. Federal plans are covered first, followed by state plans, bi-state, regional, and local transportation and land use plans.

3.4.1 Federal

3.4.1.1 Rivers and Harbors Act – Section 10 of the Rivers and Harbors Act (33 U.S.C. § 410 et seq.), administered by the U.S. Army Corps of Engineers

Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the Secretary of the Army, acting through the U.S. Army Corps of Engineers, for the construction of any structure in or over any navigable water of the United States. Structures or work outside the limits defined for navigable

waters of the United States require a Section 10 permit if the structure or work affects the course, location, or condition of the water body. The law applies to any dredging or disposal of dredged materials, excavation, filling, rechannelization, or any other modification of a navigable water of the United States, and applies to all structures, from the smallest floating dock to the largest commercial undertaking. It further includes, without limitation, any wharf, dolphin, weir, boom, breakwater, jetty, groin, bank protection (e.g., riprap, revetment, bulkhead), mooring structures such as pilings, aerial or subaqueous power transmission lines, intake or outfall pipes, permanently moored floating vessel, tunnel, artificial canal, boat ramp, aids to navigation, and any other permanent or semi-permanent obstacle or obstruction.

3.4.1.2 National Trails System Act (16 U.S.C. § 1241–1251)

The National Trails System Act instituted a national system of recreational, scenic, and historic trails. National Historic Trails follow as closely as possible and practicable the original trails or routes of travel of national historic significance. The act requires that historic routes, remnants, and artifacts be identified and protected for public use and enjoyment. There are two National Historic Trails in the study area as described below.

OREGON NATIONAL HISTORIC TRAIL

The Oregon National Historic Trail, a route of approximately 2000 miles, extends from near Independence, Missouri, to the vicinity of Portland, Oregon. The trail follows a route identified as "Primary Route of the Oregon Trail 1841–1848," which includes Fort Vancouver (see Figure 3-6). The route follows the Columbia River through the study area with a stop at Fort Vancouver before continuing and turning south onto the Willamette River.

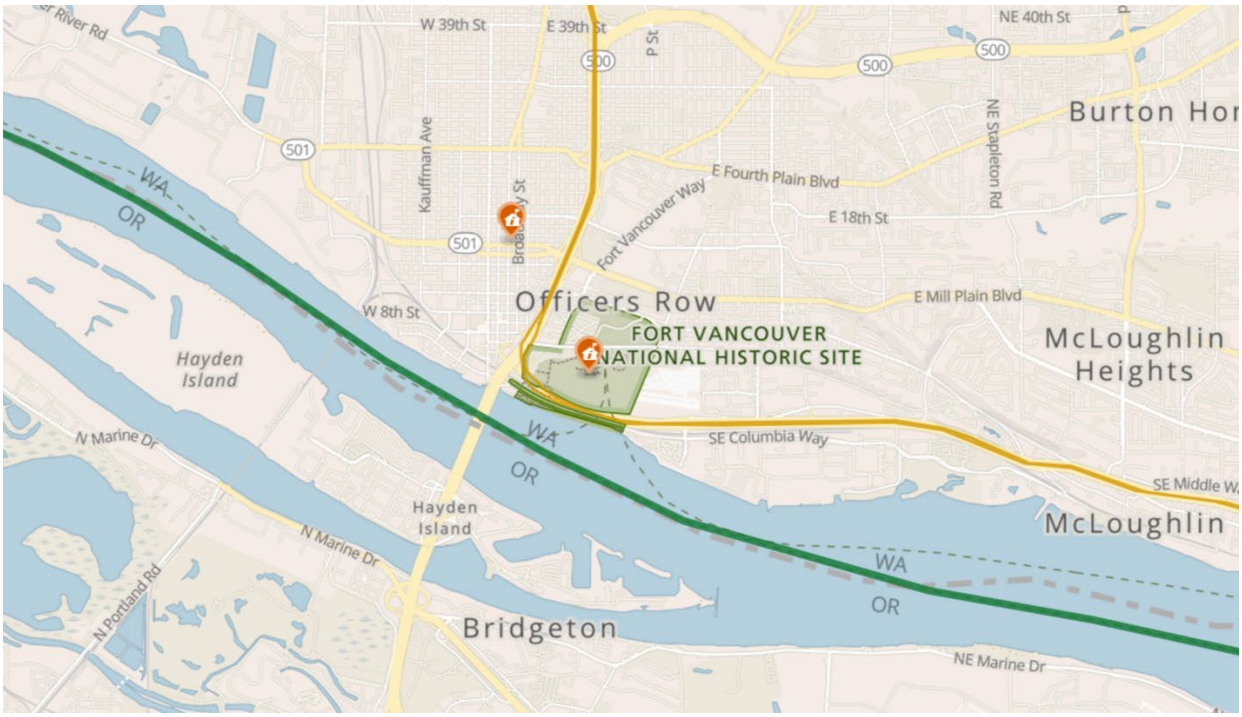
Figure 3-6. Oregon National Historic Trail

Source: NPS n.d.

LEWIS AND CLARK NATIONAL HISTORIC TRAIL

The Lewis and Clark National Historic Trail, a trail of approximately 4,900 miles, extends from the Ohio River in Pittsburgh, Pennsylvania, to the mouth of the Columbia River in Oregon. It follows the outbound and inbound routes of the Lewis and Clark Expedition. The Lewis and Clark National Historic Trail follows the Columbia River, passes through the study area (see Figure 3-7), and continues to the Pacific Ocean west of Astoria.

Figure 3-7. Lewis and Clark National Historic Trail



Source: NPS n.d.

3.4.2 Oregon

In 1973, the Oregon legislature enacted Senate Bill 100,[18] which requires all cities and counties to adopt and implement comprehensive land use plans that comply with 19 statewide goals and guidelines. Adopted comprehensive plans are implemented by a variety of ordinances used to enforce the provisions of the plans, capital facility plans, and other programs.

The statewide goals include goals to provide infrastructure to urban areas and to direct high-density growth to urbanized locations. In 1978, to comply with Statewide Goal No. 14, Urbanization, Metro adopted a regional urban growth boundary (UGB) for the Portland metropolitan area. The UGB defines the area within the three Oregon metropolitan counties—Multnomah, Clackamas, and Washington—where urban-level zoning, infrastructure, and development may occur. Local jurisdictions' comprehensive plans and implementing ordinances must provide urban services necessary to achieve the level of urban development envisioned in the UGB assumptions. Oregon Metro forecast that between 2018 and 2038, there could be between 365,000 and 659,000 additional people residing in the seven-county region, with the most likely growth of 524,000 more people (Metro 2018b). In 2011, Metro expanded the UGB by approximately 2,015 acres to address new housing and job needs; in 2014, an additional 1,178 acres in Washington County were added; and in 2018 the UGB was expanded by another 2,181 acres. The UGB has profoundly affected the land use and

[18] ORS 197.175(2)

development patterns in the metropolitan area by promoting infill and redevelopment rather than expansion.

Local comprehensive plans are based on the regional transportation policy set in 1976. At that time, the policy shifted from emphasizing automobile accommodation to a broader approach aimed at the efficient use of land and integration with the transportation system. A 1973 governor's task force on transportation concluded that fiscal and environmental realities made it impractical to rely on new radial highways to meet future travel demand, and that most of the new commuter growth into the central city needed to be accommodated with mass transit. As a result, for over 20 years land use and transportation plans have been based on the policy that no new radial highway capacity would be built in the region. Instead, future capacity and level of service to and from the central city would depend primarily on high-capacity transit.

The statewide goals relevant to the project are described briefly below.

3.4.2.1 Oregon Statewide Planning Goal 2: Land Use Planning

Goal 2 requires each local government in Oregon to have and follow a comprehensive land use plan and implementing regulations. Comprehensive plans must comply with the requirements of each applicable statewide planning goal.

3.4.2.2 Oregon Statewide Planning Goal 6: Air, Water and Land Resources Quality

The elements within Goal 6 correspond broadly to those of the federal Clean Air Act and Clean Water Act. Goal 6 covers many areas regulated by the Oregon Department of Environmental Quality (DEQ) through its permitting actions. DEQ ensures its permitting decisions comply with the plan and zoning regulations of the affected local government and coordinates with DLCD and other agencies to be sure that city and county plans comply with state and federal laws.

3.4.2.3 Oregon Statewide Planning Goal 12: Transportation Planning

In 1991, the Land Conservation and Development Commission adopted the Transportation Planning Rule (TPR), which implements Goal 12, to further enhance the planning connection between land use and transportation. The TPR specifies what must be included in local planning efforts for transportation and what must be addressed and included in a transportation system plan (TSP). The TPR directs counties and metropolitan planning organizations to prepare regional TSPs that are consistent with the state TSP. In turn, counties and cities must prepare local TSPs which are consistent with the regional plans. Therefore, all regional and local TSPs must be consistent with the OTP and the adopted modal and facility plans.

Statewide Planning Goal 12 provides and encourages a safe, convenient, and economic transportation system. Goal 12 requires cities, counties, and the state to create a TSP that considers all relevant modes of transportation: mass transit, air, water, rail, highway, bicycle, and pedestrian.

The following subsections describe the Oregon state transportation plans and policies that are relevant to the proposed project.

THE OREGON TRANSPORTATION PLAN

The OTP is the overarching long-range transportation system planning and policy document for series of plans that together form the state TSP. The current OTP was adopted by the Oregon Transportation Commission on July 13, 2023 and supersedes the previous (2006) OTP (ODOT 2023). The OTP considers all modes of Oregon's transportation system as a single system and addresses the future needs of Oregon's airports, bicycle and pedestrian facilities, highways and roadways, pipelines, ports and waterway facilities, public transportation, and railroads through 2050. It assesses state, regional, and local public and private transportation facilities. The OTP establishes goals, policies, strategies, and initiatives for transportation. The plan provides the framework for prioritizing transportation improvements based on varied future revenue conditions, but it does not identify specific projects for development.

Many of the OTP goals and policies have a bearing on the IBR Program, especially the following:

- *Goal 6.1 Economic and Community Vitality*

  Improve prosperity, opportunity, and livability for all people who live, work, and recreate in Oregon.

  - *Policy EC.2.2 Support efficient movement of freight to help keep delivery costs from increasing.*
  - *Policy EC.3.1 Provide a transportation system that expands connectivity, flexibility, and resiliency while allowing all segments of the economy (industries, communities, and individuals) to thrive.*

- *Goal 6.3 Mobility*

  Create a resilient multimodal transportation system that enables the diverse range of community members and businesses with different needs to get where they need to go safely, reliably, affordably, and with minimal environmental impact.

  - *Policy MO.1.1 – Provide a well-connected and seamless multimodal transportation system that promotes the safe movement of people and goods.*
  - *Policy MO.3.1 – Design and maintain a transportation system that allows people of all ages, abilities, and income levels to safely reach destinations (e.g., for employment, education, shopping, recreation, parks and natural areas, health care, and social opportunities) via active and low- carbon transportation modes of travel.*
  - *Policy MO.3.2 – Create a robust transportation system that allows people to choose between many reliable and accessible transportation options instead of needing to rely on a single option.*

- *Goal 6.4 Stewardship of Public Resources*

  - *Guided by open, data-driven decision-making processes, secure sufficient and reliable revenue for transportation funding and invest public resources to achieve a resilient and sustainable multimodal transportation system.*
  - *Policy SP.1.2 - Pursue road user revenue streams that help to cover costs and are sustainable, resilient, and reliable in supporting the multimodal transportation system.*

- *Policy SP.6.3 Incorporate pre-disaster mitigation to improve the resilience of Oregon's transportation system, prepare for long-term recovery and reconstruction efforts, and mitigate future hazards.*

STATEWIDE TRANSPORTATION STRATEGY

In 2018, the Oregon Transportation Commission adopted an amendment to incorporate the Statewide Transportation Strategy as part of the OTP. The Oregon Statewide Transportation Strategy, or STS, is a state-level scenario planning effort that examines all aspects of the transportation system, including the movement of people and goods. The STS identifies a variety of effective emissions-reduction strategies in transportation systems, vehicle and fuel technologies, and urban land use patterns. The STS Short-Term Implementation Plan identifies actions for ODOT to pursue in the next 2 to 5 years to help move the STS forward.

THE OREGON HIGHWAY PLAN

The OHP includes contextual statements and policies that may have an impact on the alternatives' analysis for the IBR Program. The OHP has been updated multiple times since its original adoption in 1999 to incorporate amendments in a 2015 version (ODOT 2015). The OHP is in the process of being updated and is expected to be adopted in 2027. The new OHP will help implement the goals and strategies of the 2023 OTP as they apply to the roadway system.

Several policies in the OHP establish general mobility objectives and approaches for maintaining mobility. It includes the following policies from the Policy Element:

- *Policy 1A (State Highway Classification System) describes the functions and objectives for several categories of state highways. Greater mobility is expected on Interstate and Statewide Highways than on Regional and District Highways.*
- *Policy 1B (Land Use and Transportation) has an objective of coordinating land use and transportation decisions to maintain the mobility of the highway system. The policy identifies several land use types and describes the levels of mobility appropriate for each.*
- *Policy 1C (State Highway Freight System) has an objective of maintaining efficient through movement on major truck freight routes. The policy identifies highways that are freight routes.*
- *Policy 1G (Major Improvements) has the purpose of maintaining highway performance and improving highway safety by improving system efficiency and management before adding capacity.*

Alternate standards for the Portland metropolitan area have been included in the policy. These standards have been adopted with an understanding of the unique context and policy choices that have been made by local governments in that area, including:

- A legally enforceable regional plan prescribing minimum densities, mixed-use development, and multimodal transportation options.
- Primary reliance on high-capacity transit to provide additional capacity to the radial highway corridors serving the central city.

- Implementation of an advanced traffic management system including highway ramp meters, real-time traffic monitoring, and incident response to maintain adequate traffic flow.
- An air quality attainment and maintenance plan that relies heavily on reducing auto trips through land use changes and increases in transit service.

The alternate standards were granted to the Portland metropolitan area with a mutual understanding that reduced mobility standards would result in congestion that could not be reduced by state highway improvements.

- *Action 1F.1 provides mobility targets as the measure by which the state assesses the existing or forecasted operational conditions of a facility, and as such, are a key component ODOT uses to determine the need or feasibility of providing highway or other transportation system improvements.*
- *Action 1G.2 states that ODOT will support any major improvements to state highway facilities in local comprehensive plans and transportation system plans only if the improvements meet nine specific conditions.*
- *Action 1G.3 requires an intergovernmental agreement implementing cost-sharing when a project has major benefits to the local system, especially when local sponsors of the project envision purposes beyond those needed to meet state transportation objectives.*
- *Policy 3C: Interchange Access Management Areas*

  It is the policy of the State of Oregon to plan for and manage grade-separated interchange areas to ensure safe and efficient operation between connecting roadways.

The following actions provide specific guidance applicable to the IBR Program. These requirements have implications for land use authorities as well as transportation system planners.

- *Action 3C.1: Develop interchange area management plans to: protect the function of interchanges, provide safe and efficient operations between connecting roadways, and minimize the need for major improvements of existing interchanges.*
- *Action 3C.2: To improve an existing interchange or construct a new interchange requires:*
  - *Necessary supporting improvements, such as road networks, channelization, medians and access control in the interchange management area must be identified in the local comprehensive plan and committed with an identified funding source, or must be in place;*
  - *The design of urban interchanges must consider the need for transit and park and ride facilities, along with the interchange's effect on pedestrian and bicycle traffic; and*
  - *When possible, access control shall be purchased on crossroads for a minimum distance of 1320 feet (400 meters) from a ramp intersection or the end of a free flow ramp terminal merge lane taper.*

  An interchange area management plan (IAMP) is a joint ODOT and local government long-term transportation and land use plan to balance and manage decisions in interchange areas and is an important tool in protecting the functions of state highway interchanges and the supporting local street network. An IAMP identifies local and state transportation and land use objectives for the interchange area and guides the management of the transportation system

and land use development patterns. It also guides subsequent decisions by the affected local government and ODOT about land uses, the street network, and access. As such, IAMPs are a potentially important tool to preempt unplanned land use changes near interchange areas and/or adverse traffic impacts to local street networks connecting to these interchanges.

- *Policy 4C: High-Occupancy Vehicle (HOV) Facilities*

  It is the policy of the State of Oregon to utilize HOV facilities to improve the efficiency of the highway system in locations where travel demand, land use, transit, and other factors are favorable to their effectiveness. A systems planning approach shall be taken in which individual HOV facilities complement one another and the other elements of the multimodal transportation system.

  Actions for this policy include those that promote HOV lanes, park-and-ride facilities with preferential HOV parking, the development of high-occupancy toll lanes, and light-duty commercial truck buy-in for HOV lanes.

- *Policy 4D: Transportation Demand Management*

  It is the policy of the State of Oregon to support the efficient use of the state transportation system through investment in transportation demand management strategies.

  There are three major implications for this policy. Transit demand-management programs need to be, and are, in place and supported. Additional transit demand-management strategies may need to be employed during the construction of the new facility. Lastly, Action 4D2 calls on ODOT to investigate further the effectiveness, feasibility, and impacts of tolling and congestion-based pricing.

- *Policy 5A: Environmental Resources*

  It is the policy of the State of Oregon that the design, construction, operation, and maintenance of the state highway system should maintain or improve the natural and built environment including air quality, fish passage and habitat, wildlife habitat and migration routes, sensitive habitats (e.g., wetlands, designated critical habitat, etc.), vegetation, and water resources where affected by ODOT facilities.

- *Action 1B.5: Develop and implement plans that support compact development, including but not limited to highway segment designations. Support plans, strategies and local ordinances that include:*
  - *Parallel and interconnected local roadway networks to encourage local automobile trips off the state highway;*
  - *Transit, bicycle and pedestrian facilities, including street amenities that support these modes;*
  - *Design and orientation of buildings and amenities that accommodate pedestrian and bicycle use as well as automobiles use;*
  - *Provision of public and shared parking;*
  - *Infill and redevelopment;*

- *Expansion of intensive urban development guided away from state highways rather that along state highways; and*
- *Other supporting public investments that encourage compact development and development within centers.*

3.4.3 Washington

The State of Washington adopted the GMA in 1990. This act requires most local jurisdictions to define and implement a land use policy framework that emphasizes reducing the inappropriate conversion of land to sprawling, low-density development. This emphasis is evident in statewide requirements to coordinate land use and transportation plans and strongly supports multimodal transportation systems. The law also requires designation of urban growth areas around cities.

In Washington's portion of the study area, the RTC has planning authority over transportation only. Clark County provides regional land use planning services, which end at the county line. Clark County has significant authority over land use planning in the unincorporated areas of the county and governs legislative changes to the urban growth boundaries.

RTC has adopted the *Metropolitan Transportation Plan for Clark County* for Southwest Washington, which incorporates light-rail as a component of the multimodal transportation system in the Vancouver metropolitan region. The adopted Clark County Comprehensive Growth Management Plan and City of Vancouver Comprehensive Plan identify the location of the urban growth area that encompasses the lands planned for urban development.

Urban growth boundaries function similarly in Washington and Oregon, but the processes differ for changing boundaries. Through the Oregon Land Conservation and Development Commission, the state exercises more control than in Washington. In Washington, the Department of Commerce serves in a more advisory capacity. The Western Washington Growth Management Hearings Board hears appeals to the plans and makes decisions that are binding on the local jurisdictions.

The following subsection discusses the Washington Transportation Plan goals and policies that relate to the proposed project.

3.4.3.1 Washington Transportation Plan

The WTP, developed by WSDOT, is the state's long-range transportation plan (WSDOT 2018). The WTP establishes a 20-year vision for the development of the statewide transportation system. The plan includes two phases:

- Phase 1 (Policy)
  - The WTP was updated in 2015 to provide the legislature with statewide policy recommendations for long-range transportation planning through the year 2035. In 2018, the Transportation Commission updated the plan to *WTP 2040 and Beyond* (WSDOT n.d.), which incorporates findings from WTP Phase 2. The policy plan is to be consistent with GMA objectives and support the six statewide transportation goals (listed below) established under RCW 47.04.280 by the legislature. It must be prepared with input from diverse transportation interests, identify significant statewide policy issues, and

recommend to the legislature policies and strategies that support a safe and efficient transportation system.

- Phase 2 (Implementation 2017–2040)
  - Phase 2 provides a plan to guide the statewide multimodal transportation system in order to accomplish the vision laid out in WTP Phase 1.

WTP 2040 and Beyond integrates six statewide goals:

1. Economic Vitality

   Promote and develop transportation systems that stimulate, support, and enhance the movement of people and goods to ensure a prosperous economy.

2. Preservation

   Maintain, preserve, and extend the life and utility of prior investments in transportation systems and services.

3. Safety

   Provide for and improve the safety and security of transportation customers and the transportation system.

4. Mobility

   Improve the predictable movement of goods and people throughout Washington State, including congestion relief and improved freight mobility.

5. Environment and Health

   Enhance Washington's quality of life through transportation investments that promote energy conservation, enhance healthy communities, and protect the environment.

6. Stewardship

   Continuously improve the quality, effectiveness, and efficiency of the transportation system.

3.4.4 Regional

3.4.4.1 Oregon

In Oregon, Metro is the regional government entity established to manage growth, infrastructure, land use and development, and transportation issues that cross jurisdictional boundaries within the greater Portland region. The Joint Policy Advisory Committee on Transportation (JPACT), serves as the metropolitan planning organization board for the region in a partnership with the Metro Council requiring joint action on all transportation-related metropolitan planning organization decisions. JPACT recommends priorities and develops plans for the region, and the Metro Council must adopt the recommendations before they become transportation policies. Metro, which was established in 1979 and whose charter was approved in 1992, is charged with regional planning of transportation systems and urban growth areas in the Portland metropolitan area. In cooperation with local

jurisdictions in the service district, Metro has developed and adopted the Regional Urban Growth Goals and Objectives that include the region *2040 Growth Concept* (Metro 2018c) and *Growth Concept Map* (Metro 2020). Metro has also adopted the *Urban Growth Management Functional Plan* (Metro 2018d), the *Regional Framework Plan* (Metro 2014), and the *2018 Regional Transportation Plan* (Metro 2018a). These plans call for "targeting public investments to reinforce a compact urban form" and state that "A regional transportation system shall be developed which reduces reliance on a single mode of transportation through development of a balanced and cost-effective transportation system." Fundamental to the implementation of these plans is a multimodal transportation system that assures mobility and supports the integration of higher-density centers of employment and housing with transit service.

The effect of these plans is to focus future development into specific areas, including the Portland central city, regional centers, and along transit corridors and main streets connected by a balanced transportation system, including light-rail and bus transit.

2040 GROWTH CONCEPT AND THE REGIONAL FRAMEWORK PLAN

The Metro *2040 Growth Concept* (2018b) defines regional growth and development in the Portland metropolitan region. Metro adopted the growth concept in December 1995 as part of the Region 2040 planning and public involvement process. Policies in the *2040 Growth Concept* encourage efficient use of land, protection of farmland and natural resources, a balanced transportation system, a healthy economy, and diverse housing options. The *2040 Growth Concept* includes land use and transportation policies that will allow the cities located within the Portland metropolitan area to manage growth, protect natural resources, and make improvements to facilities and infrastructure while maintaining the region's quality of life.

The *2040 Growth Concept* is the unifying concept around which the *Regional Framework Plan* (Metro 2014) is based. The *Regional Framework Plan*, amended in 2014, sets forth regional growth management policies for the area within Metro's jurisdiction. The plan also incorporates goals, objectives, and policies established in other documents, including Regional Urban Growth Goals and Objectives and the *Metropolitan Greenspaces Master Plan* (Metro 1992). The *Regional Framework Plan* creates an integrated framework to meet the goals identified in the *2040 Growth Concept*.

Chapter 2 (Transportation) of the *Regional Framework Plan* sets a direction for future transportation planning and decision-making by Metro and implementing agencies. Chapter 2 of the *Regional Framework Plan* includes the following transportation goals:

- *GOAL 1: Vibrant Communities*
  - *Objective 1.1: 2040 Growth Concept Implementation.*
- *GOAL 2: Shared Prosperity*
  - *Objective 2.1: Connected Region.*
- *GOAL 3: Transportation Choices*
  - *Objective 3.1: Travel Choices.*
  - *Objective 3.2: Active Transportation System.*
  - *Objective 3.3: Access to Transit.*
- *GOAL 4: Reliability and Efficiency*

- *Objective 4.1: Regional Mobility.*

- *GOAL 5: Safety and Security*
  - *Objective 5.1: Transportation Safety.*
  - *Objective 5.3: Preparedness and Resiliency.*
- *GOAL 6: Healthy Environment*
  - *Objective 6.1: Biological and Water Resources.*
  - *Objective 6.2: Historic and Cultural Resources.*
  - *Objective 6.3: Green Infrastructure.*
- *GOAL 7: Healthy People*
  - *Objective 7.1: Active Living.*
  - *Objective 7.2: Clean Air.*
  - *Objective 7.3: Other Pollution Impacts.*
- *GOAL 10: Fiscal Stewardship*
  - *Objective 10.1: Infrastructure.*
- *GOAL 11: Transparency and Accountability*
  - *Objective 11.1: Meaningful Public and Stakeholder Engagement.*
  - *Objective 11.2: Performance-Based Planning.*

2018 REGIONAL TRANSPORTATION PLAN (METRO)

The *2018 Regional Transportation Plan* (RTP) is a 25-year blueprint for the Portland metropolitan region's transportation system which is updated every 5 years (last updated in 2018). The plan is being updated at the time of writing this report and is anticipated to be adopted in late 2023. The RTP establishes policies and priorities for all forms of transportation and anticipates the region's current and future transportation needs. These policies focus on ensuring that the region's transportation system works in the most effective way, and they recognize the importance of the movement of goods and services for the regional economy (Metro 2018a). The RTP includes two project lists: financially constrained and strategic. The I-5 Replacement project is included as project 10893 on the financially constrained project list. The RTP lists a time goal of 2028–2040 for the project with an estimated cost of $2,820,000,000. The project is described as follows:

> *Replace I-5/Columbia River bridges and improve interchanges on I-5. Project adds protected/buffered bikeways, cycletracks and a new trail/multiuse path or extension.*

As with RTC's *Metropolitan Transportation Plan for Clark County*, complex regional modeling substantiates the balance of land use and transportation changes in the RTP. Projected land uses are converted into model inputs that reflect the intensity, type, and location of new development. The planned transportation improvements, in all modes, are then added to the model network so that the impacts of the projected land uses can be determined. As system failures are identified, additional transportation, and sometimes land use, changes are made to achieve optimal system function. This foundation of iterative modeling gives the list of projects significance beyond just financing. The list represents the transportation side of the balanced transportation and land use plans.

TRANSPORTATION IMPROVEMENT PLAN (TRIMET)

The Oregon legislature enacted the Keep Oregon Moving act in 2017 to fund the expansion of public transportation services. TriMet was designated the Qualified Entity to administer the Statewide Transportation Improvement Fund (STIF) planning process, and receiving and distributing STIF funds for Clackamas, Multnomah, and Washington counties. The improvement plan utilized input from public engagement with transit riders and other interested parties to establish transit improvement priorities and possible funding allocations. The plan establishes a 5-year roadmap for the rollout of future services and programs to improve service in low-income communities. It also provides for planned revenue and service improvements and programs within the next 2 years (Fiscal Year 2021–23; TriMet 2020).

3.4.4.2 Washington

C-TRAN 20-YEAR TRANSIT DEVELOPMENT PLAN

C-TRAN provides transit services in Clark County, with routes into Portland as well. The C-TRAN system is largely made up of fixed routes, with limited dial-a-ride shuttle service in outlying areas. In 2010, C-TRAN adopted a 20-Year Transit Development Plan, which was updated in 2016 (C-TRAN 2016). Major elements of the plan include a preferred service alternative, a service improvement program, Americans with Disabilities Act paratransit cost containment strategies, capital and technology improvements, and a financial plan. The plan includes high-capacity transit planning and its integration with other services. Both light-rail transit and BRT improvements are in the plan.

C-TRAN is developing C-TRAN 2045 because many of the major projects and priorities found in the C-TRAN 20-Year Transit Development Plan have been completed. C-TRAN 2045 would create a long-range plan that meets the community's evolving needs and capture the community's collective public transportation vision and goals to provide expanded, reliable transportation options (C-TRAN 2025a). As part of C-TRAN 2045, a draft map of the C-TRAN network in 2045 was created for review and public comment (C-TRAN 2025b).

REGIONAL TRANSPORTATION PLAN FOR CLARK COUNTY

RTC regularly updates the RTP for Clark County. The RTP was updated in 2019 to identify future regional transportation system needs and outline transportation plans and improvements necessary to maintain mobility within and through Clark County, as well as access to land uses within the region (RTC 2019).

RTP Goals

The goals of the RTP are to:

- Support economic development and community vitality.
- Ensure safety and security of the transportation system.
- Provide reliable mobility for personal travel and freight movement by addressing congestion and transportation system bottlenecks. Also, provide access to locations throughout the region while protecting the integrity of neighborhoods by discouraging cut-through traffic.

- Maximize efficient management and operation of the transportation system through transportation demand management and transportation system management strategies.
- Protect environmental quality and natural resources and promote energy efficiency.
- Ensure that the RTP reflects community values to help build and sustain a healthy, livable, and prosperous community.
- Provide a financially viable and sustainable transportation system.
- Maintain and preserve the regional transportation system to ensure system investments are protected.

3.4.5 Local

3.4.5.1 Oregon

COUNTY

Multnomah County Comprehensive Plan and Transportation System Plan

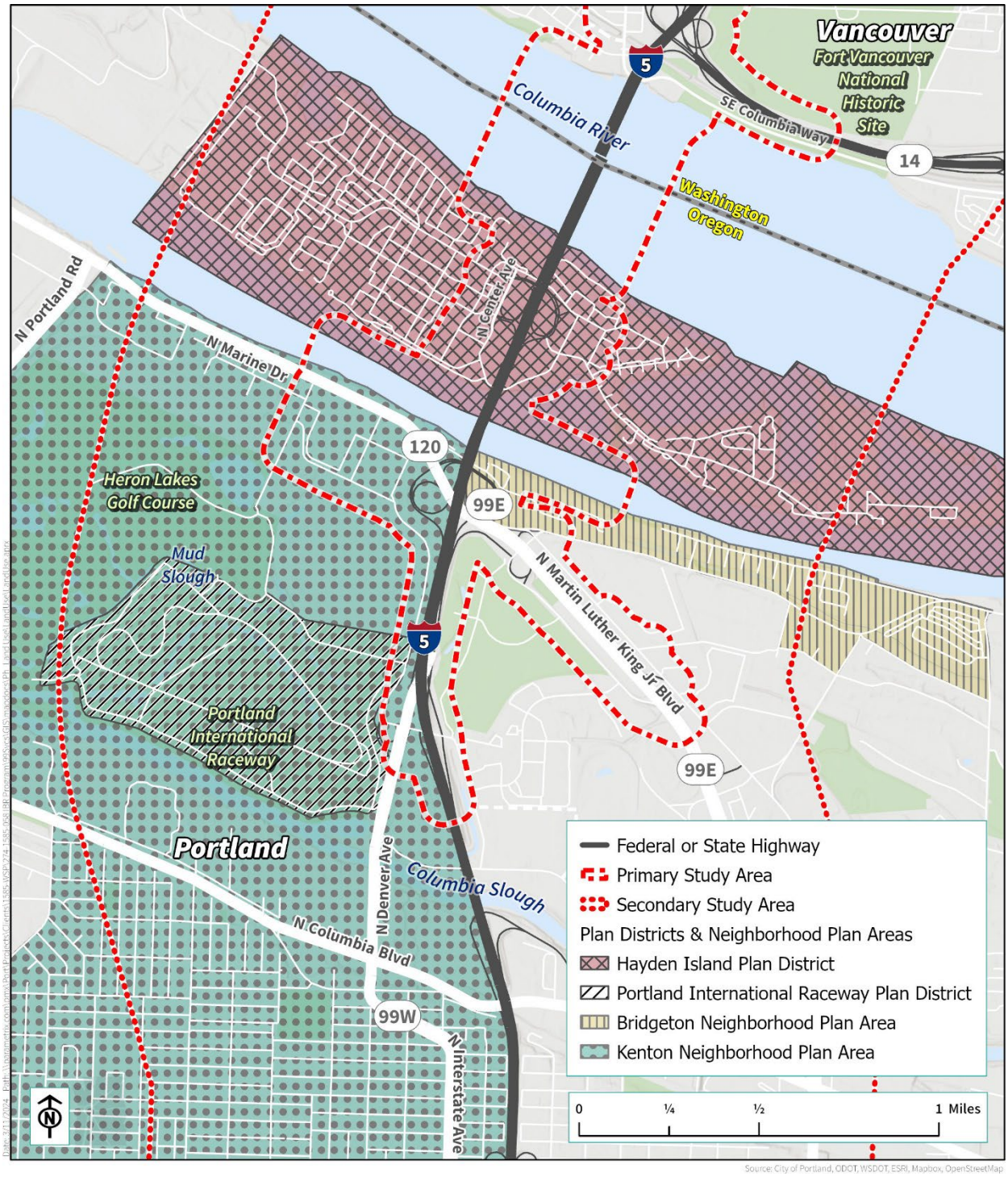
The *Multnomah County Comprehensive Plan* (Multnomah County 2016a) describes policies that guide decisions made by the Land Use Planning Division, as well as the relationship between Multnomah County land use decisions and the policies adopted by the Metro Council and statewide planning agencies. The plan was updated in 2016 to focus on rural areas of the county by integrating multiple area plans into one planning framework document and to provide direction for specific land use regulations. The *Multnomah County Transportation System Plan* (Multnomah County 2016b) is a separate document that guides decisions about transportation system improvements over the next 20 years or more. The TSP focuses on addressing both current and year 2035 needs of the transportation system.

CITY

City of Portland Comprehensive Plan

The *2035 Comprehensive Plan*, amended in May 2023 (City of Portland 2023), commits to linking land use and transportation decisions. It expands the reasons for, and approaches to, improving Portland as a place that is walkable, bikeable, and transit-friendly with active main streets. The plan continues Portland's commitment to compact development with active employment centers, expanded housing choices, and access to parks and open space. The comprehensive plan is a long-range land use and public facility investment plan to guide future growth and the physical development of the city. Specific comprehensive plan designations, as implemented through Title 33 of the Portland City Code, Planning and Zoning, are discussed in Section 3.5. Figure 3-8 shows the general landscape of currently existing uses within the primary and secondary study areas, which overall reflect the mix of land use types envisioned in the comprehensive plan.

Figure 3-8. Area-Specific Plan Areas and Plan Districts



The following comprehensive plan goals and policies support the IBR Program:

Goals

- *Goal 9.A: Safety*
- *Goal 9.B: Multiple goals*
- *Goal 9.G: Opportunities for prosperity*

Policies

- *Policy 3.72 Industry and port facilities.*

  Enhance the regionally significant economic infrastructure that includes Oregon's largest seaport and largest airport, unique multimodal freight, rail, and harbor access; the region's critical energy hub; and proximity to anchor manufacturing and distribution facilities.

- *Policy 9.3 Transportation System Plan.*

  Maintain and implement the Transportation System Plan (TSP) as the decision-making tool for transportation-related projects, policies, programs, and street design.

- *Policy 9.6 Transportation strategy for people movement.*

  Implement a prioritization of modes for people movement by making transportation system decisions according to the following ordered list: 1. Walking 2. Bicycling 3. Transit 4. Fleets of electric, fully automated, multiple passenger vehicles 5. Other shared vehicles 6. Low or no occupancy vehicles, fossil-fueled non-transit vehicles

- *Policy 9.7 Moving goods and delivering services.*

  In tandem with people movement, maintain efficient and reliable movement of goods and services as a critical transportation system function. Prioritize freight system reliability improvements over single-occupancy vehicle mobility where there are solutions that distinctly address those different needs.

- *Policy 9.11 Land use and transportation coordination.*

  Implement the Comprehensive Plan Map and the Urban Design Framework though coordinated long-range transportation and land use planning. Ensure that street policy and design classifications and land uses complement one another.

City of Portland 2035 Transportation System Plan

Updated in 2020, the City of Portland's 2035 TSP is a detailed long-range plan to guide the City's transportation system functions and investments (City of Portland 2020). The TSP ensures that new development and allowed land uses are consistent with the identified function and capacity of, and adopted performance measures for, affected transportation facilities. The TSP includes a financial plan to identify revenue sources for planned transportation facilities included in the List of Significant Projects. The TSP is the transportation element of the City's Public Facilities Plan, and certain components of the TSP are elements of the comprehensive plan. The TSP lists the Interstate Bridge

replacement and interchange improvements as a financially constrained project to be completed in 1 to 10 years.

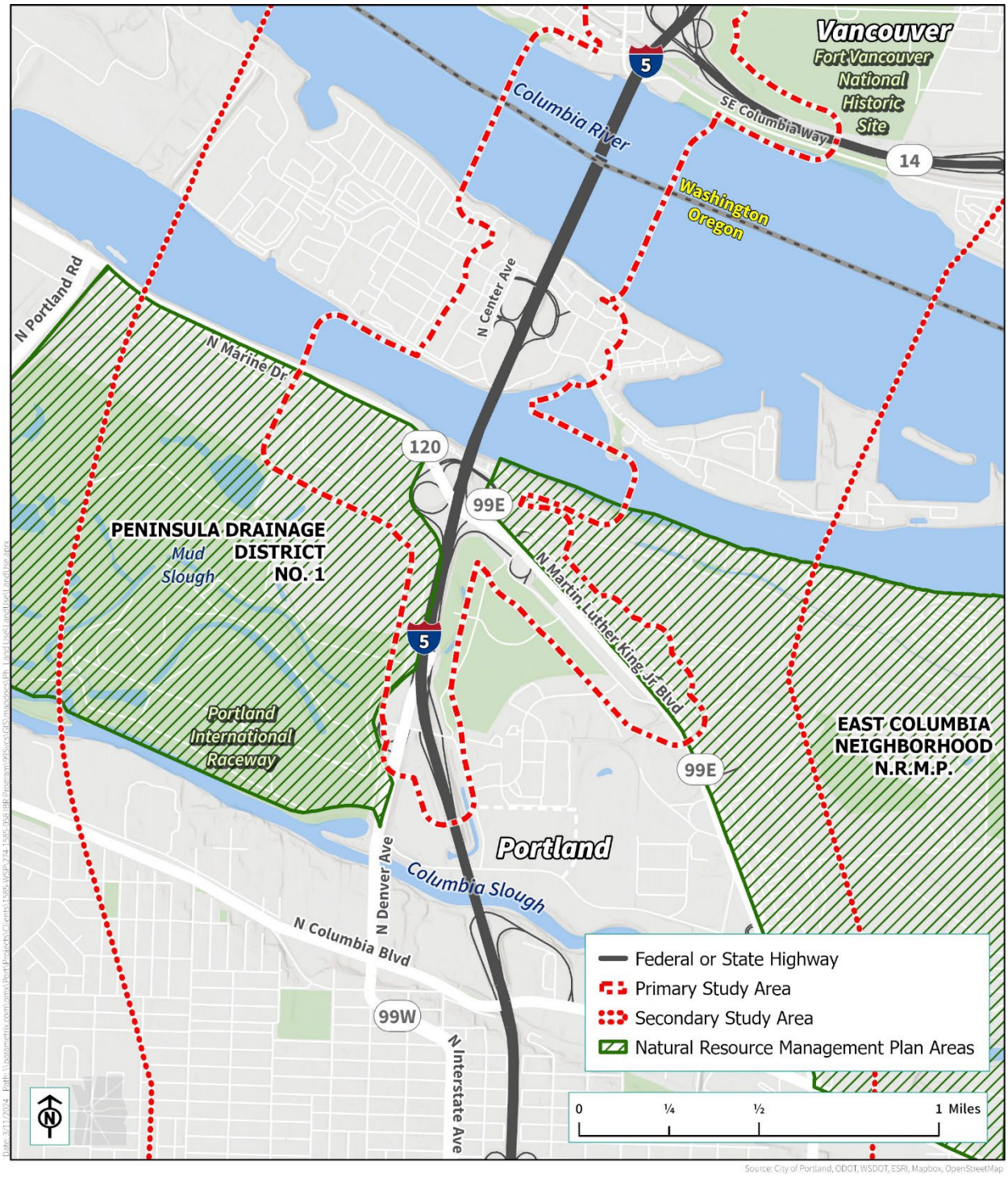
City of Gresham 2035 Transportation System Plan

Updated in 2013, the City of Gresham's 2035 TSP is a detailed long-range plan to guide the City's transportation system functions and investments. The TSP is the transportation element of the City's comprehensive plan. Improvements to the existing Ruby Junction rail operations facility support the TSP's policy of advocating convenient, expanded transit service within Gresham and the east Multnomah County area, and its goal of supporting TriMet and other entities in the planning and implementation of light rail service improvements.

NEIGHBORHOOD OR AREA-SPECIFIC

This section describes designated area and neighborhood plans, plan districts, and natural resource management plans that apply to portions of the primary study area. Figure 3-8 shows the geographic extent of neighborhood plans and plan districts that intersect with the primary study area, and Figure 3-9 shows the extent of natural resource management plan areas within the primary study area.

Figure 3-9. Natural Resources Management Plan Areas



Hayden Island Plan

In April 2008, the Portland Bureau of Planning and Sustainability completed the *Draft Hayden Island Plan*. In the summer of 2009, the recommended Final Plan was approved by City Council (City of Portland 2009). The *Hayden Island Plan* focuses on the entire portion of Hayden Island within the City of Portland and is contiguous with the Hayden Island Plan District as identified in Chapter 33.532 of the Portland Zoning Code.

The *Hayden Island Plan* was developed cooperatively with residents, business owners, and other interested parties to address the unique situation of the island while considering the best plan for its future. It also envisions growth in ways that create a resident population that is large enough to support local-serving businesses and amenities. To accomplish this vision, the plan recommends preserving existing uses while promoting new mixed-use development to meet the future needs of the community.

The plan has numerous provisions applicable to the IBR Program. It was developed while the CRC project was being designed and incorporates CRC designs into the plan. In concept, the Modified LPA is generally consistent with the plan's vision for innovative stormwater management, light-rail station design, traffic patterns (including providing the capability to access local street systems south of North Portland Harbor without using I-5), and other elements. As the IBR Program progresses, additional evaluation may be needed and modifications to the *Hayden Island Plan* may be necessary to show detailed locations of project-related infrastructure (bridges, interchanges, light-rail stations, etc.) and changes to local traffic patterns as applicable.

The regulations of the Hayden Island (HI) Plan District, which is contiguous with the area covered by the Hayden Island Plan and codified in Chapter 33.532 of the Portland Zoning Code, are intended to preserve and enhance both the character and opportunities of Hayden Island to:

- *Create a transportation network that provides for all modes and allows people to easily move from one mode to another.*
- *Focus higher intensity, mixed-use development near the light rail station.*
- *Provide opportunities for a range of housing types, and encourage mixed-use development, including commercial uses, to serve the residential uses.*
- *Ensure transitions between residential and nonresidential zones and neighborhoods.*
- *Recognize the current function of the Jantzen Beach SuperCenter as an auto-oriented shopping mall and its long-term potential for more intense development that is less auto-oriented and more pedestrian-friendly resulting from major investments in the transportation system.*

The environmental zoning that applies to much of the plan district is designed to preserve and restore the unique and valuable natural resources of the island, such as the shallow water habitat.

Bridgeton Neighborhood Plan

The *Adopted Bridgeton Neighborhood Plan* was adopted in 1997 to address the unique development challenges present in the Bridgeton neighborhood, which is located along the south shore of North Portland Harbor, immediately east of I-5 and across from Hayden and Tomahawk Islands (City of

Portland Bureau of Planning 1997a). Development consists largely of houseboats, rowhouses, and detached single-family homes. Significant wetland and riparian resources exist throughout the neighborhood as well. The entire Bridgeton neighborhood is within the area covered by the *East Columbia Neighborhood Natural Resources Management Plan* (City of Portland 1990). The Bridgeton neighborhood is also part of the area encompassed by the *Adopted Albina Community Plan* (City of Portland Bureau of Planning 1993a)—along with the Kenton neighborhood—and is discussed below.

The following goals in the *Adopted Bridgeton Neighborhood Plan* pertain to the IBR Program:

- Transportation and Public Utilities – *Create a transportation network that provides accessibility and safety while retaining the special charm, character, pedestrian and bicycle orientation, and scenic views of Bridgeton.*
- Environment – *Protect and enhance the integrity of North Portland Harbor, the shoreline dike, the Bridgeton Slough, and other natural resources of the Bridgeton neighborhood.*

Kenton Neighborhood Plan (as amended by the Kenton Downtown Plan)

The *Adopted Kenton Neighborhood Plan* (City of Portland Bureau of Planning 1993b) was developed in 1993 as an outgrowth of the *Adopted Albina Community Plan*, which covers a 19-square-mile area of north and northeast Portland. As the Kenton neighborhood and Bridgeton neighborhood (discussed above) are the only areas of the Albina plan area located within the primary study area for the IBR Program, the *Adopted Albina Community Plan* is not discussed in detail in this technical report. The *Adopted Kenton Neighborhood Plan* was amended by the *Kenton Downtown Plan* in 2001 (City of Portland Bureau of Planning 2001), with the main objective of bringing back the Denver Avenue Business District as a neighborhood-serving retail corridor.

The *Adopted Kenton Neighborhood Plan* contains policies, projects, programs, and regulatory provisions that are specific to Kenton. The following policy in the Kenton plan pertains to the IBR Program:

Policy 5: Transportation

1. *Participate in the development of a light rail transit line that will serve the neighborhoods and commercial areas of North and Northeast Portland.*

Portland International Raceway Plan District

The Portland International Raceway (PIR) Plan District regulations are intended to preserve and enhance the special character and opportunities of the area, which comprises part of West Delta Park. The PIR Plan District is a transition area between the natural areas of Smith and Bybee Lakes to the west and the freeway-oriented "special event" uses to the east: the East Delta Park sports complex, PIR, and the Expo Center. The PIR Plan District recognizes existing uses within the district and their impacts and works to minimize the impacts of future development.

Development associated with the IBR Program that takes place within the boundaries of the PIR Plan District would need to be shown to be consistent with the provisions of the PIR Plan District where applicable. These provisions are found in Chapter 33.566 of the Portland Zoning Code.

East Columbia Neighborhood Natural Resources Management Plan

The *East Columbia Neighborhood Natural Resources Management Plan* (NRMP) was adopted in 1990 pursuant to Portland comprehensive plan policies in place at that time: Policies 3.6 (Neighborhood Plans), 8.14 (Natural Resources) and 8.15 (Wetlands/Riparian/Water Bodies Protection; City of Portland 1990). The plan is intended to promote a consistent approach to development within the environmentally sensitive areas of Portland previously identified as East Peninsula Drainage District No. 2. The geographic boundaries of this area include N Martin Luther King Jr. Boulevard on the west; N Marine Drive on the north; NE Columbia Boulevard on the south, and the Peninsula Drainage Canal on the east.

Preservation of wetlands and wildlife habitats has been identified as a neighborhood priority. As such, the following policies of the East Columbia Neighborhood NRMP are pertinent to development associated with the Modified LPA:

- *Policy 4: Water Quality. Enhance the water quality in the area's wetlands and drainageways by utilizing pollution control measures to maintain good water quality and implement vector control practices.*
- *Policy 6: Protection of Wetland/Natural Resource Areas. Protect significant resource areas by discouraging filling and development of sensitive and unique habitats in the neighborhood and requiring buffering of new developments adjacent to these sites.*
- *Policy 9: Buffering. Separate existing and new wetlands from new residential, commercial, and industrial uses with setbacks and buffer areas.*

Natural Resources Management Plan for Peninsula Drainage District No. 1

The NRMP for Peninsula Drainage District No. 1 was adopted in 1997 after being initiated at the request of the Kenton Neighborhood Association and the Portland Planning Bureau in 1993 (City of Portland Bureau of Planning 1997b). The plan is intended to promote a consistent approach to development within the environmentally sensitive areas of Portland bounded by I-5 and N Denver Avenue on the east; North Portland Harbor on the north; the Columbia Slough on the south, and the BNSF railroad tracks on the west. The NRMP encompasses portions of the Kenton neighborhood plan area and the entirety of the PIR Plan District. Much like the East Columbia Neighborhood NRMP, preservation, enhancement, and restoration of wetlands and wildlife habitats are key priorities of the Peninsula Drainage District No. 1 NRMP.

The following policies of the Peninsula Drainage District No. 1 NRMP are pertinent to development associated with the Modified LPA:

- *Natural Resource Policy No. 3: Protect and manage all wetlands within the Peninsula Drainage District No. 1 to avoid, minimize, and if necessary, compensate for fill or destruction of material from wetlands.*
- *Land Use and Recreation Policy No. 3: Support a MAX Light Rail Transit Station for West Delta Park that supports the activities at the Expo Center, PIR, and Heron Lakes Golf Course.*
- *Land Use and Recreation Policy No. 4: Support development that conforms to the other policies of the NRMP and implements NRMP Management Objectives.*

Portland Interstate Corridor Urban Renewal Plan

The Interstate Corridor Urban Renewal Area is located in North Portland and incorporates regional features such as I-5, the Willamette River, and the Columbia Slough. Developed by the Portland Development Commission (now Prosper Portland), adopted in 2000, and amended in 2001, the *Interstate Corridor Urban Renewal Plan* sets forth a comprehensive program to address economic and social challenges and to capitalize on the opportunities of the community (PDC 2001). The goals and objectives are to improve livability, increase job opportunities, assist small businesses, and benefit from major infrastructure projects, including the Interstate MAX light rail line. In January 2017, the Portland City Council adopted the *North/Northeast Community Development Initiative Action Plan* (Prosper Portland 2017). The goal of the plan is to use the remaining tax increment fund resources (allocated for economic and redevelopment purposes) to foster economic prosperity among communities and individuals who have not fully participated in or benefited from economic opportunities in the Interstate Corridor Urban Renewal Area.

The following goals in the *Interstate Corridor Urban Renewal Plan* pertain to the IBR Program.

- *Economic Development/Jobs – Goal 10 – Job Access: Optimize access of area residents to employment opportunities both inside and outside of the URA.*
- *Transportation – Goal 7 – Transportation Modes: Encourage alternatives to auto travel by improving facilities for pedestrians, bicyclists, buses, and light rail, while still accommodating auto travel in the area.*
- *Transportation – Goal 8 – Truck Access: Maintain good truck access to businesses within the urban area, but discourage truck movement from passing through the area on residential streets.*

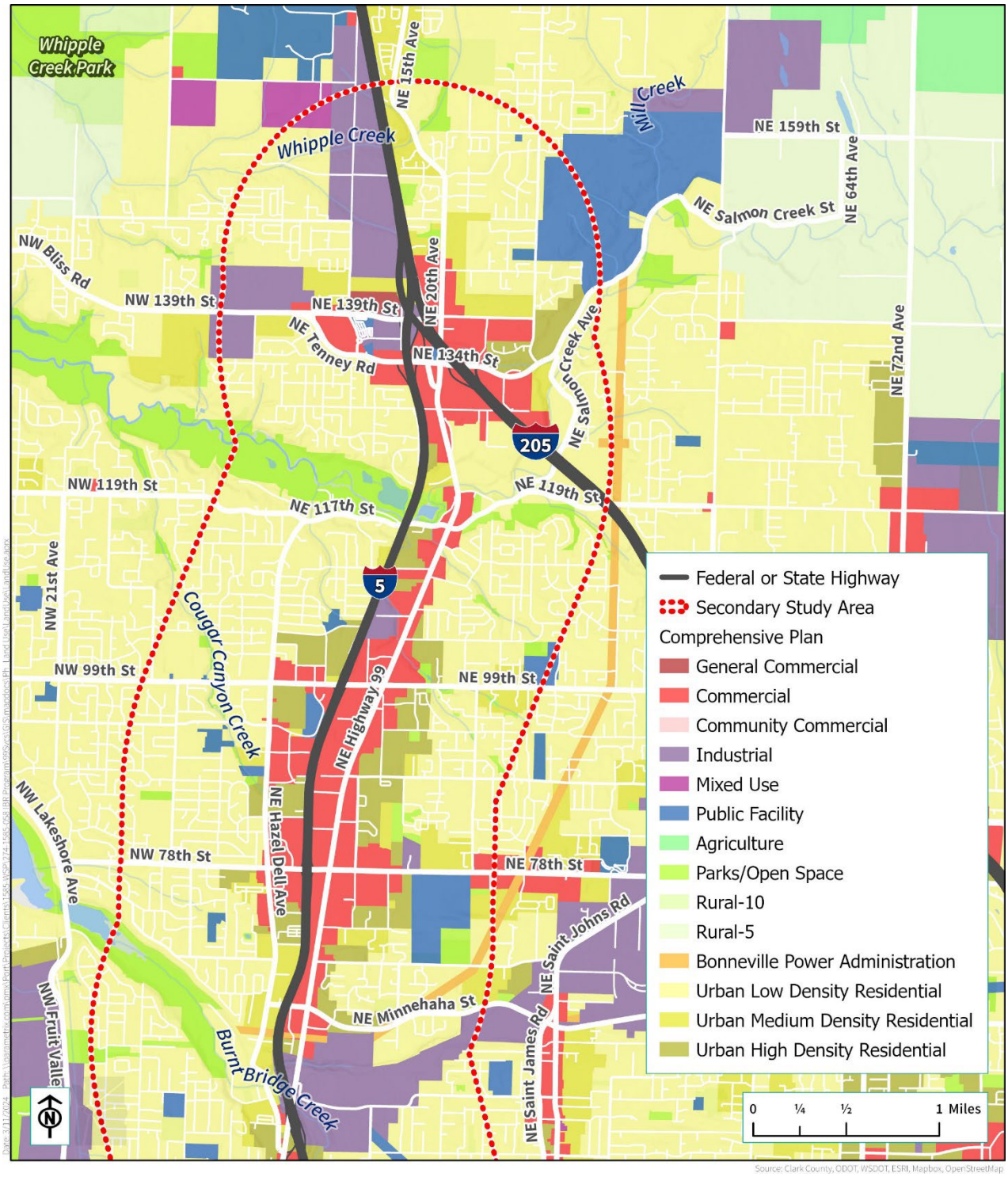
3.4.5.2 Washington

COUNTY

Clark County Comprehensive Growth Management Plan

The Clark County *20-Year Comprehensive Growth Management Plan 2015–2035* directly governs the unincorporated portions of the county, but it has a regional function in that it represents the coordinated land use and transportation system plans for the county and seven cities (Clark County 2016). The following polices and strategies were derived from the adopted plan of 2016. The plan will be updated in 2025 to address the 20-year periodic update. Figure 3-10 shows the designated land uses in the plan that are relevant to the IBR Program.

Figure 3-10. Comprehensive Plan, Clark County



Framework Plan Policies

To achieve the vision of Clark County as a collection of distinct communities surrounded by open space, agriculture and forest uses, Clark County and each of the cities will adopt certain types of policies. The general framework policies are outlined below by element of the Comprehensive Growth Management Plan (20-Year Plan). The process-oriented countywide planning policies which were adopted by the county in August 1992 and amended in 2000, 2004, 2007 and 2016 are found in each applicable plan element. The framework policies guide implementation of the vision of Clark County's future preferred by many of its residents. The policies provide a framework within which the county can bridge the gap between the general land use concepts presented in the Community Framework Plan and the detailed (parcel-level) 20-Year Plan required by the State GMA.

The Transportation Element (Section 5) implements and is consistent with the Land Use Element. The Community Framework Plan envisions a shift in emphasis of transportation systems from private vehicles to public transit (including high-capacity transit,) and non-polluting alternatives such as walking and bicycling. The following policies are intended to coordinate the land use planning, transportation system design, and funding to achieve this vision.

- *5.1.0 The regional land use planning structure is to be integrated within a larger public transportation network (e.g., transit corridors, commercial nodes, etc.).*
- *5.1.1 Encourage transportation systems that provide a variety of options (high-capacity transit, high-occupancy vehicles, buses, autos, bicycles or walking) within and between rural centers.*
- *5.1.2 Streets, pedestrian paths and bike paths are to be a part of a system of fully connected and scenic routes to all destinations. Establish design standards for development to promote these options and work cooperatively with C-TRAN to ensure that programs for improvements in transit service and facilities as well as roadway and pedestrian facilities are coordinated with these standards.*
- *5.1.4 Encourage use of alternative types of transportation, particularly those that reduce mobile emissions (bicycle, walking, carpools and public transit).*
- *5.1.9 Establish major inter-modal transportation corridors that preserve mobility for interstate commerce and freight movement (Promote inter-modal connections to port, rail, truck, bus and air transportation facilities. Preserve and improve linkages between the Port of Vancouver and other regional transportation systems).*

Section 8, Historic, Archaeological and Cultural Preservation, discusses historic preservation, requiring programs to identify archaeological and historic resources, protect them, and educate the public about the history of the region. This policy could impact the development of new highways and the movement of rights-of-way into cultural landscapes and historic structures.

Section 10, Community Design, calls for development of high-quality design and site planning standards for publicly funded projects (e.g., civic buildings, parks). This policy encourages considering aesthetic values in the design and selection process for the I-5 bridge replacement project.

Comprehensive Plan Policies

The following policies refer specifically to the unincorporated areas of Clark County.

- *Land Use: Policy 1.1.13 - Vancouver Urban Growth Area is now or will be a major urban area activity center with a full range of residential, commercial and industrial uses, high capacity transit corridors, schools, major cultural and public facilities.*
- *Land use Policy 1.3.2 - Devise specific policies and standards to promote higher density urban, commercial, and mixed-use development and to support pedestrian and transit travel within high density residential and commercial areas.*
- *Environment: Policy 4.1.2 - The county and each municipality shall cooperate to ensure the preservation and protection of natural resources, critical areas, open space, and recreational lands within and near the urban area through adequate and compatible policies and regulations.*
- *Transportation: Policy 5.0.1 - Clark County, Metropolitan Planning Organization (MPO) and the Regional Transportation Planning Organization (RTPO), state, bi-state, municipalities, and C-TRAN shall work together to establish a truly regional transportation system which:*
  - *Reduces reliance on single occupancy vehicle transportation through development of a balanced transportation system, high-capacity transit, bicycle and pedestrian improvements, and transportation demand management;*
  - *Encourages energy efficiency;*
  - *Minimizes environmental impacts of the transportation systems development, operation and maintenance.*
- *5.2.1 Roadway improvements which provide for additional capacity for the automobile shall also accommodate alternative travel modes.*
- *5.2.2 Transit related options, including high capacity transit, shall be encouraged in order to reduce congestion and to improve and maintain air quality.*
- *Economic Development: Policy 9.1.12 - Encourage use of a multimodal transportation system that facilitates the reduction of travel times and reduces the need for additional road construction within the region.*

CITY

City of Vancouver Comprehensive Plan

The *Vancouver Comprehensive Plan 2011–2030* was last updated in 2011 and is currently undergoing an update, which is anticipated to run from 2022 through 2025 (City of Vancouver 2011). The updated 2025–2045 Comprehensive Plan will guide the City's growth and development for the 20 years following its adoption and, among other things, identifies the need to plan for at least 38,000 additional housing units (about 44% more than existing) over a 20-year span to maintain the community's livability and affordability (City of Vancouver 2025a).

The current Comprehensive Plan encourages compact urban centers, transit, and supportive development regulations for areas along the defined high-capacity transit corridors identified along

I-5 and SR 500. The City maintains a separate transportation plan that includes policy statements. The comprehensive plan applies to the downtown Vancouver and North Vancouver project subareas. Figure 3-11 shows the land use designations of the *Vancouver Comprehensive Plan* for the primary and secondary study areas. Relevant policies from the plan are cited below.

Community Development

- *CD-2. Efficient Development Patterns: Encourage efficient development throughout Vancouver to achieve average densities of eight units per acre. Encourage higher density and more intense development in areas that are more extensively served by public facilities, particularly by transportation and transit services.*
- *CD-4. Urban Centers and Corridors: Achieve the full potential of existing and emerging urban activity centers and the corridors that connect them, by:*
  - *Promoting or reinforcing a unique identity or function for individual centers and corridors.*
  - *Planning for a compact urban form with an appropriate mix of uses.*
  - Working with stakeholders to develop flexible standards to implement the vision for that center or corridor.
  - Encouraging innovative, attractive private development that efficiently uses available land and resources.
  - *Establishing connectivity* within each center and to other areas to provide *accessibility.*
  - *Providing a range of transportation options.*
- Investing in public facilities and amenities to enhance livability.*CD-11. Archaeological and Historic Resources: Protect and preserve cultural, historic and archaeological resources. Promote preservation, restoration, rehabilitation, and reuse of historically or architecturally significant older buildings. Increase knowledge and awareness of historic and archaeological resources. Work with Clark County to maintain State certified Local Government status.*

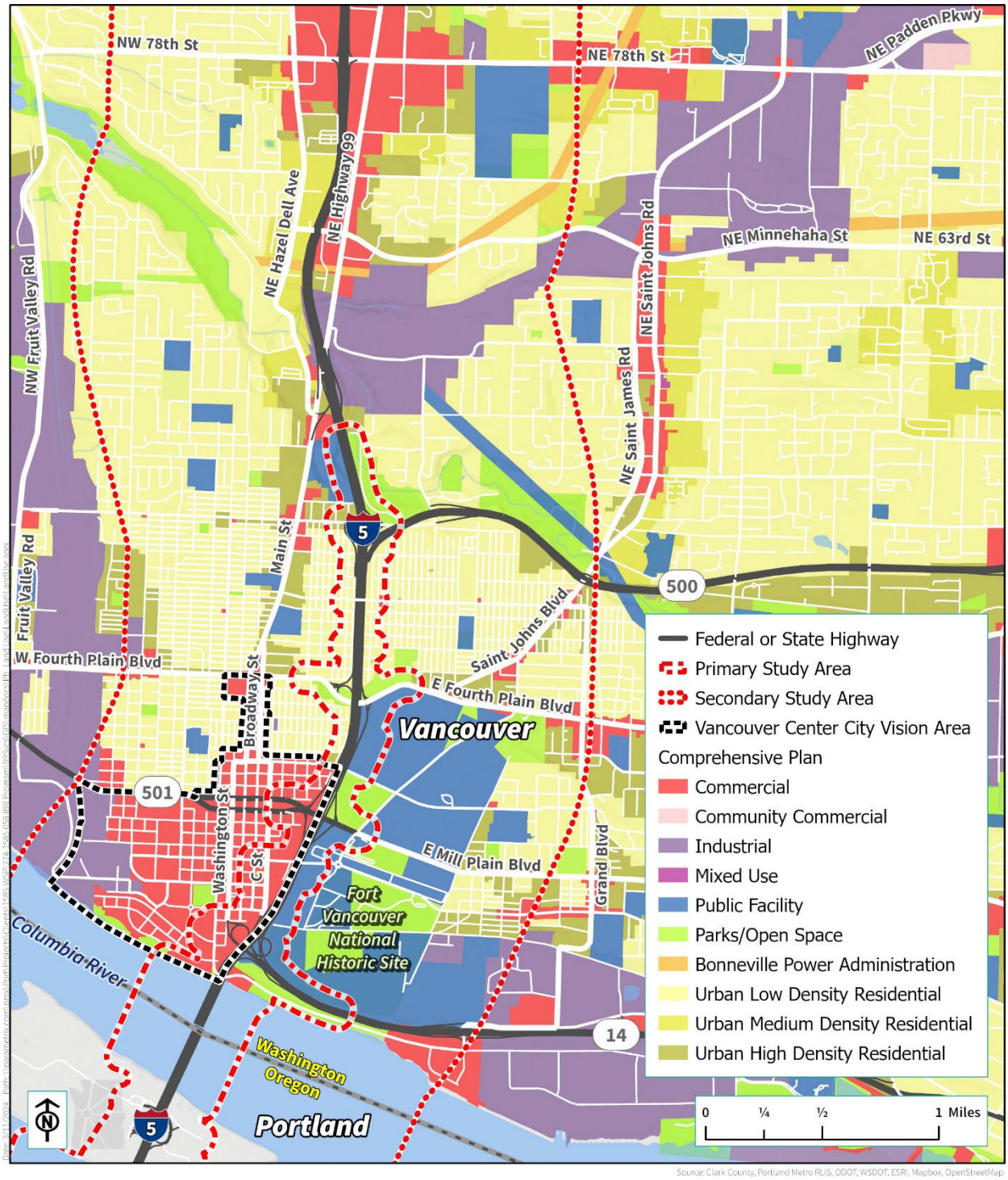
Economic Development

The following two polices are intended to protect employment opportunities, especially where they may yield family-wage jobs.

- *EC-5. No Net Loss Of Employment Capacity: Restrict zone changes or legislative approvals which lessen long-term capacity for high wage employment, unless accompanied by other changes within the same annual review cycle that would compensate for the lost capacity, or unless the proposed change would promote the long-term economic health of the city.*
- *ED-6. Efficient Use Of Employment Land: Maximize utilization of land designated for employment through more intensive new building construction, and redevelopment and intensification of existing sites.*

The plan also calls for protecting historic structures and trees. Many of these immediately adjoin the existing I-5 right of way.

Figure 3-11. Comprehensive Plan, Vancouver



Public Facilities and Services

Although transportation issues are addressed more fully in the City's Transportation Plan, the comprehensive plan's Public Facilities and Services element refers to a balance of transportation choices, human scale, livable design, and efficiency.

- *PFS-17. Use transportation and land use measures to maintain or reduce single-occupant motor vehicle miles traveled per capita to increase system efficiency and lower overall environmental impacts. Further analysis will be needed to determine whether increased vehicular capacity on I-5 will encourage urban sprawl and vehicle miles traveled.*

City of Vancouver Transportation System Plan

The City of Vancouver's newly updated TSP, *Vancouver Moves* (City of Vancouver 2024), helps to define the future of the City's transportation system. The plan guides how the City will develop its streets, coordinate transportation infrastructure improvements with land uses, and respond to future growth and demands on the transportation network from 2024 to 2044. The TSP includes vision statements for the City's evolving transportation system that focus on accessibility, not just mobility, emphasizing system efficiency, connectivity, multimodalism, and a walkable community.

The TSP includes a network of Enhanced Transit Corridors that shows where the City plans to prioritize transit service. This network, created in collaboration with C-TRAN, is a subset of transit routes identified based on frequency of bus service, regional and local growth and congestion that delays the bus. Existing and planned Enhanced Transit Corridors include Fourth Plain Boulevard, Mill Plain Boulevard, 162nd Avenue, Main Street/Highway 99 and the I-5 bridge.

The City of Vancouver Strategic Plan

The *2023–-2029 Strategic Plan* helps guide the City's decision-making and resource allocation in addition to performance tracking and reporting. The plan's goals include developing and maintaining a safe, future-ready, and convenient transportation system that offers affordable and accessible options for people to get where they need to be (City of Vancouver 2023).

Vancouver City Center Vision and Subarea Plan

The 2007 VCCV divides the downtown into six areas and includes a list of goals and guiding principles (City of Vancouver 2007). Land use goals include focusing waterfront redevelopment on residential uses, with significant public access, recreation, cultural, hospitality, entertainment, and limited commercial uses. The plan advocates protecting key historic buildings and established residential neighborhoods.

Detailed goals include:

- *Strengthen the primary street connections, (Columbia and Esther) to the waterfront.*
- *Support a secondary connection to the waterfront (e.g., Daniels).*
- *Connect downtown with the Vancouver National Historic Reserve via a 7th Street (Heritage Way) pedestrian bridge.*

- *Ensure that expansion of I-5 and Columbia River crossing improvements improve access to the city center and minimize potentially negative effects.*
- *Overcome the barrier-like feeling of the BNSF railroad berm between downtown and the waterfront.*
- *Provide improved access into the southern and western areas of the city center.*
- *Focus waterfront redevelopment on residential uses supported by significant public access, recreation, cultural, hospitality, entertainment, and limited commercial uses.*

The plan specifically addresses the IBR Program with the following directions:

- *Analyze proposed engineering designs that could potentially affect adjoining properties negatively and result in wasteful use of downtown land.*
- *Enhance existing connections between the Vancouver National Historic Reserve and downtown.*
- *In addition to the I-5 southbound ramp to 6th Street, explore other opportunities to improve access to downtown.*
- *Integrate the Heritage Way Bridge concept into the I-5 improvements project.*
- *Integrate all modes of transportation, including high-capacity transit, bicycle, and pedestrian circulation, to achieve a true regional multimodal corridor.*
- *Coordinate I-5 improvements with city center access and circulation needs.*

City of Vancouver, Heritage Tree Program

In 1998, the City of Vancouver established the Heritage Tree program, updated in 2018, to preserve and recognize the significant trees in the community (City of Vancouver 2018). Portland has a similar program. Vancouver has designated a number of significant trees within the primary study area. One goal of the program is to provide a way for people to save trees on private property from unnecessary removal and aggressive maintenance actions. With the consent of the property owner, trees receive Heritage Tree status if they meet at least one of the following requirements; at least 36 inches in diameter; located on a special site; related to a historical event; an unusual species for the area; or an exemplary form of the species. All Heritage Trees are inventoried and can be easily identified by plaques with their designation either on or adjacent to the tree.

City of Vancouver Shoreline Master Program

Implementing the Washington State Shoreline Management Act of 1971, the City of Vancouver adopted its Shoreline Master Program in 1975. The program was most recently amended in 2021 to ensure compliance with the State's current guidance and policies and to address issues identified by the City and Washington State Department of Ecology (City of Vancouver 2021). The program is meant to protect natural values and functions of the shorelines while guiding and allowing appropriate development. The program includes shoreline use and development regulations, which are informed by program goals. The goal for transportation, utilities, and institutional facilities is to provide for these facilities in shoreline areas without adverse effects on existing shoreline use and development or shoreline ecological functions and/or processes. When new utility and transportation facilities are

developed in the shoreline jurisdiction, they must protect, enhance, and encourage development of physical and visual shoreline public access.

Within the study area, Vancouver has adopted a Columbia River Shoreline Enhancement Plan District (Vancouver Municipal Code [VMC] 20.620) that specifically implements the Shoreline Management Act south of the BNSF railroad between the railroad bridge and Wintler Park. This plan district emphasizes public access.

NEIGHBORHOOD/AREA-SPECIFIC

Downtown Vancouver Transportation System Plan

The City of Vancouver adopted a subarea plan and redevelopment plan in 1996 for the Esther Short neighborhood, which includes most of downtown. Much of the plan has been incorporated into the VCCV (City of Vancouver 2007), which updated and largely supplanted it. It has significance for the project beyond that of most neighborhood plans. The Downtown Vancouver TSP addresses transportation conditions and plans from Fourth Plain Boulevard south to the Columbia River.

Downtown Access, Mobility, and Parking Plan

The City of Vancouver's Downtown Access, Mobility, and Parking Plan, adopted in 2025, aims to transform downtown Vancouver into dynamic, walkable neighborhoods that are accessible and enjoyable as the population grows. The goal of the plan is "to create a livable place designed for people with jobs, businesses, housing, and activity for residents, employees, and visitors, all within a high-functioning, easy-to-traverse, 15-minute downtown" (City of Vancouver 2025b). It sets a vision for parking and mobility through three pillars:

- Pillar 1: Adopt New Pricing Practices for Parking
- Pillar 2: Expand Public Parking Supply Through Shared Parking
- Pillar 3: Enhance Downtown Mobility Options.

Each pillar contains specific actions, such as policies, initiatives, and/or investments, designed to help achieve the plan's goals. As part of Pillar 2, the plan highlights the need to develop a dispersed parking plan for new light rail to downtown. It includes the IBR Program as an action that may require park and rides to accommodate the two light rail stations in downtown Vancouver (City of Vancouver 2025b).

Central Park Plan

The City of Vancouver's *Central Park Plan* was initially adopted in 1979. In 2008, in recognition of dramatic changes to the area, the Vancouver City Council adopted the updated Central Park Subarea Plan, "A Park for Vancouver," and its design guidelines (City of Vancouver 2008). The plan concept calls for a unified sense of place by celebrating a shared historic landscape and emphasizing design of key features such as a "great street" network. The plan was created following a community planning process involving local citizens, other interested parties, and public agencies. When the Central Park Plan was updated in 2008, the IBR Program's predecessor, the CRC project, was active and some of the policies no longer apply given the differences between the CRC project and the IBR Program.

Key features identified in the planning process were prioritized by participants. Gateway features ranked highest, meaning that the Modified LPA should contribute to, or not conflict with, the gateway on McLoughlin just south of the proposed park-and-ride (under the CRC project). The plan describes gateways as:

> *…attractive entry points to the Subarea that visually signal arrival and differentiate the Subarea from the surrounding areas…and will likely include special signage, landscaping, paving, and structures.*

The plan includes language specific to the CRC project including construction of a station/park-and-ride and seeking to integrate it as a service for Central Park users:

CP-17 *New Park and Ride facilities shall be located and built to facilitate shared non-peak-hour parking with Central Park institutions and to minimize impervious surface and land used for parking.*[19]

> *Vision: The I-5 Columbia River Crossing improves access to Central Park from all parts of the city and region.*

CP-22 *Work with Project Partners to ensure that the Columbia River Crossing project is consistent with the goals and policies of the Central Park Plan and by addressing the following:*

A. *Create new linkages between Central Park and the Vancouver City Center;*
B. *Enhance the Mill Plain connection as the primary gateway to the Central Park Subarea;*
C. *Enhance the Evergreen, McLoughlin, and Fourth Plain Boulevard connections as gateways between the City Center and the Central Park Subarea;*
D. *Integrate all modes of transportation, including high-capacity transit, bicycle and pedestrian circulation, to achieve a true regional multimodal corridor;*
E. *Coordinate I-5 improvements with Central Park Subarea access and circulation needs;*
F. *Any new interchanges that are to be built due to the realignment of I-5 shall provide multimodal access on all sides and shall provide smooth connections to existing paths, sidewalks and bike lanes between Central Park and the City Center; and*
G. *To reduce potential impacts of an expanded I-5 freeway and bridge, a cap(s) over I-5 should be provided linking Central Park and the City Center.*

Port of Vancouver Waterfront Development Master Plan

The Port of Vancouver Waterfront property was included in the area studied and documented in 2009 as part of the implementation of the VCCV. Approved in 2015, the *Waterfront Development Master Plan* defines a vision for the Columbia River waterfront that is consistent with the Port's mission to provide

[19] City of Vancouver, Central Park Plan Update, page 23.

economic benefit to the community through leadership, stewardship, and partnership in maritime-related development. The plan includes elements such as public access, active modes of transportation, and planning for the Interstate Bridge replacement and its alignment relative to adjacent development (Port of Vancouver 2015).

Highway 99 Sub-Area Plan

The *Highway 99 Sub-Area Plan*, developed by Clark County in 2008, covers the area from 63rd Street north to approximately 134th Street (Clark County 2008). This plan serves as a guide for public investments and for Team 99, a group of business leaders in the corridor. The plan addresses the CRC project and notes that all planning efforts for the *Highway 99 Subarea Plan* will support the project recommendations for high-capacity transit including light rail or BRT.

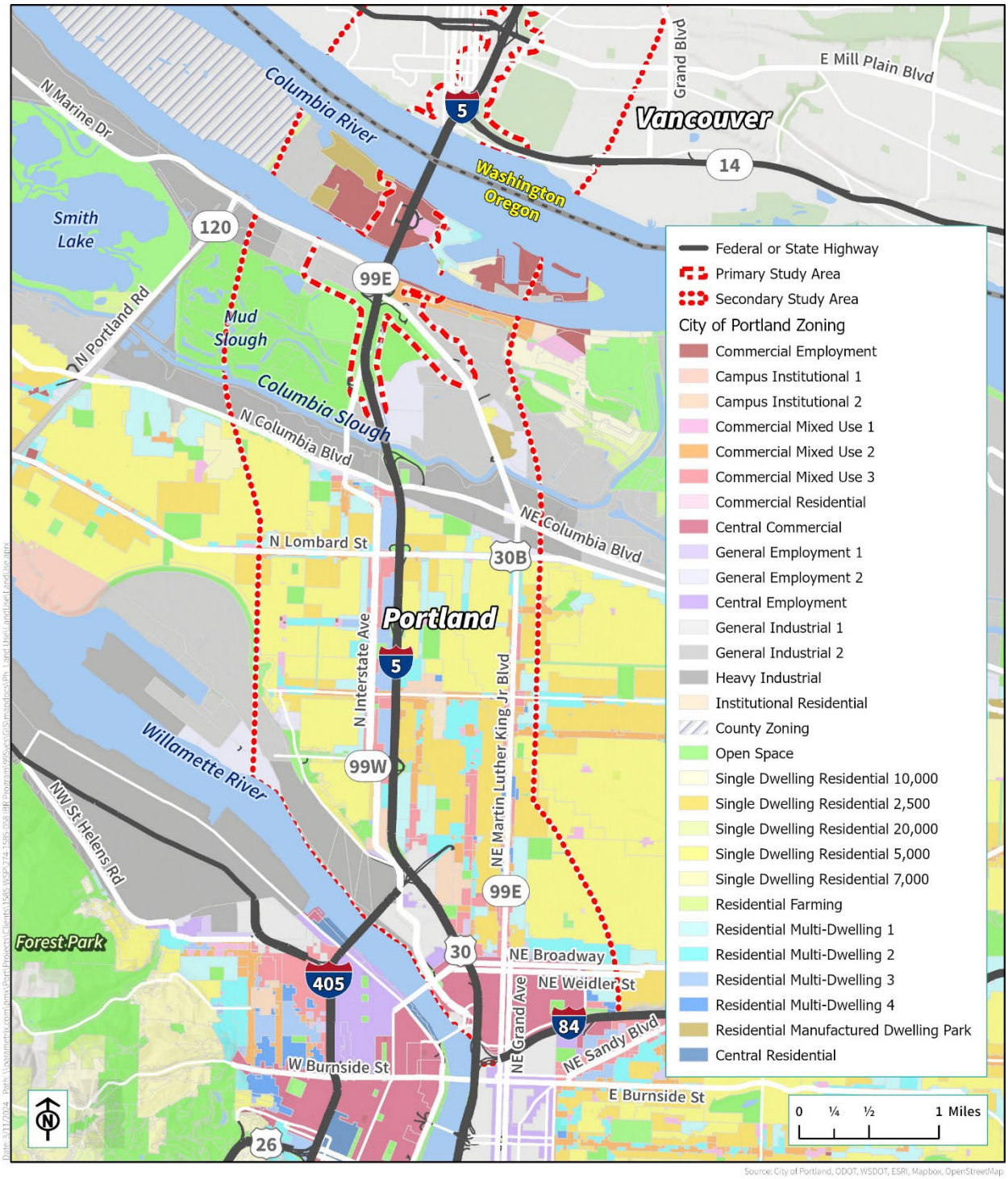
3.5 Zoning and Overlay Districts

Zoning districts for Portland, Multnomah County, Vancouver, and Clark County are based on the principle of separating uses such as residential, commercial, industrial, etc. The codes dictate allowed uses, building heights and other development standards, and off-site impacts. Both Portland and Vancouver use overlays to protect natural resources, urban form, and historic properties. The zones found within the primary and secondary study areas are depicted in Figure 3-12 through Figure 3-21, The zones found within the primary study area are described below.

3.5.1 City of Portland Comprehensive Plan and Zoning Designations

Figure 3-12 shows the zoning designations for both the primary and secondary study areas in Portland. The following describes existing City of Portland Comprehensive Plan designations and associated zoning districts within the primary study area.

Figure 3-12. Zoning – Portland, Oregon



Multi-Dwelling – Neighborhood (MD-N) – Comprehensive plan use designation which allows low-rise multi-dwelling development mixed with single-dwelling housing types at a scale that is compatible with, but somewhat larger than, single-dwelling residential. This designation is intended for areas near, in, and along centers, neighborhood corridors, and transit stations in locations where transit-supportive densities at a low-rise residential scale are desired.

- Residential Multi-Dwelling (RM1) – A low-scale multi-dwelling zone applied around centers and corridors in locations near single-dwelling residential areas. Housing is generally characterized by one- to three-story buildings with front setbacks that relate to the patterns of residential neighborhoods. The types of new development include duplexes, rowhouses, courtyard housing, and small apartment buildings. Primary uses include household living and limited commercial on corridors. This residential designation comprises a small portion of the primary study area east of I-5 on Hayden Island.

Mixed Use – Neighborhood (MU-N) – Comprehensive plan designation promoting mixed-use development in neighborhood centers and along neighborhood corridors to preserve or cultivate locally serving commercial areas with a storefront character. This designation is intended for areas where urban public services, generally including complete local street networks and access to frequent transit, are available or planned, and development constraints do not exist.

- Commercial Employment (CE) – A medium-scale zone intended for sites along corridors in areas between designated centers, especially along Civic Corridors that are also major truck streets. The emphasis of this zone is on commercial and employment uses. Buildings are generally expected to be up to four stories. Specific allowable uses include retail sales and services, office space, quick vehicle servicing, vehicle repair, self-service storage, household living, institutional uses, and limited manufacturing and other low-impact industrial uses.
- Commercial Mixed Use 1 (CM1) – a small-scale, commercial mixed-use zone intended for sites in smaller mixed-use nodes within lower-density residential areas, on neighborhood corridors, and at the edges of neighborhood centers, town centers and regional centers. Buildings in this zone are generally expected to be up to three stories. Specific allowable uses include retail sales and services, office space, household living, institutional uses and very limited manufacturing uses.
- Commercial Mixed Use 2 (CM2) – a medium-scale, commercial mixed-use zone intended for sites in a variety of centers and corridors, in other mixed-use areas that are well served by frequent transit, or within larger areas zoned for multi-dwelling development. Buildings in this zone are generally expected to be up to four stories, except in locations where bonuses allow up to five stories. Specific allowable uses include retail sales and services, office space, household living, vehicle repair, institutional uses and limited manufacturing uses.

  Commercial encompasses a large section of the study area along the I-5 corridor from N Marine Drive north to the northern end of Hayden Island, east to N Jantzen Beach Avenue, and west extending past the study area.

Manufactured Dwelling Park (MDP) – This designation allows multi-dwelling residential development in manufactured dwelling parks. Allowed housing is manufactured dwellings that are assembled off-site. The designation is intended to reflect the unique features of manufactured dwelling parks in terms of a self-contained development with smaller dwellings on individual spaces

with an internal vehicle circulation system, pedestrian pathways, and open area often resulting in lower building coverage than other multi-dwelling designations.

- Residential Manufactured Dwelling Park (RMP) – A low-scale multi-dwelling zone that allows manufactured dwelling parks, which are places where four or more manufactured dwellings are located on a site. Housing is characterized by manufactured dwellings, which are assembled off-site and moved to the park location. Manufactured dwellings are the only housing type allowed in the zone.

  The manufactured-dwelling park designation encompasses a small section of the primary study area on the north of Hayden Island, west of I-5.

Industrial Sanctuary (IS) – This designation is intended to reserve areas that are attractive for manufacturing and distribution operations and encourage the growth of industrial activities in the parts of the city where important freight and distribution infrastructure exists, including navigable rivers, airports, railways, and pipelines. A full range of industrial uses are permitted and encouraged.

- General Industrial 2 (IG2) – Generally has larger lots and irregular or large block pattern. The area is less developed, with sites having medium and low building coverages which are usually set back from the street. Specific allowable uses include manufacturing, warehouse and freight movement, wholesale sales, industrial service, railroad yards, parks and open spaces.

Industrial zoning makes up the middle swath of the study area, west of I-5, from N Expo Road north to N Marine Drive and a small section at the very southwest end of the primary study area.

Open Space (OS) – The OS zone is intended to preserve and enhance public and private open, natural and improved park and recreational areas. Open space encompasses the majority of the southern end of the primary study area from Highway 99 E to just south of N Victory Boulevard.

Mixed Employment (ME) – This designation encourages a wide variety of office, creative services, manufacturing, distribution, traded sector, and other light-industrial employment opportunities, typically in a low-rise, flex-space development pattern. Most employment uses are allowed but limited in impact by the small lot size and adjacency to residential neighborhoods.

- General Employment 2 (EG2) – Generally features larger lots and an irregular or large block pattern. The area consists of sites with medium and low building coverages and buildings which are set back from the street. Specific allowable uses include manufacturing, warehouse, wholesale sales, industrial services, parks and open spaces, educational institutions, hospitals, quick vehicle servicing, vehicle repair and self-service storage.

  Mixed Employment encompasses a small section of the southwest end of the primary study area, adjacent to I-5.

3.5.2 City of Portland Overlay Zones

The following describes the overlay designations found in the primary study area, which are shown in Figure 3-13 through Figure 3-16.

Aircraft Landing (h) – The Aircraft Landing (h) overlay zone provides safer operating conditions for aircraft in the vicinity of Portland International Airport by limiting the height of structures and vegetation.

Airport Noise Impact (x) – The Portland International Airport Noise Impact (x) overlay zone reduces the impact of aircraft noise on development within the noise impact area surrounding the Portland International Airport. The zone achieves this by limiting residential densities and by requiring noise insulation, noise disclosure statements, and noise easements.

Environmental Conservation (c) – The Environmental Conservation (c) overlay zone conserves important resources and functional values in areas where the resources and functional values can be protected while allowing environmentally sensitive urban development. This overlay zone is applied wherever the City determines that significant resources and functional values are present.

Environmental Protection (p) – The Environmental Protection (p) overlay zone provides the highest level of protection to the most important resources and functional values. Development will be approved in this zone only in rare and unusual circumstances.

Design (d) – The Design (d) overlay zone promotes the conservation, enhancement, and continued vitality of areas of the City with special scenic, architectural, or cultural value. This is achieved through the creation of design districts and applying the Design Overlay Zone as part of community planning projects, development of design guidelines for each district, and by requiring design review or compliance with the Community Design Standards. In addition, design review or compliance with the Community Design Standards ensures that certain types of infill development will be compatible with the neighborhood and enhance the area.

Prime Industrial (k) – The Prime Industrial (k) overlay zone limits new parks, open areas and commercial outdoor recreation; prohibits self-service storage and major event entertainment uses; and prohibits future quasi-judicial comprehensive plan map amendments. This overlay preserves Portland's limited supply of prime industrial land for industrial use.

Historic Resource Overlay – The Historic Resource overlay protects historic resources that have been identified as significant to the history of the city and region. The regulations implement Portland's comprehensive plan policies that address historic preservation by advancing the following objectives:

- Recognize the role historic resources have in promoting education and enjoyment for those living in and visiting the region.
- Foster awareness, memory, and pride among the region’s current and future residents in their city and its diverse architecture, culture, and history.
- Recognize social and cultural history, retain significant architecture, promote economic and environmental health, and steward important resources for the use, education, and enjoyment of future generations.

Figure 3-13. Overlay Zones – Design Overlay Zones and City Historic Landmarks, Portland, Oregon

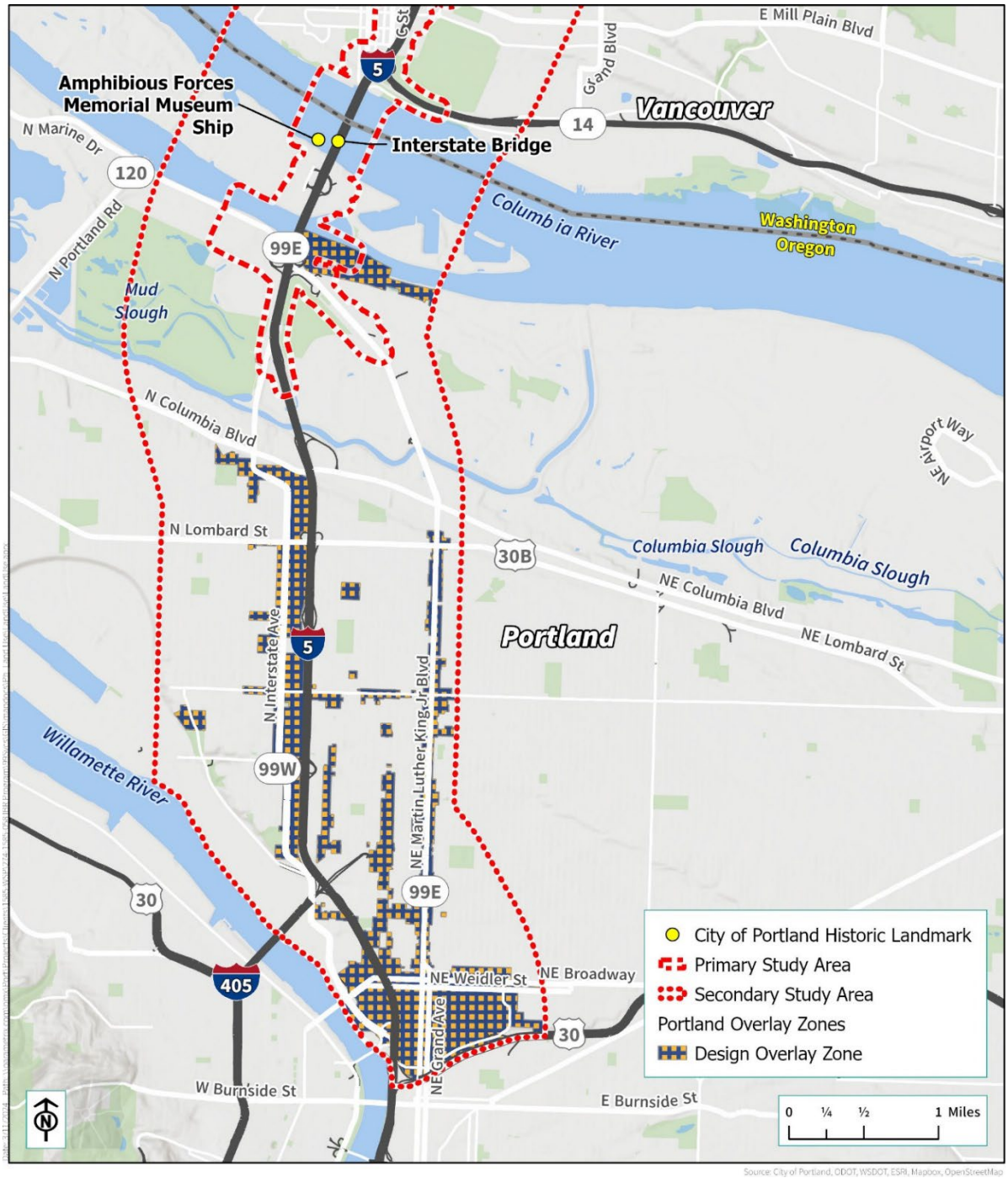


Figure 3-14. Overlay Zones – Environmental Protection and Conservation Zones, Portland, Oregon

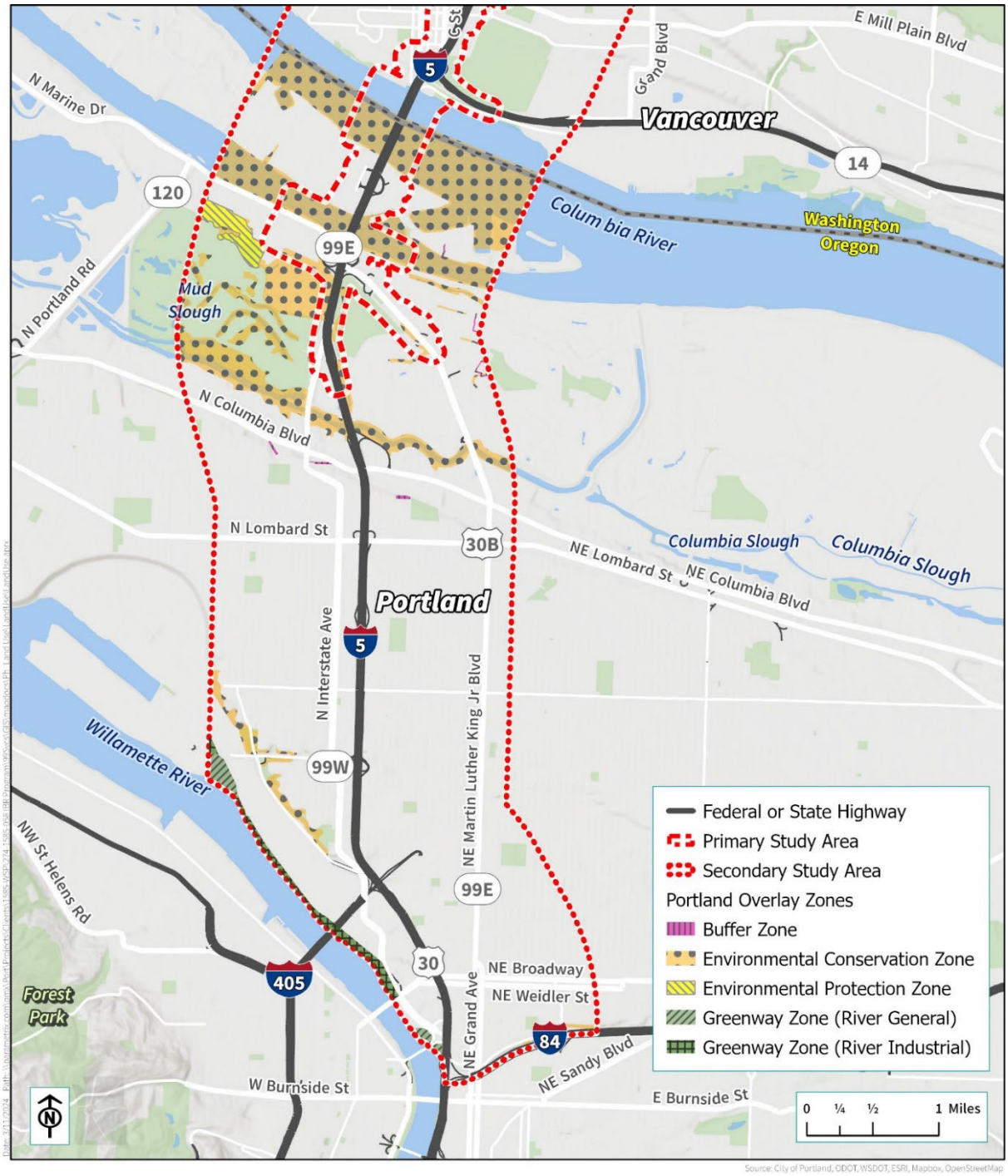


Figure 3-15. Overlay Zones – Prime Industrial Overlay Zone, Portland, Oregon

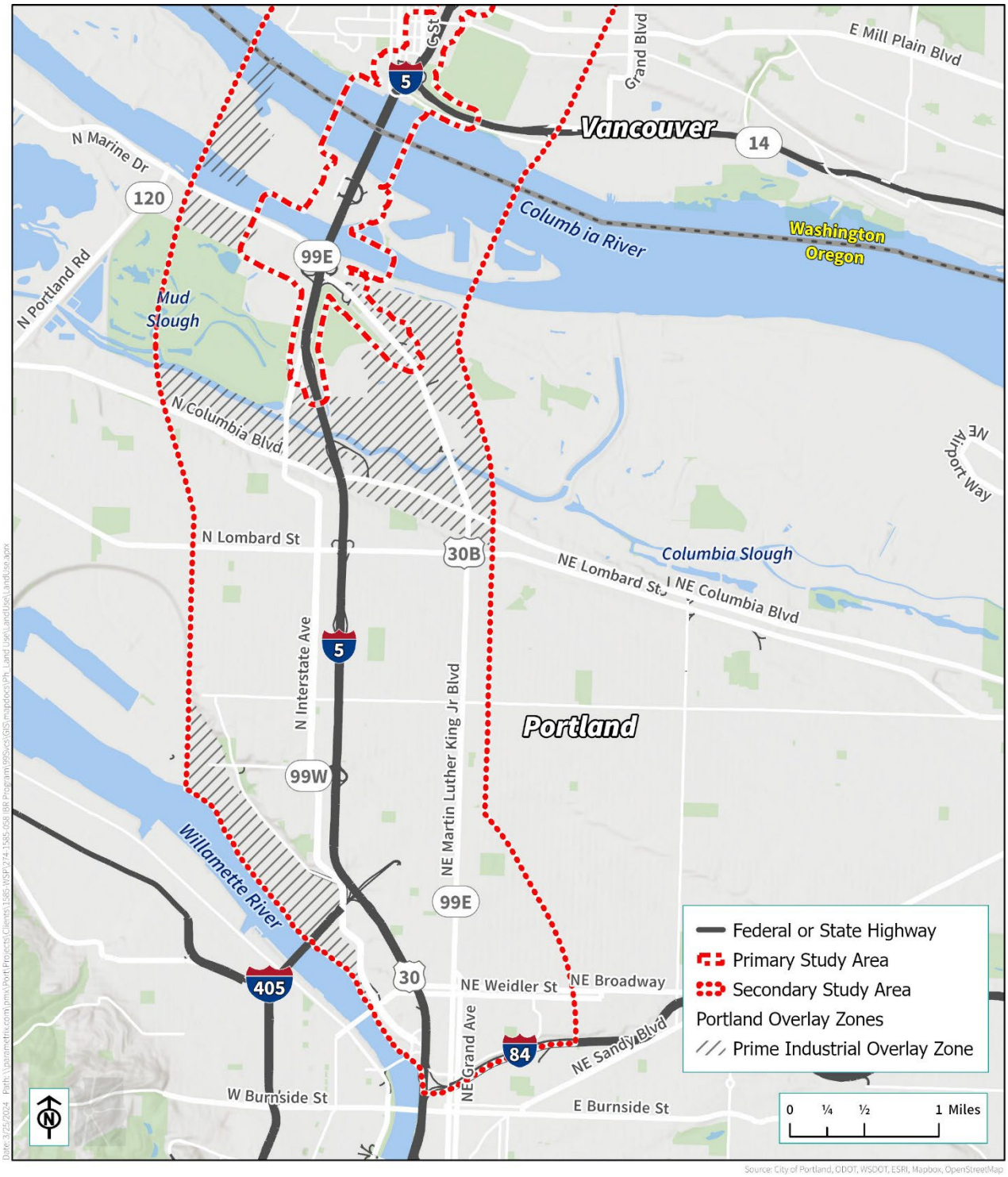
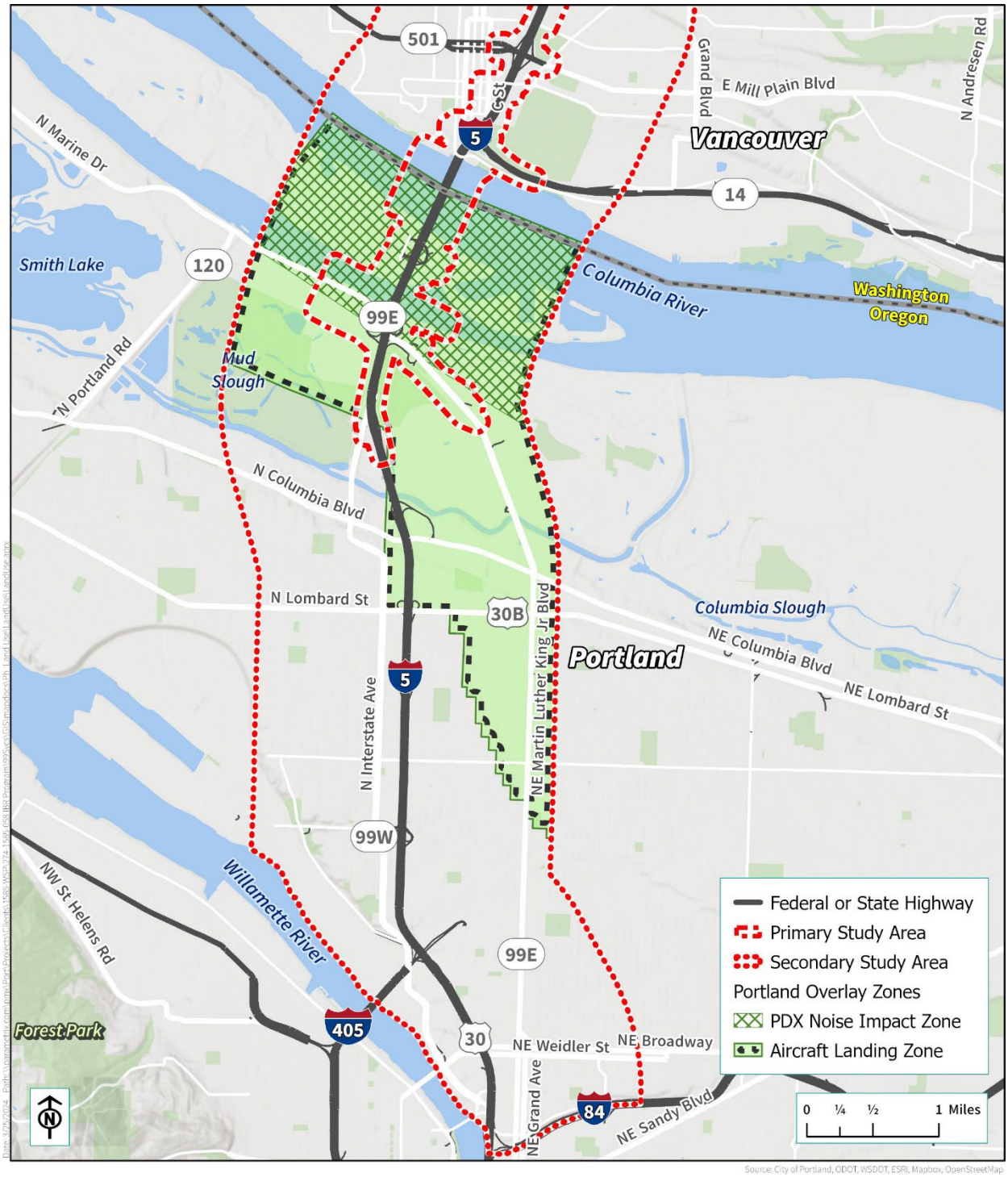


Figure 3-16. Overlay Zones – Noise and Aircraft Zones, Portland, Oregon



3.5.3 City of Vancouver Zoning Districts

The following describes the zoning districts found in the primary study area within Vancouver, which are shown in Figure 3-17. The portion of the secondary study area within the City of Vancouver is also characterized by this same mix of zoning districts. However, the location of each district is only described for the primary study area because the primary study area boundary represents the greatest anticipated extent of potential direct impacts.

Commercial (COM) – Commercial zoning districts ensure that a full range of retail and office uses are available throughout the City so that residents can fulfill all or most of their needs for goods and services within close proximity of their homes.

- City Center (CX) – Provides for a concentrated mix of retail, office, civic, and housing uses in downtown Vancouver. Typical uses include retail sales, hotels/motels, restaurants, professional offices, educational, cultural and civic institutions, public buildings, and commercial parking.
- Community Commercial (CC) – Designed to provide for retail goods and services purchased regularly by residents of several nearby neighborhoods. The zone accommodates offices, institutions, and mixed-use housing.
- General Commercial (CG) – Designed to allow for a full range of retail, office, mixed-use, and civic uses with a citywide to regional trade area. Some light-industrial uses are allowed, but limited. Development is expected to be auto-accommodating, walking, cycling, transit is encouraged.
- Neighborhood Commercial (CN) – This district is designed to provide for small-scale, convenience commercial uses to serve adjacent residential neighborhoods. Typical uses include convenience markets, personal services, restaurants, bakeries, and video rental shops. Walking, bicycle, and transit trips should be encouraged through building design, landscaping, and access.

Commercial encompasses the southwest vicinity of the study area in Vancouver from the Columbia River north to W 19th Street with a couple block radius extending north past the primary study area.

Open Space/Green Space – This district intends to protect, preserve, conserve, and enhance natural areas, greenways, and parks.

- Parks – The Park District is land that has been or is intended to be developed to provide for moderate-to high-intensity recreational activities in addition to passive or low-intensity recreational experiences. Environmental preservation, conservation, and enhancement are also objectives in the development and maintenance of park districts.

  Parks are located throughout the primary study area, including Esther Short Park to the west of I-5 and Vancouver Central Park on the east side of I-5, which encompasses the Waterfront Park, the Old Apple Tree Park, Fort Vancouver, Officers Row, and Marshall Park.

Figure 3-17. Zoning – Vancouver, Washington

Residential – Urban Low Density Residential – These districts are primarily design to preserve and promote neighborhoods of detached single dwellings at low intensities.

- Low Density Residential (R-9) – The R-9 zoning district is designed to accommodate detached single dwellings with or without accessory residential units at a minimum lot size of 5,000 square feet.

  Within the study area, this district is located along the I-5 corridor from Fourth Plain Boulevard to 39th Street.

- Urban High Density Residential – These districts are designed to promote medium-high-density residential neighborhoods.
  - Higher Density Residential (R-22, R-18, and R-30)
    - R-18: Designed to accommodate attached homes such as duplexes, rowhouses, garden-type apartments, at a minimum lot size of 1,800 square feet per unit. Professional office uses are permitted under certain circumstances (for R-18, R-22, R-30).
    - R-22: Designed to accommodate rowhouses, garden-type apartments, and lower-density multi-dwelling structures at a minimum lot size of 1,500 square feet per unit.
    - R-30: Designed to accommodate multi-dwelling structures at a minimum lot size of 1,500 square feet per unit.

    High-density residential development is concentrated along Main Street from Fourth Plain Boulevard to the north end of the primary study area, north of Fourth Plain east of Main Street, along 39th Street between Main Street and I-5, and directly west of I-5 along McLoughlin Boulevard.

Public Facilities – Central Park Mixed Use (CPX) – This designation is for all land located within the Vancouver Central Park Plan District that contains a number of existing parks and governmental, health, recreational, educational, and cultural facilities. This zone contains the Vancouver National Historic Reserve that includes Officers Row, Vancouver Barracks, Fort Vancouver and Pearson Air Park.

This designation encompasses the eastern side of the primary study area along I-5 from Highway 14 north to E Fourth Plain Boulevard and a small section on the northwest end of the study area from E 40th Street north.

Industrial – Industrial zoning districts ensure that a full range of job opportunities are available throughout the City so that residents can work close to home if they choose. The location of land must be carefully selected and designed to minimized potential for adverse impacts on established residential areas.

- Light Industrial (LI) – This zoning district provides appropriate locations for combining light, clean industries, including industrial service, manufacturing, research/development, warehousing activities, and general office uses and limited retail.

Industrial zoning is located in the very northern portion of the study area, east of I-5.

Park – Consisting of neighborhood, community, and regional parks, this designation provides for the environmental preservation, conservation and enhancement of park districts. These parks provide for passive and low-, medium-, and high-intensity recreational activities. Park zoning is present in downtown Vancouver at Esther Short Park, along the Vancouver Waterfront, and in portions of the Fort Vancouver National Historic Reserve; at the Vancouver Barracks cemetery on 4th Plan Blvd east of I-5; and east of I-5 in the northern portion of the study area at Leverich Park.

3.5.4 City of Vancouver Overlay Districts

Figure 3-18 through Figure 3-20 show the Vancouver Overlay Districts in the study area.

Heritage Overlay District – These two districts preserve the unique architectural character and historic or cultural significance of specific areas within downtown. They ensure that all new development is compatible in scale, character, and design with existing structures, and that older buildings are preserved and their original character restored. One overlay applies to the House of Providence Academy on Evergreen Boulevard, and the other applies to the southernmost blocks of Main Street.

Hough Neighborhood Overlay District – This district protects the low-density residential character of the Hough neighborhood, while allowing for the continued use of multifamily and nonresidential structures currently in place. It also allows for rebuilding these structures if they become damaged. This overlay applies to approximately 20 blocks north of Mill Plain Boulevard, between Daniels and Markle Streets.

Noise Impact Overlay District – This district is in place to inform property owners within the district of unusually high noise levels from nearby airports, railroads, and highways. It applies to a section of the Columbia River shoreline beginning at Columbia Shores Boulevard and extending west to the Esther Short Park neighborhood, and those blocks that abut I-5 up to McLoughlin Boulevard. The overlay requires that any new residential construction within the district employ construction techniques that insulate residents from this high noise level.

Office Development Overlay District – This district requires careful review of any nonresidential development planned along major streets to protect neighborhoods from increased pedestrian and automotive traffic, noise and light pollution, or changes to community aesthetic. This overlay is located along Main Street from Fourth Plain Boulevard to 45th Street.

Transit Overlay District (Tier 1 and Tier 2) – This district provides financial incentives to promote high-density residential and commercial development along main traffic corridors that is both pedestrian and transit-friendly. It provides specific guidelines for desired uses, densities, orientation, setback, and floor-area ratios for nonresidential and residential structures. The overlay is broken into two tiers. The stricter, Tier 1 zoning is located in patches along Main Street and Fourth Plain Boulevard, often at major intersections or interchanges. Tier 2 zoning applies to a much larger area along Main Street, from Mill Plain Boulevard to 159th Street, and along Fourth Plain Boulevard.

Vision Overlay District – This district protects against structures that could interfere with views from the residential slopes east of I-5. This overlay applies to the area bounded by 5th, 6th, U, and Z Streets.

Airport Height Overlay District – This district protects against structures that could obstruct the airspace associated with Pearson Airfield. This overlay applies to the Pearson Airfield approach and take-off zones that extend south into the Columbia River and west across the I-5 to the SR 14 interchange.

Shoreline Management Area – This overlay is in place to implement the policies and procedures set forth by the Shoreline Management Act of 1971. It prevents uncoordinated development of valuable shorelines and promotes land use that preserves and protects water quality, the natural environment, and public access. In the study area, shorelines regulations are implemented by the Columbia River Shoreline Enhancement Plan District.

Vancouver Central Park Plan District – This Plan District was established in 2008 to preserve and enhance the established urban civic character of the area and its significant historical, natural, educational, recreational, public utility and social service resources. This Plan District implements the adopted goals and policies of the Central Park Plan, (Ordinance M-3865); Fort Vancouver National Historic Site General Management Plan; Vancouver National Historic Reserve Cooperative Management Plan; and the Vancouver National Historic Reserve Long Range Plan. This District includes the following subdistricts: Historic Reserve Conservation, Officer's Row Conservation, Education and Recreation Conservation, Social and Health Conservation

Central Park Neighborhood Overlay District – To allow the present mix of uses in the Central Park Neighborhood Overlay District to continue while maintaining the residential character of the neighborhood and the R9 zone.

Downtown District – This zone provides an implementing mechanism for the City's Design Review Committee functions. New development, redevelopment, signage, and more are reviewed by the committee to ensure consistency with design principles for downtown. Section 20.630.010 includes these different principles, though more are provided in design-related documents adopted by the City (e.g., Central Park Plan). Design regulations pertain to building lines, rain protection, blank walls, maximum building heights, parking, waterfront development, and more.

Figure 3-18. Overlay Districts – Noise, Vision and Transportation, Vancouver, Washington

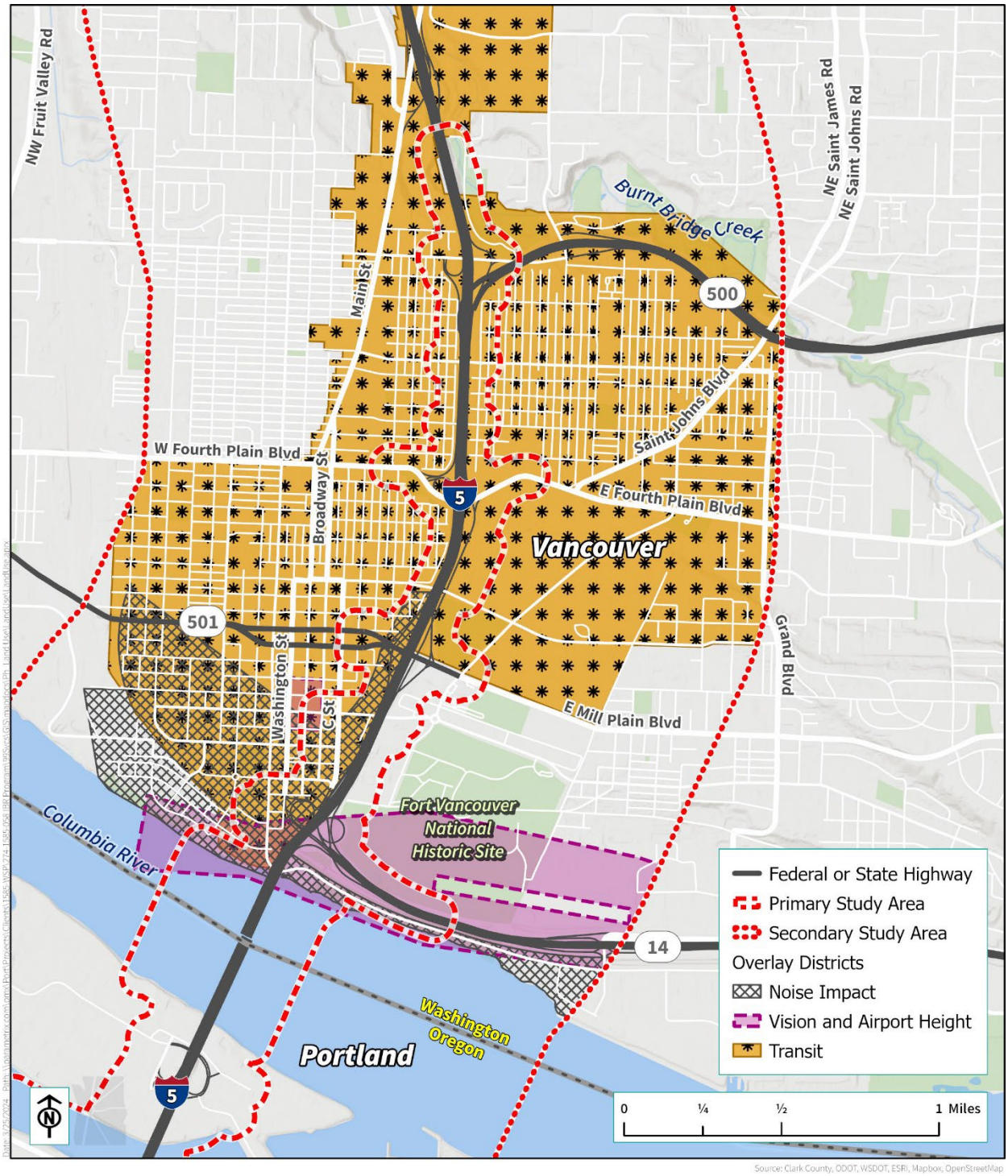


Figure 3-19. Overlay Districts – Neighborhood and Historic Preservation, Vancouver, Washington

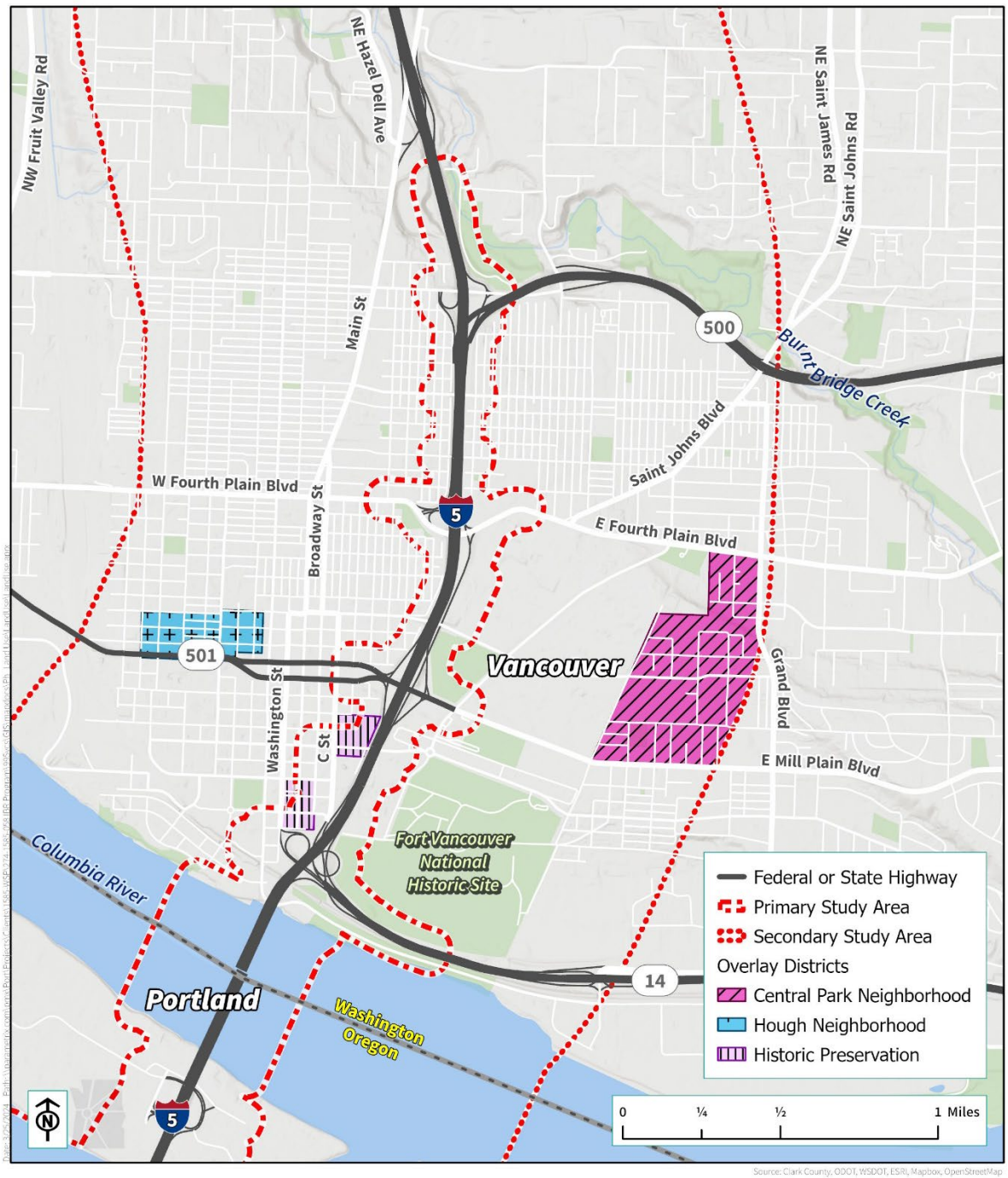
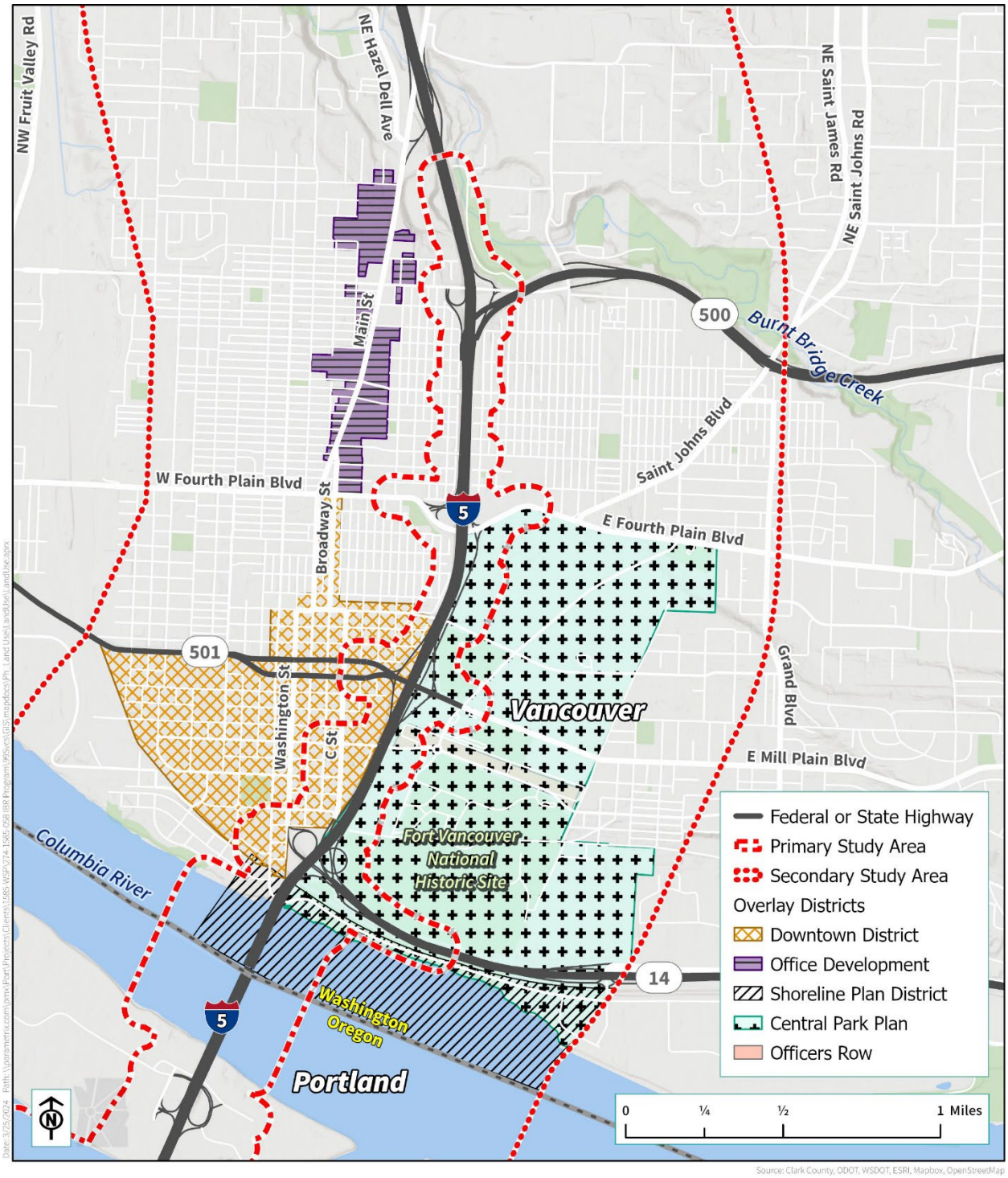


Figure 3-20. Overlay Districts – Development and Shoreline, Vancouver, Washington



3.5.5 Clark County Zoning

The Clark County zoning districts described below are exclusively located in the secondary study area in unincorporated Clark County, Washington. Figure 3-21 identifies Clark County zoning districts in the secondary study area.

Low Density Residential (R1-20, R1-10, R1-7.5, R1-6 and R1-5) – This designation provides for predominantly single-family residential development with densities of between 5 and 10 units per gross acre. Minimum densities ensure that new development will maximize the efficiency of public services. Duplex and attached single-family homes may be permitted through infill provisions or approval of a Planned Unit Development. In addition, public facilities, churches, institutions and other special uses may be allowed in this designation if certain conditions are met. The zones may be applied in a manner that provides for densities slightly higher than existing urban development, but the density increase should continue to protect the character of the area.

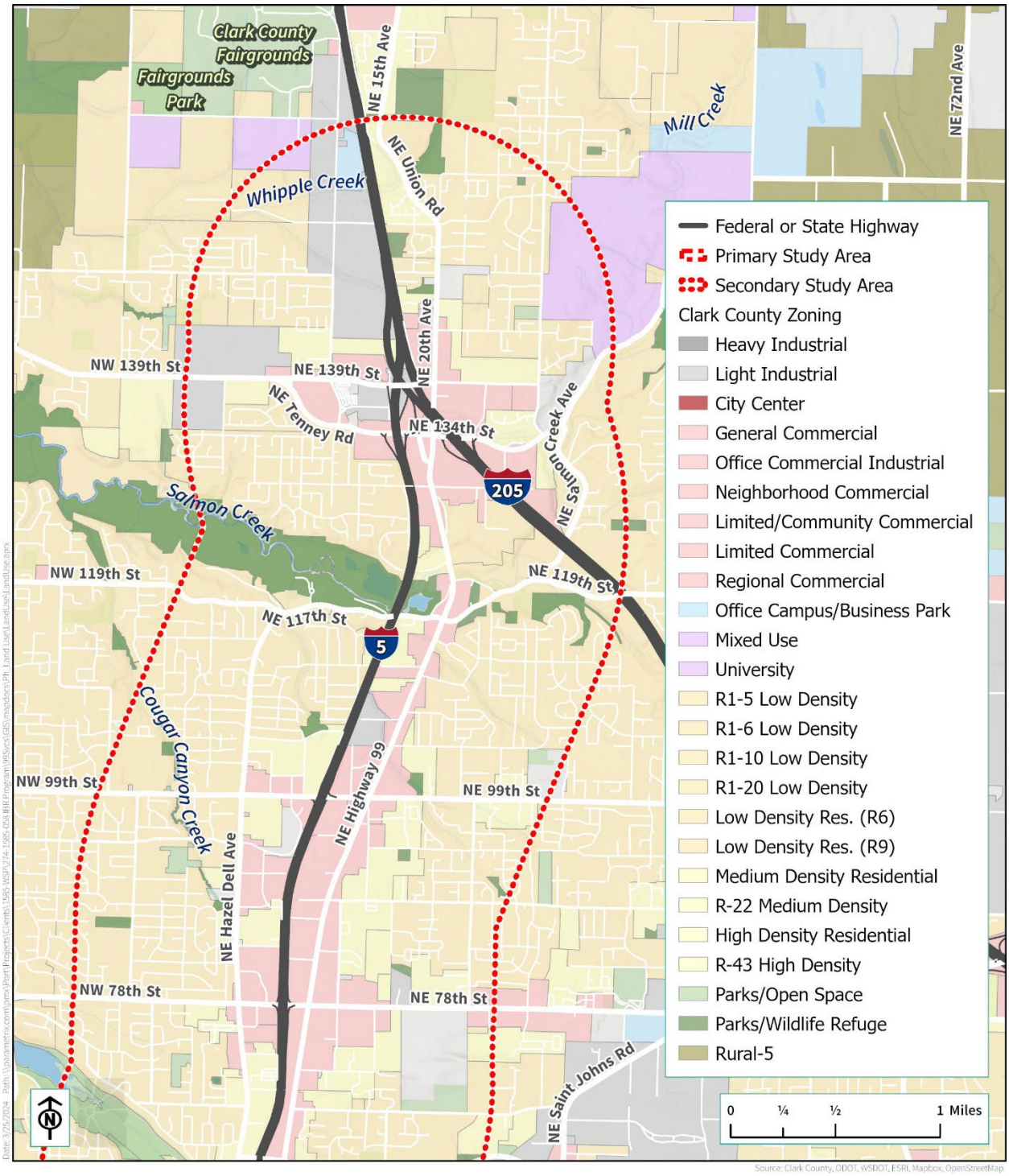
Medium Density Residential (R-12, R-18 and R-22) – This designation provides land for single-family attached housing, garden apartment, and multifamily developments ranging from 10 to 22 dwelling units per gross acre. Minimum densities ensure that areas build out to the density planned, ensuring that the urban areas accommodate anticipated residential needs. Areas planned for urban medium residential use and assisted living facilities shall be located near commercial uses and transportation facilities in order to efficiently provide these services. Public facilities and institutions are allowed under certain conditions.

High Density Residential (R-30 and R-43) – These areas provide for the highest density housing in the urban area with 43 units per gross acre. Minimum densities ensure that these areas build out to the density planned, ensuring that the urban areas accommodate anticipated residential needs including assisted living facilities. Areas with this designation shall be located in transit corridors and near commercial and employment centers to provide demand for commercial and transportation services while providing easy access to employment. Institutions and public facilities are allowed in this zone under certain conditions.

General Commercial (CG) – This designation is applied to existing strip commercial areas as highway or limited commercial zoning. The strip commercial areas are generally characterized as narrow bands of commercial uses adjacent to major and minor arterial roadways. The 20-Year Plan strongly discourages additional strip commercial (highway or limited commercial base zones) being applied to new areas or extending existing strip commercial areas.

Mixed Use (MX) – Areas within this designation are implemented with the list of uses allowed in the mixed use (MX) zone and are intended to provide the community with a mix of compatible urban retail service, office, and residential uses. The mix of uses should be mutually supporting and pedestrian and transit-oriented. Pedestrian and transit orientation shall be accomplished through design requirements governing such elements as scale, bulk, street orientation, landscaping, and parking.

Figure 3-21. Zoning – Clark County, Washington



Employment Center (EC) – Areas within this designation are implemented with Office Campus (OC) and Business Park (BP) base zones and are intended to provide the community with a compatible office and attractive new non-polluting industries. Office and Business Park areas are designated for more intensive job-related land uses that pay family wages, such as professional offices, research, and technology related industries located in a campus like setting. Business Park areas may also be targeted by special public or private incentive programs that provide up front public service improvements or other inducements to attract family-wage employment where higher job densities are encouraged. These areas are specifically targeted by local government and private sector job development organizations to consider special incentives to attract large scale businesses with public improvements, tax incentives, expedited development review or other considerations.

Light Industrial (ML) – Areas within this designation provide for light manufacturing, warehousing, and other land intensive uses. Services and uses which support industrial uses are allowed in these areas but limited in size and location to serve workers within the light-industrial area. Industrial lands are located in areas of compatible land uses with arterial access to the regional transportation network.

Heavy Industrial (MH) – This designation is implemented with a heavy industrial base zone and provides land for heavy manufacturing, warehousing, and industrial uses that may be incompatible with other categories of land use. This designation is appropriate for areas that have extensive rail and shipping facilities.

Public Facilities (PF) – This designation is applied to land uses that have facilities or are for public use. Public schools, government buildings, water towers, sewer treatment plants, and other publicly owned uses are included in this designation. The implementing base zone may be Public Facilities.

Open Space – These areas provide visual and psychological relief from man-made development in the urban area. Open space also provides opportunities for recreational activity and environmental preservation, maintenance, and enhancement. Open space may include, but is not limited to developed parks, trails and greenways, special areas, public and private recreational facilities, critical lands, and public gathering spaces. Open space is not implemented with a base zone but may be implemented with specific overlay, combining district or development review standards.

4. LONG-TERM EFFECTS

4.1 No-Build Alternative

The No-Build Alternative would not directly address current deficiencies in the Interstate Bridge's structure, design, or capacity. As such, existing land uses served by the structure, as well as interstate commerce and daily commute patterns, would remain vulnerable to high levels of congestion, narrow travel lanes, lack of safety shoulders, short weave and merge conditions, and potential earthquake-induced failure.

There would also be no high-capacity transit service between the regional centers of downtown Vancouver and downtown Portland. This would be inconsistent with the stated policies and goals of applicable regional transportation plans.

Under the No-Build Alternative, increased growth in the region by 2045 would result in a level of traffic congestion that would impair road-based freight movement and reduce the region's productivity. This could indirectly impede the effective implementation of land use plans and hinder goals for economic development. For example, high levels of traffic congestion may undermine economic development opportunities. A loss in the growth of local jobs could impacts such as decreased property values, reduced demand for downtown revitalization, and increased commercial vacancies.

For more information on the changes in traffic conditions between existing conditions and the No-Build scenario, refer to the Transportation Technical Report.

Regional transportation plans, as well as the numerous plans developed by the City of Vancouver, call for high-capacity transit in Vancouver, which would not be provided under the No-Build scenario. Further details are provided below. The following discussion is organized topically rather than by jurisdiction, as there are many plans that are pertinent and there are many similarities among their policies. Representative policies are referenced with each topic. Please refer to Section 3.4, Transportation and Land Use Plans, for more details on specific plans.

4.1.1 Consistency with Plans and Policies

4.1.1.1 Mobility

Capacity constraints along I-5 limit the number of vehicles and people that can be accommodated along the corridor in the peak travel directions (southbound during the morning peak, northbound during the afternoon/evening peak). The current and projected levels of congestion on I-5 make the No-Build Alternative inconsistent with policies and goals for acceptable operation.

In the OHP, Action 1F.1 provides mobility targets for Oregon highways. These targets are largely based on volume-to-capacity (V/C) ratios, which compare the number of vehicles using a given roadway to the number of vehicles it was designed to accommodate. Higher V/C ratios indicate increasingly congested roadways. The *Metro 2040 Growth Concept* and the *Regional Framework Plan* include sections on transportation that require a "reasonable and reliable" travel time for moving freight.

The discussion below uses the concepts of demand and throughput to illustrate how the bottleneck at the bridge limits the number of vehicles that can cross during the morning and afternoon/evening peaks. The number of vehicles that are able to pass through the corridor at the Interstate Bridge during a given time period is referred to as vehicle throughput. The number of vehicles that want to pass through the corridor during a given time period is referred to as vehicle demand.

In 2019, during the morning peak, the 4-hour southbound throughput at the Interstate Bridge was 19,100 vehicles, while 4-hour demand was also 19,100 vehicles. In other words, during the morning peak, all vehicles that wanted to pass could eventually do so over a 4-hour time period. Conditions in 2019 were similar for the afternoon/evening peak, where the 4-hour northbound vehicle throughput (18,980 vehicles) equaled the 4-hour demand. However, increased travel demand will continue to exceed the bridge's capacity and further extend the period of time required to cross the bridge. For the No-Build Alternative, the northbound vehicle demand in 2045 (modeled for the 4-hour afternoon peak period) is anticipated to exceed throughput by roughly 42%. The projected excess demand for the morning peak would be nearly equivalent.

In addition to continued increases in congestion on the bridge itself, the level of congestion and delay spilling over into other areas of the regional and local transportation systems is anticipated to worsen under the No-Build Alternative—for example, for vehicles attempting to enter southbound I-5 from westbound SR 14. Backups in such areas can be anticipated to result in vehicles diverting their travel to seek alternative connections to I-5, in turn increasing congestion on local Portland streets and downtown Vancouver streets, along with increased backups at local intersections in both cities.

While increased delays and congestion would not affect or change the pattern of land use in the study area, existing land uses could experience additional vehicle noise, air quality, and access impacts related to increased traffic congestion on adjacent streets. In general, the Modified LPA is expected to substantially improve traffic conditions on I-5 relative to the No-Build Alternative. See the Transportation Technical Report for detailed analysis and discussion of the comparative effects of the Modified LPA versus the No-Build Alternative, as well as mitigation measures that would be incorporated in areas where the Modified LPA could continue to have impacts.

4.1.1.2 Multimodalism

A number of policies in many plans refer to a balance of transportation modes. This includes the WTP, *Metro 2040 Growth Concept*, *Regional Framework Plan* (Metro 2014), *Vancouver Comprehensive Plan*, *Vancouver Transportation System Plan,* and *Clark County Comprehensive Plan*. The existing bridge has no accommodations for high-capacity transit. The existing bike and pedestrian facilities are narrow pathways adjacent to the high-speed traffic lanes, which have high noise levels and may discourage bike and pedestrian trips on the bridge. The No-Build Alternative is inconsistent with policies requiring a balanced transportation system.

4.1.1.3 High-Capacity Transit

The No-Build Alternative would be inconsistent with the need and plan for a regional high-capacity transit system. The *2018 Regional Transportation Plan* (Metro 2018a) outlines several policies to support RTP Goals, including Policy 4 to: *Make transit more convenient by expanding high-capacity transit; improving transit speed and reliability through the regional enhanced transit concept (3-82 RTP).*

The regional light rail system is also supported in Portland's Central City Plan 2035, Policy 3.11. The Vancouver Transportation Plan supports all travel modes, including high-capacity transit. These and numerous other plans call for connecting Vancouver and Portland.

4.2 Modified LPA

4.2.1 Direct Impacts

Long-term direct land use impacts are defined as converting land from its existing use to a transportation use. The analysis of direct impacts below is largely based on the acquisition data developed for the Modified LPA, as described in the Acquisitions Technical Report. While the Acquisitions Technical Report discusses each temporary and permanent acquisition, including specific buildings that would be acquired and uses that would be displaced, this report considers the land use implications of those acquisitions to determine whether the acquisitions (individually or as a whole) would have an effect on broader land use patterns, compatibility with existing land uses, and/or planned future land uses.

In total, the Modified LPA would permanently acquire between approximately 122.2 and 124.2 acres[20] to accommodate the construction of bridge- and transit-related infrastructure. The Modified LPA would convert between approximately 57.2 and 59.2 acres of land from its existing use to a transportation use (approximately 65.1 acres on West Hayden Island would be permanently acquired as a mitigation site). The five park and rides could require the acquisition of up to an additional 6.2 acres in downtown Vancouver, for a total of between 128.4 and 130.4 acres acquired by the Program. Although these conversions would reduce the area of land available for non-transportation uses to a small extent, they would comprise only a small portion of the total land in the Portland/Vancouver area, and therefore would not be substantial in a regional context. These changes, which would result from the extension of light rail transit, the development of parking structures, and other transportation infrastructure, would be consistent with the goals and policies of adopted land use plans. Based on the preliminary level of design used for the SEIS, the Modified LPA would not substantially limit or preclude recent or currently planned and proposed development, including the developments discussed in Section 3.2.2. Some of the Modified LPA design options would differ in their direct land use impacts in downtown Vancouver. Those differences are identified below.

4.2.1.1 Oregon

OREGON MAINLAND

Impacts summarized in this section include those between the southern terminus of the project at Victory Boulevard and the south shore of North Portland Harbor. The extent of direct land use impacts from property acquisitions in Oregon would be the same for all of the design options. The permanent acquisition of property would be required in this area to accommodate the reconstruction of the Marine Drive interchange and the extension of light-rail from its current terminus at the Portland Expo

[20] Acquisition totals shown here differ from those in the Acquisitions Technical Report because the land use analysis does not include airspace easements in Downtown Vancouver.

Center over North Portland Harbor. Approximately 16.3 acres of property would need to be permanently acquired in this area (see Table 4-1 and Figure 4-1). There would be no subsurface impacts within the Oregon Mainland portion of the project. Please refer to the Acquisitions Technical Report for additional information regarding acquisitions and displacements.

Table 4-1. Oregon Mainland Right-of-Way Acquisitions by Zone

Zoning	Acquisition Type	Count	Total Permanent Impact Area (sq ft)	Total Permanent Impact Area (acres)
CE	Full	1	69,379	1.59
CE	Partial	1	<0.01	<0.01
CM2	Partial	3	2,444	0.06
IG2	Full	2	65,576	1.50
IG2	Partial	9	562,125	12.90
OS	Partial	2	10,396	0.24
Total	**-**	**18**	**709,920**	**16.3**

CE = Commercial Employment; CM2 = Commercial Mixed Use 2; IG2 = General Industrial 2; OS = Open Space; sq ft = square feet

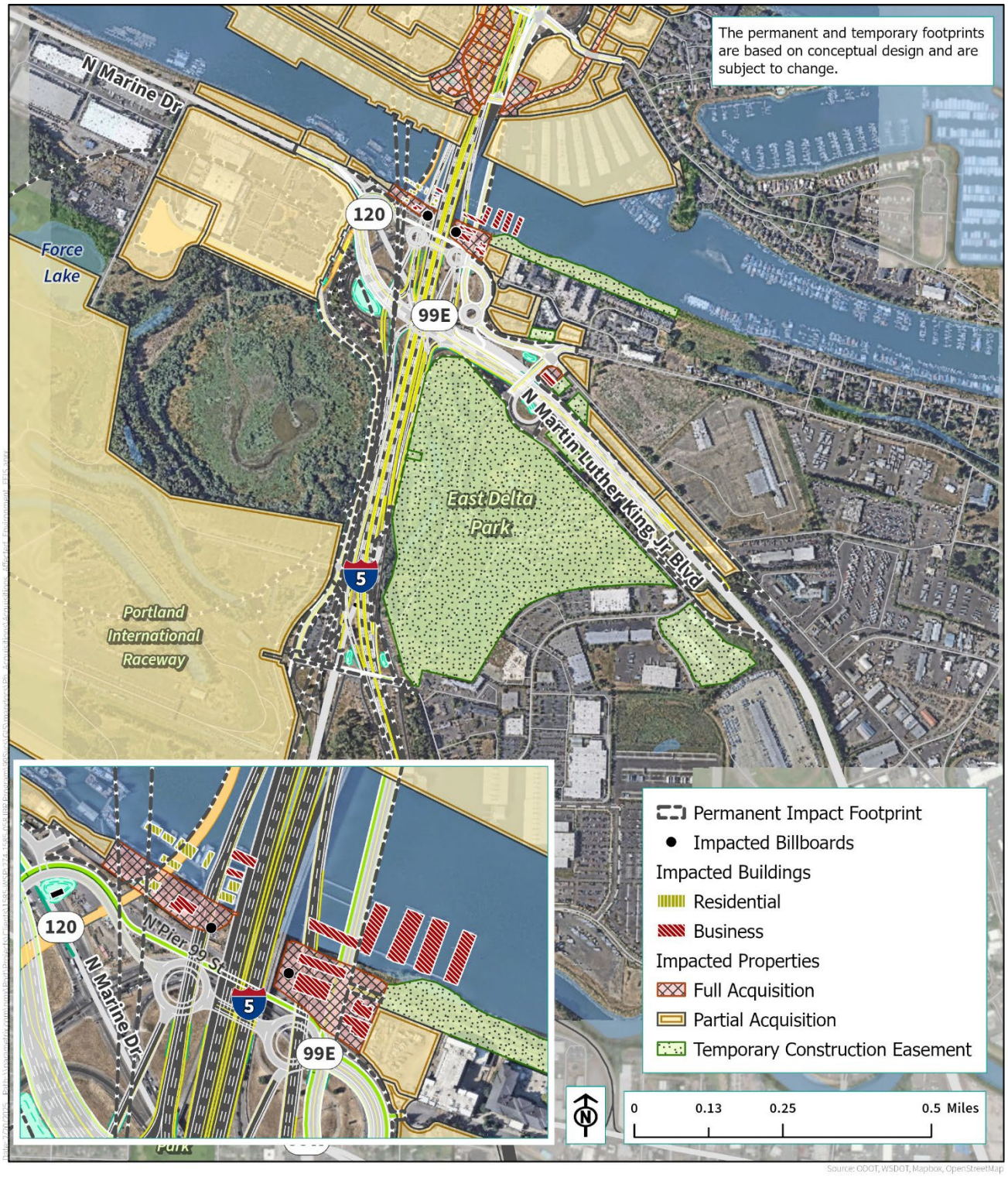
On the Oregon mainland, the LPA would require full and partial acquisitions in the following zoning designations: Commercial Employment (CE), Commercial Mixed Use 2 (CM2), General Industrial 2, (IG2), and Open Space (OS), as shown in Table 4-1. Typical uses allowed in these zones include retail sales and services, office space, and vehicle repair uses in the CE and CM2 zones; manufacturing, warehouse and freight movement, railroad yards, and open spaces in IG2 zones; and golf courses, parking areas, recreational fields, and boat ramps in OS zones.

As described in Chapter 1, the construction activities associated with the Modified LPA would likely require both temporary and permanent modifications to portions of the Portland Metro Levee System, which is a system of federal flood control levees located along the south bank of the Columbia River/North Portland Harbor within the primary study area. Modifications may include activities to restore temporarily disturbed portions of the levees, permanent modifications where proposed infrastructure would intersect with the existing levees, or changes in access to the levees as a result of roadway reconfiguration. Modifications or improvements would be coordinated for consistency with the planned future condition of the levees under the Urban Flood Safety & Water Quality Districts Joint Contracting Authority's Levee Ready Columbia project. The assessment of long-term effects to land use presented in this section includes those associated with potential modifications to the federal levee system.

The critical question for land use is whether the proposed acquisitions would collectively constitute an impact to any single land use category, the mix of uses, or the planned land use pattern and

development intensity in the area. The acquisition of new right of way, displacement of active land uses, and other impacts on the Oregon mainland are not expected to lead to changes in land use patterns, zoning, or land use plans.

Figure 4-1. Property Impacts – Oregon Mainland



RUBY JUNCTION

TriMet's Ruby Junction Light-Rail OMF in Gresham, Oregon would require permanent acquisitions impacting approximately 5.5 acres of property (see Table 4-2 and Figure 4-2). One of the acquisitions includes a vacant residence located in a heavy industrial zoned area.

These acquisitions would support the expansion of the existing maintenance facility to accommodate additional vehicles required for the extension of light-rail transit as part of the Modified LPA. Impacts would affect heavy industrial (HI) and Ruby Junction Station Center – Ruby Junction Overlay zoned properties. Station Center (SC) zoning accommodates uses which are directly supportive of light-rail transit, and the Ruby Junction overlay designation permits auto-dependent uses and small-scale light-industrial uses. The Heavy Industrial zone provides space for industrial users that may include operational characteristics that could create compatibility issues for adjacent land uses.

The acquisition of new right of way, displacement of active land uses, and other impacts in the Ruby Junction area would not lead to a change in land use patterns, zoning, or land use plans.

Table 4-2. Ruby Junction Acquisitions by Zone

Zoning	Acquisition Type	Count	Total Permanent Impact Area (sq ft)	Total Permanent Impact Area (acres)
HI	Full	4	235,474	5.41
HI	Partial	1	108	0.00
SC-RJ	Partial	1	2,348	0.05
Total	**-**	**6**	**237,930**	**5.5**

HI = Heavy Industrial; SC-RJ = Ruby Junction Station Center – Ruby Junction Overlay; sq ft = square feet

Figure 4-2. Property Impacts – Ruby Junction Light-Rail OMF

HAYDEN ISLAND

Impacts summarized in this section include those on the eastern portion of Hayden Island, associated portions of North Portland Harbor, and West Hayden Island. The permanent acquisition of property would be required in these areas to accommodate the realignment of I-5; reconstruction of the Hayden Island interchange, N Jantzen Street and N Hayden Island Avenue; extension of N Tomahawk Island Drive; and the extension of light rail over Hayden Island. Approximately 26.1 acres of property would need to be permanently acquired in the eastern portion of the island (see Table 4-3 and Figure 4-3). An additional area of approximately 65.1 acres on West Hayden Island would be permanently acquired as a habitat mitigation site for IBR Program-related impacts. There would be no subsurface impacts within the Hayden Island or West Hayden Island portions of the project.

Impacts on the eastern portion of Hayden Island would affect properties located in Commercial Employment (CE) and Commercial Mixed Use 1 (CM1) zones. Impacts on West Hayden Island would affect property located in the Multiple Use Forest District (MUF19) and the IG2 District (described above). The CE and CM1 zones allow uses such as retail services, office space, and limited manufacturing. The MUF19 District allows uses such as growing and harvesting of timber, agriculture, wildlife habitat conservation, and limited residential uses.

Several retail/service-related businesses on Hayden Island south of Tomahawk Island Drive would be displaced, including several restaurants, a mattress store, a cell phone retail outlet, and a marijuana dispensary. One business within the Jantzen Beach Center would be impacted. Several residences, located in Commercial Employment zoning, would also be displaced. Nineteen of the 32 residential displacements on Hayden Island would be floating homes located in Row 9 of the Jantzen Bay moorage in North Portland Harbor east of I-5. The westernmost ramp access to the moorage would also be eliminated, though no floating homes would remain in this moorage following construction. The remaining 13 residential displacements on Hayden Island would also be floating homes, which are located in Rows A and B and the east side of Row C in the Jantzen Beach Moorage, Inc., located in North Portland Harbor west of I-5.

Although some commercial businesses and floating homes would be displaced by the project, land use patterns are not anticipated to change because new development would be required to be consistent with Portland land use plans and underlying zoning.

Table 4-3. Hayden Island Right-of-Way Acquisition by Zone

Zoning	Acquisition Type	Count	Total Permanent Impact Area (sq ft)	Total Permanent Impact Area (acres)
CE	Full	17	474,150	10.88
CE	Partial	12	588,945	13.52
CM1	Full	4	37,637	0.86
CM1	Partial	7	38,099	0.87
MUF19	Full	2	2,835,756	65.1
MUF19[a]	Partial	3	<0.01	<0.01
IG2[a]	Partial	2	<0.01	<0.01
TOTAL	**-**	**47**	**3,974,587**	**91.2**

[a] Acquisition areas are preliminary and will be updated prior to construction

CE = Commercial Employment; CM1 = Commercial Mixed Use 1; IG2 = General Industrial; MUF19 = Multiple Use Forestry; MUF19 = multiple use forest district; sq ft = square feet

Figure 4-3. Property Impacts – Hayden Island

4.2.1.2 Washington

DOWNTOWN VANCOUVER

Impacts summarized in this section include those from the Columbia River north to McLoughlin Boulevard (impacts on 17th Street and McLoughlin Boulevard are summarized in the Upper Vancouver section). The permanent acquisition of property would be required in this area to accommodate the reconstruction of the SR 14 and Mill Plain interchanges, the realignment of I-5 between those two interchanges, the construction of Waterfront Station and establishment of an associated park and ride, and the extension of light-rail to Evergreen Boulevard. Several of the Modified LPA design options would differ somewhat in the amounts and types of property acquired; these differences are discussed below. Park and rides, which would also require the acquisition of property in downtown Vancouver, are discussed separately in Section 4.2.2.1.

As shown in Table 4-4 and Figure 4-4, the Modified LPA with a centered I-5 mainline would impact properties in the CX, CPX, and Park zoning designations in downtown Vancouver. Typical uses in the City Center zoning district include retail, office, civic, and housing uses, whereas the CPX district is designed to enhance and protect existing facilities and fulfill the vision and policies identified in the Central Park Plan. The CPX district contains the Vancouver National Historic Reserve, parks, and governmental, health, and educational facilities. The single-level bridge configuration would acquire up to 1.4 acres of the CPX zone and 3.7 acres of the CX zone, as well as 0.5 acres of property designated as water on the City of Vancouver Zoning Map. The single-level bridge configuration would require partial acquisitions totaling approximately 0.3 acres from properties at the bridge approaches that would not be acquired with the double-deck bridge configurations. Total permanent acquisitions and easements for this configuration would be approximately 5.9 acres. The double-deck fixed span bridge configurations with and without the C street ramp would have approximately 5.6 acres of total permanent acquisition and easements. Less than 0.01 acre of subsurface easements would be acquired in Downtown Vancouver for all bridge configurations.

Table 4-4. Downtown Vancouver Right-of-Way Acquisitions by Zone – Centered I-5 Configurations

Zoning	Acquisition Type	Count	Single-Level Bridge Configurations with Fixed or Movable Spans Total Permanent Impact Area (sq ft)	Single-Level Bridge Configurations with Fixed or Movable Spans Total Permanent Impact Area (acres)	Double-Deck Fixed-Span Configuration with 1 Auxiliary Lane with C Street Ramp Total Permanent Impact Area (sq ft)	Double-Deck Fixed-Span Configuration with 1 Auxiliary Lane with C Street Ramp Total Permanent Impact Area (acres)	Double-Deck Fixed-Span Configuration with 2 Auxiliary Lanes with C Street Ramp Total Permanent Impact Area (sq ft)	Double-Deck Fixed-Span Configuration with 2 Auxiliary Lanes with C Street Ramp Total Permanent Impact Area (acres)	Double-Deck Fixed-Span Configuration without C Street Ramp Total Permanent Impact Area (sq ft)	Double-Deck Fixed-Span Configuration without C Street Ramp Total Permanent Impact Area (acres)
CPX	Partial	8	61,996	1.4	61,996	1.4	61,996	1.4	61,996	1.4
CX	Full	8	54,276	1.3	54,276	1.3	54,276	1.3	54,276	1.3
CX	Partial	14	102,640	2.4	95,863	2.2	95,863	2.2	95,863	2.2
CX	Subsurface Easement [a]	2	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Water (CX)	Partial [a]	1	21,832	0.5	13,849	0.3	13,849	0.3	13,849	0.3
Park	Partial	1	9,347	0.2	9,347	0.2	9,347	0.2	9,347	0.2
Utilities	Partial	1	10,660	0.2	10,660	0.2	10,660	0.2	10,660	0.2
TOTAL [b]	**-**	**35**	**260,751**	**5.9**	**245,991**	**5.6**	**245,991**	**5.6**	**245,991**	**5.6**

[a] Acquisition areas are preliminary and will be updated prior to construction
[b] Total does not include an estimated 1 acre of airspace easements that are included in the totals presented in the Acquisitions Technical Report.CPX = Central Park Mixed-Use; CX = City Center; sq ft = square feet
Acreage is only counted once for properties with condominium ownership in downtown Vancouver

Figure 4-4. Property Impacts – Downtown Vancouver

Compared to the Modified LPA with centered I-5 mainline, the design option that shifts the alignment of I-5 west approximately 40 feet would require larger areas of permanent acquisition on several properties and smaller areas of permanent acquisition on others. This design option would impact two fewer properties within Fort Vancouver compared to the centered alignment, but would require additional displacements and result in more property being permanently acquired (see Table 4-5). Shifting the interstate west from its existing alignment would result in the full displacement of a multifamily property with 33 residential units on the northeast corner of E 7th Street and C Street. The property directly north of the apartment complex, which includes three commercial businesses, would also be fully acquired, and the three businesses would be displaced. Total permanent acquisitions would be approximately 7.5 acres.

Table 4-5. Downtown Vancouver Right-of-Way Acquisitions by Zone – I-5 Westward Shift

Zoning	Acquisition Type	Count	Total Permanent Impact Area (sq ft)	Total Permanent Impact Area (acres)
CPX	Partial	8	56,218	1.3
CX	Full	9	143,847	3.3
CX	Partial	14	95,863	2.2
CX	Subsurface Easement [a]	2	0 (<0.01)	0 (<0.01)
Water	Partial [a]	1	13,849	0.3
Park	Partial	1	9,346	0.2
Utilities	Partial	1	10,660	0.2
TOTAL [b]	**-**	**36**	**329,783**	**7.5**

[a] Acquisition areas are preliminary and will be updated prior to construction.
[b] Total does not include an estimated 1 acre of airspace easements
CPX = Central Park Mixed-Use; CX = City Center; sq ft = square feet
Acreage is only counted once for properties with condominium ownership in downtown Vancouver.

Compared to either the I-5 centered or westward shift design options with one auxiliary lane, the addition of a second auxiliary lane in each direction on I-5 would not change the parcel impact square footage. The widening would be contained within the WSDOT and City of Vancouver right of way. There would be no additional change in land use or displacement of existing uses.

The City of Vancouver's plans call for providing connections between Main Street and the redeveloping Vancouver waterfront west of I-5. All Modified LPA design options would vacate the existing I-5 mainline right of way passing under the railroad berm. This space would then be used to provide a roadway connection, extending Main Street south toward the Columbia River and intersecting with Columbia Way.

The impacts of the Modified LPA and design options, including those from full and partial acquisitions, are not anticipated to lead to a change in land use patterns because the parcels that could be redeveloped after construction would still need to comply with Vancouver's land use zoning and district overlay requirements.

See the Acquisitions Technical Report for additional information on potential acquisitions.

UPPER VANCOUVER

Impacts summarized in this section include those occurring from McLoughlin Boulevard and 17th Street to the northern terminus of the study area. These impacts would not vary among design options. The permanent acquisition of property would be required in this area to accommodate the reconstruction of the Fourth Plain and SR 500 interchanges, the realignment of I-5 between these two interchanges, and potentially additional noise walls. The Modified LPA would permanently acquire approximately 1.1 acre of property and 2.7 acres of permanent subsurface easements in this area (see Table 4-6 and Figure 4-5).

Table 4-6 shows that the project would require full acquisitions of parcels zoned Low Density Residential (R-9). The Higher-Density Residential District (R-22) zoning designation would also be impacted by acquisitions. The R-22 district accommodates rowhouses, garden-type apartments, and lower-density multi-dwelling structures up to 22 units per acre, while the R-9 district is designed for detached single dwellings with a minimum lot size of 5,000 square feet.

The acquisition of new right of way, displacement of active land uses, and other impacts in Upper Vancouver would not lead to a significant change in the mix of land uses, land use patterns, zoning, or land use plans.

Table 4-6. Upper Vancouver Right-of-Way Acquisitions by Zone

Zoning	Acquisition Type	Count	Total Permanent Impact Area (sq ft)	Total Permanent Impact Area (acres)	Total Subsurface Easement Impact Area (sq ft)	Total Subsurface Easement Impact Area (acres)
R-22	Partial	1	77	(<0.1)	12,313	0.28
R-22	Subsurface Easement	1	0.00	0.00	2,484	0.06
R-9	Full	9	41,874	1.0	0	0.00
R-9	Partial	10	3,801	0.1	24,774	0.57
R-9	Subsurface Easement	40	0	0.0	77,603	1.78
Total	**-**	**61**	**45,752**	**1.1**	**117,174**	**2.7**

R-9 = Low-Density Residential District; R-22 = Higher-Density Residential District; sq ft = square feet

Figure 4-5. Property Impacts – Upper Vancouver

4.2.2 Parking

Vancouver recognizes the need for parking, but also incorporates policies to encourage alternative modes of transportation. Vancouver's comprehensive plan Section 5.0, Transportation, includes the following Framework Plan Policy:

> *5.2.5 Establish residential, commercial and industrial development standards including road and parking standards, to support the use of alternative transportation modes.*

The Modified LPA would expand light-rail along I-5 to downtown Vancouver. The alignment is not expected to substantially impact existing parking. The project would include up to five park and rides that would provide a total of 1,270 parking spaces.

4.2.2.1 Park and Rides

Five potential locations are currently being evaluated for multistory park and rides that could be established along the light-rail alignment in Vancouver. Three potential sites have been identified for the Waterfront Station and two for the Evergreen Station (see Figure 4-6 and Figure 4-7). Potential land acquisition impacts for each of the park and rides are shown in Table 4-7. The park and rides that are ultimately selected as part of Modified LPA implementation could include all five of the sites identified below, for a maximum total acquisition area of 6.2 acres, or they could include a single site at each LRT station, to be selected from the options identified in Table 4-7. Because a final decision has not yet been reached on the park and rides to be acquired, the acreages below are not included in the total acquisition numbers discussed in Table 4-4 above.

Table 4-7. Acquisition Impacts by Park and Ride

Property Acquisitions	Type	Waterfront Site 1a [a, b]	Waterfront Site 1b [a]	Waterfront Site 1c [a]	Evergreen Site 2a [a, c]	Evergreen Site 2b [a, d]
Parcels (count)	Full	0	3	4	5	0
	Partial	0	0	0	0	1
	Total	0	3	4	5	1
Area Acquired (acres)		0	0.5	1.5	3.2	1
Permanent Easements	Property Easements [e, f]	0	0	0	0	0

Property Acquisitions	Type	Waterfront Site 1a [a, b]	Waterfront Site 1b [a]	Waterfront Site 1c [a]	Evergreen Site 2a [a, c]	Evergreen Site 2b [a, d]
Total of Permanent Acquisitions and Easements		0 acres[b]	0.5 acres	1.5 acres	3.2 acres	1 acre

a Does not include WSDOT-owned property or right of way or City-owned right of way.
b Properties associated with Waterfront Site 1a would be affected by acquisitions related to IBR Program roadway and pedestrian improvements regardless of whether the site is developed as a park and ride.
c Properties associated with Evergreen Site 2a would be developed as a joint venture between the IBR Program and the City of Vancouver.
d The existing parking structure (Evergreen Site 2b) could be used via a shared-use arrangement with the existing owner.
e Subsurface easement requirements are preliminary and will be updated prior to construction.
f Airspace easements have not been determined but will be identified prior to construction.

Park and rides associated with the Waterfront Station would include up to a total of 570 parking spaces. The IBR Program will continue to evaluate the number of spaces and footprint for the station based on ridership projections and discussions with the City of Vancouver. As shown in Figure 4-6, the three site options are as follows:

- Site 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.
- Site 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.
- Site 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.

Figure 4-6. Downtown Park and Rides

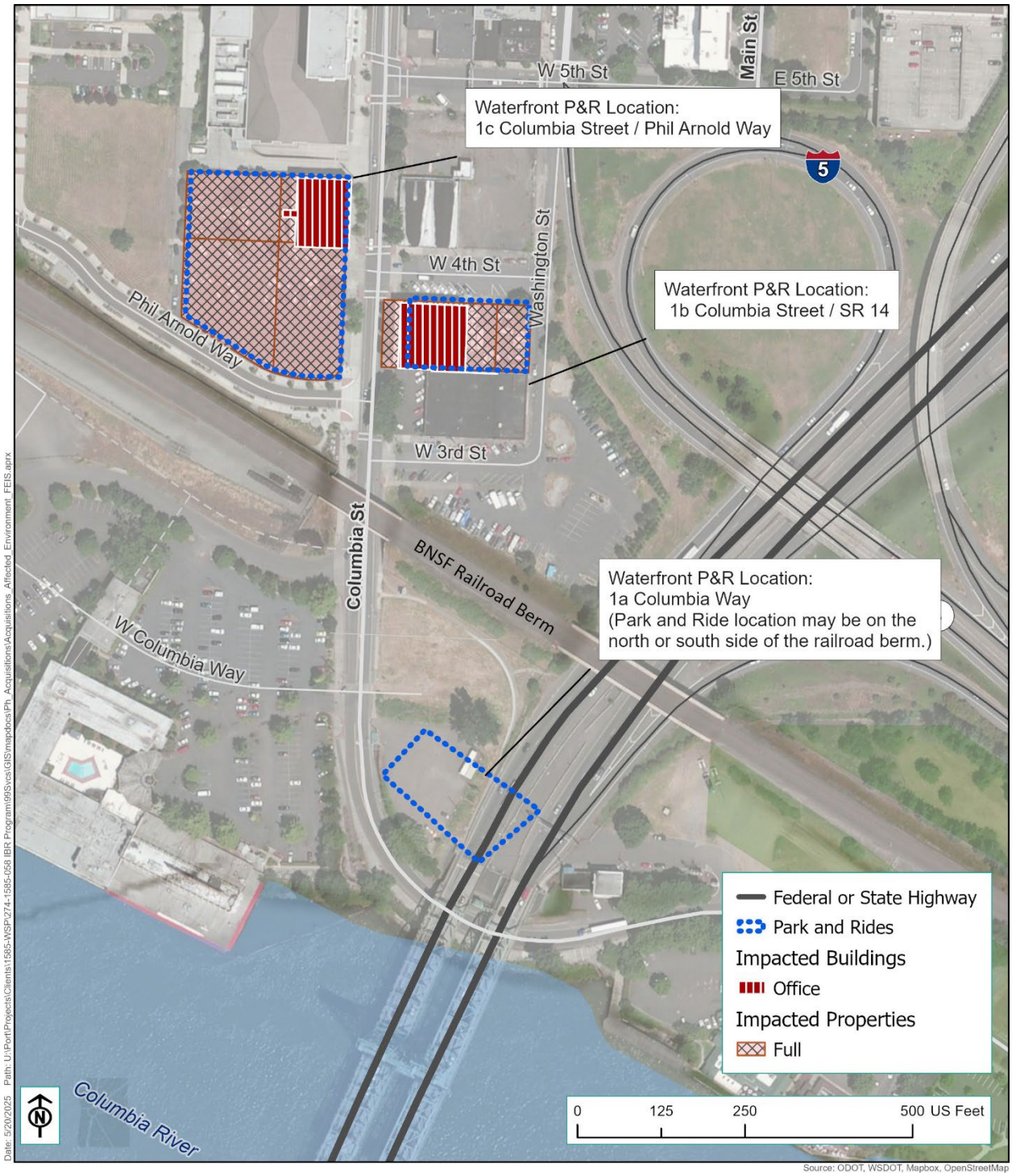


Figure 4-7. Evergreen Park and Rides

Park and rides associated with the Evergreen Station would include up to a total of approximately 700 parking stalls. The two sites (Figure 4-7) are as follows:

- Site 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.[21] This site could be combined with Site 2b to provide a total of 700 spaces.
- Site 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 aboveground. 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.

There are three issues to assess in determining whether a downtown park and ride represents an adverse impact to land use. First, an adverse impact would occur if the facility displaced uses that are critical to the downtown. These might include civic uses (such as a city hall) or clusters of housing, retail, or commercial. As discussed above, Waterfront Park-and-Ride Site 1a would not displace any uses beyond those displacements that are attributable to the Modified LPA. Waterfront Park-and-Ride Site 1b would be constructed on the site of an existing public parking use. Site 1c would be developed in coordination with other planned development and would be a joint use parking facility not exclusively for park-and-ride users. Therefore, none of the Waterfront park and rides would be anticipated to displace uses that are critical to downtown Vancouver. Evergreen Park-and-Ride Site 2a would provide parking for park-and-ride users jointly with other users without affecting the adjacent library, while Site 2b would use an existing parking structure. Therefore, neither of the Evergreen park and rides would displace uses that are critical to downtown Vancouver.

Second, an adverse impact would occur if the facility were to absorb local street capacity in a manner that greatly impeded vehicular access to the more primary land uses in the downtown (entertainment, civic, retail, residential, etc.). Because the park and rides are predominantly either sites with sufficient vacant area to construct a park and ride, sites where there is an existing public parking use, or sites where development would be coordinated with separately planned developments, none of the park and rides would be anticipated to absorb local street capacity in a manner that impedes access to other uses in downtown Vancouver. Specifics of the design and agreements for the proposed park and rides have not been determined. Depending on the design and agreements, the IBR Program would be required to compensate current property owners, and potentially neighboring property owners, for any impacts to their current property use, parking, or access.

Third, an adverse impact could occur if the facility were radically different in scale, massing, or visual appearance from other development in the area, thus undermining the urban form and density of the downtown. Specifics of the design of the proposed park and rides have not been determined.

[21] 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 due to engineering and environmental constraints.

However, none of the options proposed for park and rides would be anticipated to differ radically in scale or massing from other development in downtown Vancouver. Waterfront Park-and-Ride Site 1b would occupy an existing parking structure, and Site 1c would be a joint use facility constructed in conjunction with other planned downtown development. Evergreen Park-and-Ride Site 2a would be constructed partly underground, which would minimize inconsistency with the scale and massing of the adjacent library building, while Site 2b would be located in an existing structure. The selection of sites that are currently developed for parking use and/or that provide opportunities for mixed-use development and joint- use parking is expected to minimize potential impacts.

In light of the foregoing discussion, none of the potential park and rides as proposed would be expected to adversely impact land use when assessed against the identified critical issues. While the City of Vancouver does not prioritize the use of land in downtown Vancouver and near the waterfront for park and rides, structured park and rides are a permittable use in the CX district, provided they comply with the development standards for park and rides in VMC 20.430.040(E). The park and rides are in the early stages of planning and design, but they would be developed to be consistent with the Vancouver Comprehensive Plan's requirements and adhere to the design standards for park and rides in the CX zone. If it is determined that park and rides are required to support projected ridership for the project, careful evaluation of the number of spaces and footprint impact would be necessary. As the IBR Program advances through FTA's Capital Investment Grants program process and final design and permitting, it would continue to work with the City of Vancouver to evaluate how best to provide effective access to the light-rail stations, meet potential park and ride demand, and enhance overall compatibility with surrounding land uses as much as possible, including incorporating active uses into park and rides.

4.3 Consistency with Plans and Policies

The implementation of high-capacity transit within the study area is supportive of state, regional, and local plans and policies and will help the region achieve anticipated development without expanding urban growth areas. The proposed project would support Washington State GMA policies and the Oregon Statewide Planning Goals pertaining to transportation and infrastructure improvements by accommodating and integrating with a variety of planned transportation facilities throughout the study area. It would also be consistent with goals for providing infrastructure to urban areas and for directing high-density growth to urbanized locations. Regional plans adopted by RTC, Clark County, and Metro would be supported by improved infrastructure in the urban core and the extension of a high-capacity transit system. In addition, the Modified LPA would support many components of Vancouver's and Portland's Comprehensive Plans. Consistency with neighborhood plans is addressed in the Neighborhoods and Population Technical Report.

The two regional transportation planning agencies, Metro and RTC, adopted the original LPA into their *2018 Regional Transportation Plan* and *Metropolitan Transportation Plan for Clark County*, respectively, in summer 2008 (Metro 08-3960B; RTC 07-08-10). The CRC project was included in the Oregon 2010–2013 Statewide Transportation Improvement Program (STIP), the draft 2012–2015 Oregon STIP, and the Washington 2011–2014 STIP.

The *2018 Regional Transportation Plan* includes replacing the Interstate Bridge in its project list, and the City of Portland 2035 TSP lists the Interstate Bridge replacement and interchange improvements as a financially constrained project to be completed in 1 to 10 years.

The following is an overview of the components of state, regional, and local plans with which the IBR Program complies. As addressed in Chapter 3, state, regional, and local plans implement and are consistent with Oregon statewide planning goals and Washington GMA goals. The Modified LPA is consistent with each of the plans discussed below because it incorporates the components and goals identified in the plans in the following ways:

- The project would provide greater mobility on an interstate because of greater capacity, separated bicycle/pedestrian lanes that could help users to bike/walk instead of drive, and light-rail transit.
- The proposed separate bicycle/pedestrian path would provide active transportation users with more space to safely travel across the bridge.
- The Modified LPA would provide interchange improvements at Hayden Island, SR 14, and Mill Plain Boulevard, allowing improved access and connectivity within the region.

4.3.1 Statewide Planning Goals

The Oregon Statewide Planning Goals direct all Oregon cities and counties to implement comprehensive land use plans that comply with statewide goals and guidelines. The Modified LPA is consistent with Consistent with Goal 12, Transportation, which requires cities, counties and the state to create a TSP that addresses all relevant modes of transportation: mass transit, air, water, rail, highway, bicycle and pedestrian transportation.

Among the various objectives of Goal 12, the Modified LPA would address the following:

- Serve statewide, regional, and local transportation needs.
- Serve the mobility and access needs of those who cannot drive and other underserved populations.
- Provide for affordable, accessible and convenient transit, pedestrian, and bicycle access and circulation, with improved connectivity.

In addition, the Modified LPA is consistent with Consistent with Statewide Planning Goal 2, which requires each local government in Oregon to have and follow a comprehensive land use plan and implementing regulations. The Modified LPA is also consistent with Goal 6, which instructs local governments to consider protection of air, water and land resources from pollution and pollutants when developing comprehensive plans

Among the various objectives of Goal 2, the Modified LPA would address the following:

- Encourage that land uses specified in the City of Portland's comprehensive plan are supported by existing and planned transportation facilities.

Among the various objectives of Goal 6, the Modified LPA would address the following:

- Coordinate with applicable airsheds and river basins on all plans and programs affecting waste discharges
- Coordinate with local agencies with respect to the impact of the planned improvements on air, water, and land resources in the planning area.
- Help to reduce pollution from transportation to meet statewide goals.

4.3.2 Growth Management Act

The GMA requires local jurisdictions to implement a land use policy framework that reduces conversion of rural land to urban development. The Modified LPA supports the GMA's stated goals pertaining to transportation and infrastructure, including encouraging efficient multimodal transportation systems that are based on regional priorities and coordinated with county and city comprehensive plans. The Program is also consistent with the Act's goals for providing infrastructure to urban areas and for directing high-density growth to urbanized locations.

4.3.3 Oregon Highway Plan

Several policies in the OHP establish general mobility objectives and approaches for maintaining mobility that are supported by the Modified LPA. These include the following policies from the Policy Element:

- Policy 1A (State Highway Classification System) describes the functions and objectives for several categories of state highways. Greater mobility is expected on Interstate and Statewide Highways than on Regional and District Highways.
- Policy 1B (Land Use and Transportation) has an objective of coordinating land use and transportation decisions to maintain the mobility of the highway system. The policy identifies several land use types and describes the levels of mobility appropriate for each.
- Policy 1C (State Highway Freight System) has an objective of maintaining efficient through movement on major truck freight routes. The policy identifies highways that are freight routes.
- Policy 1F (Highway Mobility Policy) has the objective of maintaining acceptable and reliable levels of mobility on the state highway system, consistent with the expectations for each facility type, location and functional objectives.
- Policy 1G (Major Improvements) has the purpose of maintaining highway performance and improving highway safety by improving system efficiency and management before adding capacity.

The OHP also places a priority on preserving system and seismic resiliency, as described through its funding priorities on pages 174 and 175 of the plan.

4.3.4 Metro 2040 Growth Concept and the Regional Framework Plan

- Policy 2.13—Regional Motor Vehicle System: Provide a regional motor vehicle system of arterials and collectors that connect the central city, regional centers, industrial areas and intermodal facilities, and other regional destinations, and provide mobility within and through the region.
- Policy 2.14 – Regional Public Transportation System: Provide an appropriate level, quality, and range of public transportation options to serve the region and support implementation of the 2040 Growth Concept, consistent with the RTP.
- Policy 2.15 – Regional Freight System: Provide efficient, cost-effective and safe movement of freight in and through the region.
- Policy 2.19.2 – Peak Period Pricing: Manage and optimize the use of highways in the region to reduce congestion, improve mobility, and maintain accessibility within limited financial resources.
    - Apply peak period pricing appropriately to manage congestion. In addition, peak period pricing may generate revenues to help with needed transportation improvements.
    - Consider peak period pricing as a feasible option when major, new highway capacity is being added to the regional motor vehicle system, using the criteria used in Working Paper 9 of the Traffic Relief Operations study.

4.3.5 City of Portland Comprehensive Plan

- Policy 6.23 – Trade and freight hub: Encourage investment in transportation systems and services that will retain and expand Portland's competitive position as a West Coast trade gateway and freight distribution hub.
- Goal 9.B – Multiple Goals: Portland's transportation system is funded and maintained to achieve multiple goals and measurable outcomes for people and the environment. The transportation system is safe, complete, interconnected, multimodal, and fulfills daily needs for people and businesses.
- Policy 9.2.a. – Designate district classifications that emphasize freight mobility and access in industrial and employment areas serving high levels of truck traffic and to accommodate the needs of intermodal freight movement. Address freight movement and access needs when conducting multimodal transportation studies or designing transportation facilities.
- Policy 9.6 – Transportation strategy for people movement. Implement a prioritization of modes for people movement by making transportation system decisions according to the following ordered list:

    1. Walking
    2. Bicycling
    3. Transit
    4. Fleets of electric, fully automated multiple passenger vehicles
    5. Other shared vehicles

6. Low or no occupancy vehicles, fossil-fueled non-transit vehicles

- Policy 9.30 – Multimodal goods movement. Develop, maintain, and enhance a multimodal freight transportation system for the safe, reliable, sustainable, and efficient movement of goods within and through the city.

4.3.6 Hayden Island Plan

The Modified LPA would displace sufficient commercial and residential activities on the island to constitute an adverse impact (see the Acquisitions, Neighborhoods and Populations, and Economics Technical Reports for more information). However, the provision of a light-rail station, the connection of Tomahawk Island Drive under I-5, and the improved access and capacity of the Hayden Island interchange all are expected to contribute to the viability and success of redevelopment plans for the island. The IBR Program would also support a number of specific recommendations identified in the Hayden Island Plan (plan text is italicized):

- *Light Rail Transit (LRT) is the high-capacity transit mode that will effectively support a station community.* The project would provide light-rail transit to, and a station on, Hayden Island.
- *The LRT alignment adjacent to the freeway is preferred over a separated alignment in order to minimize the barrier effect of the CRC project as a whole.* The preferred light-rail alignment on Hayden Island is adjacent to I-5 on the west side.
- *The CRC project must provide the capability to access local street systems south of North Portland Harbor without using the freeway.* The Modified LPA would meet this aspect of the plan by providing vehicular access between Marine Drive and Hayden Island on an arterial bridge.

4.3.7 Bridgeton Neighborhood Plan

The potential impacts of the Modified LPA on areas within the Bridgeton Neighborhood Plan area would result almost entirely from the construction of the Marine Drive interchange. Four businesses would be displaced within the area (see the Acquisitions, Neighborhoods and Populations, and Economics Technical Reports for more information).

The IBR Program would support specific recommendations identified in the Bridgeton Neighborhood Plan, as follows: (plan text is italicized):

- Policy 2, Transportation and Public Utilities
  - *Objective 1: Retain Bridgeton Road's ability to harmoniously mix automobiles, bicycles, and pedestrians;*
  - *Objective 6: Locate new rights-of-way within the Bridgeton Neighborhood to provide for connectivity within the neighborhood and to the rest of the transportation network; and*
  - *Objective 8: Provide opportunity for good access to transit.*

New shared-use path connections throughout the Marine Drive interchange area would provide access between the Bridgeton neighborhood, Hayden Island, and the Expo Center light-rail station, in addition to providing connections to the existing portions of the 40-Mile Loop Trail.

4.3.8 Kenton Neighborhood Plan (as amended by the Kenton Downtown Plan)

Areas within the Kenton Neighborhood Plan area that could potentially be impacted by the Modified LPA extend from the Victory Boulevard interchange north along N Expo Road to the Expo Center and North Portland Harbor. The majority of the Modified LPA's direct impacts to the Kenton Neighborhood Plan area would take place in the areas affected by the Marine Drive interchange lying west of I-5 and on the Expo Center property. Two businesses would be displaced within the Kenton Neighborhood Plan area to construct the Marine Drive interchange (see the Acquisitions, Neighborhoods and Populations, and Economics Technical Reports for more information).

The IBR Program would support transportation-specific recommendations identified in the Kenton Neighborhood Plan, as follows (plan text is italicized):

- *Policy 5, Objective 1: Participate in the development of a light rail transit line that will serve the neighborhoods and commercial areas of North and Northeast Portland.* The project would broaden the extent of the Kenton Neighborhood's light-rail transit connectivity to other areas of North Portland including Hayden Island and extending beyond Hayden Island into Washington.
- *Policy 5, Objective 7: Improve pedestrian and bicycle connections between the Denver Avenue business district and the industrial area to the north.* In the Victory Boulevard interchange area, active transportation facilities would be provided along Expo Road between Victory Boulevard and the Expo Center, providing a direct connection between the Victory Boulevard and Marine Drive interchange areas.

4.3.9 Portland International Raceway Plan District

Areas of the PIR Plan District potentially affected by the Modified LPA overlap with portions of the Kenton Neighborhood Plan area, described above. Specifically, the primary study area for the Modified LPA includes a small portion of the PIR Plan District west of N Expo Road near the Victory Boulevard interchange. This area abuts the southern edge of a wetland complex that extends to the boundary of the Expo Center property and is located in the PIR Plan District's Transitional Open Space and Resource Conservation subdistricts.

The IBR Program is expected to avoid direct impacts within the PIR Plan District, as the footprint of the Modified LPA is adjacent to, but does not directly encroach on, areas within the district. However, because of the proximity of the project footprint, the potential exists for impacts to occur as design and construction planning are refined. Any currently unanticipated disturbance that may encroach on areas of the PIR Plan District as a result of future design changes or temporary construction activities would need to take into account the provisions of the PIR Plan District as identified in the district's master plan (plan text is italicized):

- *The RC subdistrict is identical to the boundaries of the city's Environmental Conservation "c" overlay. Most types of development are forbidden within this subdistrict, with the exception of some basic utilities, drainage facilities, and environmental restoration/enhancement projects.*

4.3.10 East Columbia Neighborhood Natural Resources Management Plan

The area governed by the East Columbia Neighborhood Natural Resources Management Plan that could potentially be affected by the Modified LPA overlaps entirely with the areas discussed above under the Bridgeton Neighborhood Plan.

The IBR Program would support specific recommendations identified in the East Columbia Neighborhood Natural Resources Management Plan as follows: (plan text is italicized):

- *Policy 4: Water Quality. Enhance the water quality in the area's wetlands and drainageways by utilizing pollution control measures to maintain good water quality and implement vector control practices.* The Modified LPA incorporates enhanced water quality treatment features into its design and, relative to the No-Build Alternative, would reduce pollutant loading in runoff that may reach nearby waters. See the Water Quality and Hydrology Technical Report for detailed discussion.
- *Policy 6: Protection of Wetland/Natural Resource Areas. Protect significant resource areas by discouraging filling and development of sensitive and unique habitats in the neighborhood and requiring buffering of new developments adjacent to these sites; and*
- *Policy 9: Buffering. Separate existing and new wetlands from new residential, commercial, and industrial uses with setbacks and buffer areas.*

  The Modified LPA has been designed to avoid impacts to wetlands, including maintaining setbacks from wetland areas to the greatest extent possible. Where impacts are unavoidable, the mitigation goal is to fully replace impacted wetland functions and values, with emphasis on creating, preserving and restoring wetlands and other waters that provide habitat for fish and wildlife. The IBR Program team has begun, and will continue, coordination with the USACE and Oregon Department of State Lands (DSL) in furtherance of this goal. See the Wetlands and Other Waters Technical Report for detailed discussion.

4.3.11 Peninsula Drainage District No. 1 Natural Resources Management Plan

The area covered by the Peninsula Drainage District No. 1 Natural Resources that could potentially be affected by the Modified LPA overlaps entirely with the areas discussed above under the Kenton Neighborhood Plan and the PIR Plan District.

The IBR Program would support specific recommendations identified in Peninsula Drainage District No. 1 Natural Resources Management Plan as follows: (plan text is italicized):

- *Natural Resource Policy No. 3: Protect and manage all wetlands within the Peninsula Drainage District No. 1 to avoid, minimize, and if necessary, compensate for fill or destruction of material from wetlands.* The Modified LPA has been designed to avoid impacts to wetlands to the greatest extent possible. Where impacts are unavoidable, the mitigation goal is to fully replace impacted wetland functions and values, with emphasis on creating, preserving and restoring wetlands and other waters that provide habitat for fish and wildlife. The IBR Program team

has begun, and will continue, coordination with the USACE and DSL in furtherance of this goal. See the Wetlands and Other Waters Technical Report for detailed discussion.

- *Land Use and Recreation Policy No. 3: Support a MAX Light Rail Transit Station for West Delta Park that supports the activities at the Expo Center, PIR, and Heron Lakes Golf Course.* The Modified LPA would expand light-rail transit service and establish additional light-rail transit center services at the Expo Center property.

4.3.12 City of Vancouver Comprehensive Plan

- CD-4. Urban Centers and Corridors: Achieve the full potential of existing and emerging urban activity centers and the corridors that connect them, by:
  - Promoting or reinforcing a unique identity or function for individual centers and corridors.
  - Planning for a compact urban form with an appropriate mix of uses.
  - Working with stakeholders to develop flexible standards to implement the vision for that center or corridor.
  - Encouraging innovative, attractive private development that efficiently uses available land and resources.
  - Establishing connectivity within each center and to other areas to provide accessibility.
  - Providing a range of transportation options.
  - Investing in public facilities and amenities to enhance livability.

In addition to the overall Program improvements supporting connectivity and accessibility and providing a range of transportation options, the addition of the Community Connector at Evergreen Boulevard would further balance roadway and transit development with improved bicycle and pedestrian facilities to address existing gaps in connectivity and neighborhood cohesion created by the past construction and presence of I-5.

The Vancouver Comprehensive Plan includes policies to confirm that facilities needed to support enhanced transit service, such as park and rides, and encourages them to be consistent with the goals of the relevant subarea plans and compatible with the surrounding development. The plan also describes the C-TRAN 2030 plan for new park and rides with increased commuter service. The Modified LPA includes up to five proposed park and rides in downtown Vancouver, as discussed in Section 4.2.1.2. The establishment of park and rides would help to improve the range of available transportation options by providing local drivers and commuters with connectivity to high-capacity transit, thereby helping to provide alternatives to single-occupancy vehicle travel. By integrating structured park and rides with mixed-use development and establishing them as joint-use parking facilities not limited to park-and-ride users, the Program would help to maintain the compact form and mixed-use character of the downtown area while providing parking capacity for a range of downtown uses. The park and rides are in the early stages of planning and design but would be developed to be consistent with the Comprehensive Plan's requirements and other applicable design standards and guidelines.

4.3.13 City of Vancouver 2023–2029 Strategic Plan

In addition to the overall Program improvements supporting connectivity and accessibility and providing a range of transportation options, the Program would support the Transportation and Mobility Goals of the 2023–2029 Strategic Plan (City of Vancouver 2023), including:

- *TM.PM.4 Percentage of residents living within a 15-minute walk or bike to transit facilities*. Overall Program improvements supporting connectivity, accessibility, and improved bicycle and pedestrian facilities, coupled with the addition of light-rail transit to the waterfront and downtown Vancouver, would provide the growing population of the waterfront and downtown areas with ready access to public transit by foot or by bike.

4.3.14 Local Transportation System Plans

The Modified LPA's principal components are identified in Metro's RTP (Metro 2018a), the City of Vancouver's Downtown, Access, Mobility, and Parking Plan (City of Vancouver 2025b), the City of Portland's 2035 TSP (City of Portland 2020), the C-TRAN 20-Year Transit Development Plan (C-TRAN 2016), Clark County's RTP (RTC 2019), and the Vancouver TSP (City of Vancouver 2024) and are, therefore, consistent with those transportation system plans.

4.3.14.1 Regional Transportation Plan (Metro)

- RTP Project 10893: Replace the Interstate Bridge and improve interchanges on I-5. Project adds protected/buffered bikeways, cycletracks and a new trail/multiuse path or extension.
- RTP Project 10902: Transit service from the Expo Center to Vancouver, Washington, to increase travel options and alternatives to driving alone.
- RTP Project 11983: I-5 Multi-Use Path: Construct improvements to the I-5 multiuse path in Jantzen Beach to bring path up to current standards, improve safety, and improve access to the Interstate Bridge. Improve pedestrian crossings at Tomahawk Island Drive and Hayden Island Drive.

4.3.14.2 City of Vancouver Downtown Access, Mobility, and Parking Plan

- Pillar 1: Adopt New Pricing Practices for Parking.
- Pillar 2: Expand Public Parking Supply Through Shared Parking, Section 3. Develop a Dispersed Parking Plan for New Light Rail to Downtown.
- Pillar 3: Enhance Downtown Mobility Options

4.3.14.3 City of Portland 2035 Transportation System Plan

- TSP Project 30020: *Replace I-5/Columbia River bridges and improve interchanges on I-5*.
- TSP Project 30033: *Extend light-rail service from Expo Center to Vancouver, Washington*.
- TSP Project 30111: *Hayden Island: Design and construct an arterial bridge from the Expo Center to East Hayden Island. Explore the feasibility of designs that would prioritize transit, bikes, and emergency vehicle access and not facilitate cut-through traffic for vehicles that do not have origins or destinations on the island.*

- Portland's 2035 TSP lists the I-5 Columbia River bridge replacement and interchange improvements as a financially constrained project to be completed within 1 to 10 years.

4.3.14.4 20-Year Transit Development Plan (C-TRAN)

- Includes the IBR elements of light-rail transit and BRT improvements.

4.3.14.5 Regional Transportation Plan for Clark County

- Includes IBR-related goals of providing reliable mobility for personal travel and freight movement by addressing congestion and transportation system bottlenecks.

4.3.14.6 2035 Transportation System Plan (Gresham)

- Includes the IBR-related goals of expanding light-rail transit service and supporting TriMet and other entities in the planning and implementation of light rail and bus service improvements.

4.3.15 Tolling

As described in Chapter 1, tolling of cars and trucks that use the new I-5 Columbia River bridges is proposed as a method to help fund the IBR Program and to encourage the use of alternative modes of transportation. Tolls would be collected using an electronic toll collection system and would vary by time of day, with higher rates during peak travel periods and lower rates during off-peak periods. Medium and heavy trucks would be charged a higher toll than passenger vehicles. The use of higher toll rates during peak periods would support regional and local policies for managing traffic congestion. The use of tolling is not expected to change land use patterns because land use and development in the study area are governed by state land use and growth management laws, local land use plans and zoning regulations, and other controls. These require all development to be consistent with existing zoning and comprehensive planning in order to be permitted. Effective local plans and policies have been shown to control potential unplanned growth and land use changes resulting from transportation investments (Tidd et al. 2013). Analysis using the Metro/RTC regional travel demand model shows an increase in transit mode share under the Modified LPA and design alternatives relative to the No-Build Alternative as a result of both improved transit investment and the introduction of variable rate tolling on the new Columbia River bridges. This shift to transit would reduce overall vehicle travel miles traveled across the Columbia River on an average weekday by approximately 1% compared to the No-Build Alternative. While tolling could divert some traffic from I-5 to I-205, the reduction in total vehicle trips because of toll and transit investments would make this diversion negligible in terms of overall travel. Therefore, tolling is not expected to induce changes in land use.

5. TEMPORARY EFFECTS

5.1 Introduction

Construction of the Modified LPA is expected to take between 9 and 15 years overall. Funding would be a large factor in determining the overall sequencing and construction duration. Contractor schedules, weather, materials, and equipment could also influence construction duration.

Interchanges on each side of the bridges must be partially constructed before any traffic can be transferred onto the new structures. Construction duration for the SR 14 interchange and Hayden Island interchanges would take approximately 1.5 to 4 years for each interchange, with both completed at the same time.

Completion of the light-rail extension requires construction of the new Marine Drive interchange, which is estimated to take approximately 3 years. Construction of this interchange would need to be coordinated with construction of the southbound I-5 lanes coming from Vancouver.

Demolition of the existing I-5 river crossing would take approximately 1.5 years; it would commence after traffic was rerouted to the new Columbia River bridges. However, work would need to be completed at the SR 14 and Hayden Island interchanges before the existing bridge could be decommissioned. The northbound bridge and the northbound off-ramp to SR 14 would need to be completed and opened before traffic could be routed to the new bridge structures.

The light-rail component of the Modified LPA would require up to 4 years for completion. A shorter construction period is possible if work on either side of the Columbia River precedes the completion of the new bridges. Light-rail is proposed to share the southbound bridge across the river; the bridge structure itself must be completed prior to construction of the light-rail components.

In most parts of the study area, impacts would not be continuous throughout the full construction time frame, but would be limited to the duration and location of active construction on a specific component of the Modified LPA. For example, while the overall timeframe of the project could last from 9 to 15 years, construction of specific project components such as the interchanges in downtown Vancouver may only last 3 to 4 years. Because construction activities would be temporary, they are unlikely to have any lasting impacts on existing land uses, land use patterns, or planned future land uses. However, construction-related impacts from noise, dust, lighting (for nighttime construction), and traffic delays may have secondary impacts to residential and commercial land uses throughout the study area.

In order to minimize construction impacts, the IBR Program would carefully plan and phase construction of the Modified LPA to reduce or avoid complete closure of roadways and access points to nearby businesses. Detours would be routed to reduce travel times and signed to reduce confusion. The timing of roadway and highway ramp closures could be staggered to minimize access interruptions and lessen impacts in a given area. Construction would be planned to keep business access points open as much as possible and would be well signed. A construction communication plan would be developed to inform travelers about detours and road closures and would direct them

to businesses. Prior to finalizing construction plans, the IBR Program would work with agency partners to obtain information on construction timelines for other planned projects and coordinate traffic control plans, business assistance strategies, emergency response plans, and other construction management tools. At the end of the construction period, areas required for temporary easements would be restored to their former condition and use.

Potential construction impacts are described below by area.

5.2 Oregon Mainland

To accommodate the construction of the southern end of the Modified LPA, temporary construction easements would need to be acquired from 8 parcels not otherwise impacted by the project. An additional 15 properties identified for partial permanent acquisitions would also be temporarily impacted during construction. In total, approximately 9 acres of construction impacts would occur on the Oregon Mainland (see Table 5-1 and Figure 4-1).

Table 5-1. Portland Mainland Temporary Construction Impacts

Zoning	Acquisition Type	Count	Total Construction Impact Area (sq ft)	Total Construction Impact Area (acres)
CE	Partial	1	46,774	1.1
CE	TCE	1	27,199	0.6
CM2	Partial	3	7,556	0.2
CM2	TCE	1	50	0
IG2	Partial	9	286,524	6.6
IG2	TCE	3	1,409	< 0.1
OS	Partial	2	21,235	0.5
OS	TCE	3	93	0

CE = Commercial Employment; CM2 = Commercial Mixed Use 2; IG2 = General Industrial 2; OS = Open Space; sq ft = square feet; TCE = temporary construction easement

Approximately 175 parking spaces at the Expo Center would be temporarily unavailable for use, out of a total of 2,160. This loss of parking could negatively impact the Expo Center's ability to provide parking for attendees to its events, but such impacts would be minor. The Expo Center seldom requires the use of all of its parking stalls. The Economics Technical Report addresses parking impacts at the Expo Center in greater detail.

5.3 Hayden Island

To accommodate the construction of the Hayden Island interchange, associated local roadway improvements, and the extension of light-rail over Hayden Island, approximately 12.8 total acres of temporary construction impacts would occur on 19 properties already permanently impacted by the project (see Table 5-2). No temporary construction easements are currently proposed on West Hayden Island.

Bridge construction would disturb existing land uses on Hayden Island. The existing commercial use pattern on the island is predominantly auto-oriented big-box retail. Shoppers and visitors to the area would likely face delays, detours, and other inconveniences. Noise, dust, and vibration impacts may also reduce the shopping center's attraction during construction, especially when compared to similar shopping centers nearby. However, these impacts are not expected to lead to a long-term or permanent change in land use because the impacts would be temporary, and the improvements being constructed would be consistent with planning and zoning for the area. The Economics Technical Report addresses this topic in greater detail, and Section 7 of this report includes potential measures that could be used to help minimize temporary impacts to businesses. The acquisition of a temporary construction easement on a portion of the PF&R property would not displace the existing emergency services use of the property, but adjacent construction activities during construction of the Hayden Island Interchange could temporarily slow PF&R response times. The Public Services Technical Report addresses potential impacts to emergency services in detail.

Table 5-2. Hayden Island Temporary Construction Impacts

Zoning	Acquisition Type	Count	Total Construction Impact Area (sq ft)	Total Construction Impact Area (acres)
CE	Partial	12	525,447	12.06
CM1	Partial	7	32,819	0.75

CE = Commercial Employment; CM1 = Commercial Mixed Use 1; sq ft = square feet

5.4 Downtown Vancouver

Under the Modified LPA (including all design options), temporary use of approximately 6.1 acres would be required to accommodate the construction of the bridge landing in downtown Vancouver, local roads, retaining walls along I-5, and reconstruction of sidewalks. The total includes approximately 0.9 acres of temporary easement acquisitions on 24 properties not otherwise affected by project activities. Future design refinements may require temporary construction easements from adjacent properties. No temporary construction easements have been identified for park and rides at this time (see Table 5-3).

Table 5-3. Downtown Vancouver Temporary Construction Impacts

Zoning	Acquisition Type	Count	Total Construction Impact Area (sq ft)	Total Construction Impact Area (acres)
CPX	Partial	8	106,726	2.5
CX	Partial	11	115,787	2.7
CX	TCE [a]	24	38,173	0.9
CX	Subsurface Easement	2	38	0.00
Park	Partial	1	895	0.02

CPX = Central Park Mixed-Use; CX = City Center; sq ft = square feet; TCE = temporary construction easement
a Includes temporary access impacts related to construction activities.
b Includes vacant land and railroad right of way.

Although I-5 is only one of many ways to access downtown Vancouver, many land uses in the downtown area, particularly businesses which rely heavily on pass-by traffic, could be negatively impacted by construction activities due to detours, access constraints, noise, vibration, and dust. However, long-term changes in land use patterns are not anticipated in downtown Vancouver. Businesses may temporarily or permanently close due to construction impacts. However, because new or replacement development would need to conform with existing zoning regulations, overlay districts, and land use plans, the nature of the uses that may take their place is expected to be similar in character. Chapter 8 of this report includes potential measures to help minimize temporary impacts on businesses. These and other measures are discussed in Chapter 8 of this report, as well as in Sections 7.2 and 7.3 of the Economics Technical Report and Sections 7.1 and 7.2 of the Neighborhoods Technical Report.

5.5 Upper Vancouver

Approximately 0.3 acres from 58 parcels would be temporarily needed to accommodate reconstruction of sidewalks, the construction of retaining walls along I-5, and ramps associated with the SR 500 interchange. Of these properties, 29 would also have subsurface easement acquisitions, 11 would also be partially acquired for permanent project improvements, 9 would have temporary access impacts only, and portions of 9 additional properties would be required only for construction (see Table 5-4).

Please see Figure B-8 in Appendix B of the Acquisitions Technical Report for a map showing these temporary property impacts by parcel.

Table 5-4. Upper Vancouver Temporary Construction Impacts

Zoning	Acquisition Type	Count	Total Construction Impact Area (sq ft)	Total Construction Impact Area (acres)
R-9	Partial	10	2,302	0.05
R-9	TCE	9	2,009	0.05
R-9	Subsurface Easement	29	8,723	0.20
R-22	Partial	1	470	<0.01
R-22	TCE [a]	9	0	0.00

a Limited to temporary access impacts related to construction activities.
CPX = Central Park Mixed-Use; CX = City Center; sq ft = square feet; TCE = temporary construction easement

5.6 Casting and Staging Yards

As described in Chapter 1, staging of equipment and materials would occur in many areas along the project corridor throughout construction, generally within existing or newly purchased right of way or on nearby vacant parcels. However, at least one large site would be required for construction offices, to stage the larger equipment such as cranes, and to store materials such as rebar and aggregate. 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 Columbia River for barges including either 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. Major staging and casting sites have not yet been identified for the Modified LPA but may be identified during the design process or by the contractor.

6. INDIRECT EFFECTS

6.1 Overview

Indirect effects on land use are unplanned changes resulting from a project that lead to a different overall land use scenario in the future than would occur without the project. One type of indirect impact of particular concern for transportation projects is induced growth: the potential for transportation improvements to facilitate future unplanned land use changes such as urban sprawl that ultimately result in impacts to the environment. This chapter evaluates the Modified LPA's potential to result in indirect impacts, including induced growth, in light of the adopted state, regional, and local planning frameworks that are in effect within the primary and secondary study areas. Indirect impacts would not differ among the Modified LPA design options.

Transportation improvements can reduce travel times between points and improve access to developable areas. If land is available and market and regulatory conditions support it, transportation corridors have the potential to alter growth patterns within a region, shifting a portion of future growth to locations with increased relative accessibility (Tidd et al. 2013). For example, a new interchange may encourage the development of uses such as gas stations, hotels, fast food restaurants, and other uses complementary to highway travel. Reduced driving times may create conditions of increased demand for suburban-scale residential development in undeveloped areas more distant from an urban center. Without a well-orchestrated set of land use plans, policies, and regulations, such conditions could eventually lead to unplanned sprawl. Conversely, a strong land use planning framework can mitigate the potential for unplanned land use changes. Close coordination of regional transportation planning with state and local land use planning can help to optimize investments, identify the transportation facilities and services needed to support planned land uses, and coordinate the nature and pattern of land development with available transportation services (NCHRP 1999). Effective local plans and policies have been shown to control potential unplanned growth resulting from transportation investment. This topic is discussed and analyzed in several case studies and academic reports that were reviewed in support of the the CRC project Final EIS (CRC 2011).

The analysis in this chapter is based on a review of existing growth management plans, policies, and controls to assess the potential for the Modified LPA to result in unplanned land use changes. This effort included review of local plans to evaluate the extent to which the Modified LPA's anticipated improvements have been incorporated into regional growth management planning. Oregon state law dictates coordination between land use and transportation plans, which in turn governs how, when, and where road expansions can be built. Oregon's existing land use laws require agencies to first identify areas planned for land use development, then invest in the transportation system needed to support the planned development. Washington also has a framework of state and local growth management and planning controls designed to preempt sprawl and maintain urban levels of density and services within close proximity to urban centers. Therefore, the extent to which the Modified LPA's anticipated improvements have been incorporated into existing adopted land use plans indicates the extent to which local planning entities have identified the Modified LPA improvements as a component of planned (as opposed to unplanned) growth.

In Washington and Oregon, land use planning for urban areas is developed within a framework of growth management. The objective of growth management planning is to ensure that population and employment growth are concentrated in areas where urban services, such as transportation and transit infrastructure, are available to support higher densities. This approach is intended to discourage sprawl and inefficient land use and to help ensure that areas outside urban growth centers are preserved for agricultural, recreational, and other non-urban uses. The highway and transit improvements proposed in the Modified LPA have been developed in support of growth management planning goals in both states and are anticipated in the transportation and land use plans of the respective states, cities, and metropolitan planning organizations. The subsequent sections describe growth management planning in Oregon and Washington in the context of indirect effects, then address specific plans within the IBR Program study area.

6.2 Oregon and Washington Growth Management Planning

Oregon's Statewide Planning Program requires cities to ensure that land uses specified in comprehensive plans are supported by existing and planned transportation facilities. Metro's *The Nature of 2040* recommends a balanced transportation system providing a range of choices including using transit, walking, biking, and driving in a car. The Metro RTP (Metro 2018a) includes replacing the Interstate Bridge and improving the I-5 interchanges in its plans for future projects. The City of Portland's *2035 Comprehensive Plan*, as amended through May 2023 (City of Portland 2023) includes Policy 9.6, which prioritizes implementing transportation strategies for people movement, including walking, bicycling, and transit. The *Hayden Island Plan* (City of Portland 2009; described further below) also anticipates the future development of light-rail in conjunction with Interstate Bridge replacement. As such, development of the Modified LPA is consistent with these goals of Portland's comprehensive plan and the *Hayden Island Plan*.

The State of Washington adopted the GMA in 1990. This act requires most local jurisdictions to define and implement a land use policy framework that emphasizes reducing the inappropriate conversion of land to sprawling, low-density development. This emphasis is evident in statewide requirements to coordinate land use and transportation plans and strongly supports multimodal transportation systems. The law also requires designation of urban growth areas around cities. The GMA's goals are similar to the Statewide Planning Goals in Oregon. They discourage sprawling development, encourage focusing growth and development in existing urban areas with adequate public facilities, encourage economic development throughout the state consistent with comprehensive plans, encourage efficient multimodal transportation systems, and require that adequate public facilities and services necessary to support development be available when new development is ready for occupancy. Because the Modified LPA would be consistent with comprehensive land use plans and would encourage efficient multimodal transportation, its implementation would further the intent of the Washington GMA and Oregon's statewide land use planning law.

RTC has adopted the *Metropolitan Transportation Plan for Clark County* (RTC 2019), which incorporates light rail as a component of the multimodal transportation system in the Vancouver metropolitan region. The adopted Clark County *Comprehensive Growth Management Plan* (Clark County 2016) and *Vancouver Comprehensive Plan* (City of Vancouver 2011) identify the location of the urban growth area, which encompasses the lands planned for urban development. The Modified LPA, by incorporating light-rail transit, facilitates the realization of the goals of the RTC metropolitan transportation plan.

Additionally, by focusing on and improving connectivity for transit and nonmotorized active transportation modes (pedestrian, bicycle), within the study area, the Modified LPA helps to maintain density within the areas planned for urban development.

The City of Vancouver Comprehensive Plan recommends planning for a compact urban form with an appropriate mix of uses and providing a range of transportation options.[22] The Modified LPA supports these recommendations by implementing light-rail, improving connectivity within the area, and providing park and rides. It also supports and is consistent with the City's Transit Overlay District, which allows for "higher densities and more transit-friendly urban design" than afforded by base zoning.

6.3 Local Plans

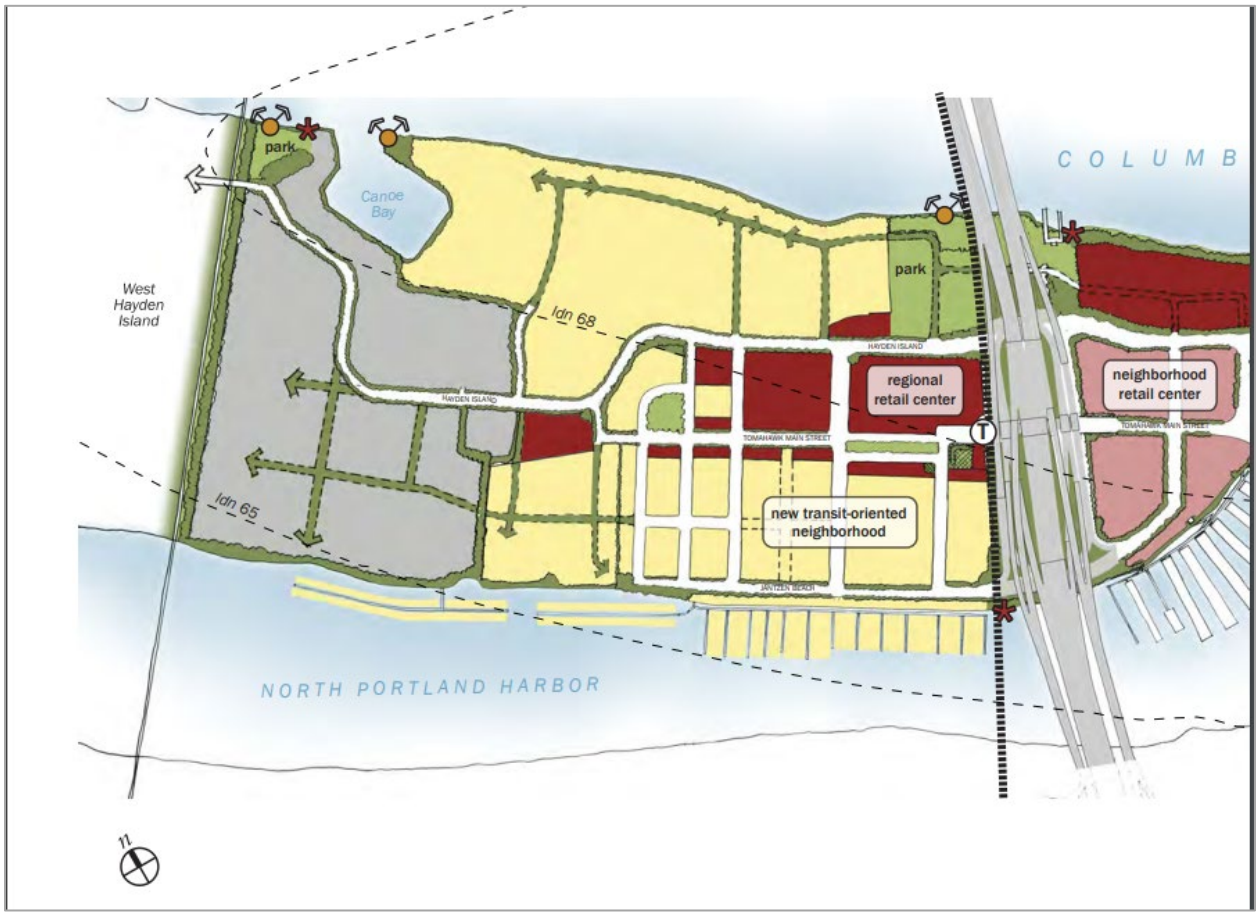
Recent planning by the City of Portland for Hayden Island and by the City of Vancouver for its downtown area relies on the transportation improvements proposed by the IBR Program. Aspects of these plans relevant to the potential for unplanned land use effects are described below.

The Hayden Island Plan outlines a vision for the future growth and development of the eastern half of Hayden Island (Figure 6-1). This plan includes the expectation that access to the island will be improved by the new I-5 interchange and light-rail extension included in the Modified LPA. These access improvements are expected to facilitate new, transit-oriented development on the island. The Modified LPA would displace several commercial businesses, restaurants, and residences, as described in Chapter 4 and the Acquisitions Technical Report. If these displacements happened in isolation, they could have the potential to undermine the collective stability of the Jantzen Beach shopping center and surrounding businesses. However, the increased transit service and access improvements proposed in the Modified LPA would provide safe access to transportation options such as biking, walking, rolling, and public transit and would support greater density within the Hayden Island Plan area. The Modified LPA would thus support the Hayden Island Plan's vision and recommendations for redevelopment of commercial and residential uses in this area. No adverse indirect effects related to unplanned land use changes are anticipated on Hayden Island as a result of the Modified LPA. The VCCV (City f Vancouver 2007) identifies high-capacity transit through downtown Vancouver as a key transportation goal and encourages further development in the downtown area. By extending light-rail transit service into downtown Vancouver, the Modified LPA would provide transportation capacity to support increased downtown development, furthering the goals of the VCCV. Another goal in the VCCV is extending Main Street to Columbia Way. By replacing the Interstate Bridge and raising the grade of the freeway over the Vancouver waterfront and southern downtown area, the project would facilitate extension of Main Street to Columbia Way. The Main Street extension would support the City's vision of providing greater connectivity to the waterfront and would also benefit planned redevelopment along the waterfront immediately west of I-5. This development is planned and moving forward separately from the IBR Program, but it would be better integrated with

[22] The City of Vancouver is currently updating its Comprehensive Plan. The update process is expected to take place from 2022 to 2025 and work will run parallel with the SEIS process. It is possible that policy updates resulting from the Comprehensive Plan update may need to be incorporated into the design development phases of the IBR Program.

the rest of downtown Vancouver through implementation of the Modified LPA and the extension of Main Street.

Figure 6-1. Hayden Island Plan



Source: City of Portland 2009

The No-Build Alternative would not be consistent with the Hayden Island Plan or the Vancouver City Center Vision and their plans for future growth and development. The No-Build Alternative would lack the improved multimodal access needed to support greater density within the Hayden Island Plan area and related redevelopment. While some redevelopment may still occur in the area, it would not be likely to involve the dense, walkable neighborhoods common to transit-oriented development. With the No-Build Alternative, such development, and its envisioned population and employment growth, would be more likely to occur elsewhere in the metropolitan area where transit and effective multimodal facilities would be available.

The VCCV also anticipates the IBR Program would provide key mobility investments for the downtown Vancouver area. However, other actions supporting the plan are already in place or in development, including the waterfront development district, new higher density residential development in downtown, and roadway and BRT improvements. Under the No-Build Alternative, some of the

envisioned population and employment growth would still occur, but it would likely occur over a longer period of time or may not fully reach the growth targets.

6.4 Indirect Effects Conclusion

6.4.1 Indirect Effects on Local and Regional Land Use

As described earlier in this chapter, large transportation projects can have the potential to result in far-reaching effects on travel and land use patterns. While the Modified LPA would facilitate and accommodate planned growth in the study area, it is not expected to induce unplanned growth or to change land use patterns in ways that are inconsistent with the goals of applicable land use plans. Both Portland and Vancouver have accounted for future anticipated growth within their planning documents and provide strategies, visions, and goals to guide this growth. The plans provide for a development strategy to accommodate growth by increasing land use density, particularly in areas that would be served by high-capacity transit if the Modified LPA is implemented.

Under the No-Build Alternative, light rail would not be extended to Vancouver and express bus service across the Columbia River would be subject to increasing delays caused by increasing traffic congestion. Without high-capacity transit and associated new light-rail stations on Hayden Island and in downtown Vancouver, the demand for higher-density development would be less likely to materialize, and the development strategy provided for in local land use plans may not be achievable. Vehicle, express bus, and active transportation would be the only mode option for crossing the Columbia River because high-capacity transit would not be available. Because the No-Build Alternative would have fewer transportation mode options to cross the river and would not include the LRT stations proposed under the Modified LPA, it would be less likely to support the increased development density provided for under the local planning documents.

The Modified LPA would provide new light-rail service and improve the reliability of bus transit, which would facilitate the development strategy provided for in local planning documents, especially on Hayden Island and in Downtown Vancouver. This would support the plan to accommodate increased population through higher density development. The Modified LPA would not be expected to result in urban sprawl (scattered development on the periphery of urban areas) because the transit improvements would be provided in established urban areas. The local land use planning strategy to increase density is more likely to be achievable and the Columbia River bridges would be tolled. Because tolling increases the out-of-pocket cost of commuting, individuals have an incentive to shorten their commutes by living closer to alternative transportation connections, services and where they work (Brueckner 2001). As described in Section 3.1, the transportation analysis also shows that tolling would cause some drivers to change to transit to avoid tolls.

The CRC EIS included an analysis of the project's potential for induced land use changes. The analysis used Metroscope, Metro's integrated land use and transportation model, to predict how the proposed changes in transportation infrastructure could influence the future distribution of employment and housing throughout the region. The modeling effort, which was completed in 2010, concluded that the CRC project would not significantly induce growth or sprawl. Compared to the No-Build Alternative, the model estimated that the CRC project, with tolling, would result in a 0.03% decrease

in households in north Clark County and a 0.51% increase in households in the southern, more urban, half of the county (Conder 2010). Metro reviewed these findings in January 2024 and concluded they remain relevant to the Modified LPA.

The amount and timing of land use changes in transit station areas can be affected by transit ridership levels (e.g., higher ridership would be expected to increase land use development compared to lower ridership). Thus, the amount and timing of transit-oriented development in station areas would depend to some degree on transit ridership levels and other factors such as local economic conditions. Regardless of the pace of development, transit-oriented development would be consistent with existing planning and zoning that anticipates the future availability of high-capacity transit to support planned densities.

With respect to the Modified LPA's potential to generate additional automobile traffic and development pressure at areas more distant from the Interstate Bridge, the traffic analysis prepared for this SEIS evaluated how the addition of either one or two auxiliary lanes would affect traffic north and south of the primary study area (see the Transportation Technical Report and SEIS Section 3.1, Transportation). I-5's capacity to the north and south of the study area would remain unchanged at three lanes in each direction. Local streets on both the Washington and Oregon sides of the Columbia River do not have the capacity or connectivity to serve high increases in regional demand. These constraints on regional system capacity, along with the inclusion of variable-rate tolling and greater provisions for transit, active transportation improvements, travel demand management, and transportation system management tools (e.g., ramp metering), and the adopted regional and local land use plans responding to state law, reduce the potential for induced demand.

In conclusion, the Modified LPA is expected to have the indirect effect of facilitating growth and development within the primary and secondary study areas. However, this growth and development would be focused. Its magnitude and location would be constrained by and consistent with local and regional land use and transportation plans. The No-Build Alternative would do less to encourage denser, transit-oriented development, and congestion resulting from over-capacity transportation facilities could inhibit the region from effectively accommodating planned levels of growth.

6.4.2 Indirect Land Use Effects Related to Navigation

The Navigation Impact Report (IBR 2022) evaluated the potential for future land use changes upstream of the Interstate Bridge that could affect marine commerce based on city, port, state and federal land use and other management plans, which typically have planning horizons of 10 to 20 years. The report identified properties along the Columbia River that currently have marine facilities available or have the potential for future development of such facilities. It concluded there are few opportunities for new or expanded commercial and industrial development that would require the use of vessels too large to pass beneath the proposed new fixed-span Columbia River bridges. The number of suitable properties is limited by political and geographic constraints on land along the Columbia River waterfront, which include the Columbia River Gorge Natural Scenic Area designation, parallel transportation routes (SR 14, I-84, Union Pacific Railroad, and BNSF Railway), steep topography, and existing recreational and open space uses. The types of industrial uses that currently generate or could generate marine vessel traffic in the future are located within urban areas and

typically within established industrial parks (e.g., Columbia Business Center, Port of Cascade Locks Industrial Park).

Per current planning documents, there are no known planned developments within the study area that would create additional navigation activities that would be adversely affected by the new Columbia River bridges with either the double-deck or single-level fixed-span configurations. If new marine-based businesses were to develop upstream of the new Columbia River bridges over their 100+ year service life, either fixed-span bridge configuration would limit their activities to a maximum vertical navigation clearance of 116 feet. The single-level movable-span configuration would continue to provide at least 178 feet of vertical clearance, and therefore would pose no additional limitations to future activities or marine development beyond those posed by the existing Interstate Bridge.

7. AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

This chapter describes measures that could be considered for reducing potential direct effects on land use. Indirect effects are addressed in Chapter 6 of this report. Overall, the IBR Program would be supportive of the existing and/or evolving land uses in Portland and Vancouver. Table 7-1 lists temporary avoidance and minimization measures. No long-term avoidance and minimization measures and no specific temporary or long-term mitigation measures within control of the IBR Program were identified for land use.

Avoidance, minimization, and mitigation measures for acquisitions, neighborhoods and communities, economics, and public services that could potentially affect land use are described in the Acquisitions Technical Report, Neighborhoods and Communities Technical Report, Economics Technical Report, and Public Services 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	Conflicting construction plans with other projects	Prior to finalizing construction plans, ODOT and WSDOT will work with agency partners to obtain information on the construction timelines for other planned projects, including those identified in the Land Use technical report, and will coordinate with those projects to develop traffic and other plans to minimize disruption.

8. PERMITS, PLANS, AND APPROVALS

The proposed project would require a number of permits and approvals from state and local agencies. The following list includes the permits specific to land use. This chapter does not review approvals necessary as part of the formal NEPA, or FTA New Starts process. This chapter includes a summary of the necessary zoning-related approvals.

8.1 State Plans

An Interstate Access Management Plan (Oregon) and an Access Point Decision Report (Washington) could be completed and approved for the proposed interchange modifications.

8.2 Local Permits

Listed below are some of the known permits needed for the LPA. General transportation facilities are not often listed in the typical use lists of zoning code. Certain specific facilities, like park and rides and transit stations, often are listed.

8.2.1 Portland

The proposed project would need a determination that it is an allowed use in the base zones and overlay zones. Not all of the zones specifically mention transportation facilities. Further discussions with the City of Portland would be needed. Transportation right of way is not considered a use under the Portland Zoning Code. There is currently no light-rail transit station overlay in the City of Portland code to inform compatible land development following the establishment of light-rail stations and to guide pedestrian systems and amenities in station areas. Transit stops and stations fall within the category of Basic Utilities. Basic Utilities are limited or require conditional use review approval in the Open Space zone and Commercial zones. They are allowed in industrial zones.

The lists of permitted uses in the Commercial/Mixed Use, Open Space, and General Industrial zones do not specifically identify transportation facilities. Further discussions would be required with the City of Portland. As part of the land use approval process, numerous issues—from internal circulation to design—would also be addressed. This would be most significant in the review of the facilities planned for Hayden Island. If there is any disturbance in the Environmental Conservation Overlay Zones, an Environmental Land Use Review and approval would be necessary. A Tree Permit following Chapter 11.30, Tree Permit Procedures, would be required to address potential impacts and mitigation related to tree removal and replacement resulting from the Modified LPA.

The Hayden Island (HI) plan district objectives provide opportunities and regulations for transportation improvements and light-rail expansion:

- *Create a transportation network that provides for all modes, and allows people to easily move from one mode to another;*
- *Focus higher intensity, mixed-use development near the light-rail station;*

- *Provide opportunities for a range of housing types, and encourage mixed-use development, including commercial uses, to serve the residential uses;*
- *Recognize the current function of the Jantzen Beach Super Center as an auto-oriented shopping mall and its long-term potential for more intense development that is less auto-oriented and more pedestrian-friendly resulting from major investments in the transportation system.*

The northbound existing bridge is listed in the National Register of Historic Places. It is therefore covered by Portland Zoning Code Chapter 846, Historic Reviews. Demolition of the existing historic bridge requires approval from the Portland City Council, following advice from the Portland Historic Landmarks Commission, through a Type 4 Demolition Review, prior to application for a Demolition Permit. Mitigation for the loss of a historic resource would be developed in conjunction with the Section 106 and 4(f) compliance processes in coordination with the lead federal agencies, ODOT, WSDOT, and Clark County.

Other permits required closer to construction, after the project reaches a more detailed level of design development, may include a Street Use Permit, Public Improvement Permit, and Site Development Permit. The acquisition of these permits would potentially be the responsibility of the construction contractor following completion of design.

Permits that would potentially be necessary through the City of Portland are listed below. A final determination on the required permits would take place following a final NEPA decision and additional design development.

- Land Use Review in the zones and overlays described in Sections 3.5.1 and 3.5.2.
- Tree Permit.
- Potential Environmental Overlay Review.
- Potential Design Overlay Review.
- Historic Resources Review.
- Type 4 Demolition Review.
- Street Use Permit.
- Public Improvement Permit.
- Site Development Permit.

8.2.2 Vancouver

The proposed project would need a determination to be an allowed use in base and overlay zones. Not all of the Vancouver zones specifically mention transportation facilities. The following criteria and requirements are clear:

1. In early 2008, the Vancouver City Council adopted the updated Central Park Subarea Plan replacing the 1979 Central Park Plan, “A Park for Vancouver” and its design guidelines. The plan concept calls for a unified sense of place by celebrating a shared historic landscape and emphasizing design of key features such as a “great street” network. The implementing regulations are part of the Central Park Mixed Use District (CPX) and would govern the development of park and rides established as part of the Modified LPA. Surface-level park and

rides are prohibited in the CX (City Center) and CPX (Central Park) zones. Structured park and rides are a Limited Use in both zones subject to the provisions of the amended title 20.430.040. The standards require compatible design, transportation management plans, and a mix of uses with "active" ground floor uses along major roadways that serve high numbers of pedestrians. Park and rides, as a limited use in the CX and CPX zones, would require a Type II land use review, which is a quasi-judicial procedure governing permits and actions that contain some discretionary criteria. Type II applications are decided by the planning official with public notice and an opportunity for comment.

2. Internal circulation permits would be required for park and rides.
3. Temporary use approvals would be needed for temporary offices for contractors, staging areas, and casting yards.
4. Based on the goals, policies, and use regulations in the City of Vancouver Shoreline Master Program, a Shoreline Conditional Use Permit would be required for construction of the new Columbia River bridges. The Modified LPA would require construction activity within shoreline environments designated as Urban High Intensity and Aquatic. Transportation projects are allowed as a permitted use in a High Intensity shoreline environment, which extends 200 feet shoreward of the ordinary high water mark of the Columbia River. Regulation 5.6.1.3 under Site Planning and Development requires that "*when feasible, existing transportation corridors shall be utilized. Ingress/egress points shall be designed to minimize potential conflicts with and impacts upon vehicular and pedestrian traffic. Pedestrians shall be provided with safe and convenient circulation facilities."* Within shoreline areas, the project would vary from the existing corridor alignment very slightly. Each of the bridge alignments would likely be considered as being within the existing transportation corridor. The area from the ordinary high water mark to the state line in the middle of the Columbia River is classified as Aquatic. Transportation projects within the Aquatic shoreline environment require a Shoreline Conditional Use Permit. Vancouver's 2021 Shoreline Master Program states the following goal for Section 3.11 Transportation, Utilities, and Institutional Facilities: "*The goal for transportation, utilities, and institutional facilities is to provide for these facilities in shoreline areas without adverse effects on existing shoreline use and development or shoreline ecological functions and/or processes."*
5. Critical Areas Permits would be needed. The Modified LPA would impact areas designated as Fish and Wildlife Habitat Conservation Areas, which are covered by the City's Critical Areas Protection Ordinance (VMC Chapter 20.740). Within shoreline areas, Critical Areas Permits are coordinated with the shoreline permit process. The regulatory requirements of the Critical Areas Ordinance and the Shoreline Master Program were made consistent in 2007.
6. A tree plan would need approval (VMC Chapters 20.770 and 20.925 as applicable). It would address the tree removals and plantings for the roadway segments, park and rides, and other facilities.
7. Other permits that may be required include those for floodplain development and geohazard development. These would be coordinated with the Critical Areas Permits, as VMC Chapter 20.740 addresses both frequently flooded areas and geologic hazard areas (see the Water Quality and Hydrology and Geology and Groundwater Technical Reports for additional technical information on floodplains and geohazards).

Potential necessary permits through the City of Vancouver are listed below:

- Internal circulation permits.
- Type II Land Use Review.
- Vancouver Shoreline Conditional Use Permit.
- Vancouver Critical Areas Permit for Fish and Wildlife Habitat Conservation Areas, processed as part of the Shoreline Conditional Use Permit.
- Floodplain Development (as part of a separate Critical Areas Permit).
- Geohazard Development (as part of a separate Critical Areas Permit).
- Tree Plan Approval.

In addition to City of Vancouver permits, bridge demolition would require a Waiver of Certificate of Appropriateness and demolition review by the Clark County Historic Preservation Commission. Clark County Code 20.250.030.F.d summarizes the requirements for demolition of a historic resource.

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