

3.18 Hazardous Materials

This section identifies, describes, and evaluates potential temporary and long-term hazardous materials-related effects resulting from the No-Build Alternative and construction and operation of the Modified LPA. This section also describes measures to help avoid or mitigate adverse effects.

The information in this section is based on the Hazardous Materials Technical Report, which contains additional detail including analysis methods, an inventory and maps of recognized environmental conditions (RECs), and potential RECs identified through environmental data reports and desktop site assessment tools.

3.18.1 Changes or New Information Since 2013

The Columbia River Crossing (CRC) Selected Alternative identified in the 2011 Record of Decision (ROD), as revised by the 2012 and 2013 re-evaluations, is referred to as the CRC Locally Preferred Alternative (CRC LPA). Over the past 10+ years since the CRC LPA was identified, the physical environment in the study area, community priorities, and regulations have changed, which necessitated design revisions and resulted in the IBR Modified LPA (see Section 2.5.2). Evaluation of potential impacts associated with hazardous materials has been updated in this Draft SEIS to include:

- Updated assessment methodologies based on state and federal laws and requirements and lead agency environmental standard operating procedures.
- Updated datasets for hazardous material sites based on current database searches and the study area for the Modified LPA.
- Updated long-term and temporary property acquisitions for the Modified LPA.
- Changes in the project footprint necessitated by changed conditions resulted in shifting the LRT alignment and modifying interchange designs.

Table 3.18-1 compares the impacts of the CRC LPA and the IBR Modified LPA as a result of the changes listed above. A detailed description of impacts and benefits to hazardous materials from the IBR Modified LPA and design options follows. Based on the analysis described in this section, the hazardous materials effects of the Modified LPA would be the same as or similar to the effects of the CRC LPA.

3.18.2 Existing Conditions

This section identifies existing hazardous materials sites within the study area, RECs on those sites, and other potential sources of pollutants in the study area, including stormwater runoff and spills.

Hazardous Materials Sites within the Study Area

The hazardous materials study area includes the limits of ground disturbance for the Modified LPA plus the maximum standard 1-mile database search radii established by ASTM E1527-21 for conducting environmental site assessments. A study area-level environmental database search identified 579 sites that could potentially contain hazardous materials. Of these, 358 were identified in Washington and 221 in Oregon.

The Ruby Junction Maintenance Facility is also identified as a small-quantity generator for hazardous wastes including solvents, batteries, and paints. Oregon Department of Environmental Quality (DEQ) files for the Ruby Junction property indicate that cleanup activities for leaking underground storage tanks (LUSTs) at the site were completed in 1994 and 1998. DEQ also identifies seven potentially contaminated sites within 500 feet of the proposed expanded facility boundaries.

Table 3.18-1. Comparison of CRC LPA Effects and IBR Modified LPA Effects

Technical Considerations	CRC LPA Effects as Identified in the 2011 Final EIS	Modified LPA Effects Identified in this Section	Explanation of Differences
Property acquisition	<ul style="list-style-type: none"> Moderate potential for increased liability from the acquisition of contaminated sites. Moderate potential for long-term beneficial effects on human health and safety from cleanup and remediation of contaminated areas on acquired sites. 	<ul style="list-style-type: none"> Similar potential to the CRC LPA for increased liability from the acquisition of contaminated sites. Similar beneficial effects on human health and safety from cleanup and remediation of contaminated areas on acquired sites. 	Approximate risk from property acquisition would be similar between the CRC LPA and the Modified LPA, as the overall number of sites affected by the two projects would be similar.
Surface water and groundwater quality	Beneficial effects from updates in stormwater conveyance and treatment, which would reduce pollutants in stormwater runoff and improve surface water and groundwater quality.	Same as the CRC LPA.	Risk to surface water and groundwater quality from the two projects would be similar, due largely to anticipated stormwater improvements providing beneficial effects.
Hazardous materials spill potential	Reduced spill risk due to reduced traffic congestion and collisions.	Same as the CRC LPA.	Risk due to hazardous material spill potential is similar for the two projects, as highway congestion and resultant collisions would be reduced under both the CRC LPA and the Modified LPA.

CRC = Columbia River Crossing; EIS = environmental impact statement; LPA = locally preferred alternative

The list of sites identified in the study area-level search was refined to focus on potential hazardous materials sites identified on properties proposed for acquisition by the IBR Program, or within sufficient proximity to potentially affect parcels proposed for acquisition. See the Hazardous Materials Technical Report for detailed discussion of the hazardous materials site identification and review process and methodology. In accordance with FTA Standard Operating Procedure (SOP) 19 (FTA 2016) and FHWA guidance, Phase I Environmental Site Assessments (Phase I ESAs) were completed for all properties proposed for acquisition. This included 137 total properties, consisting of 52 full parcels and 85 partial parcels. The purpose of the Phase I ESAs was to identify potential RECs, controlled RECs, (CRECs), or historical RECs (HRECs) on or near the properties proposed for acquisition.¹ Temporary construction easements were also identified and evaluated, as well as possible construction staging areas.

¹ ASTM Standard E1527-21 defines a Recognized Environmental Condition as, "...the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions."

A total of 78 separate Phase I ESA reports were produced, encompassing 69 parcels in Washington and 68 parcels in Oregon. These reports cover all properties that would be acquired under any of the Modified LPA design options. Conclusions from the Phase I ESAs were used to determine the need for a Phase II ESA or other additional assessment on individual parcels. The findings of Phase II ESAs, as required, would be included in the Final SEIS and ROD.

Recognized Environmental Conditions

The RECs identified during the Phase I ESA process are related to historical and current land uses on the potentially acquired properties. Some of the land uses that resulted in the identification of RECs on potentially acquired properties include the following:

- Automobile maintenance and repair.
- Boat maintenance and repair.
- Vehicle fueling (gas stations).
- Waste disposal (landfills).
- Chemical or hazardous materials storage, including underground and aboveground storage tanks (UST/AST) and LUSTs.
- Military use.

Figure 3.18-1 through Figure 3.18-9 show the locations of Phase I ESAs and identified RECs in the study area.

Each Phase I ESA provides recommendations for additional study, if appropriate. Though individual Phase I ESAs recommend more specific actions, general categories that the recommendations fall into include:

- No Further Environmental Investigation.
- Hazardous building materials survey (HBMS) – recommended for sites with structures that may require demolition (it should be noted that a recommendation for a HBMS does not reflect the identification of a REC on the relevant property).
- Contaminated media management plan – recommended for sites with known but well-characterized contamination that could be managed during construction.
- Simple Phase II ESA – recommended for sites with known or suspected contamination that is not fully characterized but not expected to be significant based on the Phase I ESA.
- Complex Phase II ESA – recommended for sites with known contamination which is not completely characterized and has the potential to extend to additional media or adjacent parcels.

Additional recommendations may apply to some sites based on site-specific conditions.

An HREC is defined as, "...a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls."

A CREC is defined as, "...a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls."

Figure 3.18-1. Overview of Phase I ESA Locations and RECs in the Study Area

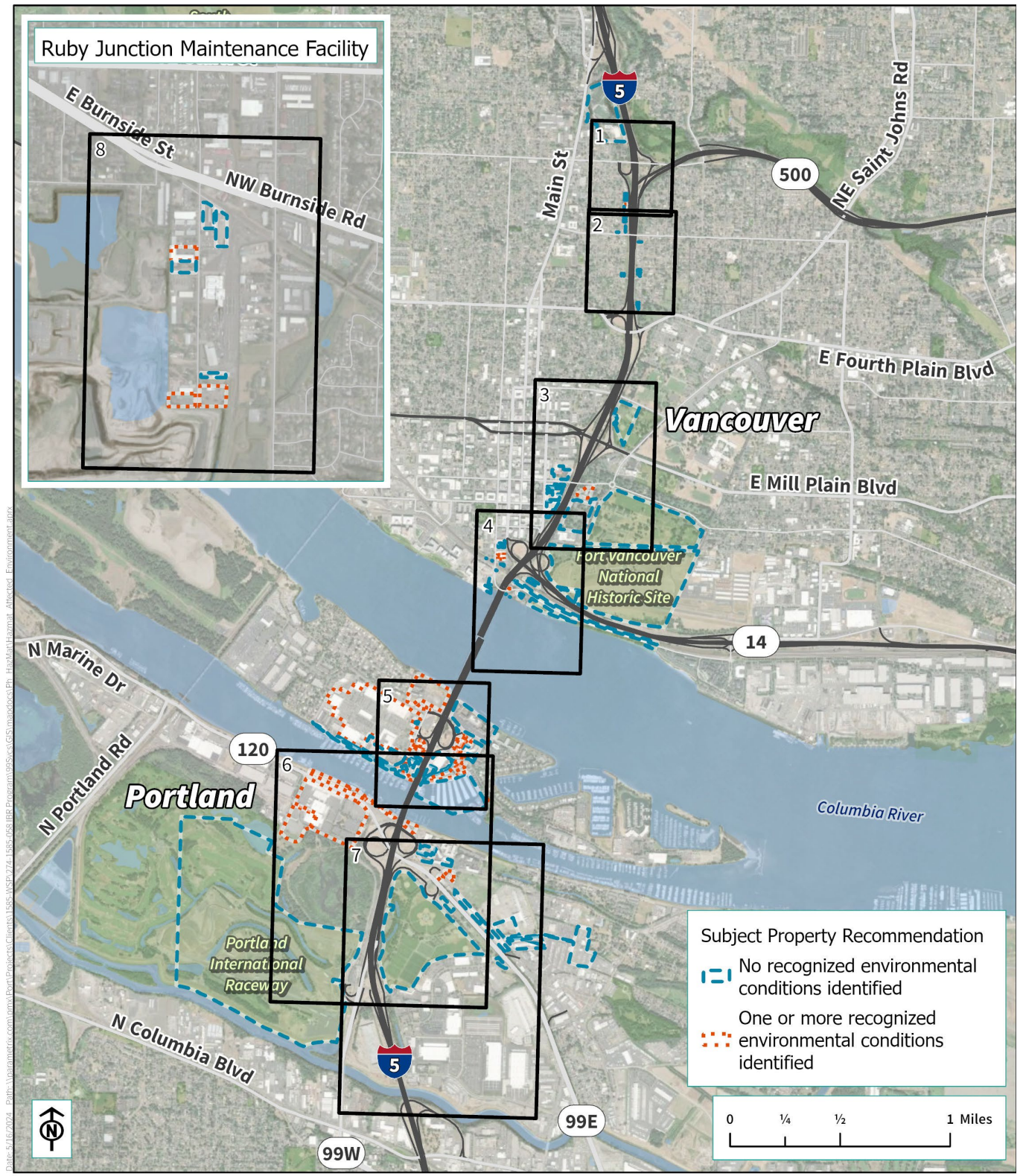


Figure 3.18-2. Phase I ESA Locations and RECs – Map 1



Source: Sanborn Map Company, ODOT, WSDOT, ESRI, Mapbox, OpenStreetMap

Figure 3.18-3. Phase I ESA Locations and RECs – Map 2



Source: Sanborn Map Company, ODOT, WSDOT, ESRI, Mapbox, OpenStreetMap

Figure 3.18-4. Phase I ESA Locations and RECs – Map 3

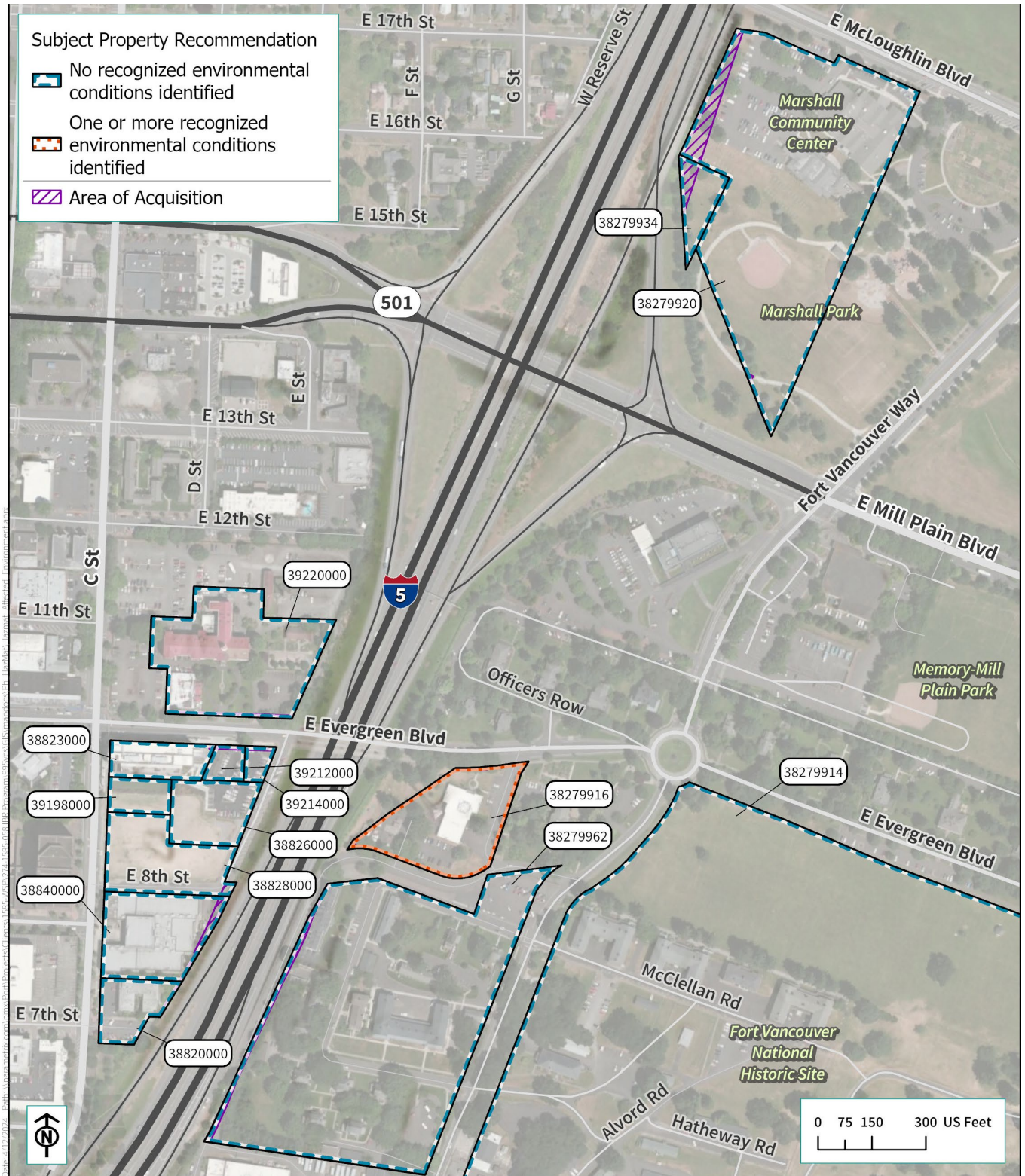


Figure 3.18-5. Phase I ESA Locations and RECs – Map 4

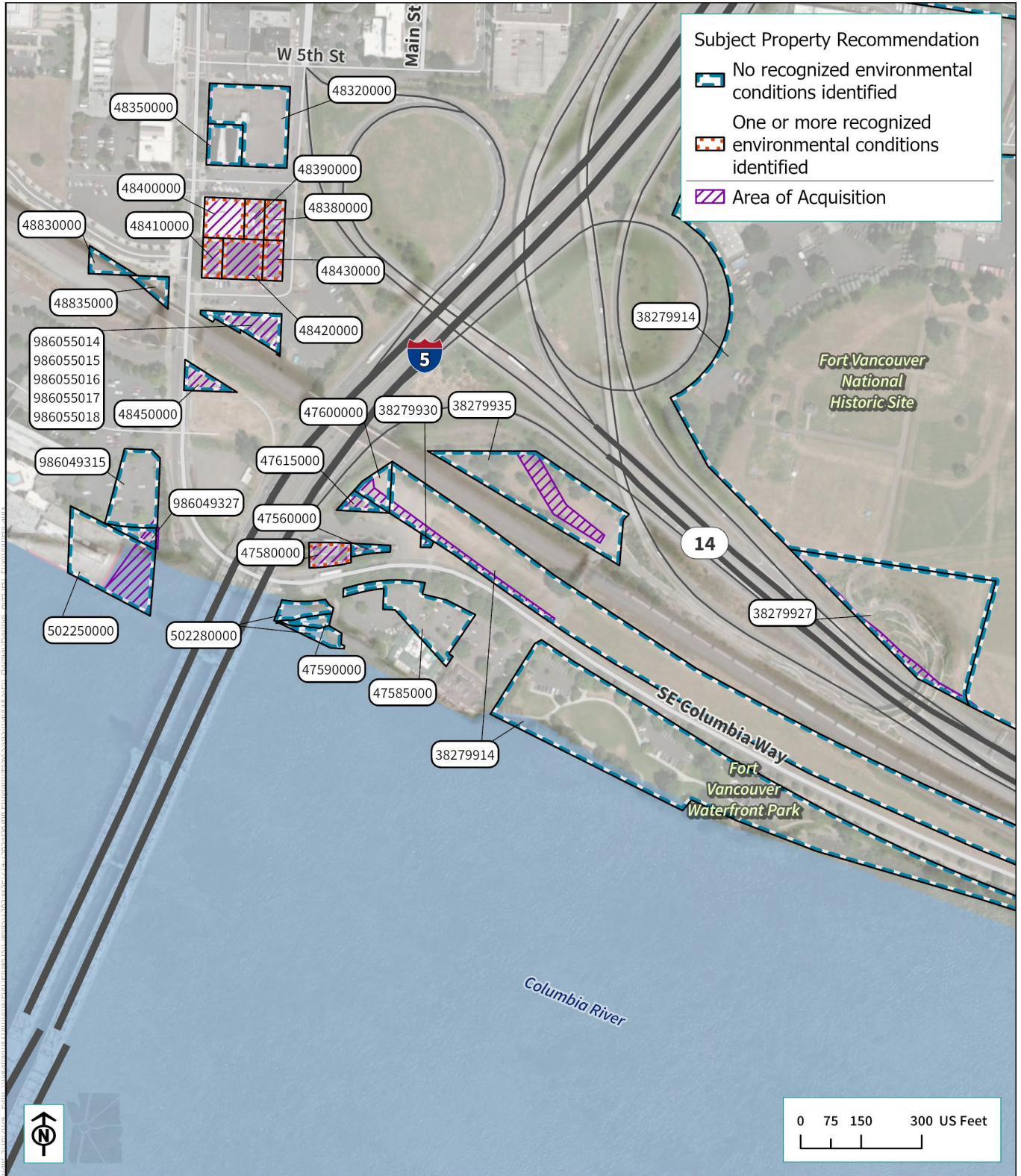
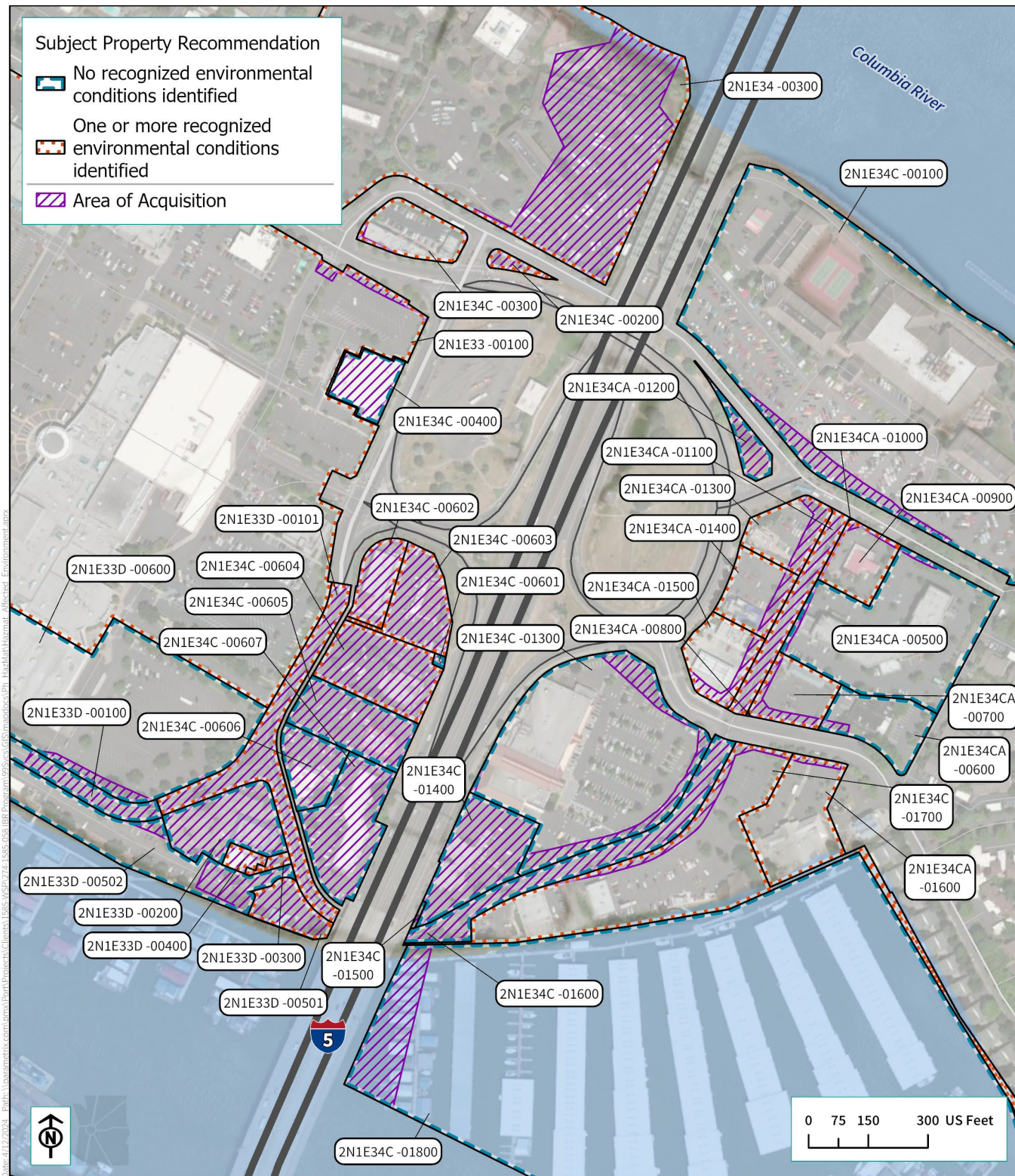


Figure 3.18-6. Phase I ESA Locations and RECs – Map 5



Source: Sanborn Map Company, ODOT, WSDOT, ESRI, Mapbox, OpenStreetMap

Figure 3.18-7. Phase I ESA Locations and RECs – Map 6

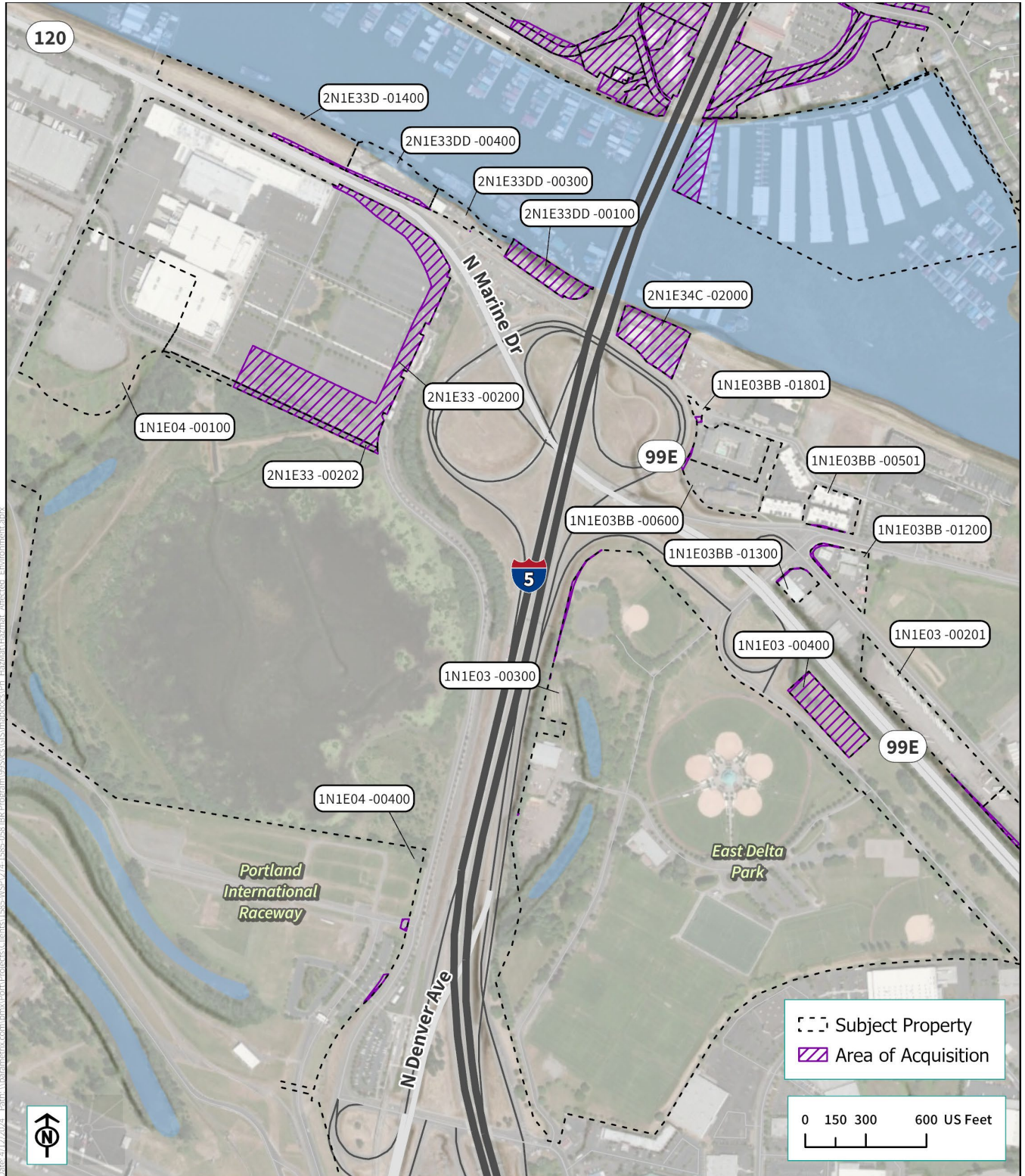
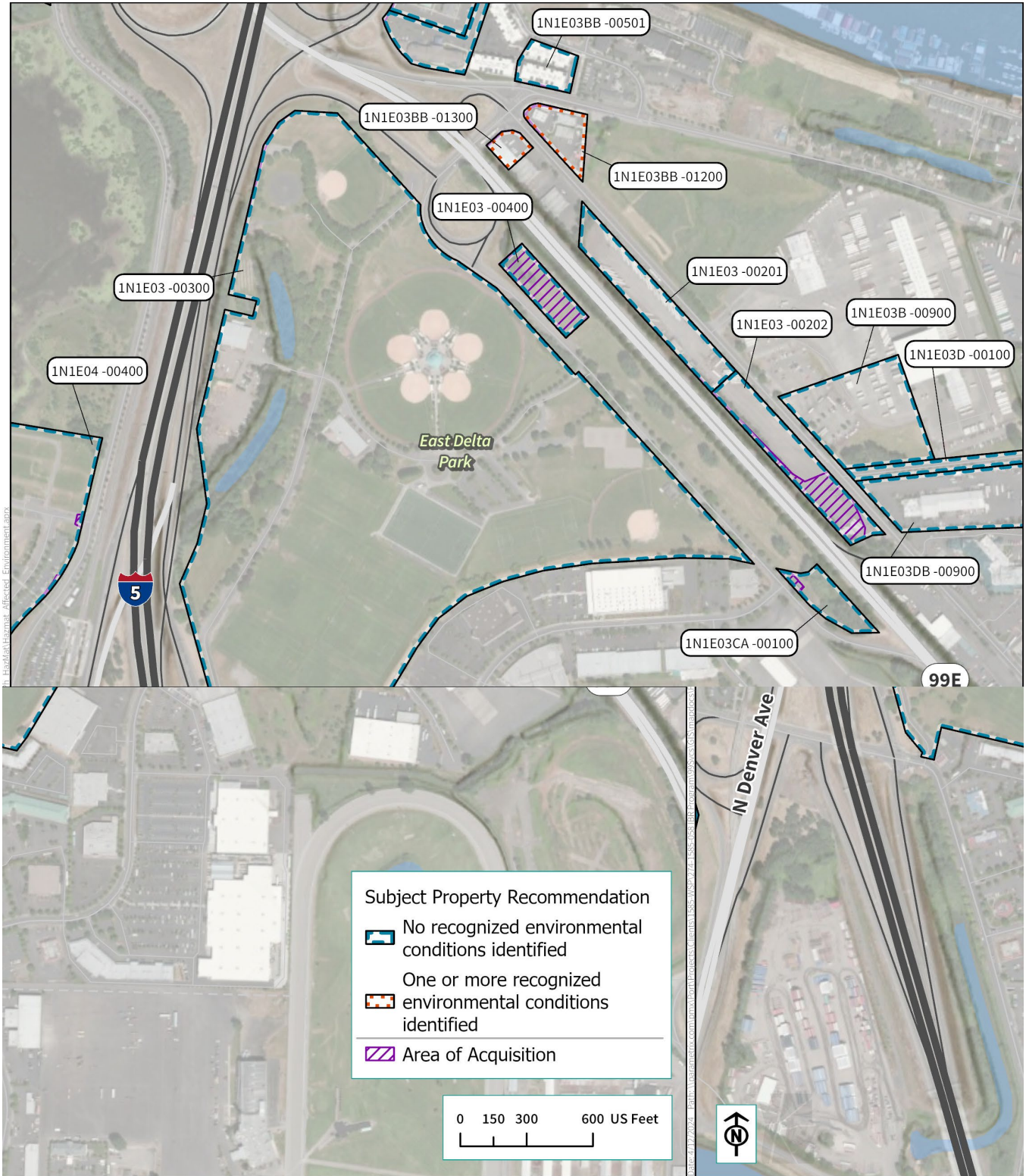
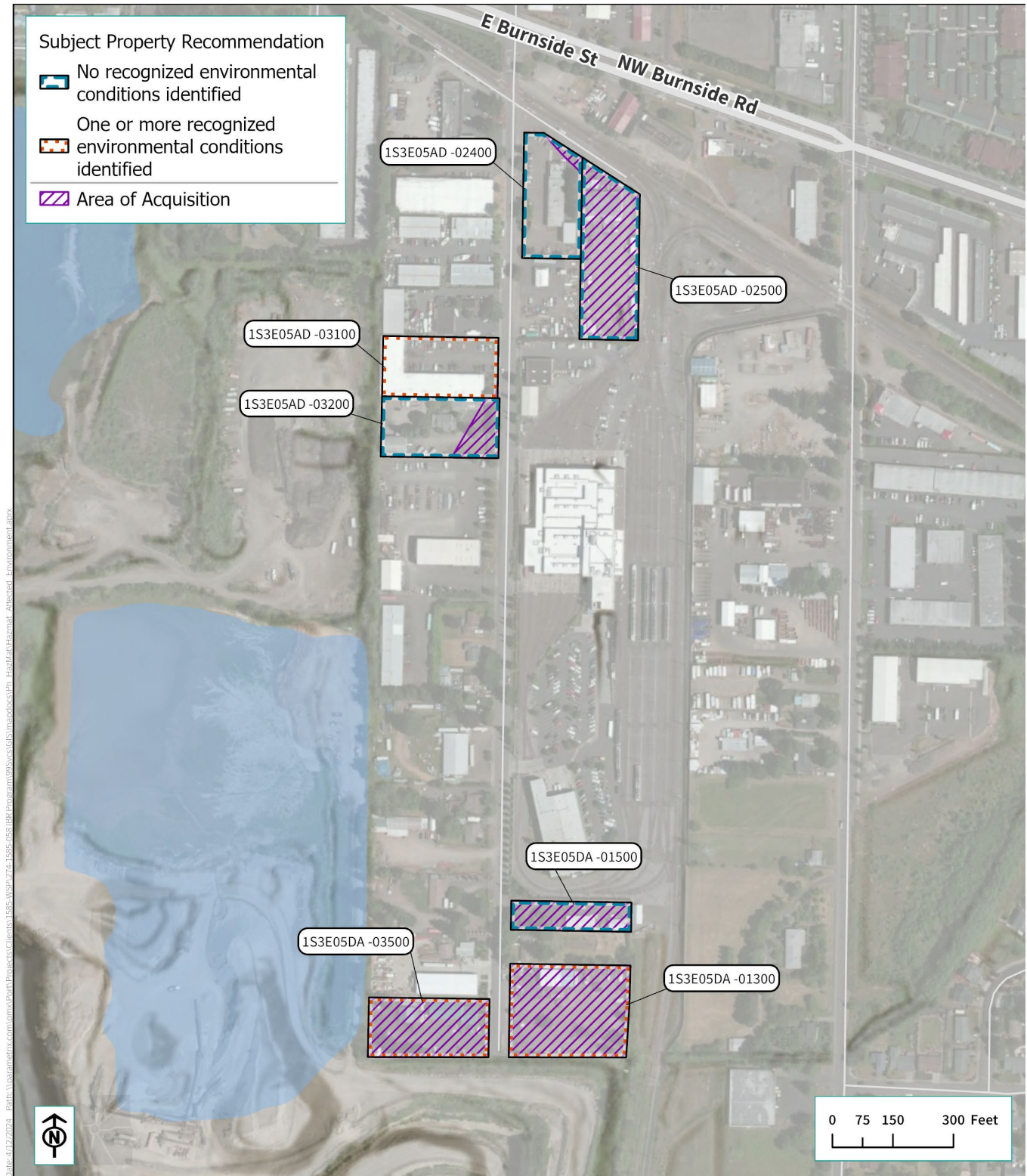


Figure 3.18-8. Phase I ESA Locations and RECs – Map 7



Source: Sanborn Map Company, ODOT, WSDOT, ESRI, Mapbox, OpenStreetMap

Figure 3.18-9. Phase I ESA Locations and RECs – Map 8



Source: Sanborn Map Company, OD01, WSDOT, ESRI, Mapbox, OpenStreetMap

Of the 69 proposed acquisitions in Clark County, 59 received a recommendation of no further investigation (though five of those acquisitions have HBMS recommendations for impacted structures). Ten properties are recommended for further subsurface investigation (Phase II ESA) or contaminated media management plans; however, only 2 of these 10 properties are assumed to need more complex investigation.

Among 68 proposed acquisitions in Multnomah County, 35 received a recommendation of no further investigation (though 12 of those acquisitions have HBMS recommendations for impacted structures). Twenty-nine properties are recommended for further investigation, and 23 of the 29 are recommended for more complex investigation. In addition to these properties, some of these acquisitions are recommended for potential subsurface cleanup. The findings of the Phase II ESAs would inform mitigation and cleanup discussions in the Final SEIS.

Table 3.18-2 and Table 3.18-3 provide summaries of Phase I ESA recommendations for identified RECs in Washington and Oregon. Within Washington, the potential acquisitions requiring more complex investigation include the Clark Public Utilities property at 100 SE Columbia Way and a former industrial building at 215 W 4th Street. The potential acquisitions in Oregon that are likely to require more complex subsurface investigation and future cleanup are associated with the Pier 99 and Diversified Marine properties on North Portland Harbor, the Expo Center, the former Thunderbird Hotel and Hayden Island Landfill, and properties near former gas stations on Hayden Island east of I-5. Additional details on the conclusions of the Phase I ESAs, including those recommended for no further investigation, are provided in the Hazardous Materials Technical Report.

Stormwater Quality

The study area is located in the Columbia River watershed and the Burnt Bridge Creek watershed. These watersheds are highly urbanized within the study area. A substantial amount of the study area—including approximately 240 acres in the Columbia River watershed and 17 acres in the Burnt Bridge Creek watershed—is comprised of impervious surfaces that include highways, streets, parking lots, and alleys. Stormwater runoff from these surfaces—which contains pollutants such as automotive fluids, heavy metals, and small particles—flows into existing closed conveyance systems. These systems discharge runoff to either the Columbia River or Burnt Bridge Creek watersheds or to stormwater ponds and drywells that infiltrate into the subsurface soil.

In general, stormwater from the Columbia River watershed portion of the study area receives no water quality treatment prior to being released via several outfalls directly to the Columbia River. Runoff from the Interstate Bridge drains directly from the bridge decks through scuppers to the Columbia River or the ground below. In the smaller Burnt Bridge Creek watershed, most runoff is captured and treated by infiltration that removes pollutants as the stormwater percolates through the soil. Overall, approximately 21 acres within the study area receive some form of water quality treatment, while approximately 156 acres are untreated.

Additional discussion of stormwater quality and conveyance systems can be found in Section 3.14, Water Quality and Hydrology, and the Water Quality and Hydrology Technical Report.

Control Facilities for Spills and Releases

Roadway and transportation operations can result in the release of hazardous substances or petroleum products into the environment from accidental spills. These releases can migrate to surface water or groundwater and can affect properties outside of the right of way. Limited controls are currently in place within the study area to contain spills or releases of hazardous materials or petroleum products that could migrate to environmental media.

Table 3.18-2. Summary of Recommendations for Identified RECs – Washington

Tax Lot Number	Site Address	Owner	Total Area (acres)	Permanent Acquisition Impact (square feet)	Acquisition Extent	Phase I ESA Recognized Environmental Conditions Identified	Phase I ESA Recommendations
48380000	N/A	K2SM Investments LLC	0.115591	5,036	Full	One or more	CMMP
48390000	N/A	K2SM Investments LLC	0.113326	4,937	Full	One or more	CMMP
48400000	215 W 4th St	Columbia Fourth Building LLC	0.230046	10,022	Full	One or more	HBMS, Phase II complex
48410000	N/A	Columbia Fourth Building LLC	0.114527	4,989	Full	One or more	CMMP
48420000	210 W 3rd St	K2SM Investments LLC	0.345335	10,020	Full	One or more	HBMS; CMMP
48430000	210 W 3rd St	K2SM Investments LLC	N/A	N/A	Full	One or more	CMMP
47580000	100 SE Columbia Way	Clark Public Utilities	0.137723	6,000	Full	One or more	HBMS; Phase II complex
38279916	605 E Evergreen Blvd	City of Vancouver	2.05628	794	Partial	One or more	Phase II simple
14763000	3601 I St	Bob Snyder Real Estate LLC	0.114773	5,000	Full	None	HBMS
14765000	3605 I St	Davis Marcus A and Aiken Shareece	0.114773	5,000	Full	None	HBMS
14766000	3609 I St	Cheyney Aaron	0.114773	5,000	Full	None	HBMS
14768000	3615 I St	Dolbey John R	0.114774	5,000	Full	None	HBMS
15080000	904 E 35th St	Schaub Daniel and Schaub Elizabeth	0.11477	5,000	Full	One or more	HBMS; Phase II simple
15095000	N/A	Schaub Daniel and Schaub Elizabeth	0.057387	2,500	Full	One or more	HBMS; Phase II simple
15105000	3515 I St	Walters Aaron M	0.114773	5,000	Full	None	HBMS

ESA = environmental site assessment; HBMS = hazardous building materials survey; N/A = not applicable

Table 3.18-3. Summary of Recommendations for Identified RECs – Oregon

Tax Lot Number	Site Address	Owner	Total Area (acres)	Permanent Acquisition Impact (square feet)	Acquisition Extent	Phase I ESA Recognized Environmental Conditions Identified	Phase I ESA Recommendations
1S3E05DA-01300	1702 NW Eleven Mile Ave	Suran Rick P	1.560328	67967.90009	Full	One or more	Phase II simple
1S3E05DA-01500	1806 NW Eleven Mile Ave	VR Group LLC	0.496084	21609.41882	Full	None	HBMS
1S3E05DA-03500	1709 NW Eleven Mile Ave	Wagoner Properties LLC	1.003298	43703.67322	Full	One or more	Phase II simple
2N1E33DD-00100	1610 N Pier 99 St	Pier West LLC	1.017992	44343.72651	Full	One or more	HBMS; Phase II complex
2N1E34C-02000	1415 N Pier 99 St	Pier 99 LLC	1.592716	69378.72258	Full	One or more	HBMS; Phase II complex
1N1E04-00100	2060 WI/ N Marine Dr	Metro	10.81126158	0	Partial	One or more	Phase II complex
2N1E33-00200	2060 N Marine Dr	Metro	38.02263774	244768.0689	Partial	One or more	Phase II complex
2N1E33-00202	10799 WI/ N Expo Rd	The Port of Portland	0.728812658	21145.84096	Partial	One or more	Phase II complex
2N1E33D-01400	Levy Code 710	Metro	3.634831967	4953.610524	Partial	One or more	HBMS; Phase II complex
2N1E33DD-00300	1801-1809 N Pier 99 St	Whitecap Cove INC	0.783617393	13.269412	Partial	One or more	HBMS; Phase II complex
2N1E33DD-00400	1835 WI/ N Marine Dr	Redd Shores LLC	1.623943486	6493.692674	Partial	One or more	HBMS; Phase II complex

Interstate Bridge Replacement Program

Tax Lot Number	Site Address	Owner	Total Area (acres)	Permanent Acquisition Impact (square feet)	Acquisition Extent	Phase I ESA Recognized Environmental Conditions Identified	Phase I ESA Recommendations
2N1E33D-00101	N Center Ave	Columbia Crossing LLC et al	1.30398	56801.37987	Full	One or more	HBMS, Phase II simple
2N1E33D-00200	11950 N Center Ave	N/A	0.968067	42169.01578	Full	None	HBMS
2N1E33D-00300	N Center Ave	Portland City of	0.064011	2788.303516	Full	One or more	HBMS; Phase II simple
2N1E33D-00400	N Center Ave	Portland City of	0.116175	5060.593671	Full	One or more	Phase II simple
2N1E33D-00501	11850 N Center Ave	1521/1523 N Jantzen Beach Property LLC	0.421582	18364.10501	Full	One or more	HBMS; Phase II simple
2N1E34C-00200	1401 W/ N Hayden Is Dr	Thunderbird Hotel LLC	0.112638	4906.494663	Full	One or more	Phase II complex
2N1E34C-00601	N Center Ave	Buena-Hayden LLC	0.020297	884.156779	Full	None	Building survey
2N1E34C-00602	12229 N Center Ave	Buena-Hayden LLC	0.456181	19871.2569	Full	One or more	CMMP
2N1E34C-00603	12235 N Center Ave	Buena-Hayden North LLC	0.782624	34091.10826	Full	One or more	CMMP
2N1E34C-00604	12105 N Center Ave	Buena-Hayden LLC	1.099799	47907.24963	Full	One or more	HBMS; CMMP
2N1E34C-00605	12005 N Center Ave	Buena-Hayden LLC	0.934398	40702.39175	Full	None	HBMS
2N1E34C-00606	12055 N Center Ave	Buena-Hayden LLC	0.553	24088.6605	Full	None	HBMS

Tax Lot Number	Site Address	Owner	Total Area (acres)	Permanent Acquisition Impact (square feet)	Acquisition Extent	Phase I ESA Recognized Environmental Conditions Identified	Phase I ESA Recommendations
2N1E34C-00607	11915 N Center Ave	Buena-Hayden LLC	1.19962	52255.42742	Full	None	HBMS
1N1E03BB-01200	1014 N Marine Dr	The Webster Family LTD Prtnrshp	1.239179378	2614.209713	Partial	One or more	Phase II complex
1N1E03BB-01300	11051 N Vancouver Way	Georgia 01 LLC	0.487415053	649.893057	Partial	One or more	Phase II complex
2N1E33-00100	1555 N Tomahawk Is Dr	Jantzen Beach Center 1767 LLC	56.19442635	6075.455369	Partial	One or more	Phase II complex
2N1E34-00300	1401 N Hayden Is Dr	Thunderbird Hotel LLC	13.56992331	162170.4506	Partial	One or more	Phase II complex
2N1E34C-00300	1321-1337 N Hayden Is Dr	Hayden's Corner LLC	0.649744129	1273.422826	Partial	One or more	HBMS; Phase II complex
2N1E34C-01400	11875 N Jantzen Dr	DKoop Properties LLC	1.155933	50352.42424	Full	None	HBMS
2N1E34C-01500	N Jantzen Ave	DKoop Properties LLC	0.016344	711.964705	Full	None	HBMS
2N1E34C-01700	12050 N Jantzen Dr	Columbia Crossings LLC	3.825138306	13583.67998	Partial	One or more	HBMS; Phase II simple
2N1E34CA-01600	900 N Tomahawk Is Dr	(503) Real Estate LLC	1.249104441	2234.06147	Partial	One or more	HBMS; Phase II simple
2N1E34CA-01000	N Jantzen Ave	Taco Bell Corp et al	0.001055041	45.957604	Partial	One or more	Phase II complex
2N1E34CA-01100	N Jantzen Ave	Taco Bell Corp et al	0.58949556	25678.42658	Partial	One or more	Phase II complex

Interstate Bridge Replacement Program

Tax Lot Number	Site Address	Owner	Total Area (acres)	Permanent Acquisition Impact (square feet)	Acquisition Extent	Phase I ESA Recognized Environmental Conditions Identified	Phase I ESA Recommendations
2N1E34CA-01300	12237 N Jantzen Dr	Weber Coastal Bells LP	0.629057238	8380.948765	Partial	One or more	Phase II complex
2N1E34CA-01400	12225 N Jantzen Dr	Jantzen/Angel LLC	0.63451554	5580.221826	Partial	One or more	Phase II complex
2N1E34CA-01500	12105 WI/ N Jantzen Dr	Chevron USA INC	0.697307599	7846.096472	Partial	One or more	Phase II complex
2N1E34CA-00700	12118 N Jantzen Dr	Sage Property Holdings LLC	0.630547303	7888.716493	Partial	One or more	Phase II complex
2N1E34CA-00900	12240 N Jantzen Dr	Umatilla INC	0.584856821	2745.984469	Partial	One or more	Phase II complex
1S3E05AD-02500	2410 NW Burnside Ct	2410 NW Burnside Ct LLC	1.347214	58684.62138	Full	None	HBMS
1S3E05AD-03100	2303-2363 NW Eleven Mile Ave	Nyhof Gordon L TR	0.981424272	97	Partial	One or more	Phase II complex
2N1E34C-00400	12300 North Parker Ave	PortArthur LLC	0.514988522	22432.9	Full	None	HBMS

Ave = avenue; CMMP = contaminated media management plan; Ct = court; Dr = drive; ESA = environmental site assessment; HBMS = hazardous building materials survey; Is = Island; N/A = not applicable

3.18.3 Long-Term Benefits and Effects

The long-term benefits and effects of the No-Build Alternative and the Modified LPA are summarized in Table 3.18-4 and detailed in the discussion below.

No-Build Alternative

Under the No-Build Alternative, I-5 and its interchanges and local street connections would remain as they are today. There would be no potential for encountering hazardous materials as a result of project development. The IBR Program would not assume liability for cleanup of contaminated sites. However, there would be no Program-related opportunities to improve existing contamination levels through the cleanup of acquired contaminated sites; existing contaminated sites would remain in their current conditions and pollutants may migrate off those sites.

The No-Build Alternative would include no improvements to roadways and bridges, which currently have limited controls in place to contain spills or releases that could migrate to environmental media. As such, the potential for adverse effects from spills or accidental releases is higher for the No-Build Alternative than it would be under the Modified LPA. Spills of hazardous materials from collisions as a result of traffic congestion would be assumed to continue at current levels or worsen as congestion increases over time. Stormwater would continue to be untreated on the existing Interstate Bridge and most other portions of I-5 within the study area; pollutants on roadways, such as oil from vehicles or heavy metals in brake dust, would continue to enter nearby surface water bodies and groundwater.

Modified LPA

The assessment of long-term effects from the construction, operation, and maintenance of the Modified LPA is based on information about the natural and built environments. The types of impacts evaluated include long-term liability from property acquisition, spills and releases of hazardous materials during project operation, contamination of groundwater and surface water by highway runoff, and the potential for legacy hazardous materials sites to affect operation and maintenance of Modified LPA facilities. Except where noted, effects would be similar for all Modified LPA design options.

Table 3.18-4. Comparison of Long-Term Benefits and Effects on and from Hazardous Materials

Type of Effect	No-Build Alternative	Modified LPA (all design options)
Property acquisition	Hazardous materials sites would not be acquired. No potential for adverse effects from acquisition of contaminated sites, such as increased liability and human health and safety if encountered during construction. No beneficial effects from the cleanup of contaminated sites.	<ul style="list-style-type: none"> • Moderate potential for increased liability for property owners (ODOT and WSDOT) from the acquisition of contaminated sites. • Beneficial effects on human health and safety and surface and groundwater quality from cleanup and remediation of contaminated areas on acquired sites and limiting the possible off-site migration of contamination. • If residual contamination remains on acquired hazardous materials sites after cleanup, moderate potential for adverse effects on human health and safety if encountered during construction or with the possible off-site migration of contamination.

Type of Effect	No-Build Alternative	Modified LPA (all design options)
Water quality	Stormwater that is untreated for the removal of pollutants would continue to enter surface waterbodies and groundwater.	Beneficial effects from improvements in stormwater conveyance and treatment, which would reduce pollutants in stormwater runoff and improve surface water and groundwater quality.
Hazardous materials spill potential	No improvement in existing spill risks from traffic congestion and collisions.	Reduction in spill risk due to reduced traffic congestion and collisions.
Legacy hazardous material sites	Future remediation activities at several sites have the potential to affect operation and maintenance of I-5.	Future remediation activities at several sites have the potential to affect operation and maintenance of the Modified LPA.

Source: Hazardous Materials Technical Report.

Note: The impacts for the Modified LPA are relative to No-Build and existing conditions.

Property Acquisition

Long-term liability can result when a project sponsor (in this case, ODOT or WSDOT) acquires a contaminated property. Liability can also result when a sponsor becomes legally or financially obligated to a property requiring investigation or remediation, or is subject to requirements associated with the long-term operation of a cleanup action. The Modified LPA would require the full or partial acquisition of properties that have been identified as hazardous materials sites, and therefore acquisition has the potential to result in long-term liability.

As an outcome of the Phase I ESAs described above, 36 of the properties identified for potential acquisition have been recommended for further subsurface investigation of potential or known contamination. Depending on the nature and extent of contamination encountered, long-term adverse effects from property acquisitions can be substantial. The need for cleanup can have the potential to affect the cost and schedule of project construction. For this reason, state and federal policies require due diligence (see sidebar) prior to property acquisition and construction.

To further assess the potential for liability related to cleanup requirements, following completion of the Draft SEIS, the IBR Program would prepare Phase II ESAs, consistent with ASTM E1527-21 or equivalent, for properties where identified RECs indicate that a subsurface investigation is needed to confirm the extent of contamination and to define specific measures and regulatory agency approvals needed to address the contamination. The findings of the Phase II ESA results would be incorporated into the Final SEIS to provide decision-makers with a more detailed understanding of cleanup obligations and costs associated with the Program. Properties with contamination in excess of regulatory standards would be subject to remediation and cleanup prior to construction. If residual contamination remained on acquired hazardous materials sites after cleanup, there would be moderate potential for adverse effects on human health and safety if contamination were encountered during construction or migrated off-site.

Due Diligence

Due diligence means taking appropriate precautions *before* a property is acquired to determine the presence, or potential presence, of environmental hazards. Due diligence provides the purchaser of a property with an understanding of the potential liability for environmental hazards and associated cleanup costs. The laws affecting legal liability for the purchasers of contaminated property differ between Oregon and Washington.

The two auxiliary lane design option and both of the single-level bridge configuration options would require the acquisition of a slightly larger area of property at the Fort Vancouver property (U.S. Army Vancouver Barracks) than the other design options. This site has a No Further Action determination for the possible presence of unexploded ordnance after a remedial investigation found no unexploded ordnance. Program activities on the site are therefore not expected to impact human health and safety. The site has been recommended for further hazardous materials investigations. Because ODOT and WSDOT would be required to clean up contaminated properties they acquired, the Modified LPA would result in long-term beneficial effects within the study area compared to the No-Build Alternative, which would not involve acquisition and cleanup of contaminated properties.

Stormwater Quality

Groundwater and surface water quality can be affected by pollutants contained in stormwater runoff from roadways and bridges and by erosion and runoff from contaminated soils exposed during excavation and grading activities. Compared to the No-Build Alternative, the Modified LPA would have a lower potential for adverse effects from contaminants in stormwater. The Modified LPA is anticipated to have substantial beneficial effects because it would treat all the stormwater runoff from existing, new, or reconstructed impervious surface area within the project footprint, including runoff from the Columbia River bridges. These improvements are anticipated to result in locally improved surface water, sediment, and groundwater quality. The Modified LPA stormwater conveyance system and treatment facilities would be monitored and maintained to ensure they perform as intended. Additional details regarding management and treatment of stormwater can be found in the Section 3.14 and the Water Quality and Hydrology Technical Report.

Spills and Releases

The Modified LPA also has the potential for adverse effects from spills or releases of hazardous substances or petroleum products during operation. However, these effects are anticipated to be less than under the No-Build Alternative. The Modified LPA would be constructed with updated road and bridge designs that would include controls within the stormwater system to contain or better manage releases on roadways and bridges. In addition, emergency response to such incidents would likely be quicker due to updates in roadway access and traffic safety. As such, the potential for adverse effects from spills or releases is lower for the Modified LPA compared to the No-Build Alternative.

The operation and maintenance of light-rail trains at the Ruby Junction Maintenance Facility requires the use of hazardous substances and the generation and disposal of hazardous waste. The facility currently has DEQ-approved plans and systems in place to control spills and manage hazardous materials. Operation of the expanded facility for light-rail maintenance would continue, and this existing use could create an incremental increase in existing risks; however, existing hazardous materials management plans and systems would be evaluated and adjusted as appropriate for the expanded scale of the facility. Therefore, expansion of the Ruby Junction Maintenance Facility would not be expected to result in substantial additional hazardous materials effects.

Legacy Hazardous Materials Sites

Legacy sites are hazardous materials sites that are or should be undergoing long-term cleanup actions by the owner, sites where additional investigation and cleanup may be required but where the responsible party has not yet complied, or orphan sites which are being managed by regulatory agencies. In special cases, site cleanup activities may coincide with the operation and maintenance of the Modified LPA. These activities could potentially interfere with the long-term operation and maintenance of components of the Modified LPA and result in financial liability or access restrictions.

The Modified LPA has a potential to experience adverse effects from legacy sites during operation. Hazardous materials sites of particular concern within the study area include former marine operations along North

Portland Harbor, the former Hayden Island Landfill (Thunderbird Hotel), and other former gas stations and industrial sites. These sites are identified above in Figure 3.18-1 through Figure 3.18-9 and listed in Table 3.18-2 and Table 3.18-3, and are discussed in further detail in the Hazardous Materials Technical Report.

A number of these sites have not been fully characterized, and cleanup actions have not been determined. Potential legacy issues associated with acquisitions along Marine Drive include cleanup actions for soil and sediment along the North Portland Harbor embankment or for in-water sediments. Potential future remedial activities that could affect the operation and maintenance of the Modified LPA include soil removal, sediment dredging, and capping. In addition, other potential legacy sites could be discovered during project construction activities. ODOT and WSDOT, as owners of the sites, would comply with all applicable federal, state, and local requirements for managing and mitigating contamination.

3.18.4 Temporary Effects

Temporary effects from hazardous materials include the risk of exacerbation of or exposure to existing contamination, accidental release of hazardous substances, and generation of hazardous waste during construction. The risk of these types of adverse effects has been evaluated for areas that would be disturbed during project construction and for staging and casting areas.

No-Build Alternative

Under the No-Build Alternative, there would be no Program-related construction or demolition, and therefore no construction-related disturbance of soils or sediments would occur that could potentially mobilize existing contamination into the environment. There would be no risk of accidental spills or releases of fuels, fluids, or other contaminants from construction vehicles, equipment, and materials.

Modified LPA

Property Acquisition (Temporary Construction Easements)

Some construction activities, such as construction of the new bridges and removal of the existing Interstate Bridge, would occur within temporary construction easements including subsurface and airspace easements. These would allow the state the right to use the property for short-term ground improvements or staging purposes. After fulfilling their intended purpose, temporary easements are typically returned to the landowner. Easements where RECs have been identified could result in potential liability. Liability issues can come in the form of incurred cleanup costs, schedule delays, and worker and public safety.

Prior to property acquisition and construction of the Modified LPA, the IBR Program would complete individual property evaluations and assessments (including the Phase I ESAs completed as part of this Draft SEIS and the recommended follow up actions from the Phase I ESAs). The nature and extent of soil, sediment, and groundwater contamination would be characterized, and specific measures and applicable regulatory agency approvals needed to address the contamination would be defined. Where contamination exists that may pose a risk to people or the environment if mobilized by construction activities, a remediation plan would be developed and executed for each property. The remediation or cleanup of hazardous material sites affected by the Modified LPA would occur prior to or during construction.

The properties requiring more complex investigation, as shown in Table 3.18-2 and Table 3.18-3, are mainly gas stations, automotive and marine repair and service facilities, landfills, and commercial or industrial operations with commercial LUSTs or other sources of hazardous releases. In accordance with FTA SOP 19 and applicable regulations for hazardous materials sites, actions to address this type of contamination would be defined in more detail at the individual property level. However, such sites would typically be addressed with soil excavation and disposal or the use of technologies such as in-situ chemical injection, bioremediation, or air sparge/soil vapor extraction. A period of groundwater monitoring during and after

remediation may also be required if groundwater is contaminated. Overall, the Modified LPA would include actions to identify and remediate contamination on temporary easements, resulting in long-term beneficial effects.

Accidental Release or Generation of Waste

Spills and Releases

Construction equipment can spill or release fuels or other vehicle fluids. Other pollutants such as paints, acids for cleaning masonry, solvents, and concrete-curing compounds are typically present at construction sites and have the potential to be released to the environment. Certain uses of construction materials, such as the subsurface pouring of wet cement, could also result in localized impacts to groundwater quality. Measures such as spill control and prevention plans, as described in Section 3.18.6, Potential Avoidance, Minimization, and Mitigation Measures, should render these risks negligible.

Lead- and Asbestos-Containing Materials

Buildings and structures that have lead or asbestos-containing materials (ACM) would require proper abatement procedures prior to demolition, renovation, or repair activities. At least 23 of the properties that would be acquired for the Modified LPA have structures built prior to 1980 that may contain asbestos and that are planned for demolition. Similarly, materials that contain lead (such as some types of paint) must be handled carefully during demolition and must be disposed of at an approved site.

Hazardous building material surveys would be conducted prior to demolition if properties are suspected of containing asbestos, lead, or PCBs.² Surveys would be consistent with OAR 248 and WAC 296-65, and would inventory lead-based paint, ACM, mercury and PCB-containing equipment, universal wastes, and/or abandoned waste. Based on survey results, abatement would be conducted prior to demolition, renovation and/or repair. The Washington State Department of Ecology or DEQ would be notified if unknown contamination is encountered during the assessments. Disposal of lead and ACM would be conducted at applicable Subtitle C or D solid waste facilities.

Hazardous and Non-Hazardous Wastes

Hazardous and non-hazardous waste can be generated during construction activities. Waste can consist of contaminated soils; sediments; groundwater generated from excavation, drilling, and dewatering activities; and building materials containing lead or asbestos exposed by demolition activities. These wastes can be harmful to human health and the environment and would require management in accordance with applicable federal and state regulations if they are encountered during construction of the Modified LPA. The single-level movable-span bridge configuration would require an increased area of in-water work due to its larger bridge foundations, which could result in a comparatively greater potential risk of mobilizing hazardous materials in river sediments for this configuration as compared to others.

Asbestos

Asbestos was used extensively in building materials in the early and mid-twentieth century. Today, it is a known carcinogen, and is extremely *friable*; it crumbles easily. Demolition of buildings or other structures that contain asbestos can release small particles of asbestos into the air, and these particles can lodge in the lungs of people who breathe this air. Proper caution and *abatement procedures* can reduce or eliminate this hazard to human health.

² polychlorinated biphenyls

Staging and Casting Areas

Potential off-site staging areas to support construction are currently being evaluated. Staging areas would be used for material laydown yards, equipment storage, and fabrication. The former Thunderbird Hotel site, identified as a potential staging area, is a REC. This location is the site of the former Hayden Island Landfill and a former automotive service station. Activities at this site may have resulted in contamination of subsurface soils and groundwater, which if disturbed during construction as a result of staging activities, could mobilize into the surrounding environment. However, most construction staging activities would occur on the ground surface, and excavation at this site is unlikely.

If the river crossing is built using precast concrete sections, an off-site casting yard would be required. One potentially available casting yard site has been identified to date: the former Thunderbird Hotel site on Hayden Island. Preliminary review of the site has identified existing RECs, as noted above.

3.18.5 Indirect Effects

In compliance with local land use plans, the Modified LPA could indirectly facilitate development and redevelopment of existing buildings and/or paved areas, as opposed to development in natural areas. As described in Section 3.4, local governments have adopted land use plans that support increased development densities in areas served by high-capacity transit, particularly in light-rail station areas. Redevelopment of properties in older urban areas, such as downtown Vancouver or Hayden Island, is more likely to encounter existing contamination. As a result, the Modified LPA, compared to the No-Build Alternative, has a somewhat greater potential for indirect adverse effects related to contaminated soils during construction. However, new development and redevelopment would be required to remediate known or discovered hazardous materials, including lead or ACM, in order to be in compliance with local land use plans; therefore, indirect land use changes resulting from the Modified LPA would be more likely to have long-term beneficial effects on hazardous materials than the No-Build Alternative.

Health effects have been documented from materials containing lead and asbestos. To the extent that land use changes involved the demolition, renovation, or repair of buildings and structures that have lead or ACM, proper abatement would be required. The risks are no greater for transit-oriented development than other residential and commercial construction, including potential release fuels or vehicle fluids from spills from construction equipment. Other pollutants such as paints, acids for cleaning masonry, solvents, and concrete curing compounds can be present at construction sites and have the potential to be released to the environment. These releases can migrate to soil, surface water, sediments, or groundwater. Developers would be required to comply with federal, state, and local requirements for managing hazardous materials and wastes, thereby minimizing the risks of releases to the environment.

3.18.6 Potential Avoidance, Minimization, and Mitigation Measures

Long-Term Effects

Regulatory Requirements

In accordance with FTA and FHWA standard procedures, the IBR Program has prepared Phase I ESAs to identify existing environmental issues on properties to be acquired. The results and recommendations of the Phase I ESAs have been incorporated into this Draft SEIS.

- Prepare Phase II ESAs for properties where identified RECs indicate that a subsurface investigation is necessary to confirm the nature and extent of contamination and define the specific measures and applicable regulatory agency approvals needed to address the contamination. Incorporate the Phase II

ESA results into the Final SEIS and ROD to provide decision-makers with a more detailed understanding of cleanup obligations and associated costs.

- Develop detailed hazardous materials management plans during final design and as part of the property acquisition process. Obtain necessary regulatory approvals to address areas where cleanup and remediation are needed. The remediation or cleanup of hazardous material sites affected by the Modified LPA would be required prior to construction.
- In accordance with Safety Standards for Construction Work: Lead (WAC 296-155) and General Occupational Health Standards: Asbestos (WAC 296-62 Part I-1), conduct HBMSs on structures proposed for demolition, prior to demolition, to identify ACM, lead-based paint, and other hazardous materials. Based on the survey results, conduct necessary abatement prior to demolition. Dispose lead-based paint, ACM, and other hazardous materials at facilities permitted to receive these materials in accordance with federal, state, and local agency regulations.
- Prepare a Program-wide construction health and safety plan, as required by federal Occupational Safety and Health Act regulations and state regulations, to minimize the potential for exposure of construction workers to hazardous materials and the risk to human health and the environment.
- Prepare a site-specific contaminated media management plan to ensure proper characterization, management, storage, disposal, and reporting of contaminated materials encountered during construction activities. The plan would outline the roles and responsibilities of personnel; health and safety requirements; methods and procedures for characterizing, managing, storing, and disposing of waste; and reporting requirements.

Program-Specific Mitigation

No Program-specific mitigation measures are proposed for long-term effects related to hazardous materials.

Temporary Effects

Regulatory Requirements

To minimize temporary effects related to hazardous materials during construction, standard mitigation measures such as best management practices would be implemented. Construction best management practices applicable to the Modified LPA are discussed in Section 3.14, Water Quality and Hydrology. Other required measures to reduce the risk of spills, leaks, or other releases during construction activities include:

- Conduct fueling, maintenance, and cleaning in areas that are contained by berms or other containment.
- Minimize the production or generation of hazardous materials, both upland and during demolition and replacement of overwater spans.
- Label and store hazardous waste according to federal regulations.
- Locate hazardous waste (including contaminated spoils) storage away from storm drains or surface water.
- Recycle materials such as used motor oil and water-based paint as appropriate.
- Handle potential spills of hazardous materials in conformance with applicable regulatory requirements and adhere to the Program spill prevention, control, and countermeasure plan.

Program-Specific Mitigation

No Program-specific mitigation measures are proposed for temporary effects related to hazardous materials.