

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 proposed Modified LPA, including various design options. This section also describes anticipated measures to help avoid or mitigate adverse effects.

The assessment of reasonably foreseeable effects in this section is based upon the temporal proximity parameters detailed in the Chapter 3 introduction, and the hazardous materials study area described in Section 3.18.2.

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, desktop site assessment tools, and Phase I and II environmental site assessments (ESAs) conducted for properties that the IBR Program may acquire.

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 near the Interstate Bridge, community priorities, and regulations have changed, which necessitated design revisions and resulted in the proposed IBR Program Modified LPA (see Section 2.5.2). Evaluation of potential impacts associated with hazardous materials has been updated in this Final 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 primary 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.

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 boundaries of the hazardous materials study area were set using the primary study area defined in the Chapter 3 introduction, plus the maximum standard 1-mile database search radius established by ASTM E1527-21 (Standard Practice for conducting Phase I Environmental Site Assessments) 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 Light-Rail Operations and Maintenance Facility (OMF) 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.

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 ESAs were completed during the fall of 2023 and winter of 2025 for all properties proposed for acquisition. This included 144 total properties, consisting of 50 full parcels and 94 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. In some instances, the results of the Phase I ESA concluded that a Phase II ESA and hazardous building materials survey (HBMS) should be conducted. Phase II ESAs and HBMSs were completed between the Draft and Final SEIS if permission to access the parcel was granted by the owner.

A total of 74 separate Phase I ESA reports were produced for the 144 total proposed acquisitions, including 66 in Oregon and 78 in Washington. 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. Due to limited permissions to access properties through rights of entry, Phase II ESAs were completed on 12 of the 35 properties where further investigation was recommended. A total of seven Phase II ESA reports were prepared for the 12 properties. In addition, HBMSs were completed on seven of the 32 properties where an HBMS was recommended. If contaminants are identified on the remaining properties after their acquisition, mitigation for those contaminants would be evaluated on a case-by-case basis.

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).

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."

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."

- Chemical or hazardous materials storage, including underground and aboveground storage tanks (UST/AST) and LUSTs.
- Military use.

Each Phase I ESA provides recommendations for additional study, if appropriate. Figure 3.18-1 through Figure 3.18-9 show the locations of Phase I ESAs, identified RECs, and recommended future actions in the study area.

Though individual Phase I ESAs recommend specific actions, general categories that the recommendations fall into include:

- No Further Environmental Investigation.
- 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.

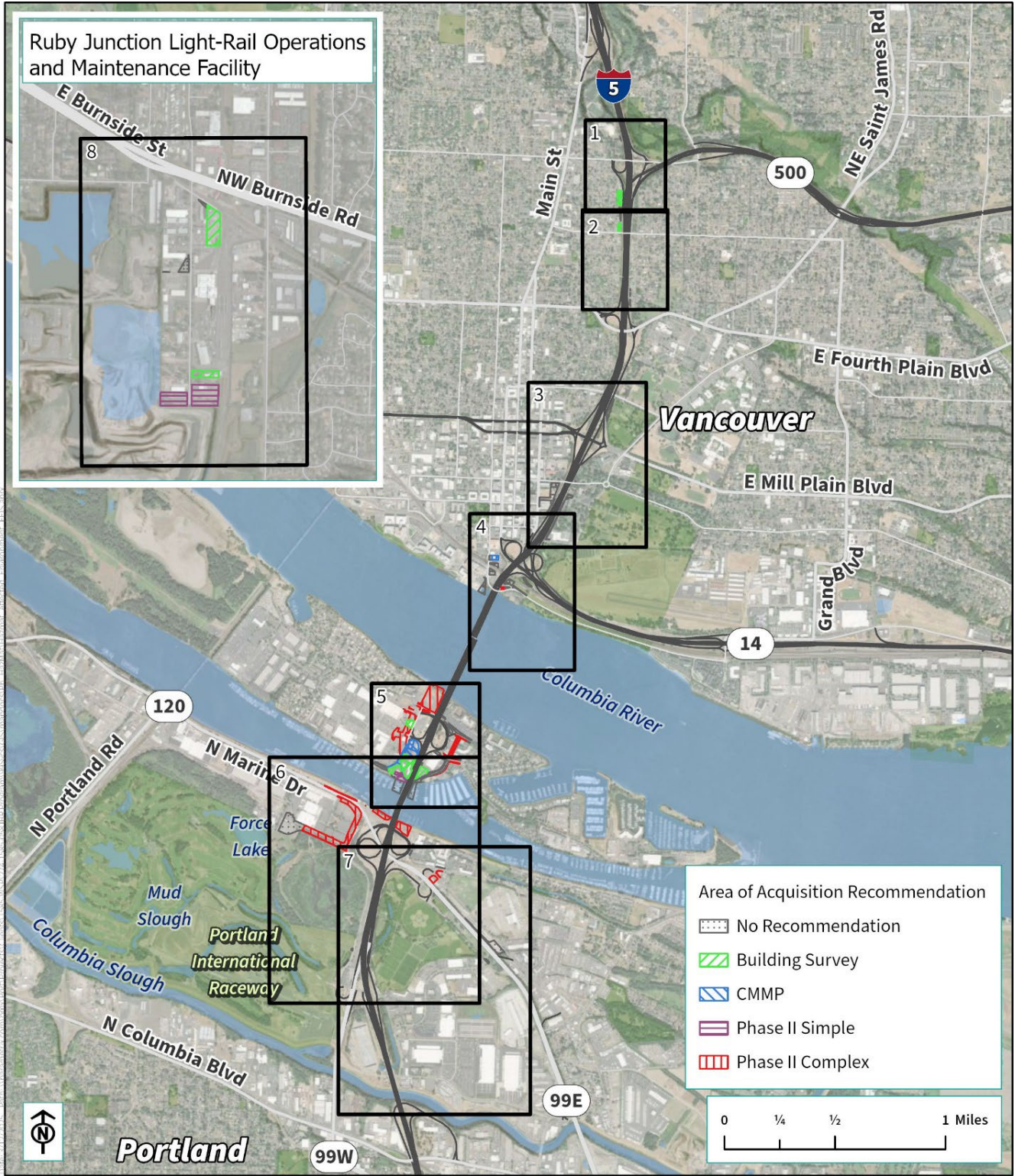
Among 78 proposed acquisitions in Washington, 74 received a recommendation of no further investigation (though eight of those acquisitions had HBMS recommendations for impacted structures). Four properties were recommended for further subsurface investigation (Phase II ESA). None of these properties were assumed to need more complex investigation (investigation of the potential extent of contamination in groundwater and adjacent properties). Among 66 proposed acquisitions in Multnomah County, 35 received a recommendation of no further investigation (though 11 of those acquisitions have HBMS recommendations for impacted structures). Thirty-one properties were recommended for further investigation, and 22 of the 31 were recommended for more complex investigation.

Table 3.18-1 and Table 3.18-2 provide summaries of the Phase I ESA recommendations for identified RECs in Washington and Oregon. Based on the conclusions and recommendations of the Phase I ESAs, seven Phase II ESAs covering 11 properties were completed in Oregon and Washington following publication of the Draft SEIS as part of the IBR Program hazardous materials evaluation. Rights of entry were not available for the remaining 24 properties that were recommended for further evaluation.

The Phase II ESAs found little to no significant contamination, and no further investigation was recommended at any of the properties investigated. Groundwater was not encountered during any of the investigations; only soil samples were collected and analyzed. Because groundwater was not encountered and tested, a general recommendation was made to collect and analyze groundwater at any of these properties if dewatering is necessary as part of construction.

Four potentially acquired properties that were not investigated because right of entry was unavailable are likely to require more complex subsurface investigation and future cleanup. These include the Pier 99 and Diversified Marine properties on North Portland Harbor and the former Thunderbird Hotel and Hayden Island Landfill. It is anticipated that all of the remaining Phase II investigations will occur during the property acquisition process, depending on the decision in the Amended ROD.

Figure 3.18-1. Overview of Phase I ESA Recommendations



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

Figure 3.18-2. Phase I ESA Recommendations – Map 1



Figure 3.18-3. Phase I ESA Recommendations – Map 2

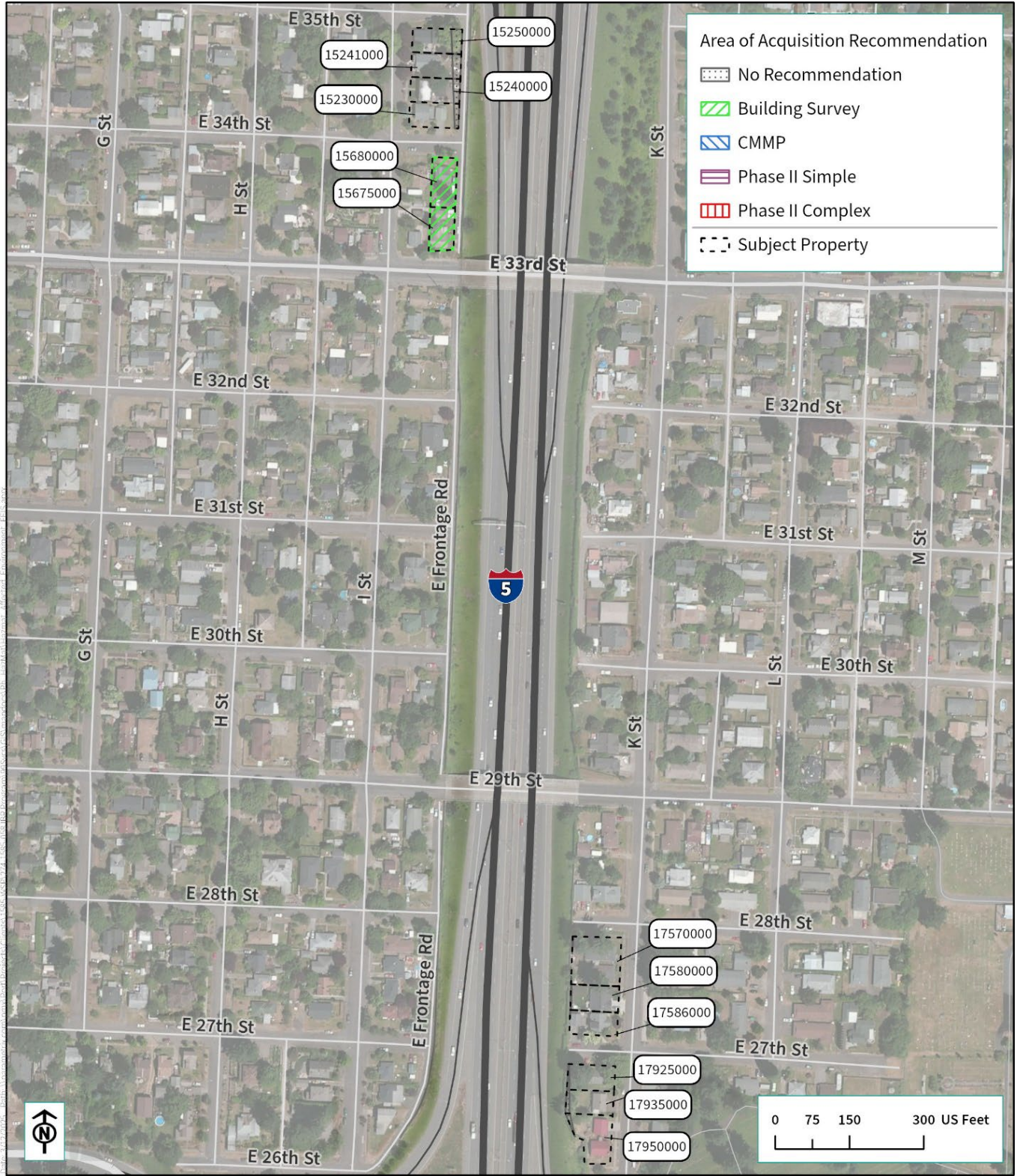
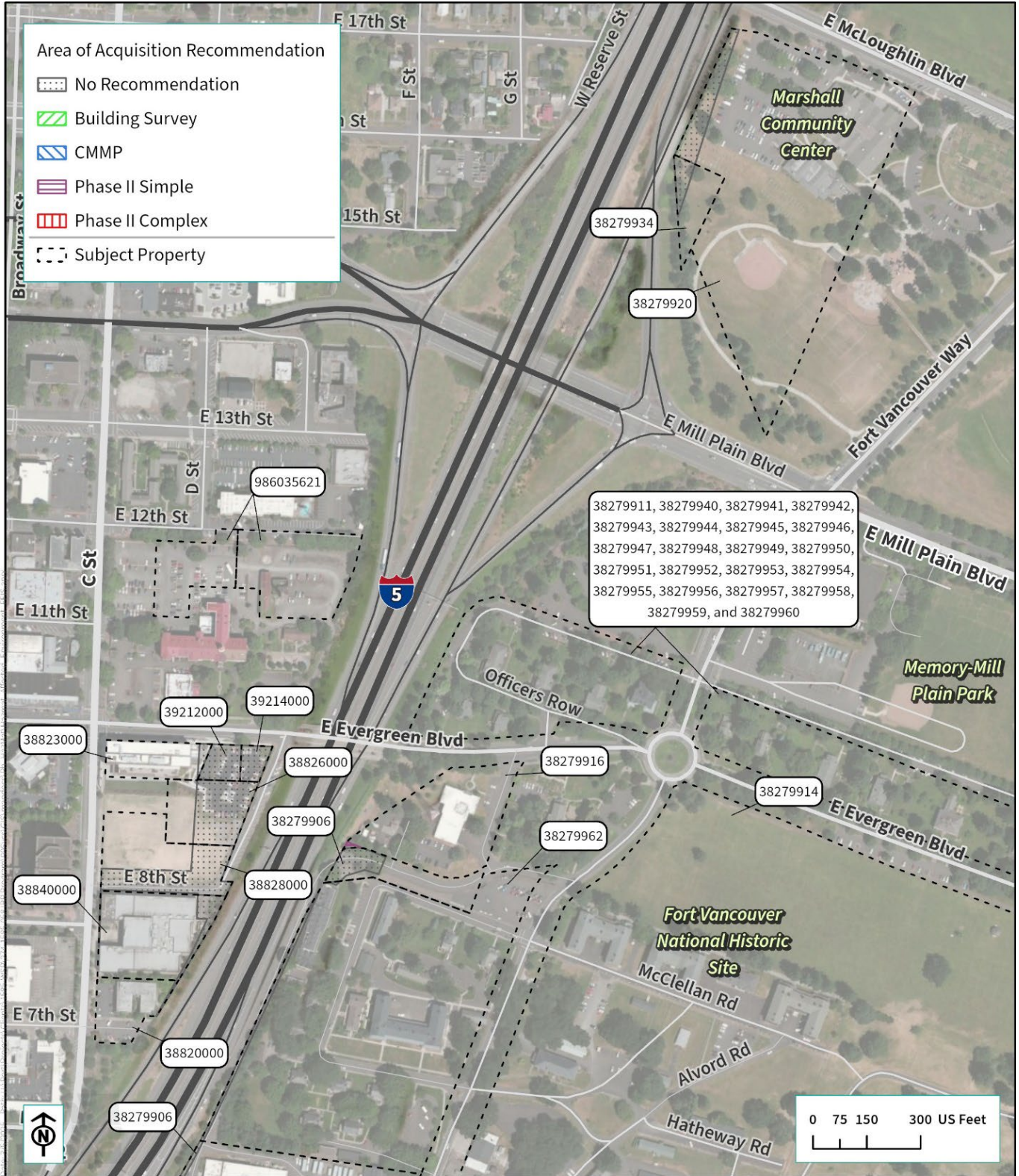


Figure 3.18-4. Phase I ESA Recommendations – Map 3



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

Figure 3.18-5. Phase I ESA Recommendations – Map 4

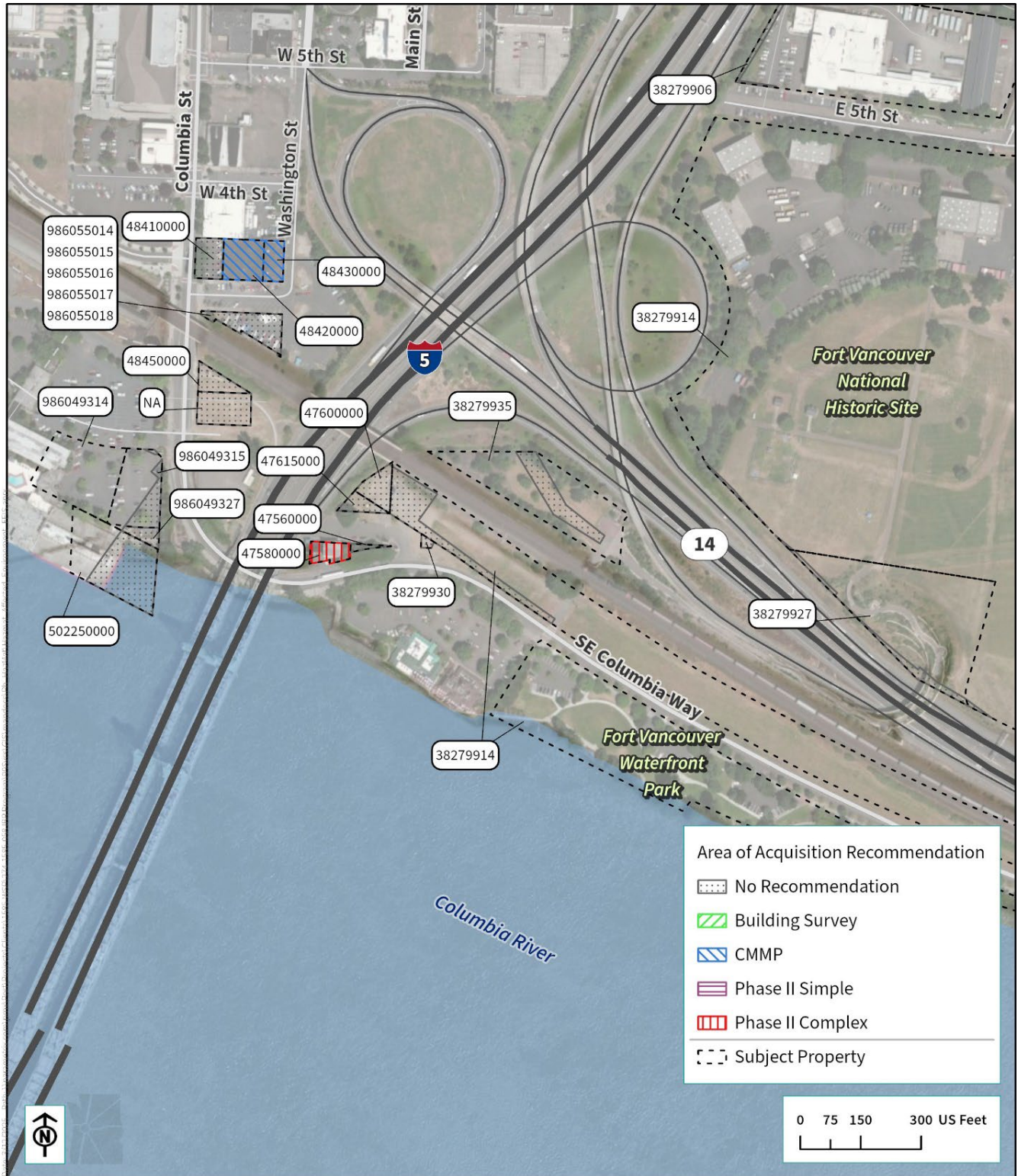
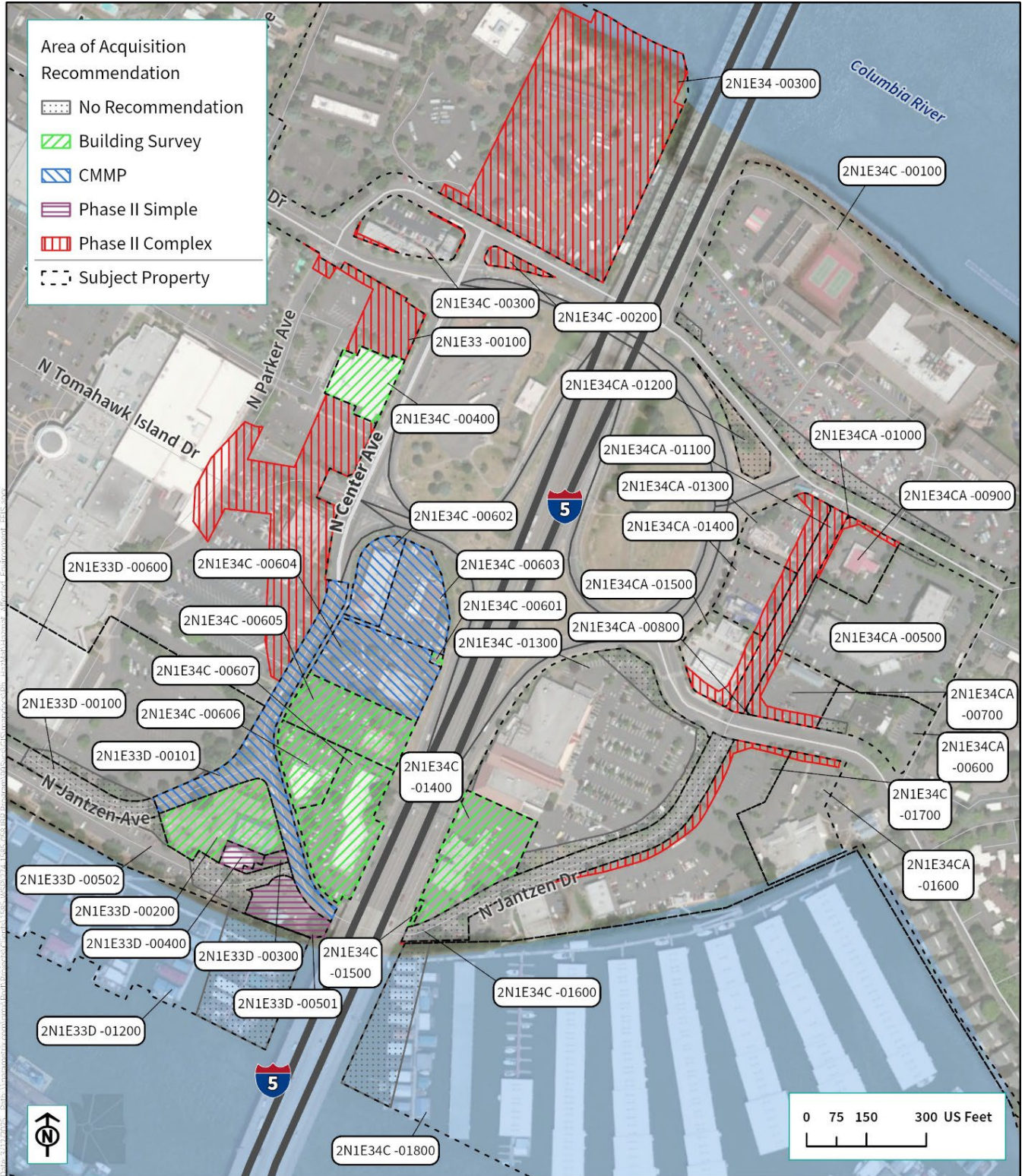


Figure 3.18-6. Phase I ESA Recommendations – Map 5



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

Figure 3.18-7. Phase I ESA Recommendations – Map 6

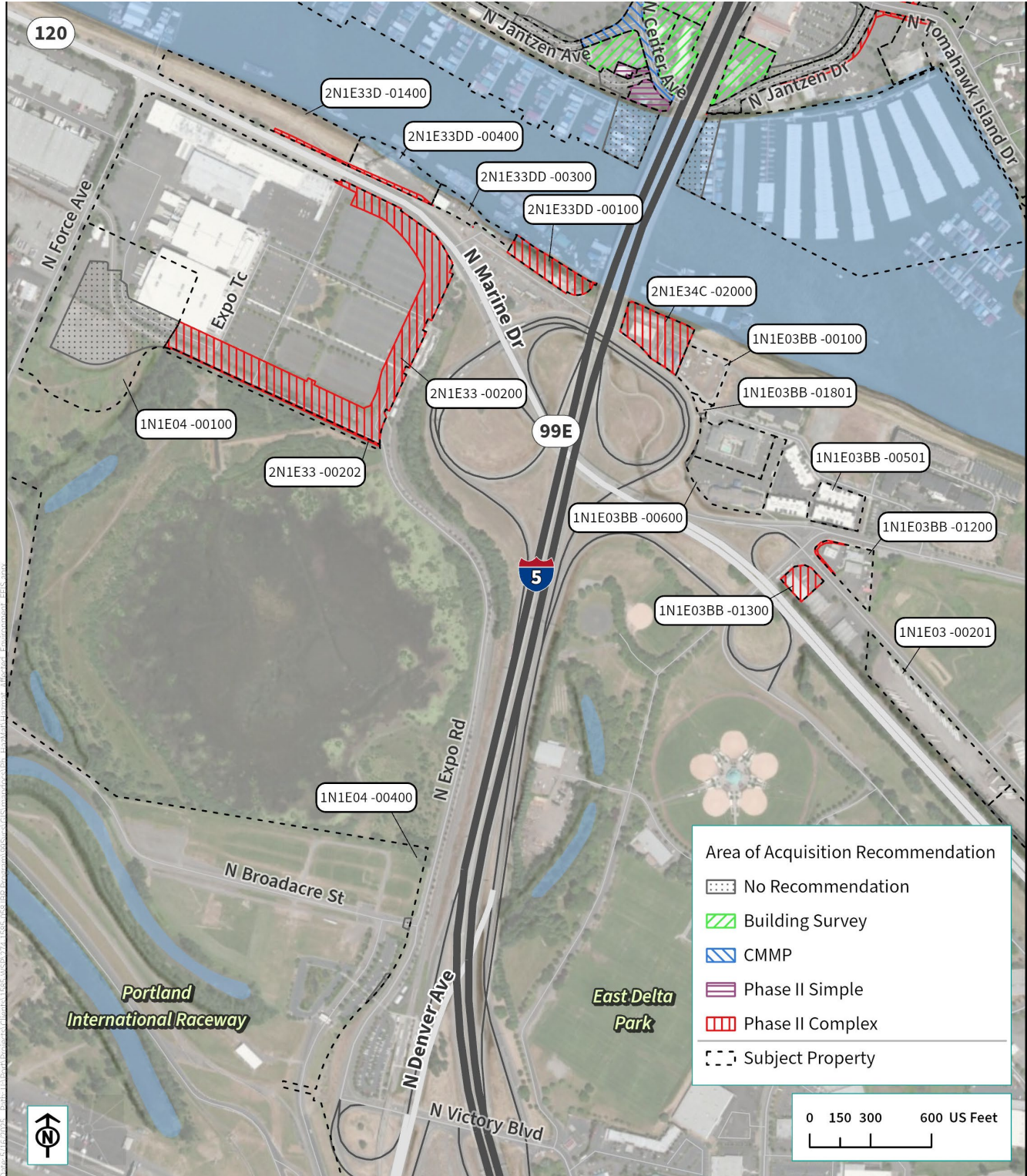
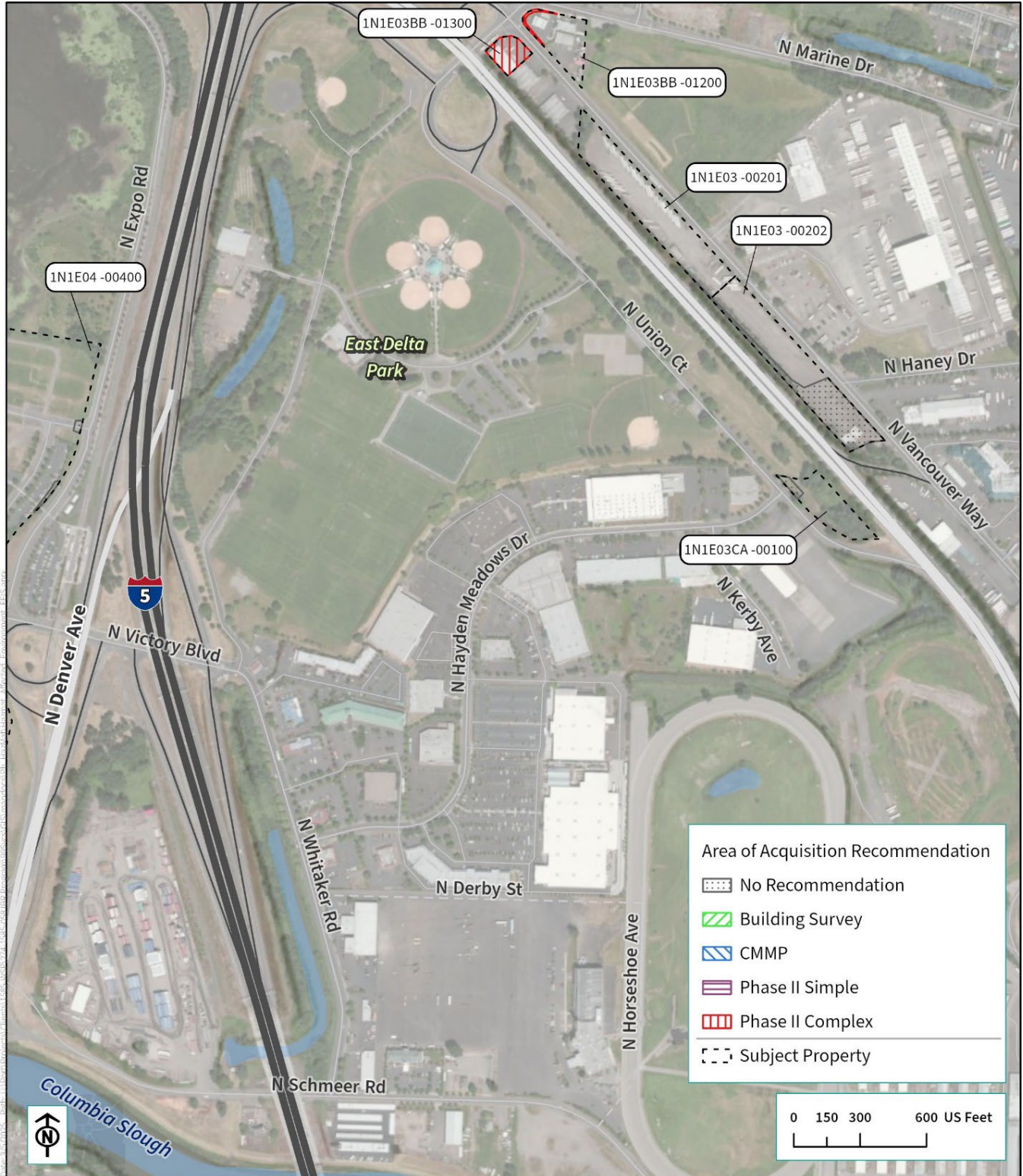
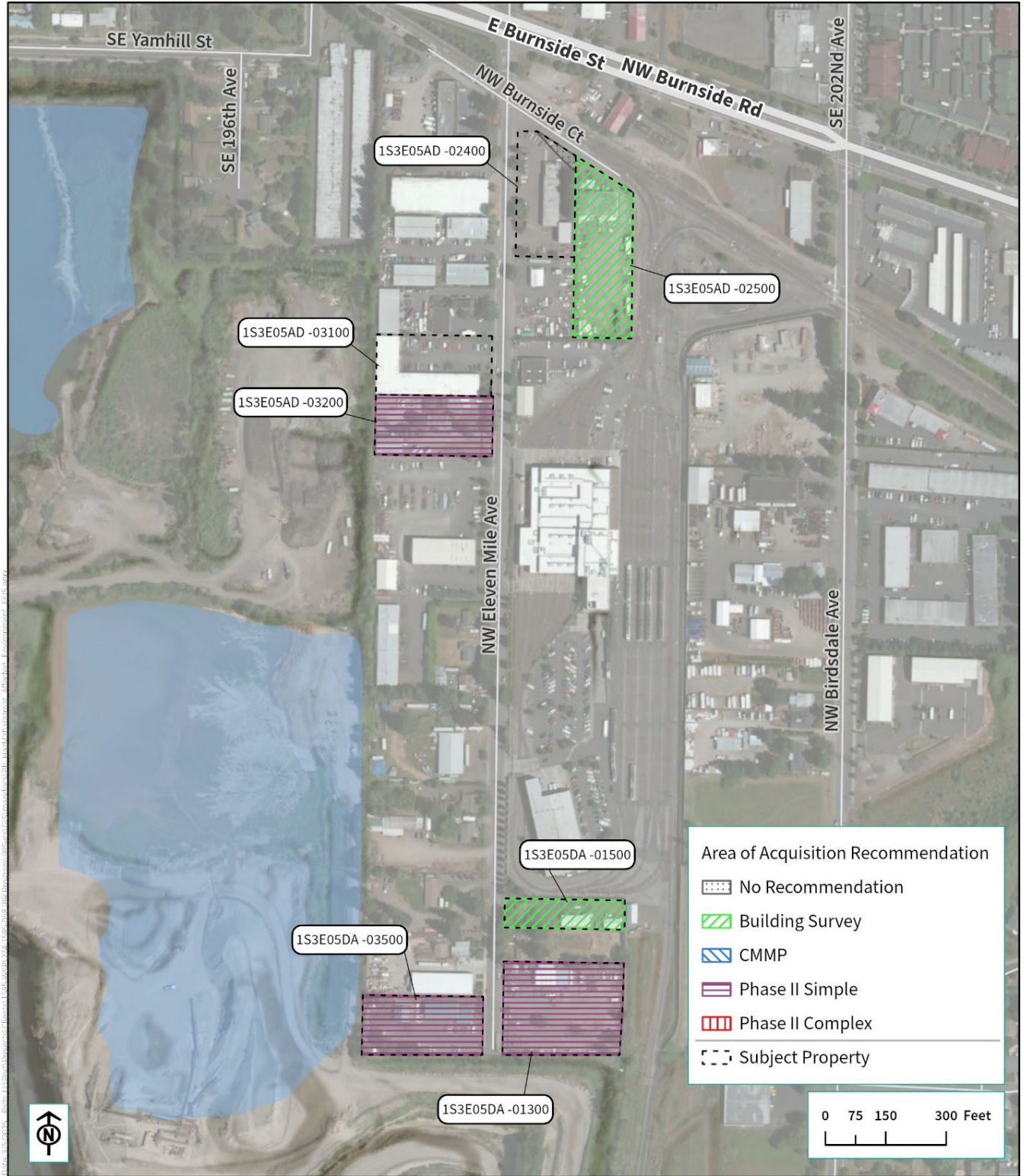


Figure 3.18-8. Phase I ESA Recommendations – Map 7



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

Figure 3.18-9. Phase I ESA Recommendations – Map 8



Hazardous Building Material Surveys

In addition to Phase II ESAs, the Phase I ESAs recommended HBMS for properties with structures built prior to 1980, which are more likely to contain asbestos than newer structures. Though the HBMS are not intended to identify the potential for significant remediation and liability, they were included to inform the acquisition process regarding additional costs in the demolition process due to the special handling and disposal needed for hazardous building materials such as lead and asbestos.

The IBR Program contacted the owners of 32 properties where an HBMS was recommended. Some property owners were contacted multiple times. Of these, right of entry was given for structures on seven of the properties, while the owners of the other 25 properties either refused access or did not respond. The HBMS for each of the seven properties surveyed summarized findings for samples with respect to asbestos-containing materials (ACMs), lead-based paint, and light ballasts containing polychlorinated biphenyls (PCBs). It is anticipated that the remaining HBMSs would occur during the property acquisition process, depending on the decision in the Amended ROD.

Stormwater Quality

The primary 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 primary 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 primary 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 primary study area to contain spills or releases of hazardous materials or petroleum products that could migrate to environmental media.

Table 3.18-1. Summary of Recommendations for Identified Recognized Environmental Conditions – Washington

Tax Lot Number	Site Address	Owner	Total Area (acres)	Permanent Acquisition Impact (square feet)	Acquisition Extent	Phase I ESA RECs 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

Tax Lot Number	Site Address	Owner	Total Area (acres)	Permanent Acquisition Impact (square feet)	Acquisition Extent	Phase I ESA RECs Identified	Phase I ESA Recommendations
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

Blvd. = Boulevard; CMMP = contaminated media management plan; ESA = environmental site assessment; HBMS = hazardous building materials survey; N/A = not applicable; REC = Recognized Environmental Condition; St. = Street

Table 3.18-2. Summary of Recommendations for Identified Recognized Environmental Conditions – Oregon

Tax Lot Number	Site Address	Owner	Total Area (acres)	Permanent Acquisition Impact (square feet)	Acquisition Extent	Phase I ESA RECs 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 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 N Expo Rd.	The Port of Portland	0.728812658	21145.84096	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 RECs Identified	Phase I ESA Recommendations
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 N Marine Dr.	Redd Shores LLC	1.623943486	6493.692674	Partial	One or more	HBMS; Phase II complex
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

Tax Lot Number	Site Address	Owner	Total Area (acres)	Permanent Acquisition Impact (square feet)	Acquisition Extent	Phase I ESA RECs Identified	Phase I ESA Recommendations
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
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

Interstate Bridge Replacement Program

Tax Lot Number	Site Address	Owner	Total Area (acres)	Permanent Acquisition Impact (square feet)	Acquisition Extent	Phase I ESA RECs Identified	Phase I ESA Recommendations
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
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; Rd. = Road; REC = Recognized Environmental Condition; St. = Street

3.18.3 Long-Term Benefits and Reasonably Foreseeable Effects

The reasonably foreseeable long-term benefits and effects of the No-Build Alternative and the Modified LPA are summarized in Table 3.18-3 and detailed in the discussion below. Long-term benefits and reasonably foreseeable effects on hazardous materials were assessed for the hazardous materials study area, defined in Section 3.18.2, and for the temporal scope described in the Chapter 3 introduction.

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

Because FTA funding would be used for the IBR Program, environmental due diligence adheres to FTA SOP 19 (FTA 2016), which is discussed further in Section 8.1 of the Hazardous Materials Technical Report. The proposed Modified LPA and design options were evaluated for their effects on hazardous materials sites identified for potential acquisition in accordance with SOP 19. The analysis of the Modified LPA includes all design options (including the Recommended Design Options) described in Chapter 2, Description of Alternatives. If there is a difference in the reasonably foreseeable effects among design options, those differences are identified and described specifically.

Potential Effects of Specific Project Features

Because the proposed project design is still being refined, a detailed evaluation of potential effects related to specific project features is not feasible at this time. However, in general, the impact potential for the proposed Modified LPA is expected to be similar to that of the CRC LPA. The CRC Final EIS assigned a moderate rating for potential adverse effects on the Marine Drive, North Portland Harbor, Hayden Island, and Interstate Bridge and to the bridge structures at SR 14, Mill Plain Boulevard, and 33rd Street. The ratings for these bridges were based on:

- The installation of numerous permanent and temporary piles
- Deep installation depths relative to groundwater depth
- Substantial amount of excavation anticipated
- Higher-priority hazardous materials sites within 500 feet of the structures

The Evergreen, SR 500, and 39th Street bridges were given a low rating for potential adverse effects. The ratings for these bridges were based on:

- Low number of piling installations
- Shallow pile-installation depths relative to the depth of groundwater
- Moderate amount of excavation anticipated
- No higher-priority hazardous materials sites within 500 feet of the structures

Stormwater treatment facilities at the Mill Plain, SR 14, Hayden Island, and Marine Drive interchanges may be located near priority hazardous material sites. Excavation for these facilities could expose contaminated soil or stormwater from the ponds could infiltrate into contaminated soil.

The assessment of reasonably foreseeable long-term effects from the construction, operation, and maintenance of the proposed Modified LPA is based on information about the natural and built environments. Long-term effects could include 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.

In general, the impacts of the design options would be the same as those described for the Modified LPA. Exceptions are noted in the following subsection.

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 proposed Modified LPA, compared to the No-Build Alternative, has a somewhat greater potential for reasonably foreseeable adverse effects related to contaminated soils during future redevelopment. However, new development and redevelopment would be required to remediate known or discovered hazardous materials, including lead or ACM, in order to comply with local land use plans. Therefore, land use changes related to the Modified LPA would be more likely to have long-term beneficial effects on hazardous materials than the No-Build Alternative.

Table 3.18-3. Long-Term Hazardous Materials Benefits and Effects

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.

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.

I-5 = Interstate 5; LPA = Locally Preferred Alternative; ODOT = Oregon Department of Transportation; WSDOT = Washington State Department of Transportation

Effects of Modified LPA Design Options

The proposed Modified LPA design options were evaluated for temporary and long-term reasonably foreseeable effects on hazardous materials sites. Other than those discussed below, no impacts were identified that varied from those described above for the Modified LPA.

Shifting the I-5 mainline to the west would require two additional full acquisitions compared to the Modified LPA with centered I-5: the Normandy Apartments property (318 E 7th Street) and the Regal City Center property (801 C Street). Neither property is listed on the Environmental Data Resources data or in the Washington State Department of Ecology's (Ecology) databases as a hazardous materials site, and no evidence was found of a release or storage of hazardous materials on the properties. Thus, the impact potential rating of "moderate" for the interchange area is the same for both design options.

The two auxiliary lane design option and both of the single-level bridge configuration design 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 primary study area compared to the No-Build Alternative, which would not involve acquisition and cleanup of contaminated properties.

The Hannah Motor Company site (a documented cleanup site), located at 300 and 400 Washington Street in Vancouver, is in the area where the proposed transit bridge would enter Vancouver after crossing the Columbia River. One of the potential park and rides for the Waterfront Station (Site 1b) would occupy this property. One of the other potential park and rides for the Waterfront Station (Site 1c) is located to the west of this property; however, surface road construction would require full acquisition of the property. Bridge construction in this area may require a foundation below the water table to support the anticipated vertical loads, which could also require excavation of the site. Thus, the site would be affected under either Site 1b or Site 1c. Neither of the potential sites identified for the Evergreen Station park and ride has documented

contamination. Any combination of Waterfront and Evergreen park and rides would include at least one affected site; the Recommended Design Option would include two.

Liability from Property Acquisitions

Acquisition of property where RECs have been identified can result in potential liability for the purchaser (i.e., ODOT, WSDOT, or the Tri-County Metropolitan Transportation District of Oregon [TriMet]). Liability issues for property acquired in fee are addressed in different ways under Oregon and Washington state laws.

In Oregon, the standard for liability for remedial actions (cleanup) of a property is pursuant to Oregon Revised Statute (ORS) 465.255. This statute states that:

The following persons shall be strictly liable for those remedial action costs incurred by the state or any other person that are attributable to or associated with a facility and for damages for injury to or destruction of any natural resources caused by a release:

(a) Any owner or operator at or during the time of the acts or omissions that resulted in the release.

(b) Any owner or operator who became the owner or operator after the time of the acts or omissions that resulted in the release, and who knew or reasonably should have known of the release when the person first became the owner or operator.

(c) Any owner or operator who obtained actual knowledge of the release at the facility during the time the person was the owner or operator of the facility and then subsequently transferred ownership or operation of the facility to another person without disclosing such knowledge.

(d) Any person who, by any acts or omissions caused, contributed to or exacerbated the release, unless the acts or omissions were in material compliance with applicable laws, standards, regulations, licenses or permits.

(e) Any person who unlawfully hinders or delays entry to, investigation of or removal or remedial action at a facility. ORS 465.255(1).

This statute limits the state's legal liability for a facility or property acquired through condemnation. If no viable owner/operator is located, liability may be decided on a case-by-case basis. Per ORS 465.255(1)(b), if a specific state entity becomes the "owner or operator after the time of the acts or omissions that resulted in the release, and who knew or reasonably should have known of the release," the state entity may be considered liable for the costs of remedial actions.

In Washington, the standard of liability is pursuant to the Revised Code of Washington 70 A.305.040. The code states that "the owner/operator of the facility is liable for remedial cost." Provisions in the code thus allow for the state to inherit legal liability when acquiring the property/facility. Liability issues can include the following:

- Restrictions on current or future property use
- Incurring of costs for cleanup
- Schedule delays
- Worker and public safety hazards
- Increased resource agency oversight

Conducting an "all appropriate inquiries" investigation into the previous ownership and uses of the property prior to a property transaction is a means of safeguarding and managing potential liability issues. In this way, RECs are disclosed prior to the sale of the property and potential issues can be mitigated prior to construction

activities. This may result in responsibility for cleanup by the owner/operator and/or reduction in the property's value.

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 reasonably foreseeable 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 so they perform as intended. Additional details regarding management and treatment of stormwater can be found in Section 3.14 and the Water Quality and Hydrology Technical Report.

Spills and Releases

The proposed Modified LPA also has the potential for reasonably foreseeable 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 reasonably foreseeable 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 Light-Rail OMF 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 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 Light-Rail OMF 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 that 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.

Legacy sites could affect the proposed Modified LPA. Hazardous materials sites of particular concern within the primary 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 3.18-1 and Table 3.18-2, 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 proposed 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 Reasonably Foreseeable Effects

Temporary reasonably foreseeable effects on hazardous materials were assessed for the hazardous materials study area, defined in Section 3.18.2, and for the temporal scope described in the Chapter 3 introduction. Temporary reasonably foreseeable effects on hazardous materials would not differ among the proposed Modified LPA design options. Temporary effects are those that could result from the construction of the proposed Modified LPA. Three general categories of temporary effects have the potential to occur:

1. Liability to ODOT, WSDOT, or TriMet in acquiring property with RECs.
2. Releases of hazardous materials from contaminated sites.
3. Releases of hazardous materials from construction activities and equipment.

Many of the types of impacts related to hazardous materials have the potential to be significant if they are not fully mitigated. This potential is noted in the discussion below as appropriate. However, the identification of contaminated sites and their relationship to the project footprint, as presented in this report, provides project designers and contractors with the opportunity to avoid, minimize, and/or mitigate impacts to protect public and environmental health. In many cases, impacts can be avoided, minimized, and/or mitigated through compliance with federal, state, and local regulations governing the handling of hazardous materials.

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

Liability from Property Acquisition (Temporary Construction Easements)

Temporary easements would be used to support project construction, including subsurface easements, airspace easements, and property easements. Temporary easements allow the state the right to 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 can result in potential liability, which can include incurring cleanup costs, schedule delays, worker and public safety concerns. The Modified LPA has a potential for reasonably foreseeable adverse effects as a result of Program-related activities within temporary easements that ODOT and WSDOT would acquire for project construction.

Release of Hazardous Materials from Contaminated Sites

Full environmental evaluations of all property acquisitions associated with the proposed Modified LPA have not yet been completed because rights of entry have not been granted for all potential property acquisitions. Therefore, assessments of temporary effects related to these potentially acquired properties are subject to change. The types of effects that may be associated with construction on or near contaminated sites are described below.

Surface and Subsurface Soils

Surface and subsurface soils often are the most likely media to be affected by an initial contaminant release. Common contaminant release mechanisms include spills, subsurface disposal, LUSTs, and soil leaching. Contaminated soil can migrate to other environmental media such as sediments, surface water, and groundwater from secondary release mechanisms during construction activities (e.g., excavation, grading, and drilling). Secondary release mechanisms include drag-down, smearing, groundwater leaching, airborne particulates, stormwater runoff, and erosion. The proposed Modified LPA has the potential for adverse effects to the environment from the disturbance of existing contaminated soils or accidental releases during construction. These adverse effects could have the potential to be significant if not mitigated correctly.

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, a potential staging area, is a REC and is likely to require more complex subsurface investigation and future cleanup. This location is the site of the former Hayden Island Landfill and a former automotive service station. Historical 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. The former Thunderbird Hotel site on Hayden Island has also been identified as a potential casting location. Preliminary review of the site has identified existing RECs, as noted above.

Lead- and Asbestos-Containing Materials

Buildings and structures that contain lead paint or ACM would require proper abatement procedures prior to demolition, renovation, or repair activities. At least 25 properties that would be acquired for the Modified LPA, but where owners have not yet granted rights of entry, have structures or materials that may contain asbestos, lead, or PCBs.² These must be handled carefully during demolition by specially trained personnel and disposed of at an approved site.

It is anticipated that the remaining HBMSs would occur during the property acquisition process, depending on the decision in the Amended ROD. Surveys would be consistent with Oregon Administrative Rules (OAR) 248 and Washington Administrative Code (WAC) 296-65, and would inventory lead-based paint, ACM, mercury- and PCB-containing equipment, universal wastes, and abandoned waste. Based on survey results, abatement would be conducted prior to demolition, renovation or repair. Ecology or Oregon DEQ would be notified if previously unknown contamination is encountered during the assessments. Disposal of lead and ACM would be conducted at applicable Subtitle C or D solid waste facilities.

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

Release of Hazardous Materials from Construction Activities and Equipment

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, Avoidance, Minimization, and Mitigation Measures, should render these risks negligible.

Generation of 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 proposed Modified LPA. The single-level movable-span bridge configuration design option 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 bridge configuration design option as compared to others.

3.18.5 Intentionally Left Blank

3.18.6 Avoidance, Minimization, and Mitigation Measures

Table 3.18-4 lists temporary and long-term avoidance and minimization measures.

No specific temporary or long-term mitigation measures within control of the IBR Program for hazardous materials were identified; however, avoidance, minimization, and mitigation measures for water quality and hydrology impacts that could potentially affect hazardous materials are described in Section 3.14 and are not included in the table below.

Table 3.18-4. Avoidance and Minimization Measures

Temporary or Long-Term	Impact Type	Avoidance and Minimization Measure
Temporary	Release of hazardous materials from construction activities and equipment	ODOT and WSDOT will coordinate with the contractor to conduct fueling, maintenance, and cleaning in areas that are contained berms or other containment as identified in approved refueling plans.
		ODOT and WSDOT will coordinate with the contractor to minimize the production or generation of hazardous materials, both upland and during demolition and replacement of overwater spans.
		ODOT and WSDOT will coordinate with the contractor to dispose of materials such as used motor oil and water-based paint at recycling centers, as appropriate.
		In accordance with Safety Standards for Construction Work: Lead (WAC 296-155) and General Occupational Health Standards: Asbestos (WAC 296-62 Part I-1, OAR 340-248), ODOT and WSDOT will coordinate with the contractor to conduct HBMSs on structures proposed for demolition prior to demolition to identify ACM, lead-based paint, and other hazardous materials.
Temporary	Release of hazardous materials from contaminated sites, construction activities, and equipment	ODOT and WSDOT will coordinate with the contractor to label and store contaminated media according to federal regulations.
		ODOT and WSDOT will coordinate with the contractor to locate contaminated media (including dredge spoils) storage away from storm drains or surface water.
		ODOT and WSDOT will coordinate with the contractor to handle potential spills of hazardous materials in conformance with applicable regulatory requirements and adhere to the IBR Program SPCC plan.
Temporary	Exposure of construction workers and other project contractors to hazardous materials which may impact human health	ODOT and WSDOT will coordinate with the contractor to prepare a Program-wide construction health and safety plan, as required by federal Occupational Safety and Health Act regulations and state regulations, to minimize the potential for exposure of construction workers to hazardous materials and the risk to human health and the environment.

Interstate Bridge Replacement Program

Temporary or Long-Term	Impact Type	Avoidance and Minimization Measure
Long-Term	Presence of Recognized Environmental Conditions (RECs) at contaminated sites	For properties where rights of entry have not yet been obtained, ODOT and WSDOT will prepare Phase II ESAs in cases where identified RECs indicate that a subsurface investigation is necessary to confirm the nature and extent of contamination and define the specific measures and applicable regulatory agency approvals needed to address the contamination. Conclusions from these investigations will provide decision-makers with a more detailed understanding of cleanup obligations and associated costs for use during the acquisition process. HBMS may also be completed during this period to inform the acquisition process for properties with this recommendation.
Long-Term	Liability from acquired contaminated properties	<p>ODOT and WSDOT will use conclusions and data from IBR Phase I and Phase II ESAs and existing regulatory documentation to compile potential order of magnitude costs for cleanup or remediation of properties with documented contamination.</p> <p>ODOT and WSDOT will coordinate with the contractor to develop detailed hazardous materials management plans during final design and as part of the property acquisition process. ODOT and WSDOT will coordinate with the contractor to obtain necessary regulatory approvals to address areas where cleanup and remediation are needed.</p>
Long-Term	Contaminated material encounters	ODOT and WSDOT will coordinate with the contractor to prepare a site-specific contaminated material management plan to confirm proper characterization, management, storage, disposal, and reporting of contaminated materials encountered during construction activities.

ACM = asbestos-containing material; ESA = Environmental Site Assessment; HBMS = hazardous building materials survey; IBR = Interstate Bridge Replacement; OAR = Oregon Administrative Rules; ODOT = Oregon Department of Transportation; REC = Recognized Environmental Condition; SPCC = spill prevention, control, and countermeasure; WAC = Washington Administrative Code; WSDOT = Washington State Department of Transportation