

## CHAPTER 5

# Final Section 4(f) Evaluation

*This chapter provides analysis and information to comply with Section 4(f) of the Department of Transportation Act (49 USC 303 & 23 USC 138).*

## 5.1 Introduction

Section 4(f) of the Department of Transportation Act (49 USC 303 & 23 USC 138) and its implementing regulations at 23 CFR Part 774 require the United States Department of Transportation (DOT) agencies, such as Federal Transportation Administration (FTA) and Federal Highway Administration (FHWA), to avoid any *use of Section 4(f) property* unless there is no feasible and prudent alternative to using the land, or unless the impact will be *de minimis*. Where a *use* of Section 4(f) property cannot be avoided, USDOT may approve only the alternative that causes the least overall harm, which is determined by balancing various factors as described in 23 CFR § 774.3(c).

A *Section 4(f) property* is one which includes any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, as determined by the federal, state, or local officials having jurisdiction; or any land from a historic site of national, state, or local significance, as determined by the State Historic Preservation Officers. The latter includes National Register of Historic Places (NRHP) listed or eligible historic resources or archaeological sites, although archaeological sites must warrant preservation in place to be subject to Section 4(f) requirements.

A Section 4(f) *use* is defined and addressed in the Federal Highway Administration/Federal Transportation Administration (FHWA/FTA) Regulations in 23 CFR 774.17. A “*use*” of Section 4(f) property occurs when:

- Land is **permanently incorporated** into a transportation facility,

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- There is a **temporary occupancy** of land that is adverse in terms of the Section 4(f) statute's preservationist purposes (23 CFR 774.13(d)), or
- There is a **constructive use** of land as determined by criteria in 23 CFR 774.15.

Land will be considered permanently incorporated into a transportation project when it has been purchased as right-of-way or when sufficient property interests have been otherwise acquired for the purpose of project implementation. An example includes a permanent easement that is required for project construction or that grants a future right of access onto Section 4(f) property, such as for the purpose of routine maintenance by the transportation agency.

The determination of *use* of a Section 4(f) resource may be influenced by multiple factors, including but not limited to:

- Are the protected activities, features or attributes of the 4(f) resource substantially impaired by a non-physical use?
- Does the temporary use of the 4(f) resource interfere with the protected activities of the 4(f) resource?
- A *de minimis* impact on a parkland is defined as an impact that will not adversely affect the features, attributes or activities qualifying the property for protection under Section 4(f). A *de minimis* impact on a historic resource is defined as a determination of either “no adverse effect” or “no historic properties affected” (no effect) in compliance with Section 106 of the National Historic Preservation Act (23 CFR 774.17, *de minimis* impact).

The potential that the CRC alternatives could have a “constructive *use*” of one or more Section 4(f) resources is also considered in this evaluation. The evaluation of potential constructive *use* analyzes how non-physical effects such as noise, visual impacts, or access changes could potentially diminish a resource, as defined in 23 CFR 774.15.

When there are no prudent and feasible alternatives that can avoid all Section 4(f) resources, which is the case for the CRC project, then the Section 4(f) analysis must determine which alternative, after measures to minimize harm, results in the least overall harm to Section 4(f) resources. Assessing least overall harm must consider seven factors: ability to mitigate impact; the remaining harm after mitigation to the attributes of the 4(f) resource; relative significance of each Section 4(f) resource; the views of the officials with jurisdiction over the 4(f) resource; the degree to which the alternative meets the purpose and need of the project; and impacts on other important non-4(f) resources after mitigation; and substantial differences in cost between the alternatives. See 23 CFR 774.3(c).

This Section 4(f) Evaluation describes the Section 4(f) resources in the CRC project area, the *uses* of those resources by CRC alternatives, potential avoidance alternatives, measures to minimize harm, the net impacts, a conclusion, and a description of ongoing coordination efforts to protect Section 4(f) resources. No Section 4(f) *uses* are anticipated for the project's

anticipated casting and staging areas or the Ruby Junction Maintenance Facility expansion.

### **5.1.1 CRC Project Background and Purpose and Need**

The CRC project is a bridge, transit, and highway improvement project for Interstate 5 (I-5) between Vancouver, Washington, and Portland, Oregon. It is co-sponsored by the Oregon and Washington Departments of Transportation (ODOT and WSDOT), TriMet, Metro, C-TRAN and the Regional Transportation Council (RTC). The project is being undertaken to address congestion, mobility, and safety problems on I-5 between State Route (SR) 500 in Vancouver and Columbia Boulevard in Portland. The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) are the lead federal agencies, on behalf of USDOT, and are responsible for processing the project in accordance with federal laws, regulations, policies and guidelines.

Chapter 1 of this FEIS describes the CRC project's background, purpose, and need. Chapter 2 describes the various project alternatives that have been considered, including a No-Build Alternative, the locally preferred alternative (LPA) (including design and phasing options), and other build alternatives considered in the Draft EIS (DEIS). These build alternatives include a range of river crossings, highway improvements, and transit terminus and alignment options, as well as transportation system and demand management measures, tolling, and transit operation options.

## 5.2 Description of Section 4(f) Resources

This section provides an overview of the Section 4(f) resources that would be *used* by one or more of the CRC project alternatives. Some of these 4(f) resources include parks, recreation facilities and historic properties. Some archaeological sites and wildlife or waterfowl refuges are also Section 4(f) resources, but there are no such sites or refuges in the project area. The CRC Parks and Recreation and Historic Built Environment Technical Reports (included in electronic appendices to this FEIS) discuss additional recreational and historic resources in the CRC project study area that are not Section 4(f) properties. The CRC Archaeology Technical Report (included as an electronic appendix to this FEIS) provides additional information regarding potential and known archaeological sites in the project area, including three sites that qualify as Section 4(f) resources because they warrant preservation in place.

### 5.2.1 Park and Recreation Resources

Exhibit 5.2-1 lists summary data for the Section 4(f) park and recreation resources potentially *used* by this project. The locations of these resources are mapped in Exhibit 5.2-2. Exhibits 5.2-3 through 5.2-6 show more detailed locations and photos of the Section 4(f) park and recreation resources that would be used by or are adjacent to the LPA.

### 5.2.2 Historic Resources

The Washington State Department of Archaeology and Historic Preservation (DAHP) and Oregon State Historic Preservation Office (SHPO) have concurred on the determinations of eligibility for potentially affected resources that are not already on the NRHP. They have reviewed the eligibility of all potentially affected historic resources (those that were considered eligible as well as those that were considered not eligible) and provided concurrence on eligibility. Also, concurrence from the DAHP and SHPO on the findings of effect was obtained in January of 2011. Documentation of DAHP and SHPO concurrence for the historic resources can be found in the CRC Historic Built Environment Technical Report, included as an electronic appendix to this FEIS.

Exhibit 5.2-7 identifies the location of eligible or listed historic properties that could be *used* by the CRC alternatives. Exhibit 5.2-8 lists summary data for these properties. Exhibits 5.2-9 through 5.2-14 show the locations of the historic Section 4(f) properties used by the project and indicate how they would be used by the LPA (*use, de minimis, or no Section 4(f) use*). See the Parks and Recreation Resources and the Historic and Archaeological Resources sections of Chapter 3 for maps of all parks and historic resources in the project area.

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The locations, photographs and preliminary determinations of Section 4(f) use for each historic resource are shown in Exhibits 5.2-9 through 5.2-14. Section 5.3 provides more detailed discussions of the impacts and Section 4(f) determinations.

Exhibit 5.21

**Summary Information about Section 4(f) Park and Recreation Resources in the Project Area**

	<b>Name</b>	<b>Facility Type</b>	<b>Location</b>	<b>Agency with Jurisdiction</b>	<b>Site Features and Characteristics</b>
<b>1</b>	Waterfront Renaissance Trail	Multi-use Trail (part of Discovery Historic Loop Trail)	115 Columbia Way Vancouver, WA	City of Vancouver / National Park Service	4-mile long, multi-use trail along Vancouver waterfront; connects to Ft. Vancouver and Old Apple Tree Park via the Confluence Land Bridge
<b>2</b>	Waterfront Park	Regional Park	115 Columbia Way Vancouver, WA	City of Vancouver / National Park Service	5 acres; passive recreation and viewing, including Captain Vancouver Monument and Ilchee Statue, and starting point of the Waterfront Renaissance Trail
<b>3</b>	Vancouver National Historic Reserve (VNHR)	Historic Reserve, including recreational facilities	612 E Reserve Vancouver, WA	National Park Service, Fort Vancouver National Trust, US Army, City of Vancouver	366 acres; historic interpretive sites and replica structures, multi-use trails, picnic tables, event and recreation fields, reservable picnic shelter, Pearson Field, and Water Resources Education Center
<b>4</b>	Fort Vancouver National Historic Site (FVNHS)	National Historic Site	612 E Reserve Vancouver, WA	National Park Service	209 acres (included largely within the Vancouver National Historic Reserve); historic interpretive sites and replica structures, multi-use trails, picnic tables, event and recreation fields, and reservable picnic shelter
<b>5</b>	Old Apple Tree Park	Urban Natural Area	112 Columbia Way Vancouver, WA	City of Vancouver	1.3 acres; passive recreation and viewing, and site of possibly the oldest apple tree in the Northwest (Heritage Apple Tree)
<b>6</b>	Marshall Community Center, Luepke Senior Center, and Marshall Park	Community Center and Public Swimming Pool, Senior Center, and Community Park	1015 E McLoughlin Vancouver, WA	City of Vancouver, National Park Service	22 acres; community center, play equipment, community gardens, loop trail, picnic tables, horseshoe pits, and ball fields
<b>7</b>	Clark College Recreation Fields	College and Public Fields	1500 E Mill Plain Boulevard Vancouver, WA	Clark College	14 acres; sports fields/courts, benches, and parking
<b>8</b>	Leverich Community Park <sup>a</sup>	Community Park	39th and M Streets Vancouver, WA	City of Vancouver	14.2 acres; disc-golf course, softball field, picnic tables, paved walkways, reservable picnic shelter, restroom, BBQ stands, and horseshoe pits
<b>9</b>	Kiggins Sports Fields/Stadium <sup>a</sup>	Sports Venue	800 E 40th Street Vancouver, WA	Vancouver School District	3 acres; natural area, sports fields, including Kiggins Field (artificial turf soccer/football field)
<b>10</b>	Marine Drive Trail Multi-use Trail	Multi-use Trail	N Marine Drive/N Swift Highway	City of Portland	5 miles; multi-use trail along North Portland Harbor; connects Marine Drive Interchange to Kelley Point Park
<b>11</b>	East Delta Park	Regional Park	10737 N Union Ct Portland, OR	City of Portland	85 acres; softball and soccer fields, control-line flying field, sand volleyball courts, playground

<sup>a</sup> Under the highway phasing options, use of this resource would be deferred.



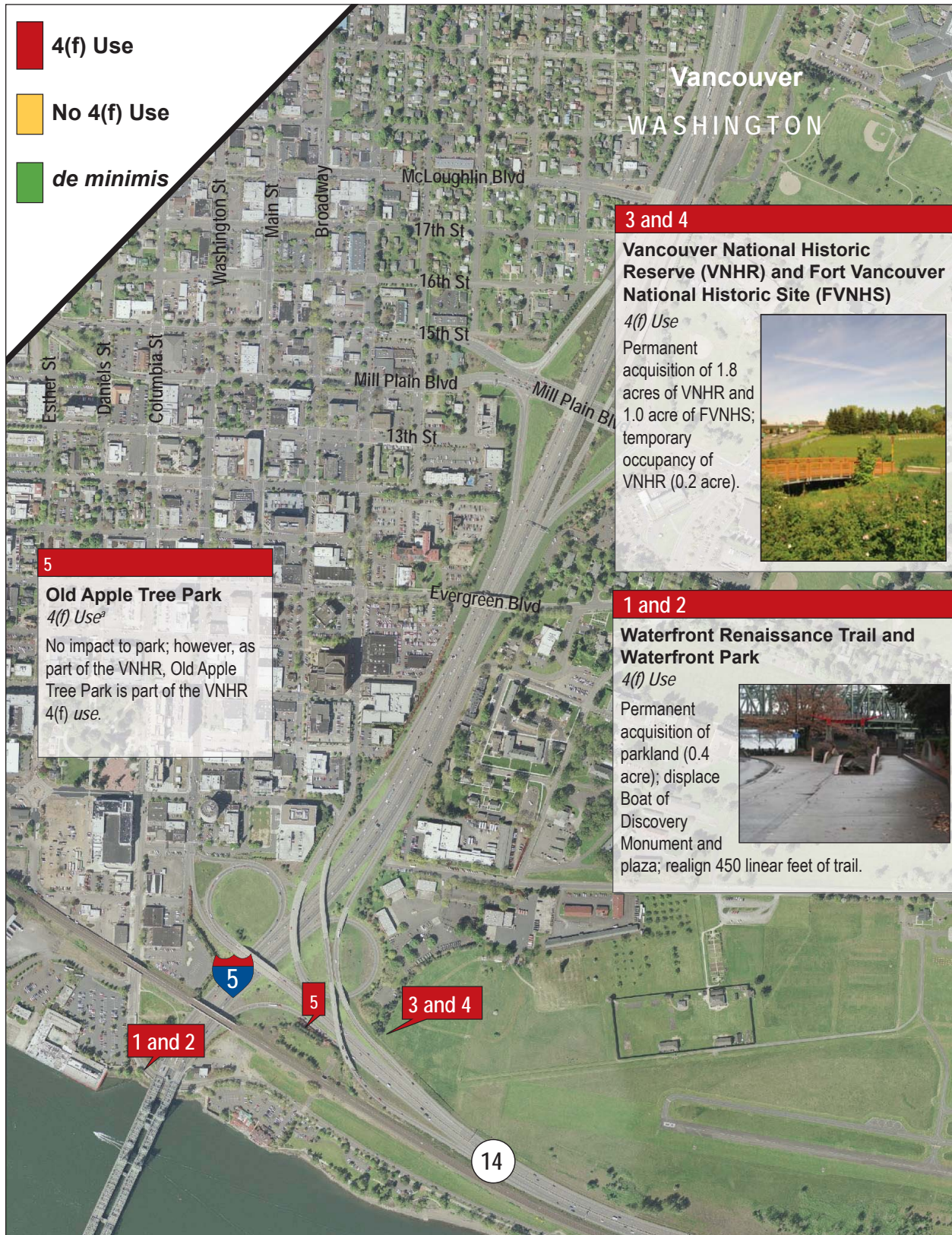
Exhibit 5.2-3

**Section 4(f) Parks and Recreation Resources: Oregon**



Exhibit 5.2-4

**Section 4(f) Parks and Recreation Resources: VNHR**



<sup>a</sup> The impact to the individual contributing resources within the VNHR District (such as Pearson Field, Barracks Post Hospital, the Heritage Apple Tree, and Officers Row) may be small or indirect, but because these resources are included within the VNHR District, they are part of that 4(f) resource. The overall effect on the VNHR is considered a 4(f) use, and therefore the 4(f) use determination also applies to any contributing resources that would be affected within the VNHR, regardless of the magnitude of the impact on that resource.



Exhibit 5.2-5

**Section 4(f) Parks and Recreation Resources: Mill Plain Boulevard to Fourth Plain Boulevard**



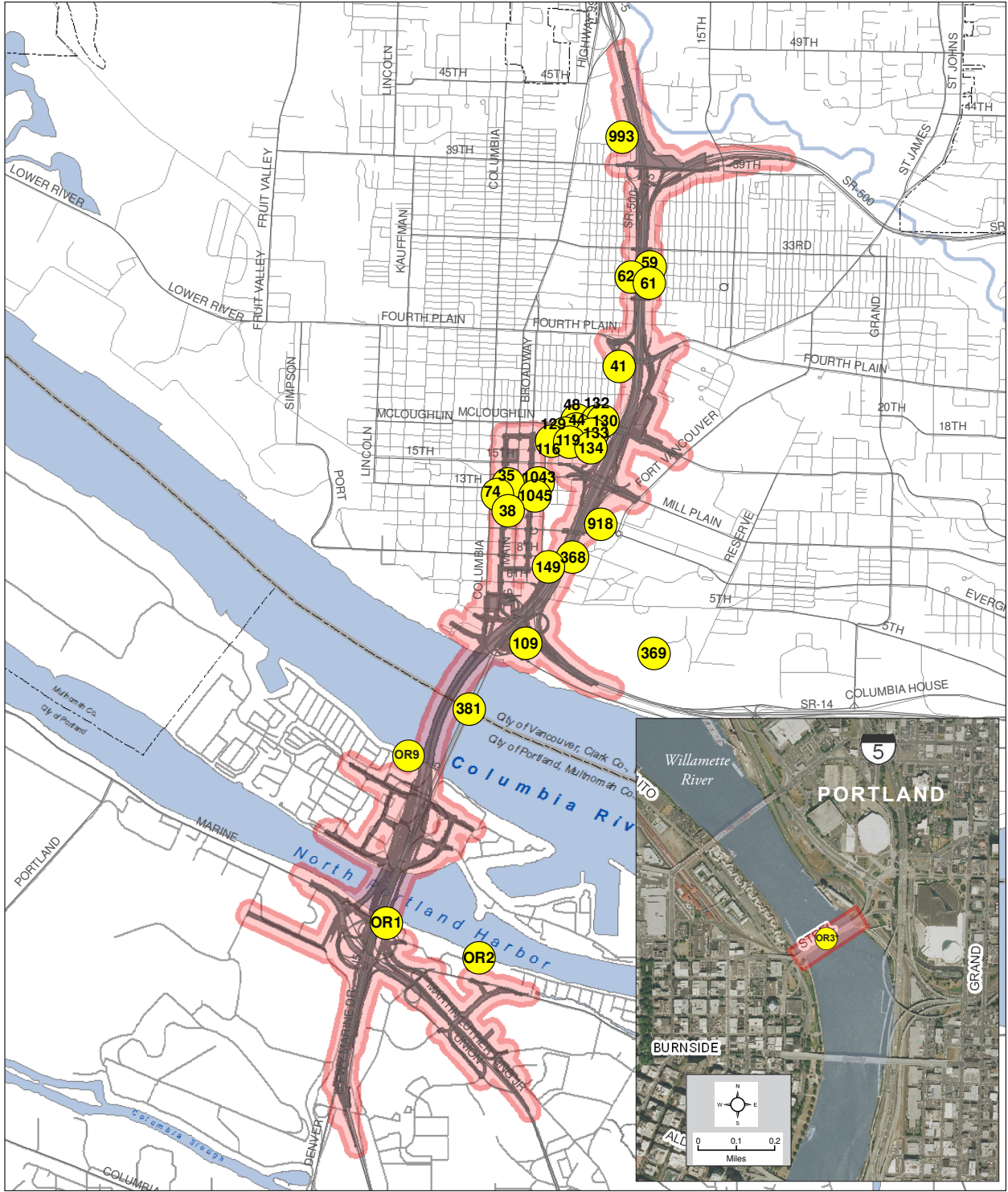
Exhibit 5.2-6

**Section 4(f) Parks and Recreation Resources: North of Fourth Plain Boulevard**



Exhibit 5.2-7

**Section 4(f) Historic Resources in the Project Area<sup>a</sup>**



Note: The numbers on this map are ID numbers and correspond to those used in Exhibit 5.2-8.

a The CRC project would include minor improvements to the existing light rail transit rail and electrification system on the Steel Bridge to allow all light rail trains to travel up to 15 mph across the bridge rather than the maximum 10 mph limit placed on current MAX operations. See Section 2.2.2 of the FEIS for additional explanation.

**Summary of Section 4(f) Historic Resources in the Project Area**

Historic ID#	Tax Lot	Address/Location	Building Name/ Use	Construction Date	Eligible Historic Designation <sup>b</sup>
OR3	N/A	Pacific Highway West Portland, OR	Willamette River (Steel) Bridge	c. 1912	Eligible: NR
OR1	2N1E34C-02000	1415 Marine Drive Portland, OR	Pier 99 Marina	c. 1960	Eligible: NR
381	N/A	OR/WA	Northbound I-5 Bridge	c.1917	NR
OR2	N/A	North Portland Harbor Portland, OR	Oregon Slough Levee	c.1916-60	Eligible: NR
OR9	N/A	Columbia River Portland, OR	USS LCI-713	c. 1944	NR
149	38820000	318 E 7th Street Vancouver, WA	Normandy Apartments	c. 1930	Eligible: NR
10	47840000	515 Washington Street Vancouver, WA	Smith Tower	c. 1966	Eligible: NR
1043	39630000	210 E 13th Street Vancouver, WA	Vancouver City Hall	c. 1960	Eligible: NR
1045	39490000	1205 Broadway Street Vancouver, WA	Washington Mutual Bank (Chase Bank)	c. 1965	Eligible: NR
35	47101000	110 W 13th Street Vancouver, WA	W Foster Hidden House	c. 1913	NR
38	51830000	112 W 11th Street Vancouver, WA	Vancouver Telephone Exchange	c. 1934-36	NR
116	40890000	307 E 17th Street Vancouver, WA	Residence	c. 1905	Eligible: NR
129	41255000	404-406 E 17th Street Vancouver, WA	Residence	c. 1940	Eligible: NR
130	41520000	700 McLoughlin Boulevard Vancouver, WA	Residence	c. 1902	Eligible: NR
132	41607000 41605000	612 McLoughlin Boulevard Vancouver, WA	Carpenters Union Hall	c. 1958	Eligible: NR
133	41380000	604 E 17th Street Vancouver, WA	Residence	c. 1899	Eligible: NR
168	39810000	500 E 13th Street Vancouver, WA	Fort Apartments	c. 1959	Eligible: NR
21	47890000	500 Main Street Vancouver	Evergreen Hotel	c. 1928	NR
59	13460000	3110 K Street Vancouver, WA	Residence	c. 1910	Eligible: NR
62	01367000	903 E 31st Street Vancouver, WA	Residence	c. 1910	Eligible: NR
61	13725000	3000 K Street Vancouver, WA	Residence	c. 1915	Eligible: NR
993	12454005	Vancouver, WA	Kiggins Bowl Park (Kiggins Sports Fields/Stadium)	Dedicated 1933	Eligible: NR
<b>The following resources are within the Vancouver National Historic Reserve:</b>					
368	38279906A	Building 614 Vancouver, WA	Barracks Post Hospital	c. 1903	NR, Ft. Vancouver
918	38279942	Parking Lot next to 600-654 E Evergreen Boulevard Vancouver, WA	Officers Row Historic District	c.1849-1907	NR, Ft. Vancouver
109	38279935	112 Columbia Way Vancouver, WA	Old Apple Tree Park	c.1826	NR, Ft. Vancouver

Note: The historic ID#s for resources in Washington are assigned by the WA DAHP database. The numbers for Oregon resources were assigned by the CRC project.

a This table does not include those historic resources for which it was determined that there would be "No Effect" under Section 106.

b DAHP and SHPO have concurred with the determination of eligibility for the eligible properties.

NR = National Register.

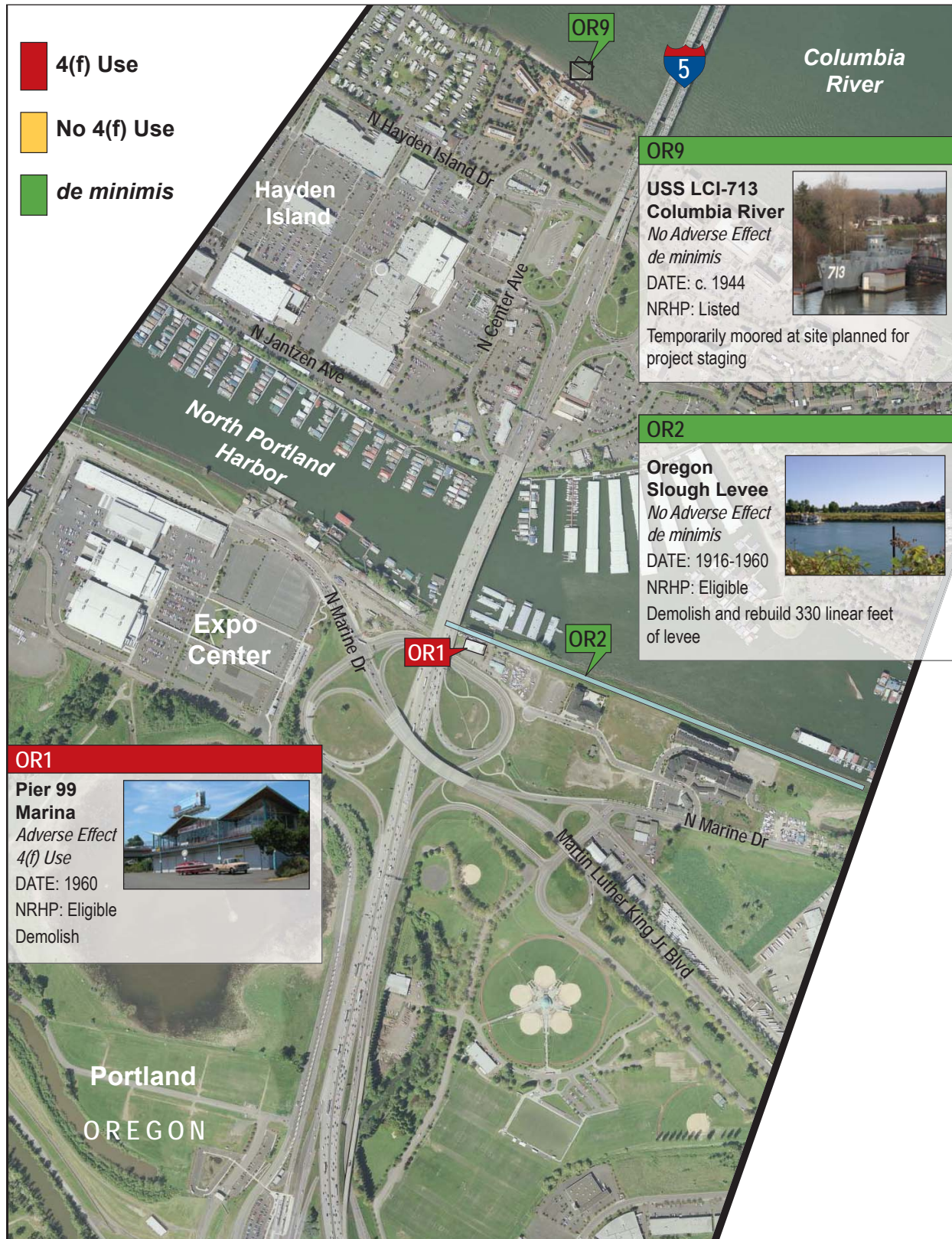
Exhibit 5.2-9

**Section 4(f) Historic Resources: Steel Bridge, Oregon**



Note: The historic ID numbers for resources in Washington are assigned by the WA DAHP database. The numbers for Oregon resources were assigned by the CRC project.

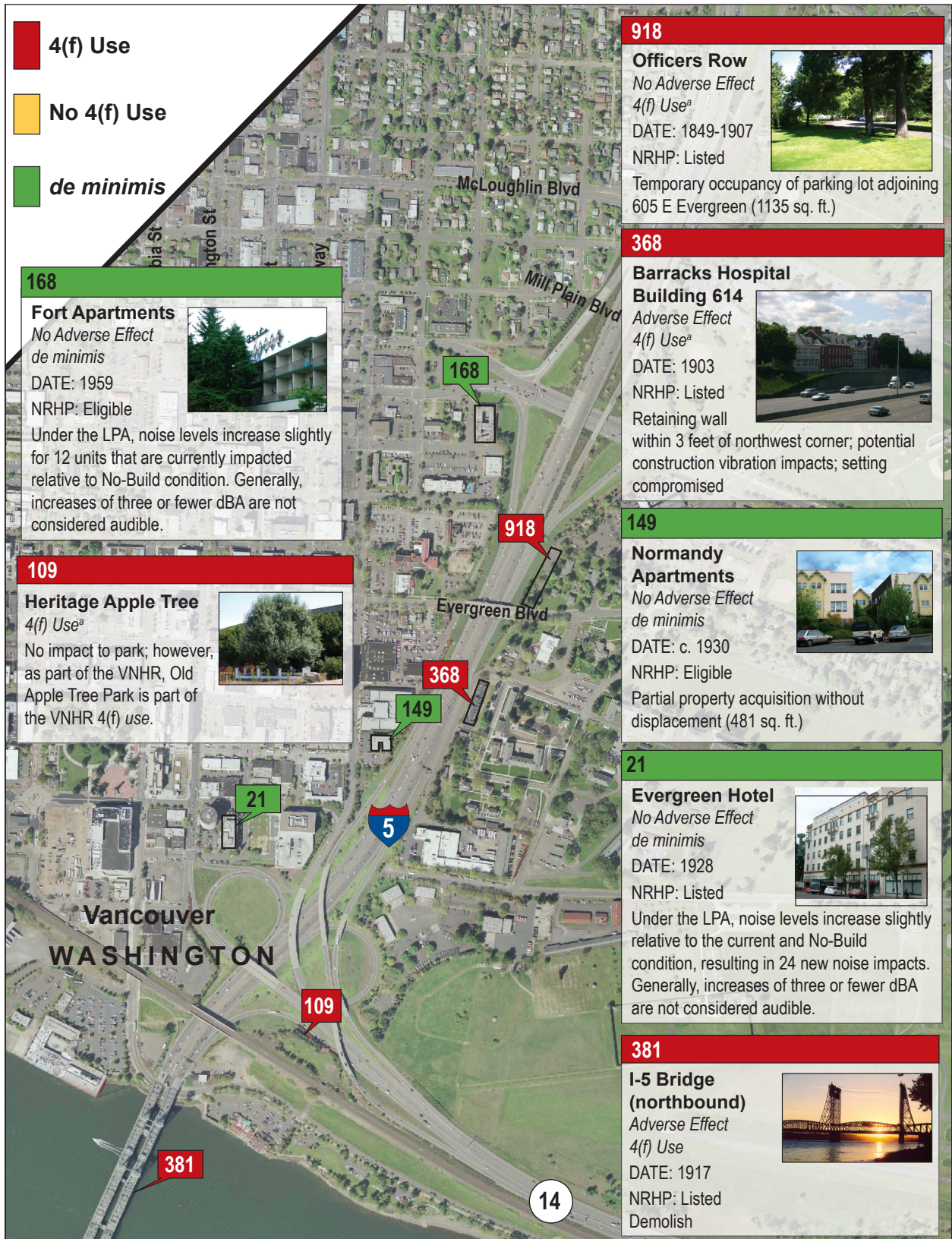
**Section 4(f) Historic Resources: Oregon Main Project Area**



Note: The historic ID numbers for resources in Washington are assigned by the WA DAHP database. The numbers for Oregon resources were assigned by the CRC project.

Exhibit 5.2-11

**Section 4(f) Historic Resources: Downtown Vancouver Along I-5**



**4(f) Use**

**No 4(f) Use**

**de minimis**

**168**

**Fort Apartments**  
*No Adverse Effect*  
*de minimis*  
 DATE: 1959  
 NRHP: Eligible  
 Under the LPA, noise levels increase slightly for 12 units that are currently impacted relative to No-Build condition. Generally, increases of three or fewer dBA are not considered audible.

**109**

**Heritage Apple Tree**  
*4(f) Use<sup>a</sup>*  
 No impact to park; however, as part of the VNHR, Old Apple Tree Park is part of the VNHR 4(f) use.

**918**

**Officers Row**  
*No Adverse Effect*  
*4(f) Use<sup>a</sup>*  
 DATE: 1849-1907  
 NRHP: Listed  
 Temporary occupancy of parking lot adjoining 605 E Evergreen (1135 sq. ft.)

**368**

**Barracks Hospital Building 614**  
*Adverse Effect*  
*4(f) Use<sup>a</sup>*  
 DATE: 1903  
 NRHP: Listed  
 Retaining wall within 3 feet of northwest corner; potential construction vibration impacts; setting compromised

**149**

**Normandy Apartments**  
*No Adverse Effect*  
*de minimis*  
 DATE: c. 1930  
 NRHP: Eligible  
 Partial property acquisition without displacement (481 sq. ft.)

**21**

**Evergreen Hotel**  
*No Adverse Effect*  
*de minimis*  
 DATE: 1928  
 NRHP: Listed  
 Under the LPA, noise levels increase slightly relative to the current and No-Build condition, resulting in 24 new noise impacts. Generally, increases of three or fewer dBA are not considered audible.

**381**

**I-5 Bridge (northbound)**  
*Adverse Effect*  
*4(f) Use*  
 DATE: 1917  
 NRHP: Listed  
 Demolish

Note: The historic ID numbers for resources in Washington are assigned by the WA DAHP database. The numbers for Oregon resources were assigned by the CRC project.

a The impact to the individual contributing resources within the VNHR District (such as Pearson Field, the Heritage Apple Tree, and Officers Row) may be small or indirect, but because these resources are included within the VNHR District, they are part of that Section 4(f) resource. The overall effect on the VNHR is considered a Section 4(f) use, and therefore the Section 4(f) use determination also applies to any contributing resources that would be affected within the VNHR, regardless of the magnitude of the impact on that resource.

**Section 4(f) Historic Resources: Downtown Vancouver**

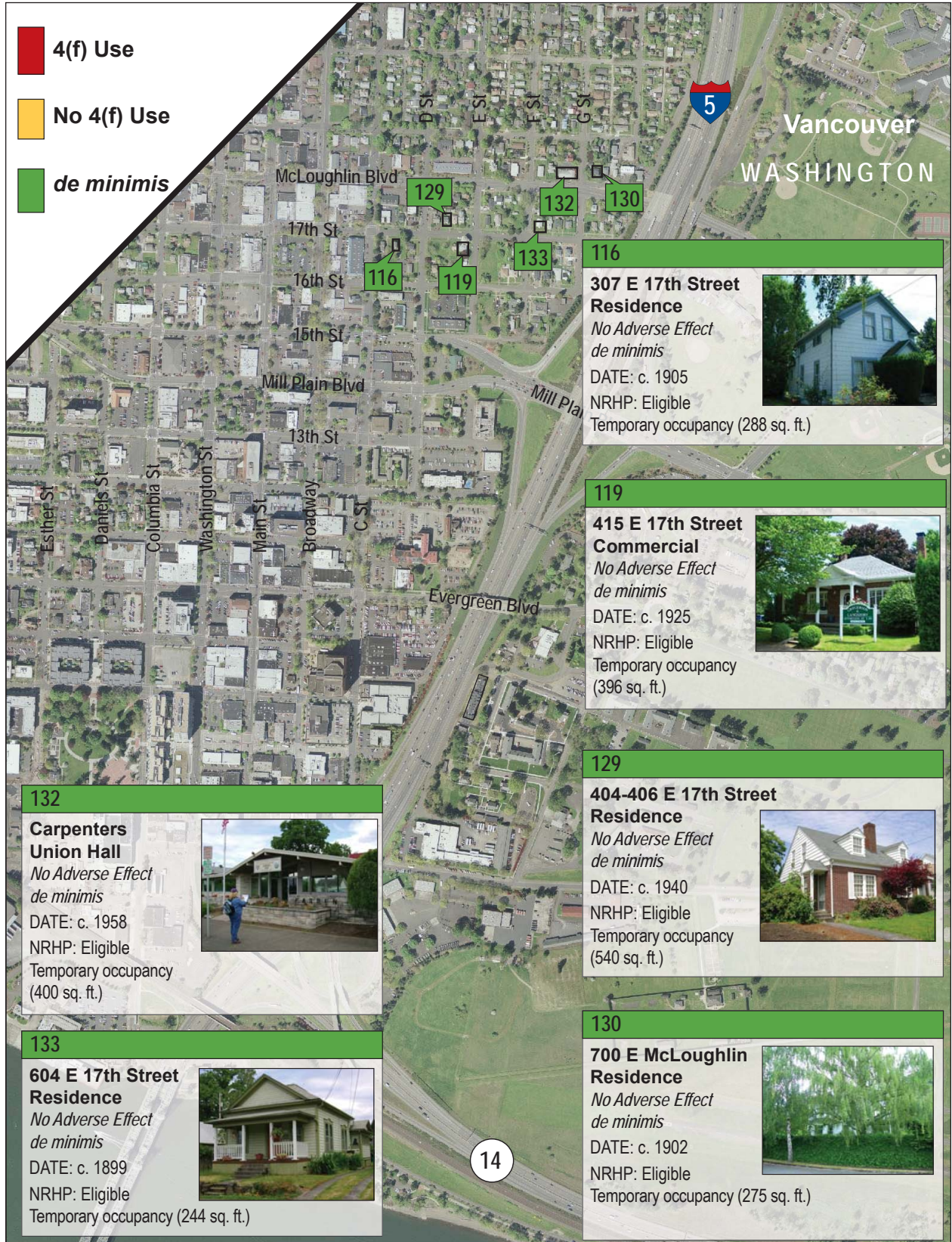


Note: The historic ID numbers for resources in Washington are assigned by the WA DAHP database. The numbers for Oregon resources were assigned by the CRC project.



Exhibit 5.2-13

**Section 4(f) Historic Resources: 17th Street**



Note: The historic ID numbers for resources in Washington are assigned by the WA DAHP database. The numbers for Oregon resources were assigned by the CRC project.

Exhibit 5.2-14

**Section 4(f) Historic Resources: North of Fourth Plain Boulevard**



Note: The historic ID numbers for resources in Washington are assigned by the WA DAHP database. The numbers for Oregon resources were assigned by the CRC project.

a DAHP and SHPO have concurred with the determination of eligibility for the eligible properties.

### 5.2.3 Archaeological Sites

Archaeological sites that are NRHP-eligible and that meet certain conditions, such as warranting preservation in place, are subject to the provisions and protections of Section 4(f). Archaeological sites are not considered worthy of preservation in place if their primary importance is for the information that can be learned from data recovery. A total of 32 significant archaeological resources were identified within the project area of concern that are eligible for listing on the NRHP. Fifteen of these resources are located within the VNHR, and 10 are located on WSDOT property. The other seven are located outside the VNHR or the WSDOT right of way. Three of these archaeological resources within the VNHR—Hudson’s Bay Company (HBC) Village–Kanaka House, HBC Village–Tayenta’s House, and HBC Village–House 4—qualify as Section 4(f) resources because they warrant preservation in place, based on consultation with the officials with jurisdiction. None of the other affected archaeological sites in the area of potential effect (APE), either within or outside of the VNHR, has been determined to warrant preservation in place. Consistent with 23 CFR 774.13(b)(2), the officials with jurisdiction over the Section 4(f) resources have been consulted and agree with the Administration finding that each of the other 29 archaeological resources is “important chiefly because of what can be learned by data recovery and has minimal value for preservation in place.” Furthermore, all parties have agreed that data recovery excavations will be conducted at many of these sites, including 4(f) resources, as part of the Section 106 mitigation.

The Washington State Department of Archaeology and Historic Preservation (DAHP) and Oregon State Historic Preservation Office (SHPO) have reviewed and concurred with the determinations of Section 4(f) ineligibility for all but three potentially affected archaeological resources in the project area. Concurrence from the DAHP and SHPO on the findings of effect was obtained in January of 2011.

As the locations of archaeological sites are protected information, maps displaying them are not included in this document.

### 5.2.4 The Vancouver National Historic Reserve

The Vancouver National Historic Reserve (VNHR, or Reserve) is an important national public resource established to preserve and interpret historically significant and exceptionally complex overlapping areas associated with Native American, Hudson’s Bay Company, U.S. military, and U.S. National Park Service (NPS) uses of the land that have occurred over time. Several of the individual historic resources and public recreation resources listed in Exhibit 5.2-4 are located within the boundaries of the VNHR.

The VNHR is a Section 4(f) resource encompassing 366 acres. It includes the Fort Vancouver National Historic Site (approximately 209 acres), Vancouver Barracks and Officers Row, Pearson Field, the Water Resources Education Center, a section of the Discovery Trail, and portions of the Columbia River waterfront. Approximately 252 acres in the westernmost portion of the VNHR lie within the VNHR Historic District. The VNHR is cooperatively managed by the NPS, the City of Vancouver, the U.S. Army, and the State of Washington.

The non-profit Fort Vancouver National Trust provides assistance to the partners to benefit the VNHR. Exhibit 5.2-15 shows the land ownership within the Reserve. Exhibits 5.2-16 and 5.2-17 show the area within and around the Reserve, including some of the buildings in the Reserve as well as the National Historic Site (NHS) that is contained within the Reserve.

Exhibit 5.2-15

**Vancouver National Historic Reserve (VNHR)  
Land Ownership/Management**

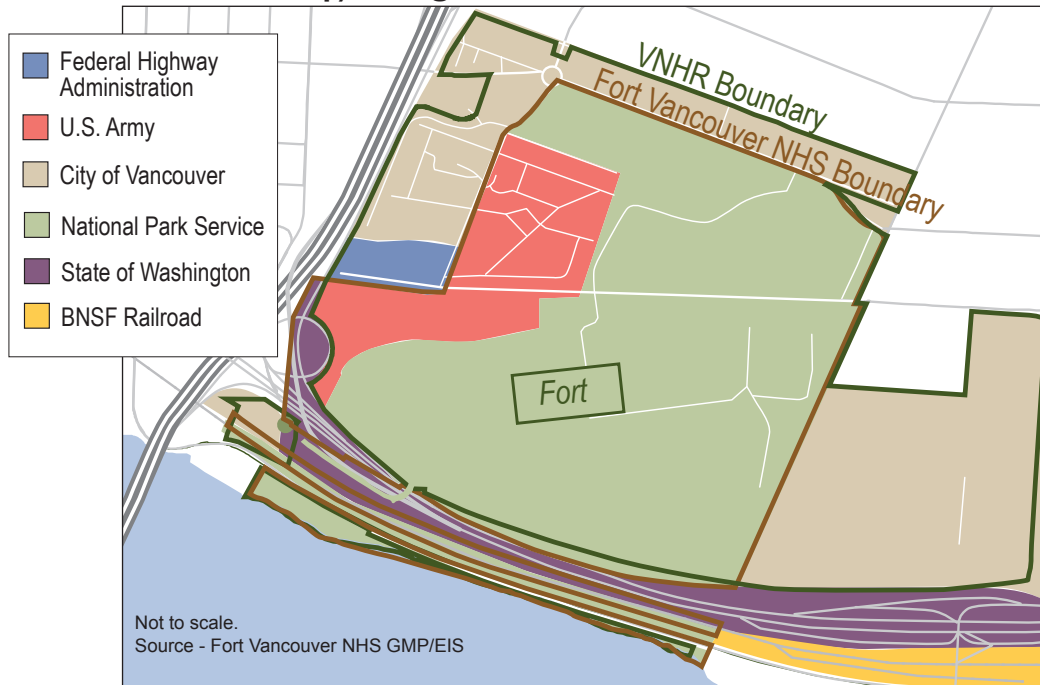


Exhibit 5.2-16

**Fort Vancouver National Historic Reserve and National Historic Site**



Exhibit 5.2-17

**Vancouver National Historic Reserve (VNHR) Historic District**



The following recreational and historic built environment resources or facilities are associated with the VNHR in part or in whole and are located near the proposed CRC project improvements:

- Fort Vancouver National Historic Site, including the Fort Vancouver Village (HBC Village)
- Discovery Loop Trail
- Pearson Field
- Barracks Post Hospital
- NCO Duplexes south of Barracks Post Hospital
- West end of Officers Row
- Old Apple Tree Park (a Section 4(f) public park) and the Heritage Apple Tree (a historic resource)

### **Archaeological Resources within the VNHR Historic District**

As noted above, fifteen significant archaeological sites, or archaeological contributing elements to the VNHR Historic District, are located in the archaeological Area of Potential Effect (APE). Several sites were likely impacted by previous construction of I-5 and SR 14. The archaeological APE also includes an area where a historic military cemetery was located. While graves were exhumed and re-interred at another cemetery during the late 1800s, archaeological research has indicated that not all of the remains were relocated. During the construction of I-5, unmarked graves were reportedly discovered, and other potential grave shafts have been identified in the vicinity of the historic cemetery. The exact location of the cemetery is withheld from this evaluation because of the sensitive nature of the resource. The portion of the CRC project that overlaps the historic site of the cemetery, based on historic mapping, has been extensively altered by past excavations and construction.

As mentioned previously, only archaeological sites that are on or eligible for inclusion on the National Register and that warrant preservation in place are subject to Section 4(f) requirements. Extensive archaeological investigations have been conducted within the VNHR, and three of the 15 archaeological sites have been determined to warrant preservation in place. These sites are HBC Village–Kanaka House, HBC Village–Tayenta’s House, and HBC Village–House 4. Consistent with 23 CFR 774.13 the Washington DAHP, the official with jurisdiction over these resources, has concurred with this finding. These three sites are discussed further in Section 3.8 of the FEIS.

### **Historic Resources within the VNHR Historic District**

The VNHR Historic District listing promotes a District within the concept of a complex historic landscape that reflects continuous layers of construction and removal by various inhabitants of the area over time, and that provides a rich tapestry of buildings, structures, vegetation, and land uses that have overlapped and become interwoven. The NPS has developed a Cultural Landscape Report that describes the contributing resources within the historic cultural landscape and provides planning guidelines for the area. The guidelines include strategies that recognize, protect, and celebrate the diverse influences that have created the cultural and recreational landscape.

The National Park Service's overall management objectives are to enhance the visitor's experience and understanding of the District. Key treatment strategies that recognize and celebrate historic context in accordance with these objectives include rehabilitating existing buildings or landscape features and/or reconstructing buildings and features in association with preserving the landscape between features. The Landscape Report, the VNHR Long-Range Plan (NPS 2006), and the Long-Range Interpretive Plan, VNHR with Special Emphasis on FVNHS and Vancouver Barracks (NPS 2004) recommend reconstructing some buildings, historic roadway alignments, and interpretive features, and recommend leaving the Fort Vancouver Village (HBC Village) area in the southwest portion of the Reserve as open space, except for the proposed reconstruction of a limited number of Village buildings. The CRC project team has reviewed these documents and coordinated with NPS staff to identify how the CRC alternatives would conflict with, or be compatible with, the VNHR's plans and priorities, as summarized below and in the following section on VNHR plans.

Within the Fort Vancouver Village area, the NPS has recently reconstructed a Village house in the western portion of the NPS property near the U.S. Army Reserve property, and plans to construct additional Village buildings or building silhouettes to better enable the public to interpret the historic landscape (Exhibit 5.2-18). Expansion plans include extensions to the existing trail system that would be tied to the historic Village and the Confluence "Land Bridge" pedestrian overpass in the southwestern portion of the Reserve, near the I-5/SR 14 interchange.

The Confluence Land Bridge was opened in December 2007, spanning SR 14 and connecting existing Fort facilities through extensions to the existing trail system. On the south side of SR 14, the Land Bridge connects to City of Vancouver property near Old Apple Tree Park, and to the park via a new trail from the bridge landing.

### **VNHR Plans**

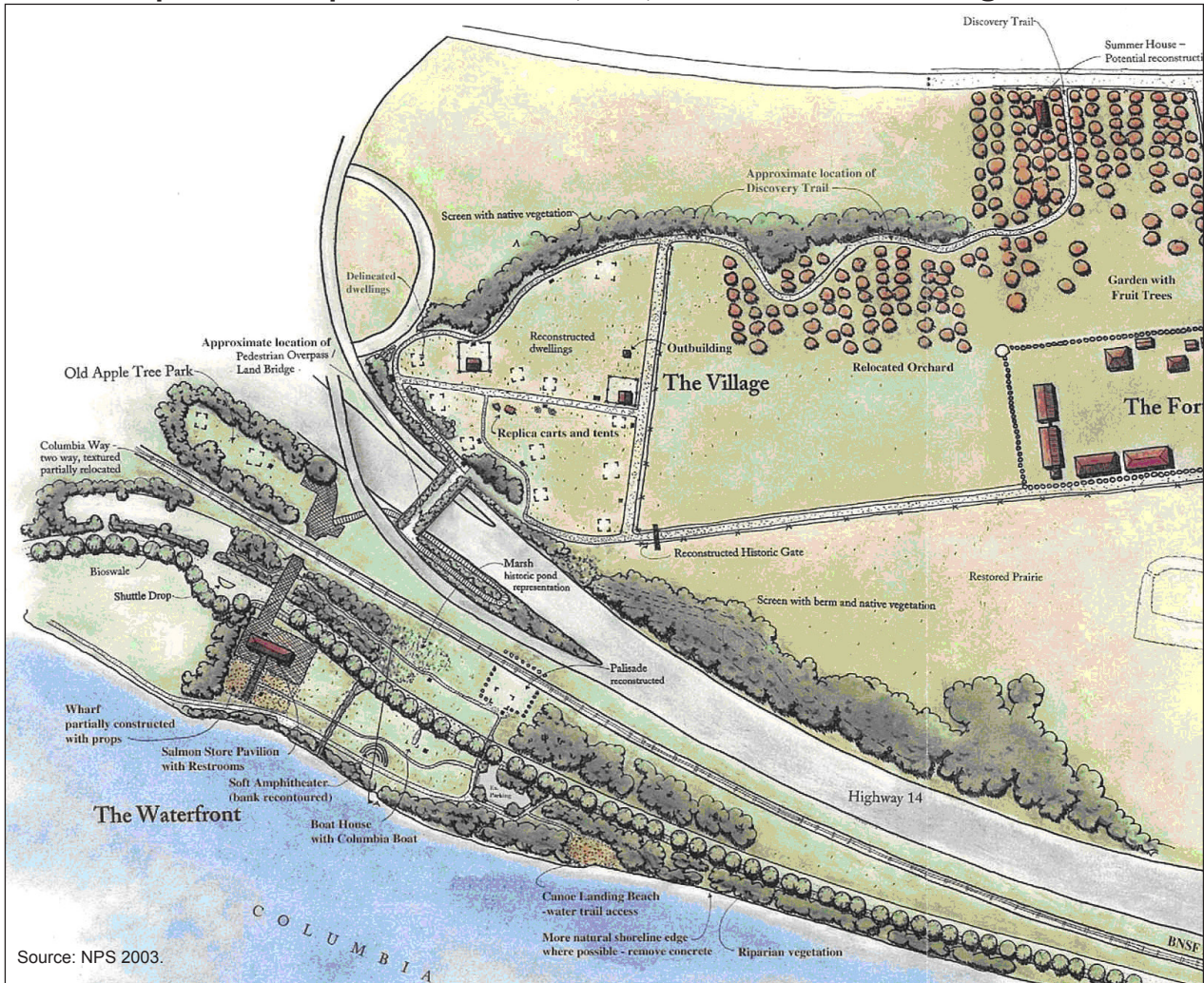
Some elements of the 10-Year Capital Project Priorities list in the VNHR's Vancouver National Historic Reserve Long-Range Plan provide information relevant to the impacts of the CRC project on the VNHR. Generally consistent with the long-range plan, the Treatment chapter of the VNHR's Cultural Landscape Report references measures that would "[s]creen the interstate highway's visual and noise impacts on the West Barracks with a sound barrier wall and vegetative buffer... Native conifers such as Douglas-fir or incense cedar trees could provide a living screen between the structures and the barrier wall" (NPS 2005).

NPS plans for the VNHR also include building a new visitor center that would provide information on the entire Reserve, including museum-quality display(s) that could also be showcased at local or state facilities and offered to local museums on a rotating basis. The NPS also has plans to reconstruct buildings within the Fort and Fort Vancouver Village area directly to the west, reconstruct historic uses along the Columbia River waterfront, and develop interpretive facilities. The NPS hopes to provide additional interpretive signage throughout the Reserve, landscaping improvements, and new parking facilities and circulation. In this same time frame, the City of Vancouver hopes to

initiate West Barracks redevelopment, focusing on the rehabilitation and use of the Barracks Post Hospital and other buildings.

Exhibit 5.2-18

**NPS Development Concept Plan: Waterfront, Fort, and Fort Vancouver Village Site**



Source: NPS 2003.

In a slightly longer time frame, the City of Vancouver, in partnership with the NPS, has plans to relocate the Vancouver Police Administration (currently located north of the Barracks Post Hospital) and restore that area for use by the Reserve. The City would also like to construct a 7th Street pedestrian connection between downtown Vancouver and the Reserve that crosses over I-5. The NPS hopes to attain (through trade or other means) the Mule Barn, located on Federal Highways land, and begin the rehabilitation and use of the East and South Barracks once the U.S. Army has vacated that land.

The CRC project would not preclude the NPS or the City from advancing any of these plans or priorities, and through coordination, the project team would work to ensure that this remains the case. Ongoing coordination with NPS and City of Vancouver staff has identified opportunities for the CRC project to help the City and NPS realize some elements of these plans. For example, the CRC project includes constructing the Evergreen Community Connector immediately south of the Evergreen Boulevard crossing (Exhibit 5.3-7).



The structure would provide a lid over Interstate 5 between the Riverwest development and the VNHR, providing east-side pedestrian access north of the hospital building and providing visual screening of I-5 from the Barracks Post Hospital and adjacent areas of the VNHR. This is not proposed as Section 106 mitigation but is consistent with goals and policies of the VNHR. CRC project staff has collaborated with the City of Vancouver, NPS, and Fort Vancouver National Trust to refine the design. The finishing treatments of this new design will be resolved during the CRC project final design phase but the general shape, position, and location of the structure have been agreed upon. The CRC project would also provide substantial mitigation for VNHR impacts. The project proposes to construct a new curation and museum facility for the VNHR, which provides substantial progress toward helping the NPS implement its 10-year museum management plan.

### **5.2.5 Traditional Cultural Properties**

Traditional cultural properties (TCPs) can also be Section 4(f) resources. TCPs are resources that are eligible for inclusion in the NRHP because of their association with cultural practices, of a living community, that are rooted in that community's history. In order to be eligible, TCPs must also be important in maintaining the continuing cultural identity of the community. No TCPs have been previously identified in the project APE, and none has been identified during nearly 5 years of CRC-related consultations with tribes, including efforts to solicit locations through oral histories. In an effort to expand upon information contained in written documents, inquiries were made by the DOTs with consulting tribes as to their interest in conducting oral history studies about past Native American use of lands within the CRC project area. Reports were subsequently prepared by the Confederated Tribes of the Umatilla Indian Reservation (Engum 2009) and the Confederated Tribes of the Warm Springs Reservation of Oregon (Whipple 2009). The information presented in these studies was general in nature. The reports did not identify any specific cultural sites within the APE that would need to be addressed during the archaeological investigations for the CRC project.

## 5.3 Use of Section 4(f) Resources

### 5.3.1 How is This Section Organized?

This section describes the impacts from the LPA and which impacts would constitute a *use* of Section 4(f) resources. The discussion addresses the Section 4(f) resources based on analyses reported in the CRC Parks and Recreation, Historic Built Environment, and Archaeology Technical Reports (included as electronic appendices to this FEIS). It provides a brief evaluation of the No-Build Alternative and then addresses potential *uses* of Section 4(f) resources that would result from the LPA. Exhibits 5.3-1 and 5.3-2 provide comparative summaries of the impacts associated with the LPA and each of the other CRC build alternatives on Section 4(f) park and recreation resources, Section 4(f) historic resources, and Section 4(f) archaeological resources, respectively. These exhibits include the determination of use as well, including a 4(f) use, no 4(f) use, a *de minimis* impact, or a temporary occupancy. The end of the chapter describes in more detail the *de minimis* impact determinations, temporary occupancies, and potential constructive *uses* that have been considered.

### 5.3.2 Section 4(f) Uses by the No-Build Alternative

With the No-Build Alternative, there would be no CRC-related *uses* of park, recreational, archaeological, or historic resources subject to Section 4(f) provisions. Under the No-Build Alternative, the historic I-5 bridge would be retained but there would be no seismic retrofits to the structure. Therefore, the No-Build Alternative would likely have no direct effect on the historic bridge. However, the indirect effect of the No-Build Alternative on the historic bridge would be that the bridge would remain vulnerable to severe damage or collapse in the event of a major seismic event (CRC Seismic Panel 2006). As the No-build does not meet the purpose and need of the project it is not a prudent and feasible avoidance alternative.

### 5.3.3 Section 4(f) Uses by the Locally Preferred Alternative

This section is organized geographically from south to north, and discusses *uses* of Section 4(f) resources located in the following areas:

- Resources in Portland
- The 1917 Interstate 5 northbound bridge
- Resources in Vancouver

The following describes each resource, provides an aerial photo, and describes the Section 4(f) *use*. Note that the aerial photos are at different scales, as noted on each exhibit.

## Exhibit 5.3-1

**Use of Park and Recreation Section 4(f) Resources<sup>a</sup>**

<b>Use Location</b>	<b>Resources Affected</b>	<b>Locally Preferred Alternative Option A or B<sup>b</sup></b>	<b>Alternatives 2 and 3 Replacement Crossing</b>	<b>Alternatives 4 and 5 Supplemental Crossing</b>	<b>Alternative with the Least Impact</b>
Waterfront Renaissance Trail	Paved multimodal public path.	Permanently realigns approximately 450 linear feet of trail under the existing and future proposed I-5 bridges. Based on CFR 774.17, a Section 4(f) use.	Crosses over 180 linear feet of multimodal path and requires relocation of path. Based on CFR 774.17, a presumed Section 4(f) use.	Crosses over 93 linear feet of multimodal path; path relocation unlikely to be required.	Because of the overall benefit to the Waterfront Trail, the LPA has the least net impact.
Waterfront Park	Recreational park shoreline and public plaza/view areas.	Acquires 0.4 acre (18,730 sq. ft.) of park land; displaces plantings, Waves Plaza and Boat of Discovery monument. Based on CFR 774.17, a Section 4(f) use.	Bridge spans about 0.2 acre of park shoreline and waterfront plaza/ views. Potential bridge piers in park. Based on CFR 774.17, a presumed Section 4(f) use.	Bridge spans about 0.2 acre of park shoreline and waterfront plaza/ views; potential bridge piers in park. Based on CFR 774.17, a presumed Section 4(f) use.	Because of the overall benefit to the Waterfront Park, the LPA has the least net impact.
Vancouver National Historic Reserve (VNHR)	Cultural and recreational park landscape near I-5/ SR 14, strip adjacent to I-5 between E 5th St. and McClellan St., including portion of park, hospital and barracks buildings.	Acquires 1.7 acres (72,787 sq. ft.) of park land and additional 0.2 acre (7,176 sq. ft.) for permanent airspace easement. Impacts to Federal Lands Building parking lot. No historic structures would be displaced. Temporary occupancy of 0.2 acre (7,407 sq. ft.). Includes impacts to Fort Vancouver National Historic Site described below. Based on CFR 774.17, this would be a Section 4(f) use.	Acquires 1.8 to 2.7 acres of park land. Possible impacts to Federal Lands Building and a storage garage owned by U.S. Army. No historic structures would be displaced. Temporary occupancy of 0.5 acre. Based on CFR 774.17, a presumed Section 4(f) use.	0.3 acre of park land and buffer between VNHR and I-5. No building displacements. No historic structures would be displaced. Potential for up to 0.1 acre of temporary construction easements. Based on CFR 774.17, a presumed Section 4(f) use.	Before mitigation, Alternatives 4 and 5 Supplemental Crossing would have the least impact.
Fort Vancouver National Historic Site (Part of VNHR)	Cultural and recreational park landscape near I-5/ SR 14, strip adjacent to I-5 between E 5th St. and McClellan St., including portion of park, hospital and barracks buildings.	Acquires 1.0 acre of park land (41,589 sq. ft.). Included in the VNHR impacts described above. No historic structures would be displaced. Based on CFR 774.17, this would be a Section 4(f) use.	1.5 acres of park land near I-5/ SR 14 with the dual-loop design, and 0.8 acre with the left-loop design. Land is vacant but contains archaeological resources. Potential for up to 0.2 acre of temporary construction easements. Based on CFR 774.17, a presumed Section 4(f) use.	Less than 0.1 acre of park land near the I-5/SR 14 interchange. Land is vacant but contains archaeological resources. Based on CFR 774.17, this would be a presumed Section 4(f) use.	The LPA would have the least impact.

Use Location	Resources Affected	Locally Preferred Alternative Option A or B <sup>b</sup>	Alternatives 2 and 3 Replacement Crossing	Alternatives 4 and 5 Supplemental Crossing	Alternative with the Least Impact
Old Apple Tree Park (Part of VNHR)	Portion of cultural and recreational viewing courtyard and passive recreation space.	No direct impact to the park, but the park is within the VNHR which has a 4(f) use, based on CFR 774.17.	0.3 acre of viewing courtyard and passive recreation space w/ dual-loop SR 14 interchange design; Acquires less than 0.1 acre w/ left loop. Based on CFR 774.17, this would be a presumed Section 4(f) use.	No direct impact to the park, but the park is within the VNHR which would be a 4(f) use, based on CFR 774.17.	The LPA and Alternatives 4 and 5 Supplemental Crossing would have the least impacts.
Marshall Community Center, Luepke Senior Center, and Marshall Park	Strip of landscaped passive recreation area adjacent to park ball field.	Acquires 0.6 acre (24,173 sq. ft.) strip of landscaped passive recreation area adjacent to parking. Displaces 4 horseshoe pits, 1 parking space permanently, and 30-40 spaces temporarily. Temporary occupancy of 0.5 acre (24,061 sq. ft.). Based on CFR 774.17, this would be a Section 4(f) use.	1.2-acre strip of landscaped passive recreation area adjacent to parking and fields. Could displace up to 3 horseshoe courts. Based on CFR 774.17, this would be a presumed Section 4(f) use.	1.2-acre strip of landscaped passive recreation area adjacent to parking and fields. Could displace up to 3 horseshoe courts. Based on CFR 774.17, this would be a presumed Section 4(f) use.	The LPA would have the least impact.
Clark College Recreation Fields	Strips of ball field, batting cage, park path, grass field.	Acquires a 1.0-acre (42,662 sq. ft.) strip of landscaped area adjacent to recreation fields. Temporary occupancy of 0.2 acre (8,919 sq. ft.). Based on CFR 774.17, this would be a <i>de minimis</i> impact.	0.1-acre strip of landscaped area adjacent to Clark College recreation fields. Also 1.2-acre strip with portions of ball field, batting cage, park path, grass field. Based on CFR 774.17, a presumed <i>de minimis</i> impact.	1.2-acre strip with portions of ball field, batting cage, park path, grass field. Based on CFR 774.17, this would be a presumed Section 4(f) use.	The LPA would have the least impact.
Leverich Community Park	Passive recreational park border berms and landscaping. Park entrance road and parking area.	Acquires 0.3 acre (13,739 sq. ft.) of park border, berms and landscaping. Temporary occupancy of 1.3 acres (54,777 sq. ft.) of parkland for construction access, staging, and utility relocation. Based on CFR 774.17, a <i>de minimis</i> impact. Impacts to Leverich Community Park would be deferred with phasing of highway component of the LPA options.	0.3 acre of park border, berms and landscaping. Airspace over park entrance road. Based on CFR 774.17, this would be a presumed <i>de minimis</i> impact.	0.2 acre of park border, berms and landscaping. Airspace over park entrance road. Based on CFR 774.17, this would be a presumed <i>de minimis</i> impact.	Alternatives 4 and 5 Supplemental Crossing would have the least impact.

Use Location	Resources Affected	Locally Preferred Alternative Option A or B <sup>b</sup>	Alternatives 2 and 3 Replacement Crossing	Alternatives 4 and 5 Supplemental Crossing	Alternative with the Least Impact
Kiggins Sports Fields/Stadium	Recreational trail; landscaped area adjacent to sports venue.	Acquires less than 0.1 acre (1,675 sq. ft.) portion of parcel used to access fields and additional 0.3 acre (11,814 sq. ft.) of subsurface easement in same area. Temporary occupancy of less than 0.1 acre (2,982 sq. ft.). Based on CFR 774.17, a <i>de minimis</i> impact. Impacts to Kiggins Sports Fields/Stadium would be deferred with phasing of highway component of the LPA options.	Relocate 50 linear ft. of trail; up to 0.4 acre landscaped area. Based on CFR 774.17, this would be a presumed <i>de minimis</i> impact.	Relocate 50 linear ft. of trail; up to 0.4 acre landscaped area. Based on CFR 774.17, this would be a presumed <i>de minimis</i> impact.	The LPA would have the least impact.
Marine Drive Multi-use Trail	Recreational trail.	Temporarily close, demolish, and rebuild 130 linear feet length of trail in the same location. This would be a <i>de minimis</i> impact.	No Section 4(f) use.	No Section 4(f) use.	Alternatives 2, 3, 4 and 5 would have the least impacts.
East Delta Park	Passive recreational grassed area.	Temporary occupancy of less than 0.1 acre (421 sq. ft.) for access for retaining wall construction. Based on 23 CFR 774.13(d), a temporary occupancy of land may be considered an exception and would have "No Section 4(f) use."	No Section 4(f) use.	No Section 4(f) use.	Alternatives 2, 3, 4 and 5 would have the least impacts.

a The acreages presented in this table were calculated from the measured square footage and rounded to the nearest tenth (0.1) of an acre.

b From a Section 4(f) perspective, there is no difference between the LPA Option A and Option B.

Exhibit 5.3-2

**Use of Section 4(f) Historic Resources<sup>a,b,c,d</sup>**

Resource Name/Location	Locally Preferred Alternative Option A or B <sup>f</sup>	Alternatives 2 and 3 Replacement Crossing	Alternatives 4 and 5 Supplemental Crossing	Alternative with the Least Impact
Steel Bridge, OR	Based on CFR 774.17, the project would have a Section 4(f) <i>de minimis</i> impact, consistent with the finding of No Adverse Effect for Section 106	Based on CFR 774.17, a presumed Section 4(f) <i>de minimis</i> impact, consistent with the finding of No Adverse Effect for Section 106	Based on CFR 774.17, a presumed Section 4(f) <i>de minimis</i> impact, consistent with the finding of No Adverse Effect for Section 106	Impacts are the same for all alternatives.

Resource Name/Location	Locally Preferred Alternative Option A or B'	Alternatives 2 and 3 Replacement Crossing	Alternatives 4 and 5 Supplemental Crossing	Alternative with the Least Impact
Pier 99, OR	Based on CFR 774.17, the project would have a Section 4(f) <i>use</i> (Adverse Effect) Full Displacement	Based on CFR 774.17, a presumed Section 4(f) <i>use</i> (Adverse Effect) Full Displacement	Based on CFR 774.17, a presumed Section 4(f) <i>use</i> (Adverse Effect) Full Displacement	Impacts are the same for all alternatives.
1917 I-5 Bridge, OR/WA	Based on CFR 774.17, the project would have a Section 4(f) <i>use</i> (Adverse Effect) Full Displacement	Based on CFR 774.17, a presumed Section 4(f) <i>use</i> (Adverse Effect) Full Displacement	Based on CFR 774.17, a presumed Section 4(f) <i>use</i> (Adverse Effect)	Alternatives 4 and 5 would have the least impact before mitigation.
Oregon Slough Levee, OR	Based on 7 CFR 774.17, a Section 4(f) <i>de minimis</i> impact has been determined because a finding of No Adverse Effect was found for project activities on this historic resource.	Based on CFR 774.17, a presumed Section 4(f) <i>de minimis</i> impact because of No Adverse Effect	Based on CFR 774.17, a presumed Section 4(f) <i>de minimis</i> impact because of No Adverse Effect	Impacts are the same for all alternatives.
Normandy Apartments 318 E 7th Street	Based on CFR 774.17, a Section 4(f) <i>de minimis</i> impact has been determined because a finding of No Adverse Effect was found for project activities on this historic resource.	Based on CFR 774.17, a presumed Section 4(f) <i>de minimis</i> impact because of No Adverse Effect	N/A	LPA and Alternatives 4 and 5 would have similar impacts.
St. James Church 218 W 12th Street	Based on CFR 774.17, a Section 4(f) <i>de minimis</i> impact has been determined because a finding of No Adverse Effect was found for project activities on this historic resource.	N/A	N/A	N/A
Vancouver City Hall 210 E 13th Street	Based on CFR 774.17, a Section 4(f) <i>de minimis</i> impact has been determined because a finding of No Adverse Effect was found for project activities on this historic resource.	N/A	N/A	N/A
Washington Mutual Bank 1205 Broadway Street	Based on CFR 774.17, a Section 4(f) <i>de minimis</i> impact has been determined because a finding of No Adverse Effect was found for project activities on this historic resource.	N/A	N/A	N/A
W Foster Hidden House 110 W 13th Street	Based on CFR 774.17, a Section 4(f) <i>de minimis</i> impact has been determined because a finding of No Adverse Effect was found for project activities on this historic resource.	N/A	N/A	N/A
Vancouver Telephone Exchange 112 W 11th Street	Based on CFR 774.17, a Section 4(f) <i>de minimis</i> impact has been determined because a finding of No Adverse Effect was found for project activities on this historic resource.	N/A	N/A	N/A
Residence/office 401 E McLoughlin Boulevard	The refined highway design reduces the footprint enough to avoid acquisition. No Section 4(f) <i>use</i> .	Based on CFR 774.17, a presumed Section 4(f) <i>use</i> (Adverse Effect). Acquires 0.009 acre with Kiggins or Clark College terminus.	Based on CFR 774.17, a presumed Section 4(f) <i>use</i> (Adverse Effect). Acquires 0.009 acre with Kiggins or Clark College terminus.	The LPA would have the least impact.

Resource Name/Location	Locally Preferred Alternative Option A or B'	Alternatives 2 and 3 Replacement Crossing	Alternatives 4 and 5 Supplemental Crossing	Alternative with the Least Impact
Residence 501 E McLoughlin Boulevard	The refined highway design reduces the footprint enough to avoid acquisition. No Section 4(f) use.	Based on CFR 774.17, a presumed Section 4(f) <i>de minimis</i> impact (No Adverse Effect) with Kiggins or Clark College terminus.	Based on CFR 774.17, a presumed Section 4(f) <i>de minimis</i> impact (No Adverse Effect) with Kiggins or Clark College terminus.	The LPA would have the least impact.
Residence 611 E McLoughlin Boulevard	The refined highway design reduces the footprint enough to avoid acquisition. No Section 4(f) use.	Based on CFR 774.17, a presumed Section 4(f) use (Adverse Effect). Acquires 0.003 acre with Kiggins or Clark College terminus.	Based on CFR 774.17, a presumed Section 4(f) use (Adverse Effect). Acquires 0.003 acre with Kiggins or Clark College terminus.	The LPA would have the least impact.
Commercial 502 E McLoughlin Boulevard	The refined highway design reduces the footprint enough to avoid acquisition. No Section 4(f) use.	Based on CFR 774.17, a presumed Section 4(f) <i>de minimis</i> impact (No Adverse Effect) with Kiggins or Clark College terminus.	Based on CFR 774.17, a presumed Section 4(f) <i>de minimis</i> impact (No Adverse Effect) with Kiggins or Clark College terminus.	The LPA would have the least impact.
Residence 510 E McLoughlin Boulevard	The refined highway design reduces the footprint enough to avoid acquisition. No Section 4(f) use.	Based on CFR 774.17, a presumed Section 4(f) <i>de minimis</i> impact (No Adverse Effect) with Kiggins or Clark College terminus.	Based on CFR 774.17, a presumed Section 4(f) <i>de minimis</i> impact (No Adverse Effect) with Kiggins or Clark College terminus.	The LPA would have the least impact.
Residence 700 McLoughlin Boulevard	Based on CFR 774.17, a Section 4(f) <i>de minimis</i> impact has been determined because a finding of No Adverse Effect was found for project activities on this historic resource.	N/A	N/A	N/A
Carpenters Union Hall 612 McLoughlin Boulevard	Based on CFR 774.17, a Section 4(f) <i>de minimis</i> impact has been determined because a finding of No Adverse Effect was found for project activities on this historic resource.	N/A	N/A	N/A
Residence 307 E 17th Street	Based on CFR 774.17, a Section 4(f) <i>de minimis</i> impact has been determined because a finding of No Adverse Effect was found for project activities on this historic resource.	N/A	N/A	N/A
Residence 404-406 E 17th Street	Based on CFR 774.17, a Section 4(f) <i>de minimis</i> impact has been determined because a finding of No Adverse Effect was found for project activities on this historic resource.	N/A	N/A	N/A
Commercial 415 E 17th Street	Based on CFR 774.17, a Section 4(f) <i>de minimis</i> impact has been determined because a finding of No Adverse Effect was found for project activities on this historic resource.	N/A	N/A	N/A

Resource Name/Location	Locally Preferred Alternative Option A or B <sup>f</sup>	Alternatives 2 and 3 Replacement Crossing	Alternatives 4 and 5 Supplemental Crossing	Alternative with the Least Impact
Residence 604 E 17th Street	Based on CFR 774.17, a Section 4(f) <i>de minimis</i> impact has been determined because a finding of No Adverse Effect was found for project activities on this historic resource.	N/A	N/A	N/A
Fort Apartments 500 E 13th Street	Based on CFR 774.17, a Section 4(f) <i>de minimis</i> impact has been determined because a finding of No Adverse Effect was found for project activities on this historic resource.	N/A	N/A	N/A
Evergreen Hotel 500 Main Street	Based on CFR 774.17, a Section 4(f) <i>de minimis</i> impact has been determined because a finding of No Adverse Effect was found for project activities on this historic resource.	N/A	N/A	N/A
Residence 903 E 31st Street	Based on CFR 774.17, a Section 4(f) <i>de minimis</i> impact has been determined because a finding of No Adverse Effect was found for project activities on this historic resource.	Based on CFR 774.17, a presumed Section 4(f) <i>use</i> (Adverse Effect) Acquires 0.125 acre with Kiggins or Clark College terminus.	Based on CFR 774.17, a presumed Section 4(f) <i>use</i> (Adverse Effect) Acquires 0.125 acre with Kiggins or Clark College terminus.	The LPA would have the least impact.
Residence 3000 K Street	Based on CFR 774.17, a Section 4(f) <i>de minimis</i> impact has been determined because a finding of No Adverse Effect was found for project activities on this historic resource.	Based on CFR 774.17, a presumed Section 4(f) <i>de minimis</i> impact (No Adverse Effect) Acquires 0.012 acre.	Based on CFR 774.17, a presumed Section 4(f) <i>use</i> (Adverse Effect) Acquires 0.034 acre.	The LPA would have the least impact.
Residence 3110 K Street	Based on CFR 774.17, a Section 4(f) <i>de minimis</i> impact has been determined because a finding of No Adverse Effect was found for project activities on this historic resource.	No Section 4(f) <i>use</i> .	Based on CFR 774.17, a presumed Section 4(f) <i>use</i> (Adverse Effect) Acquires 0.019 acre.	Alternatives 2 and 3 would have the least impact.
Residence/Office 2901 Main Street	The refined highway design reduces the footprint enough to avoid acquisition. No Section 4(f) <i>use</i> .	Based on CFR 774.17, a presumed Section 4(f) <i>use</i> (Adverse Effect) Acquires 0.010 acre with Lincoln terminus.	Based on CFR 774.17, a presumed Section 4(f) <i>use</i> (Adverse Effect) Acquires 0.010 acre with Lincoln terminus.	The LPA would have the least impact.
First United Methodist 401 E 33rd Street	The refined highway design reduces the footprint enough to avoid acquisition. Refined highway design avoids this effect. No Section 4(f) <i>use</i> .	Based on CFR 774.17, a presumed Section 4(f) <i>de minimis</i> impact (No Adverse Effect) with Lincoln terminus.	Based on CFR 774.17, a presumed Section 4(f) <i>de minimis</i> impact (No Adverse Effect) with Lincoln terminus.	The LPA would have the least impact.
Office 3200 Main Street	The refined highway design reduces the footprint enough to avoid acquisition. No Section 4(f) <i>use</i> .	Based on CFR 774.17, a presumed Section 4(f) <i>de minimis</i> impact (No Adverse Effect) with Lincoln terminus.	Based on CFR 774.17, a presumed Section 4(f) <i>de minimis</i> impact (No Adverse Effect) with Lincoln terminus.	The LPA would have the least impact.
Office 3212 Main Street	The refined highway design reduces the footprint enough to avoid acquisition. No Section 4(f) <i>use</i> .	Based on CFR 774.17, a presumed Section 4(f) <i>Use</i> (Adverse Effect) Acquires 0.043 acre with Lincoln terminus.	Based on CFR 774.17, a presumed Section 4(f) <i>Use</i> (Adverse Effect) Acquires 0.043 acre with Lincoln terminus.	The LPA would have the least impact.



Resource Name/Location	Locally Preferred Alternative Option A or B <sup>f</sup>	Alternatives 2 and 3 Replacement Crossing	Alternatives 4 and 5 Supplemental Crossing	Alternative with the Least Impact
Office 300 E 37th Street	The refined highway design reduces the footprint enough to avoid acquisition. No Section 4(f) use.	Based on CFR 774.17, a presumed Section 4(f) use (Adverse Effect) Acquires 0.095 acre with Lincoln terminus.	Based on CFR 774.17, a presumed Section 4(f) use (Adverse Effect) Acquires 0.095 acre with Lincoln terminus.	The LPA would have the least impact.
Kiggins Bowl Park Vancouver, 98660	Based on CFR 774.17, a Section 4(f) <i>de minimis</i> impact (No Adverse Effect) Temporary occupancy of less than 0.1 acre (2,982 sq. ft.) Permanent acquisition of less than 0.1 acre (1,675 sq. ft.) Permanent easement of 0.3 acre (11,814 sq. ft.)	Based on CFR 774.17, a presumed Section 4(f) <i>de minimis</i> impact (No Adverse Effect) with Kiggins and Lincoln termini.	Based on CFR 774.17, a presumed Section 4(f) <i>de minimis</i> impact (No Adverse Effect) with Kiggins and Lincoln termini.	The impacts would be similar for all alternatives.
VNHR NRHP District/Cultural Landscape Vancouver	Acquires 1.5 acres (72,787 sq. ft.) permanently, 0.2 acre (7,407 sq. ft.) temporarily. Based on CFR 774.17, a Section 4(f) use (Adverse Effect) <sup>e</sup>	Based on CFR 774.17, a presumed Section 4(f) use (Adverse Effect) <sup>e</sup> Acquires 1.76-2.70 acres permanently, 0.54 acre temporarily.	Based on CFR 774.17, a presumed Section 4(f) use (Adverse Effect) <sup>e</sup> Acquires 0.31 acre permanently, 0.13 acre temporarily.	Alternatives 4 and 5 would have the least impact.
Barracks Post Hospital Building 614	Based on CFR 774.17, a Section 4(f) use (Adverse Effect) Retaining wall encroaches within 3 feet of the northwest corner of the building.	Based on CFR 774.17, a presumed Section 4(f) use (Adverse Effect) Acquires 0.098 acre. <sup>e</sup>	Based on CFR 774.17, a presumed Section 4(f) use (Adverse Effect) Acquires 0.031 acre. <sup>e</sup>	The LPA would have the least impact.
Officers Row Parking Lot next to 600-654 E Evergreen Boulevard	No Adverse Effect on Officers Row, but it is within the VNHR which has a 4(f) use. Therefore there is a Section 4(f) use of Officers Row <sup>e</sup> Temporarily acquires less than 0.1 acre (850 sq. ft.)	Based on CFR 774.17, a presumed Section 4(f) use (Adverse Effect). <sup>e</sup>	Based on CFR 774.17, a presumed Section 4(f) use (Adverse Effect). <sup>e</sup>	The impacts would be similar for all alternatives.
USS LCI-713	Based on CFR 774.17, the project would have a Section 4(f) <i>de minimis</i> impact, consistent with the finding of No Adverse Effect for Section 106	No Section 4(f) use	No Section 4(f) use	Impacts are the same for all alternatives.

a The Section 4(f) use determination (*Use*, *Constructive Use*, *No Section 4(f) Use*, or *de minimis* impact) is shown in this table. The Section 106 findings of effect (Adverse (for Adverse Effect), No Adverse Effect, or Proximity Effect) are shown in parentheses.

b The area of land that would be acquired, if any, from each resource, is indicated in the relevant cells. If the acquisition would fully displace the building, then that cell shows "full displacement."

c This table includes those historic resources that were affected by Alternatives 2 and 3 or 4 and 5, but are not affected by the LPA due to the selection of a transit alignment and bridge type, design refinements, actions taken for projects separate from CRC, DAHP's disagreement with the determinations of eligibility that informed the FEIS Evaluation, etc.

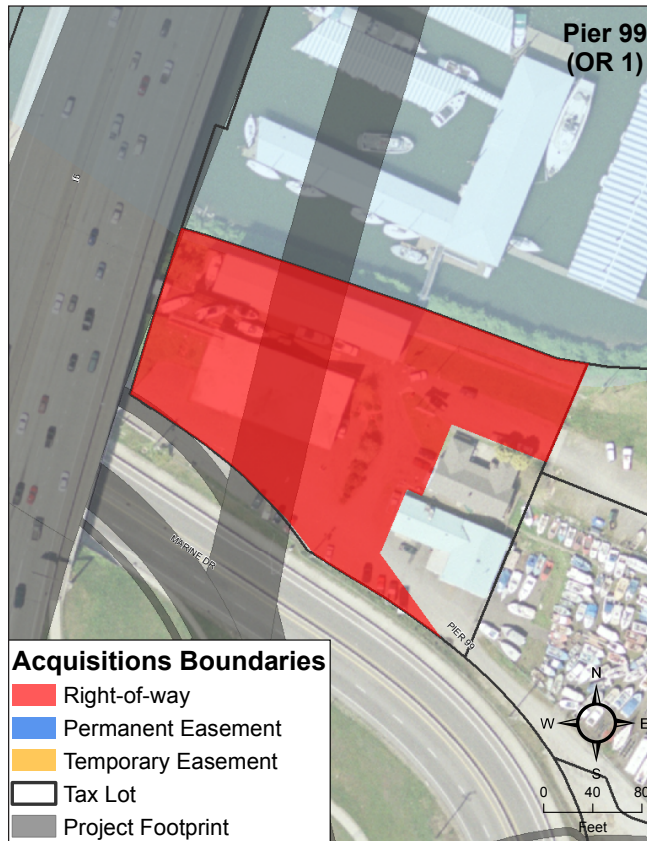
d The acreages presented in this table were calculated from the measured square footage and rounded to the nearest tenth (0.1) of an acre.

e The impact to the individual contributing resources within the VNHR (such as Officers Row) may be small or indirect, but because these resources are included within the VNHR District, they are part of that Section 4(f) resource. The overall effect on the VNHR is considered a Section 4(f) use, and therefore the Section 4(f) use determination also applies to any contributing resources that would be affected within the VNHR, regardless of the magnitude of the impact on that resource.

f From a Section 4(f) perspective, there is no difference between LPA Option A and Option B.

N/A=Alternatives 2, 3, 4, and 5 from the DEIS did not include an alignment in this area.

Exhibit 5.3-3  
**Pier 99 (OR1)**



Dimensions are approximate.

**Impacts to Resources in Portland**

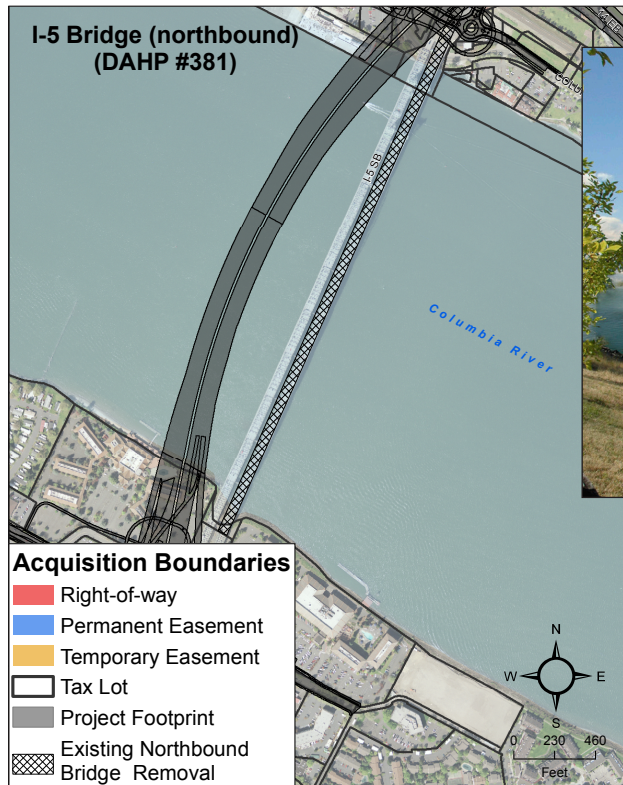
There is one *use* of a Section 4(f) resource located in Portland, south of the Columbia River.

*Pier 99* – As illustrated in Exhibit 5.3-3, highway construction associated with the LPA options would require the acquisition of most of the parcel that contains Pier 99, a boat store and marina. This acquisition would displace this mid-century, NRHP-eligible resource, which would constitute a Section 4(f) *use*. CRC construction would also require the acquisition of a non-contributing advertising sign and boat storage, both on-land and in-water.

**Impacts to the 1917 I-5 Northbound Bridge**

Impacts to the 1917 I-5 northbound bridge are shown in Exhibit 5.3-4. Construction of the LPA options would remove the existing bridge, which would constitute a Section 4(f) *use*.

Exhibit 5.3-4  
**1917 Northbound I-5 Bridge (381)**



Dimensions are approximate.



Visual simulation of truss bridge.

## Impacts to Resources in Vancouver

This section describes *uses* of Section 4(f) resources located in Vancouver, south of the I-5/Mill Plain Boulevard interchange. This area includes the Vancouver National Historic Reserve, an Historic District.

*Vancouver National Historic Reserve* – As illustrated in Exhibit 5.3-5, the LPA options would require acquisition of a total of 1.8 acres of land within the Reserve, which would constitute a Section 4(f) *use*. This includes impacts to the Fort Vancouver National Historic Site, discussed below, temporary use of less than 0.1 acre of land at Officers Row (Exhibit 5.3-8), and land owned by the City of Vancouver, U.S. Army, WSDOT, and FHWA. Construction activities could temporarily occupy up to 0.1 acre of the VNHR in order to construct the SR 14 interchange and a retaining wall along I-5.

Although the LPA would require acquisition of land within the area historically occupied by Fort Vancouver Village (which has been partially reconstructed) and redevelopment of the West Barracks, it is not expected to substantially interfere with NPS or City of Vancouver plans for Fort Vancouver Village reconstruction or West Barracks redevelopment (see discussion of the relevant plans in Section 5.2.4). CRC project construction would occur in the vicinity of significant archaeological resources near NPS's planned Village reconstruction, including three village house sites that have been determined to be 4(f) resources. Impacts to these sites will be avoided or minimized, and any parts of the sites that would be impacted by project construction would be subject to data recovery excavations. The NPS operates a public archaeology field school that has conducted, and is continuing to conduct, excavations at similar house sites in the village area in order to demonstrate their significance. Other impacts to VNHR would include removal of existing landscaping along SR 14 and at the I-5/ SR 14 interchange, and removal of vegetation and pavement and addition of fill along Anderson Road and north of the Barracks Post Hospital.

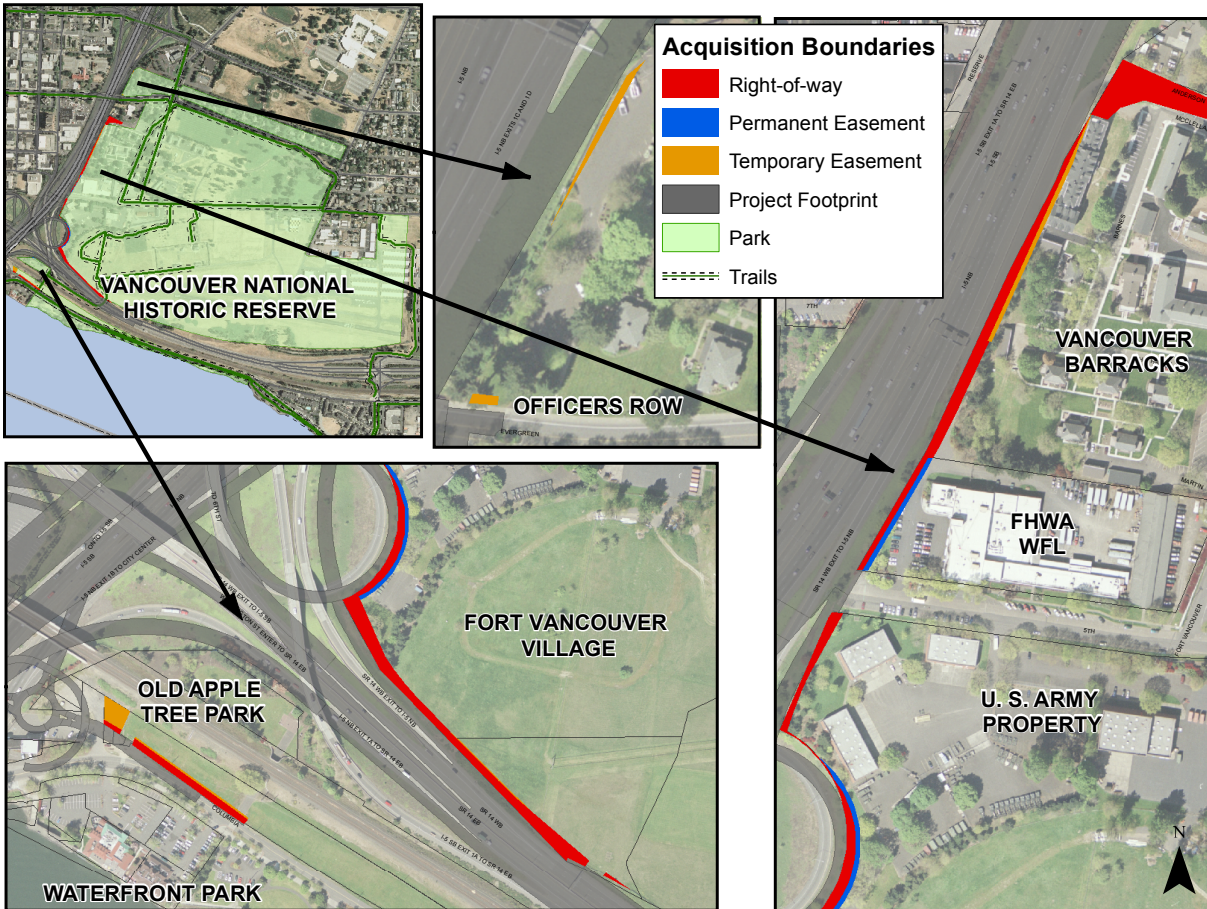
In addition, views from the planned reconstruction of the Fort Vancouver Village (HBC Village) would also be affected by the design of the SR 14 interchange. The SR 14 westbound ramp, which connects to the I-5 northbound facility, would be roughly 20 feet higher than the existing ramp. The City Center exit loop currently is below- and at-grade, underneath the aforementioned ramp, and largely not visible from the Village. With the LPA, this loop ramp would move from underneath to over the top of the SR 14 to I-5 ramp, increasing its prominence in the area. The loop ramp would be roughly 20 feet above the SR 14 to I-5 ramp. The reconstructed Village is a key component of the VNHR, and increased visitation is planned for this area, which may be negatively affected by the change in views.

In the text below, more detail is provided on effects to individual historic and recreational resources within the VNHR. These resources include the Fort Vancouver National Historic Site, the Old Apple Tree Park and Heritage Apple Tree, Barracks Post Hospital, Officers Row, and Pearson Field. The impact to the individual contributing resources within the VNHR may be small or indirect, but because these resources are located within the VNHR Historic District, they are all considered parts of that Section 4(f) property. The overall effect on the VNHR is considered a Section 4(f) *use*, and therefore

the Section 4(f) *use* determination also applies to any contributing resources that would be affected within the VNHR, regardless of the magnitude of the impact on that resource.

Exhibit 5.3-5

**Vancouver National Historic Reserve**

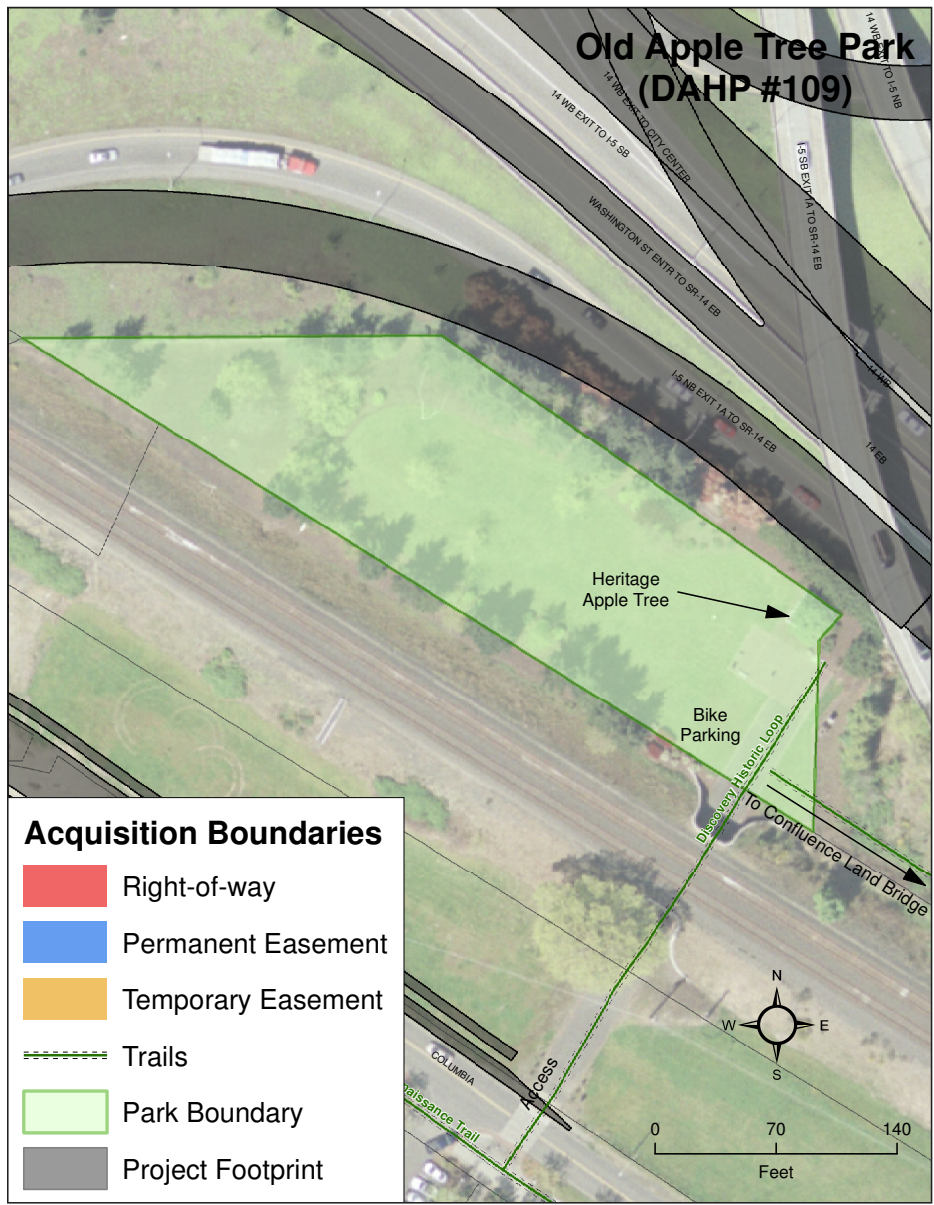


Dimensions are approximate.

*Fort Vancouver National Historic Site* – The LPA would require acquisition of approximately 1.1 acres of land adjacent to the planned reconstruction of the Fort Vancouver Village (HBC Village) and South Barracks areas, including an airspace easement totaling 0.1 acre. Three archaeological resources, HBC Village – Kanaka House, HBC Village – Tayenta’s House, and HBC Village – House 4, that have been considered worthy of preservation in place are located within this area. Though the exact extent of these three sites is not known, it is expected that they would be adversely affected by the construction of the LPA, which would constitute a Section 4(f) *use*. The airspace easement would be acquired on U.S. Army property for the maintenance of the SR 14 westbound to City Center elevated ramp. The U.S. Army Reserve and NPS have made progress on the planned transfer of the military property to the NPS. Given the historical significance of these impacted areas, the NPS has developed plans that include incorporating the southern portion of the impacted areas into the Fort Vancouver Village interpretive trails, reconstruction, and park perimeter buffering. See Section 5.2.4 for more information regarding these plans.

*Old Apple Tree Park and Heritage Apple Tree* – The Heritage Apple Tree (a historic resource) is located within Old Apple Tree Park (a public park), both of which are located within the boundaries of the VNHR. Since the publication of the DEIS, the project design has been modified by relocating a ramp in order to avoid impacts to the park. As illustrated in Exhibit 5.3-6, an elevated ramp from northbound I-5 to eastbound SR 14 would approach but not encroach onto Old Apple Tree Park. As part of the LPA options, Apple Tree Park, which now can only be accessed through a tunnel under the BNSF berm or from the Land Bridge, will be connected to Main Street and will be much more accessible from downtown. The Land Bridge will also be more accessible from downtown.

Exhibit 5.3-6  
**Old Apple Tree Park (109)**

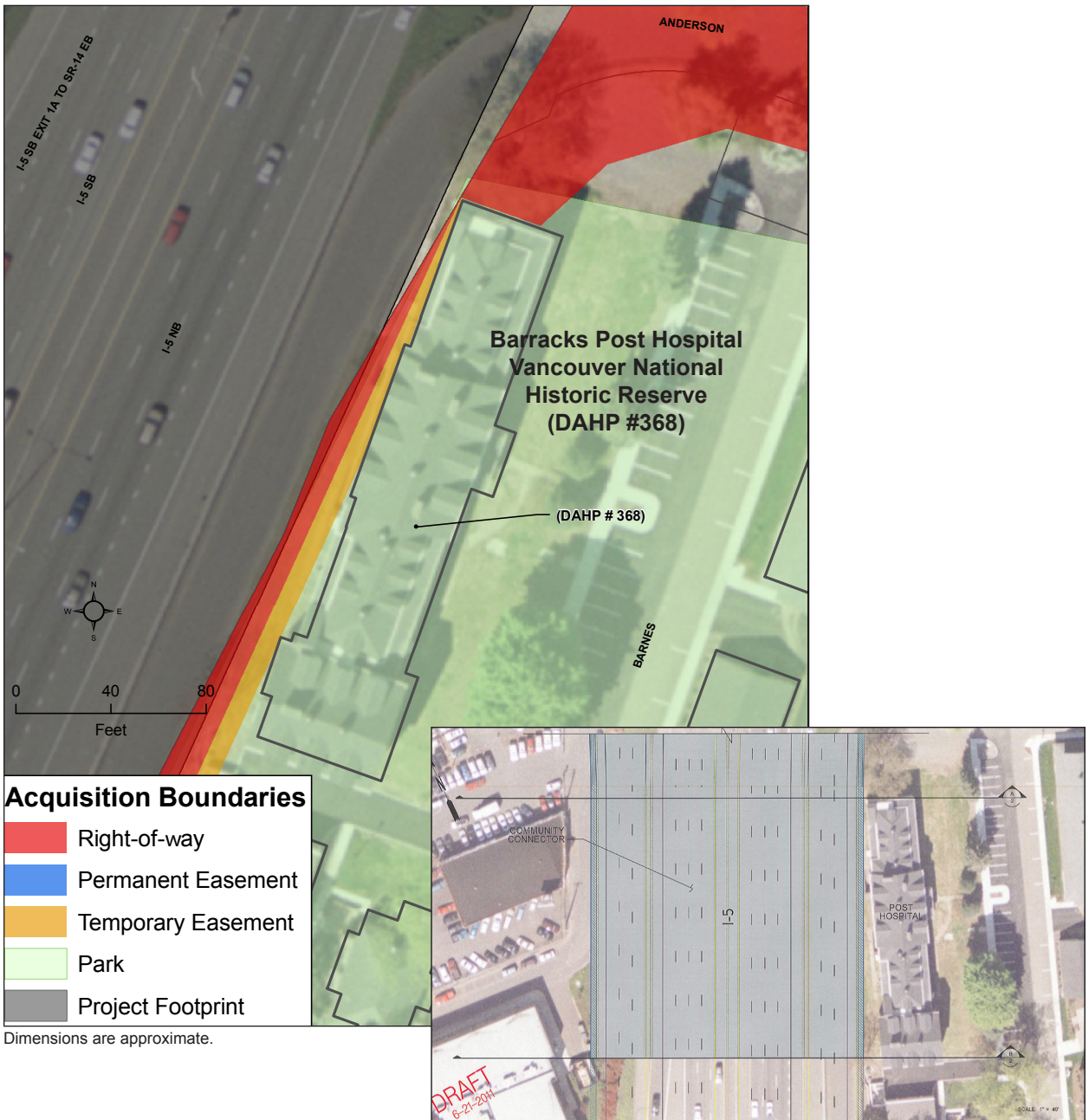


Dimensions are approximate.

*Barracks Post Hospital* – As illustrated in Exhibit 5.3-7, the LPA would not directly impact the Barracks Post Hospital building, but it would require acquisition of nearly all land between I-5 and the hospital and the displacement of Anderson Road. The new right-of-way would encroach within 16 feet of the southwest corner of the hospital; currently, the distance between the hospital and right-of-way is 28 feet. At the northwest corner, the new right-of-way would align with the existing right-of-way, less than 3 feet from the building. The nearest travel lane is located 32 feet from the southwest corner of the hospital and 17 feet from the northwest corner. The elevation of I-5 at this location would be 15 to 20 feet lower than the elevation of the hospital. The setting associated with the building would be impacted by placing highway facilities closer to the building than at present. The vibration levels associated with construction or operation of the LPA would not jeopardize the structural condition of the Barracks Post Hospital building. However it is designed and constructed with unreinforced masonry and the owners are concerned that the buildings will experience vibration impacts associated with construction. Although this acquisition would not directly affect the Barracks Post Hospital or any other historic buildings, it would constitute a Section 4(f) *use* because the land that would be acquired is part of the VNHR Historic District. Much of the land acquired north of the building will be used for pedestrian access to the proposed community connector (described in Section 5.2.4). The Evergreen Community Connector is a proposed lid over I-5 that, in addition to providing a pedestrian connection across I-5, will help to reduce noise levels and screen views of I-5 from the Barracks Post Hospital. It will also block views to the west from portions of the first floor of the hospital.

*Pearson Field* – The new bridge over the Columbia River would result in a permanent, minor incursion into Pearson Field’s protected airspace. This minor obstruction of the westbound departure obstacle clearance surface is unavoidable, as necessary marine clearance is needed below the bridges. This required clearance has dictated the minimum height of the proposed new bridges. This minor obstruction would not prevent the continued use of the airfield or change any character-defining features. Although this has been determined to have no adverse effect on this historic resource, it would still constitute a Section 4(f) *use*, as Field is a contributing resource within the VNHR.

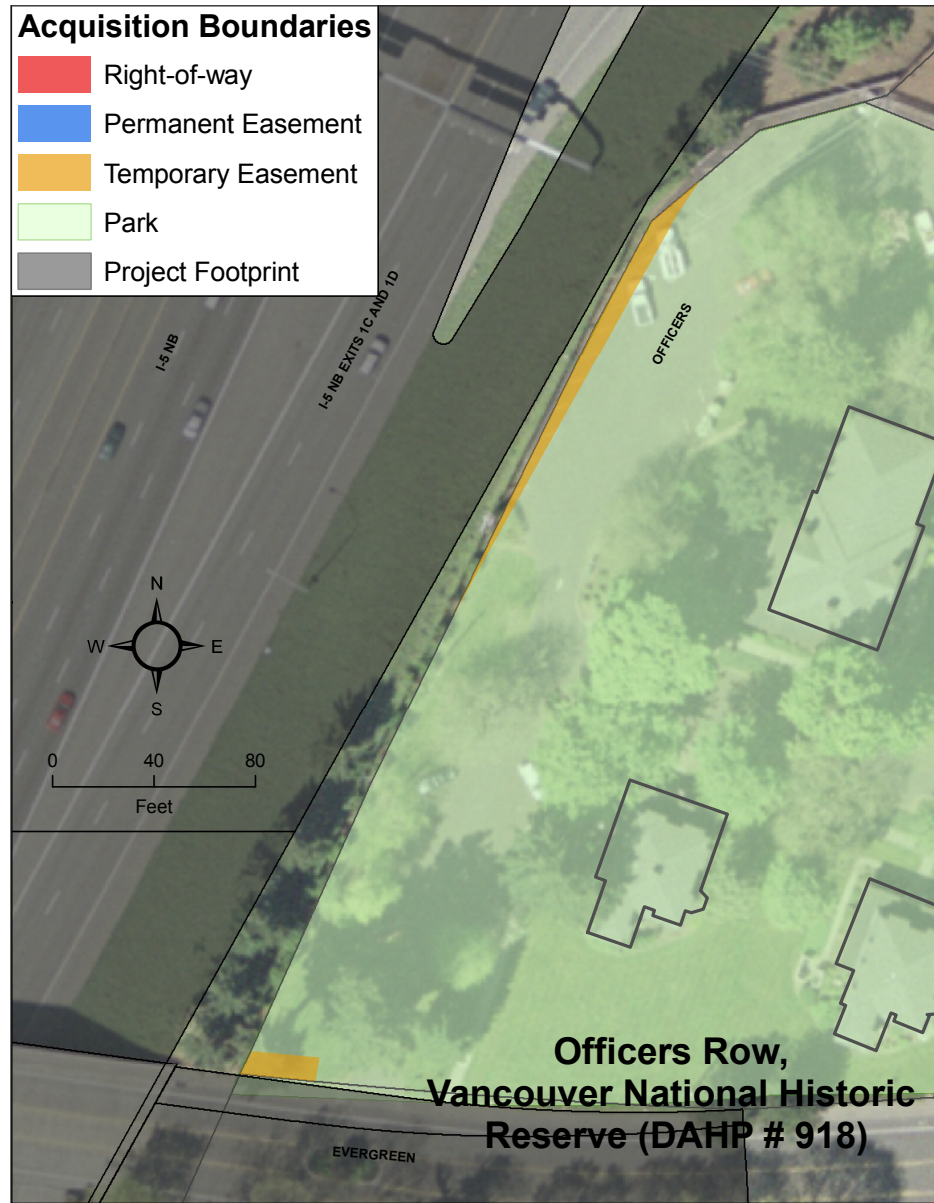
Exhibit 5.3-7  
**Barracks Post Hospital (368)**



*Officers Row* – As illustrated in Exhibit 5.3-8, the LPA would require a minor temporary construction easement (less than 0.1 acre) from the western end of Officers Row. This temporary occupancy in and of itself would not constitute a Section 4(f) *use*, although a Section 4(f) *use* would occur, as this resource is located within the VNHR Historic District.

Exhibit 5.3-8

**Officers Row (918)**



Dimensions are approximate.

*Waterfront Park* – As illustrated in Exhibit 5.3-9, the new I-5 bridges over the Columbia River would travel over the portion of Waterfront Park located on the west side of the existing I-5 bridges. This portion of the park, which is in City of Vancouver right-of-way adjacent to Columbia Way, acts as the entrance to the larger Waterfront Park and Waterfront Renaissance Trail, and includes a plaza and public art. The project would permanently acquire this entire area, approximately 0.4 acre, and displace the Boat of Discovery Monument and Waves Plaza. This permanent property acquisition constitutes 9 percent of the 5-acre Waterfront Park, and would constitute a Section 4(f) *use*.

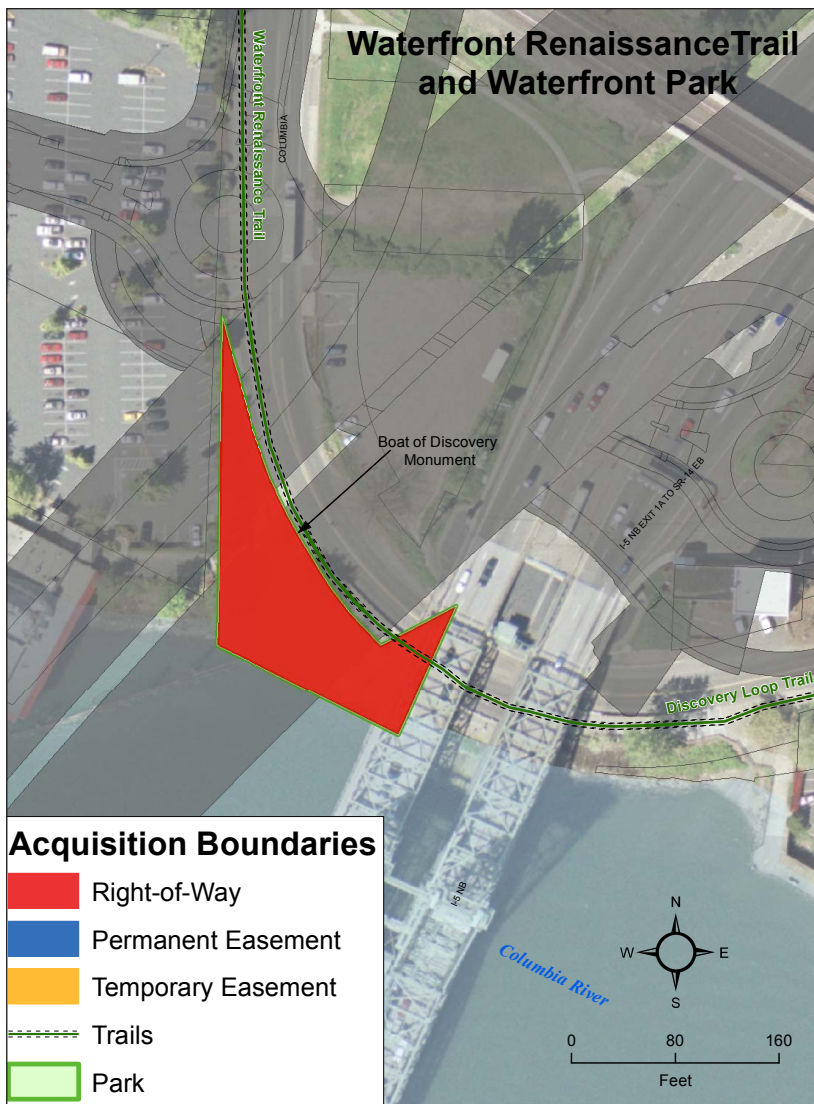


*Waterfront Renaissance Trail (part of the Discovery Loop Trail)* – The Waterfront Renaissance trail is located in Waterfront Park, along Columbia Way on the Vancouver riverfront. As illustrated in Exhibit 5.3-9, approximately 450 feet of the trail would be realigned due to the construction of the new I-5 bridges and demolition of the existing bridges. This length of impacted trail constitutes less than 5 percent of the existing 5-mile Waterfront Trail and would constitute a Section 4(f) use.

Access to this trail from I-5 is currently provided by steep or circuitous paths extending from the north ends of the I-5 bridges down to Columbia Way. Users have to cross Columbia Way to access the trail. The LPA would include a new multi-use path within the northbound I-5 bridge, which would connect to Waterfront Park and Trail via a looped path that would travel underneath the bridges. This ramp would connect directly to the multi-use trail along the realigned Columbia Way. The future connection would be wider and safer than the current connection, and would directly benefit Waterfront Trail and the resources that it provides connection to, including Waterfront Park, Old Apple Tree Park, the Confluence Land Bridge, and the VNHR.

Exhibit 5.3-9

**Waterfront Renaissance Trail and Waterfront Park**



Dimensions are approximate.

*Marshall Community Center, Luepke Senior Center, and Marshall Park* – The LPA would require the permanent acquisition of 0.6 acre of property from the parcel occupied by the Marshall Community Center Complex. As illustrated in Exhibit 5.3-10, a majority of this permanent property acquisition would occur along the western edge of the parcel for the fill wall, while the remaining portion would be required along the northern edge of the parcel to accommodate the wider street cross-section needed for light rail. The permanent acquisition would permanently displace up to eight parking spaces, four horseshoe pits, and trees (both within state right-of-way and within the park boundary) that currently serve as a visual buffer between the community centers and I-5. The fill wall would be located along the border of the parking lot and would be up to 20 feet high. Construction of this wall would require the temporary occupancy of an additional 0.5 acre of the park, and would make 30 to 40 parking spaces temporarily unusable. Of the 0.5 acre of park required for construction of the wall, 0.1 acre of land is required from an area that was granted to the City of Vancouver through a Federal Lands to Parks (FLP) grant. The conversion of this FLP land to a non-recreational use requires an equitable substitution of land and approvals from the National Park Service and other agencies. This process is being coordinated with the City and NPS and the requirements will be complied with through a formal application and approval process to be completed after the Record of Decision. Aside from the FLP land, the permanent use of 0.6 acre comprises 3 percent of the 22-acre facility, and would constitute a Section 4(f) *use*.

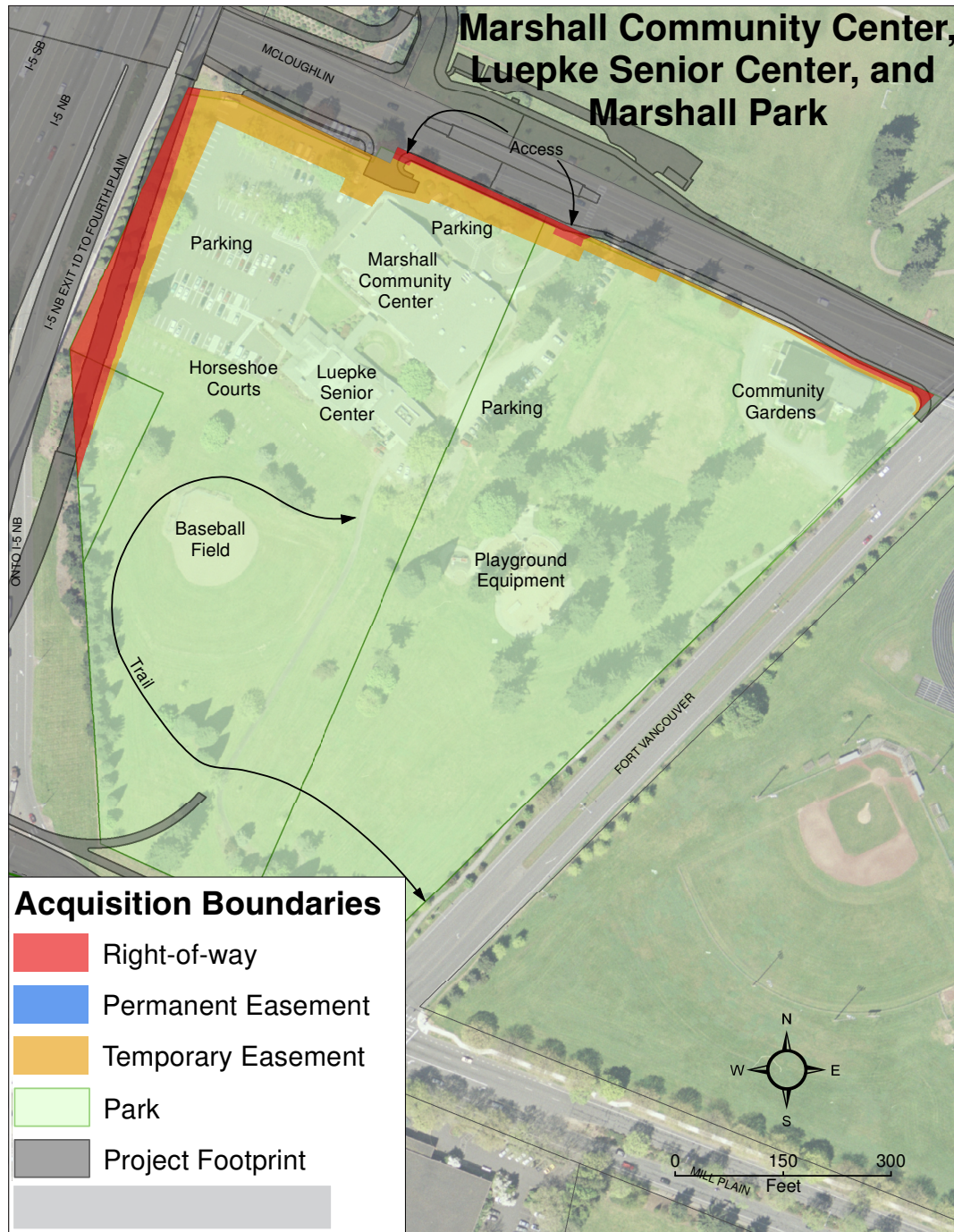
Additionally, the west access point to this facility on McLoughlin Boulevard would be realigned farther to the west to accommodate the proposed terminal light rail station. The location of the eastern access to the Community Center Complex would not change. The two access points would be located just west and just east of the proposed station, and both would be signalized intersections to facilitate safe traffic, bike, and pedestrian movements to and from the Community Center Complex and between the Community Center Complex and transit station and the Clark Park and Ride.

Existing on-street parking on McLoughlin Boulevard, which is often used by members of the public accessing the Community Center Complex, would be eliminated to accommodate the light rail guideway and station, two lanes of traffic, turn lanes into the Community Center and the Clark Park and Ride, bicycle lanes, and sidewalks.

Marshall Community Center, Luepke Senior Center, and Marshall Park would benefit from the addition of light rail and a station on McLoughlin Boulevard adjacent to the facility. In addition to improved transit access, park users would also experience improved bicycle and pedestrian connections (wider sidewalks, new paths, signalized intersections on McLoughlin Boulevard, etc.) to the facility from Mill Plain Boulevard and from McLoughlin Boulevard.

Exhibit 5.3-10

**Marshall Community Center, Luepke Senior Center, and Marshall Park**



Dimensions are approximate.

### 5.3.4 De Minimis Impact Findings

A *de minimis* impact on a historic resource is defined by a finding of either “no adverse effect” or “no historic properties affected” (no effect), in compliance with Section 106 of the National Historic Preservation Act. A *de minimis* impact on a parkland is defined as an impact that does not adversely affect the activities, features or attributes of the Section 4(f) resource. *De minimis* impact findings must be made in compliance with Section 6009(a) of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) and subsequent amendments to Section 138 of Title 23 and Section 303 of Title 49, United States Code (USC).

#### De minimis Findings for Historic Resources

A finding of *de minimis* impact for historic resources requires that the project have no adverse effect on that site, or that no historic properties would be affected (no effect), in accordance with Section 106 of the National Historic Preservation Act (16 USC 470f). The Section 106 finding needs to be developed in consultation with Section 106 consulting parties, and requires written concurrence from the Washington or Oregon State Historic Preservation Officer (SHPO), as well as from the Advisory Council on Historic Preservation if the Council is participating in the consultation process. Written concurrence on the Section 106 findings for this project was obtained in January 2011. SHPO and DAHP were notified that for these properties that they concurred would have no adverse effect, the DOT would utilize the Section 4(f) *de minimis* findings. Section 106 documentation is located in the CRC Cultural Resources Report and related appendices.

Exhibit 5.3-11  
**Steel Bridge – Portland, Oregon**



Dimensions are approximate.

The *de minimis* impact for Kiggins Bowl is described in the “*De minimis* Findings for Park and Recreation Resources” section, as this facility is both a recreation resource and a historic resource.

FHWA and/or FTA have made *de minimis* impact findings for the following historic properties for which the project would have “no adverse effect.”

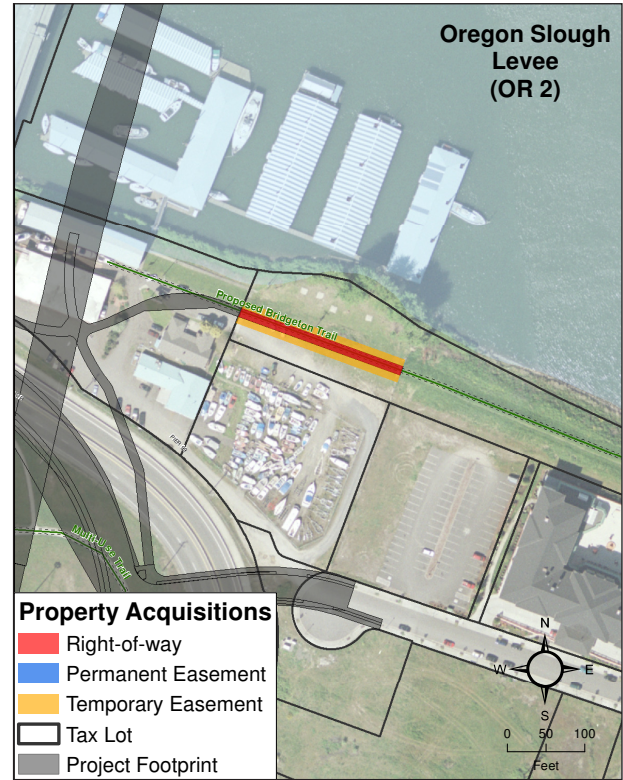
*Steel Bridge, Oregon* – The Steel Bridge (Exhibit 5.3-11) in Portland carries vehicular traffic, heavy rail, and MAX light rail lines, including the Yellow Line. The CRC project will extend the Yellow line north into Vancouver and will add additional trains, thus resulting in more light rail transit traffic across the Steel Bridge. All of the CRC alternatives would make minor improvements to the existing MAX light rail transit rails and electrical system on the Steel Bridge, in order to allow light rail transit speeds to increase from 10 mph to 15 mph over the bridge. This will better accommodate the additional trains that will run on these tracks with the CRC project as well as the other MAX lines that use the Steel Bridge. The work would consist of grinding the rails, installing

a vibration pad under the signal case, stiffening the light rail overhead contact system brackets, and adjusting light rail and traffic signal timing. None of these improvements would modify original components of the Steel Bridge and there would be no effect to any of the bridge’s character-defining features or integrity. Through Section 106 consultation, the Oregon SHPO has concurred that these changes would not adversely affect this historic resource. These changes would constitute a *de minimis* impact under Section 4(f).

*Oregon Slough Levee, Oregon* – The LPA would require that a small portion of the levee, approximately 330 linear feet extending east of I-5 (Exhibit 5.3-12), be demolished and rebuilt in order to accommodate the ground improvements needed to stabilize soils below the new interstate ramps and bridges. Construction crews would either remove the levee prior to conducting the stabilization and rebuild it, or perform the ground improvements through the levee and reconstruct it afterward. As part of reconstruction of the levee, the project would construct an extension of the Portland Parks and Recreation Bridgeton Trail on top of the levee. Although this construction would require localized alterations to the levee, the integrity of the system as a whole would be maintained, and the changes would not adversely affect this historic resource. These changes would constitute a *de minimis* impact under Section 4(f).

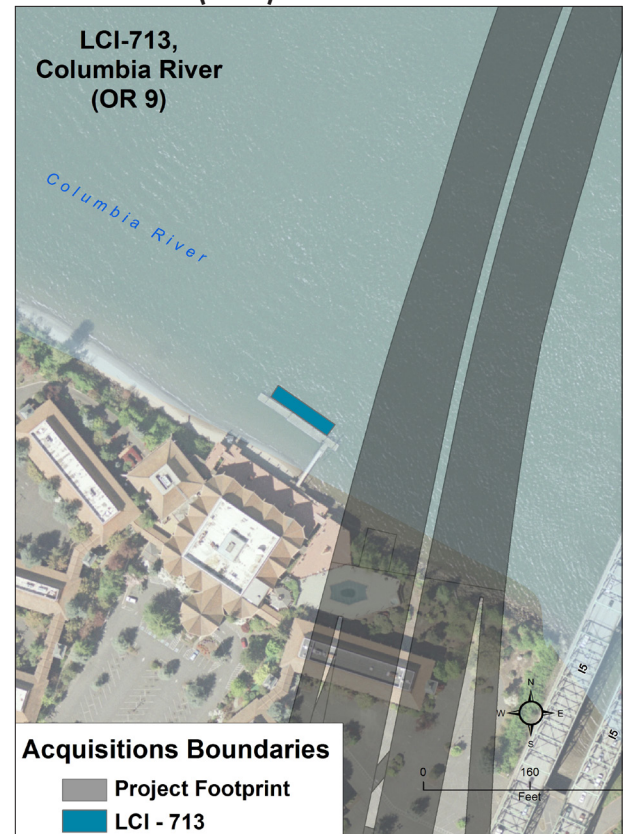
*USS LCI-713* – The LPA will use the vacant Thunderbird Hotel site as a staging area for the project (Exhibit 5.3-13). The USS LCI-713 is temporarily moored at the vacant Thunderbird Hotel site, but there are plans to move the ship to a new location for repairs and permanent relocation. The vessel no longer has integrity of location and setting, and it is anticipated the ship will be moved by the time the project uses the Thunderbird Hotel site for staging. Although the LCI-713 will have to be moved to a new location, the move would not change any character-defining features of the ship. Only the ship’s location and setting would change, although the integrity of these would not be diminished as long as the ship is docked along a river with access to the Pacific Ocean. If the ship is still docked at the Thunderbird Hotel when the project needs use of the property, then the project will revisit the issue, coordinate with SHPO, and provide assistance moving the ship to a new

Exhibit 5.3-12  
**Oregon Slough Levee (OR2)**



Dimensions are approximate.

Exhibit 5.3-13  
**USS LCI-713 (OR9)**



Dimensions are approximate.

Exhibit 5.3-14

**Normandy Apartments,  
318 E 7th Street (149)**



Dimensions are approximate.

location. The USS LCI-731 no longer has integrity of location and setting, since it has been moved to its current temporary mooring at the vacant Thunderbird Hotel site. There would be no adverse effect to the historic property. Potential action by the LPA would not interfere with plans for the historic ship so the project action would constitute a *de minimis* impact under Section 4(f).

*Normandy Apartments, 318 E 7th Street* – The LPA would require the acquisition of a narrow strip of property along the eastern edge of the parcel, totaling less than 0.1 acre (481 square feet) for the construction of a retaining wall along I-5 (Exhibit 5.3-14). Some landscaping would be impacted by this acquisition. No structures on the parcel would be displaced. These impacts would not adversely affect this historic resource and would be considered a *de minimis* impact under Section 4(f).

The Normandy Apartments (Exhibit 3.8-14) are located immediately west of I-5, north of the I-5/SR 14 interchange. A narrow strip of property along the eastern edge of the parcel, totaling less than 0.01 acre, would need to be permanently acquired for the construction of a retaining wall along I-5. Some landscaping would be impacted by

this acquisition. Specific uses would be allowed to remain or occur on the surface, but activities such as excavating below a certain depth would be prohibited by the easement. No structures on the parcel would be displaced.

The LPA slightly elevates highway noise levels for this historic property. Six units of the Normandy Apartments currently experience noise levels that exceed FHWA’s criteria. Proposed noise walls would greatly reduce noise levels for the lower three units (even from existing levels), while the impacts to the upper three units cannot be mitigated. The increase for these three units will only be 2 dBA over existing conditions and 1 dBA over the No-Build Alternative. Generally, increases of three or fewer dBA are not considered audible.

Neither the temporary or permanent impacts would adversely affect this historic resource and project impacts would be considered *de minimis* under Section 4(f).

*Vancouver City Hall, 210 E 13th Street* – Following construction of the light rail alignment on Broadway Street, access from Broadway Street to the parking structure underneath the Vancouver City Hall would be changed to right-in/right-out only for vehicles. There would also be less than 0.1 acre (300 square feet) temporarily occupied during construction (Exhibit 5.3-15).

*Washington Mutual (Chase) Bank, 1205 Broadway Street* – Following construction of the light rail alignment on Broadway Street, access from

Broadway Street to a parking lot used by the historic Washington Mutual/Chase Bank would be changed to right-in/right-out only for vehicles. There would also be less than 0.1 acre (1,269 square feet) temporarily occupied during construction (Exhibit 5.3-16). There would be no adverse effect to this historic property.

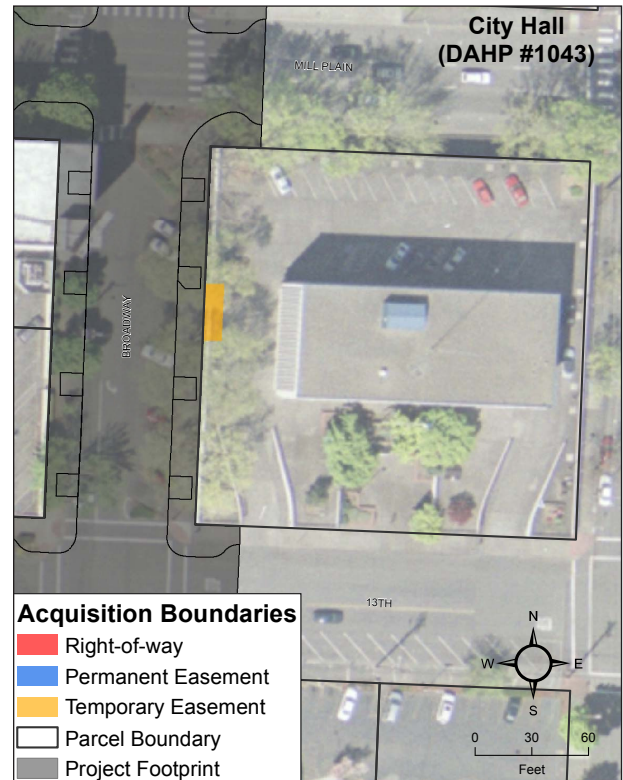
*W Foster Hidden House, 110 W 13th Street* – Following construction of the light rail alignment along Washington Street, access from Washington to garages used by historic W. Foster Hidden House would change to right-in/right-out only for vehicles. Less than 0.1 acre (583 square feet) would be temporarily occupied (Exhibit 5.3-17) during construction. There would be no adverse effect to this historic property.

*Vancouver Telephone Exchange, 112 W 11th Street* – Following construction of the light rail alignment, access from Washington Street to a driveway used by the occupants of the historic Vancouver Telephone Exchange (Exhibit 3.8-18) building would be changed to right-in/right-out only for vehicles. There would also be less than 0.1 acre (425 square feet) temporarily occupied during construction. There would be no adverse effect to this historic property.

In addition to the physical impacts and temporary impacts described below for each resource on 17th Street, light rail transit noise levels are predicted to meet or exceed the FTA criteria at these historic properties, as well as other single-family residences between C Street and G Street. Projected light rail noise levels range from 0 to 2 dBA over the FTA criteria, with future light rail noise levels ranging from 57 to 63 dBA  $L_{dn}$ .

To mitigate this, residential sound insulation and/or ventilation systems would be implemented. Sound insulation for each structure would be determined on a case-by-case basis during the final design stage. Given that these measures would be implemented for NRHP-eligible houses, the rehabilitations will be reviewed for consistency with the Secretary of the Interior’s Standards. For example, storm windows would have to be compatible with the original window designs and not introduce new, architectural impacts. There would be no adverse effect to these historic properties.

Exhibit 5.3-15  
**Vancouver City Hall, 210 E 13th Street (1043)**



Dimensions are approximate.

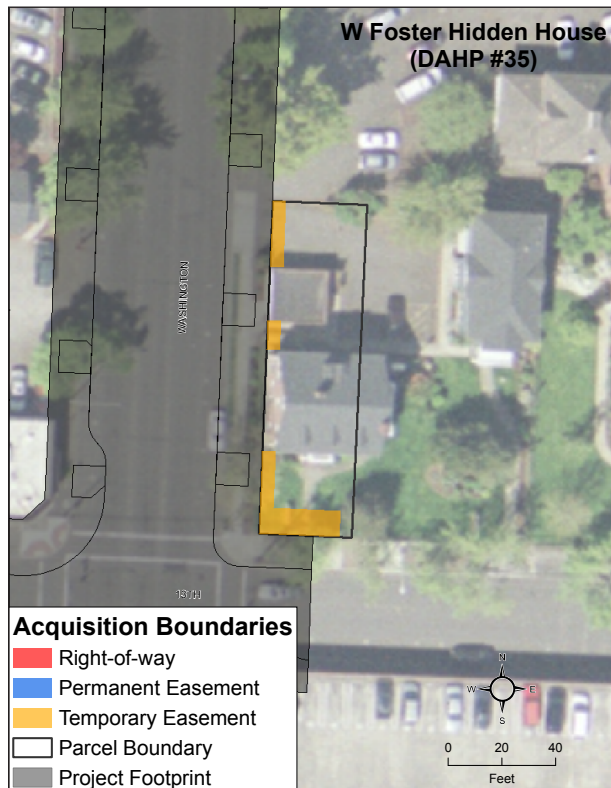
Exhibit 5.3-16  
**Washington Mutual (Chase) Bank, 1205 Broadway (1045)**



Dimensions are approximate.

Exhibit 5.3-17

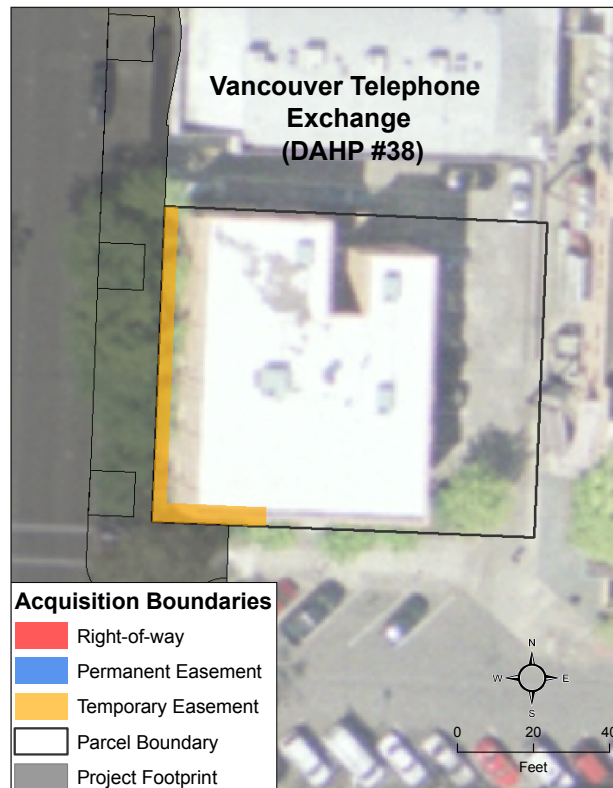
**W Foster Hidden House,  
110 W 13th Street (35)**



Dimensions are approximate.

Exhibit 5.3-18

**Vancouver Telephone Exchange, 112 W  
11th Street (38)**



Dimensions are approximate.

*Residence, 307 E 17th Street* – The sidewalk would be reconstructed and less than 0.1 acre (288 square feet) would be temporarily occupied (Exhibit 5.3-19). There would be no adverse effect to this historic property. The sidewalk reconstruction and temporary acquisition would be *de minimis* impacts under Section 4(f).

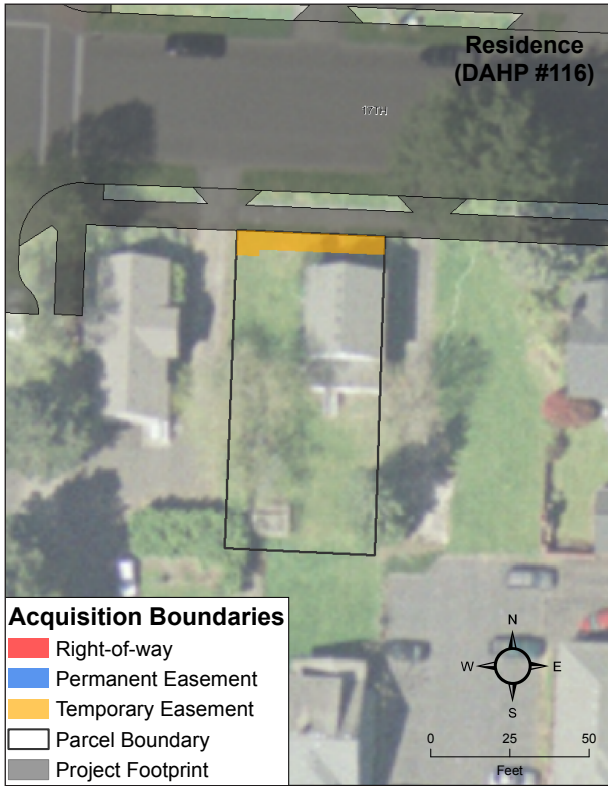
*Residence, 404–406 E 17th Street* – The sidewalk would be reconstructed and less than 0.1 acre (540 square feet) would be temporarily occupied (Exhibit 5.3-20). There would be no adverse effect to this historic property. The sidewalk reconstruction and temporary acquisition would be *de minimis* impacts under Section 4(f).

*Commercial, 415 E 17th Street* – The sidewalk would be reconstructed and less than 0.1 acre (396 square feet) would be temporarily occupied (Exhibit 5.3-21). There would be no adverse effect to this historic property. The sidewalk reconstruction and temporary acquisition would be *de minimis* impacts under Section 4(f).

*Residence, 604 E 17th Street* – The sidewalk would be reconstructed and less than 0.1 acre (244 square feet) would be temporarily occupied (Exhibit 5.3-22). There would be no adverse effect to this historic property. The sidewalk reconstruction and temporary acquisition would be *de minimis* impacts under Section 4(f).

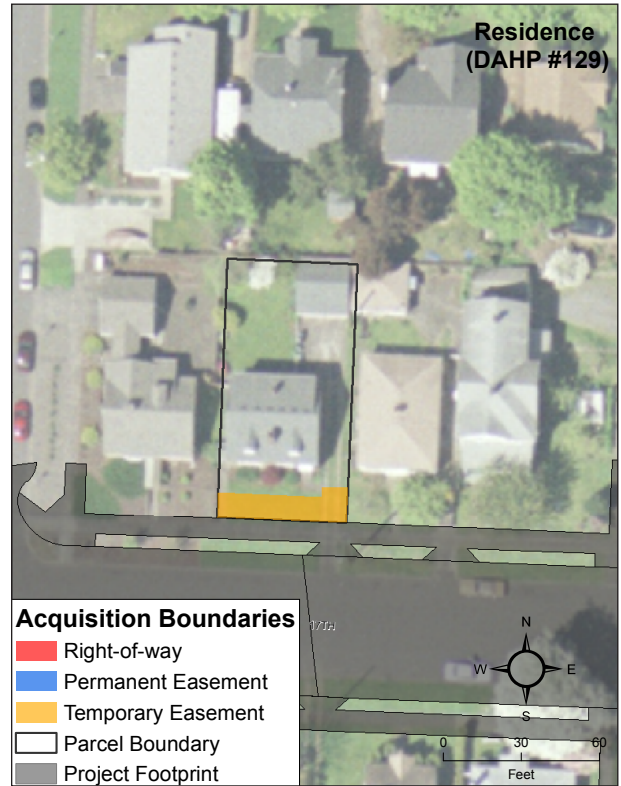


Exhibit 5.3-19  
**307 E 17th Street (116)**



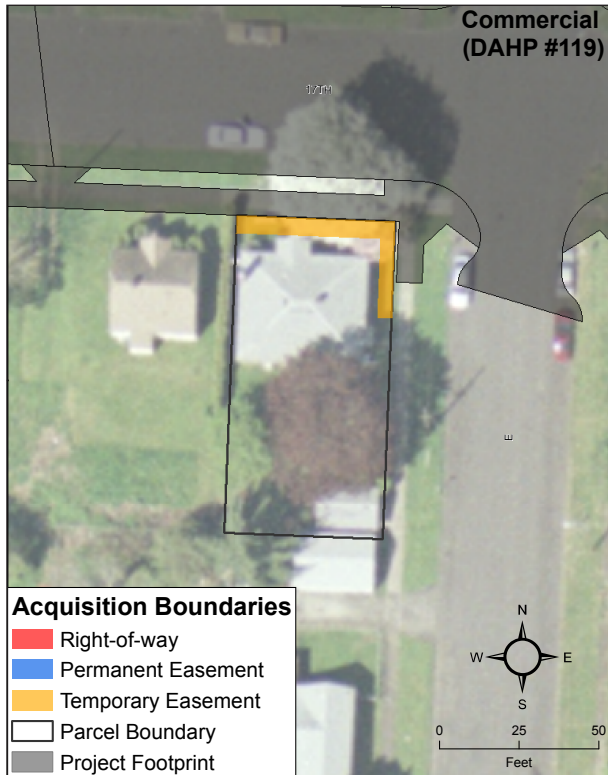
Dimensions are approximate.

Exhibit 5.3-20  
**404-406 E 17th Street (129)**



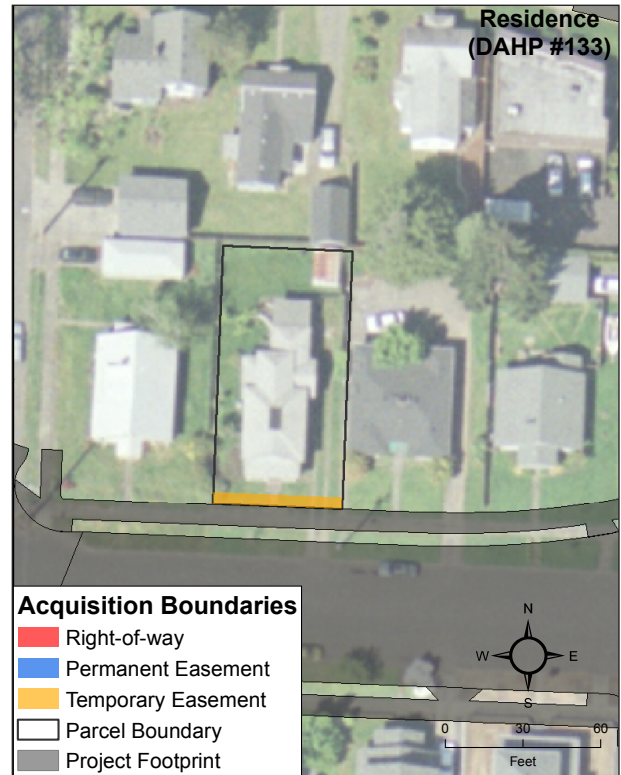
Dimensions are approximate.

Exhibit 5.3-21  
**415 E 17th Street (119)**



Dimensions are approximate.

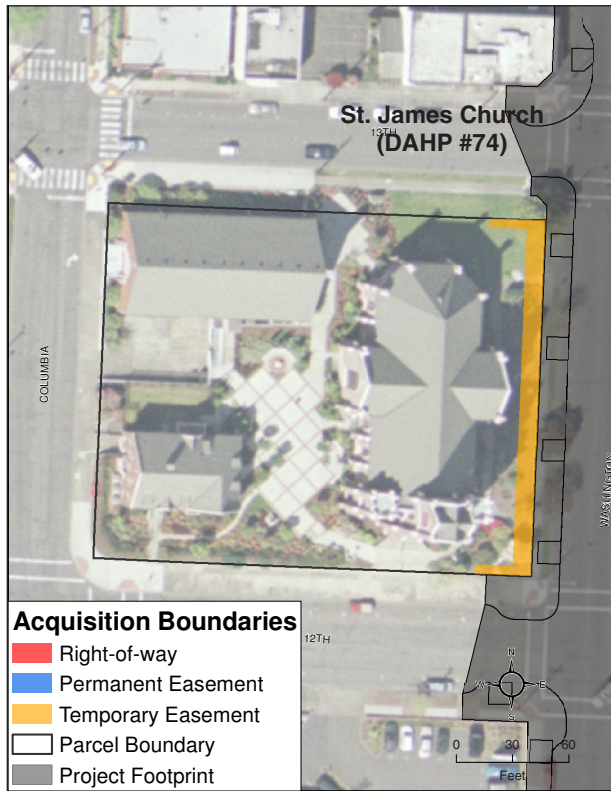
Exhibit 5.3-22  
**604 E 17th Street (133)**



Dimensions are approximate.

Exhibit 5.3-23

**218 W 12th Street (74)**



Dimensions are approximate.

*St. James Church, 218 W 12th Street* – The sidewalk would be reconstructed and less than 0.1 acre (2,090 square feet) would be temporarily occupied (Exhibit 5.3-23). There would be no adverse effect to this historic property. The sidewalk reconstruction and temporary acquisition would be *de minimis* impacts under Section 4(f).

*Fort Apartments, 500 E. 13th Street* – The LPA slightly elevates highway noise levels for 12 units at this historic property (Exhibit 5.2-24). The increase for these units will be 2 dBA over existing conditions the No-Build Alternative. Generally, increases of three or fewer dBA are not considered audible. These impacts would not adversely affect this historic resource and would be considered a *de minimis* impact under Section 4(f).

*Evergreen Inn, 500 Main Street* – The LPA slightly elevates highway noise levels for 24 units at this historic property (Exhibit 5.3-25). The increase for these units will be 3 dBA over existing conditions and 2 dBA over the No-Build Alternative. Generally, increases of three or fewer dBA are not considered audible. However, only with the LPA, will the noise impacts meet the WSDOT noise criteria. Though a wall was evaluated, it would not provide any noticeable noise reduction for the elevated apartment homes and therefore is not recommended. These impacts would not adversely affect this historic resource and would be considered a *de minimis* impact under Section 4(f).

Exhibit 5.3-24

**500 E 13th Street (168)**

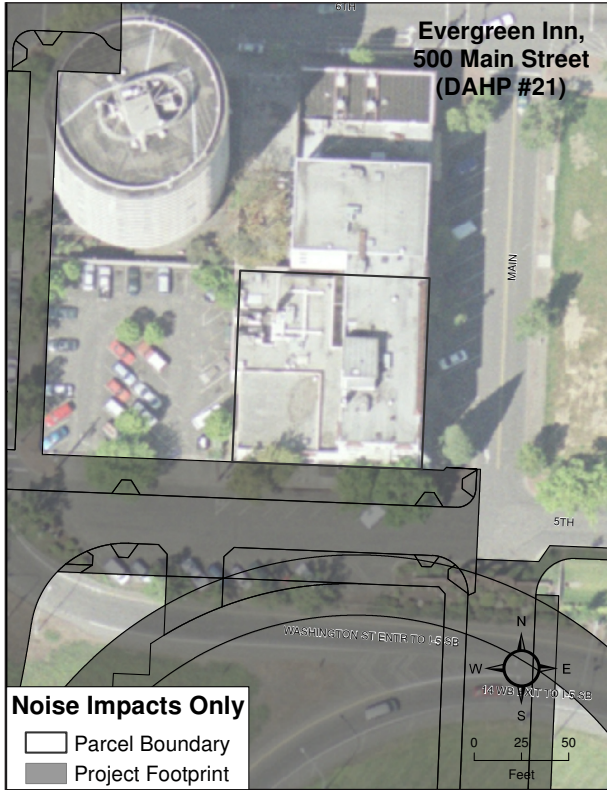


Dimensions are approximate.

*Residence, 700 E McLoughlin Boulevard* – The sidewalk would be reconstructed and less than 0.1 acre (275 square feet) would be temporarily occupied (Exhibit 5.3-26). There would be no adverse effect to this historic property. The sidewalk reconstruction and temporary acquisition would be *de minimis* impacts under Section 4(f).

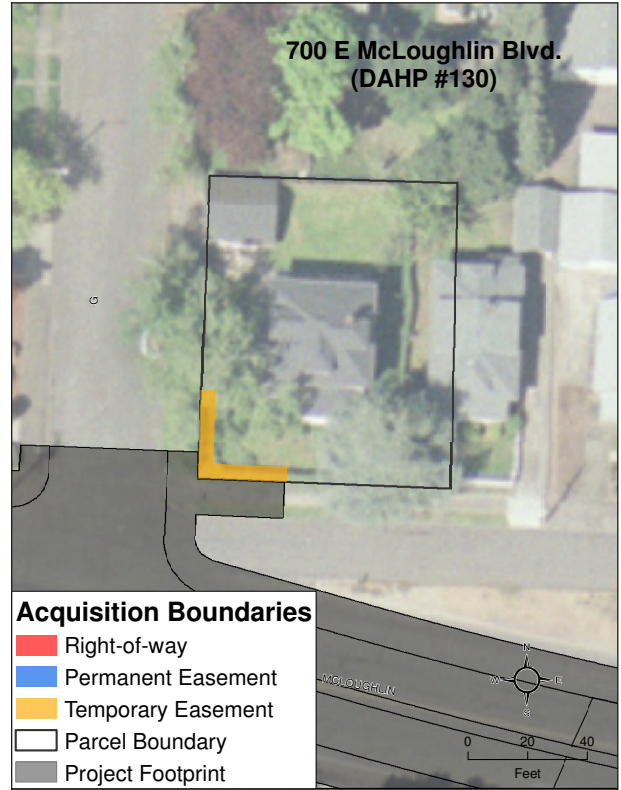
*Carpenters Union Hall, 612 E McLoughlin Boulevard* – The sidewalk would be reconstructed and less than 0.1 acre (400 square feet) would be temporarily occupied (Exhibit 5.3-27). There would be no adverse effect to this historic property. The sidewalk reconstruction and temporary acquisition would be *de minimis* impacts under Section 4(f).

Exhibit 5.3-25  
**500 Main Street (21)**



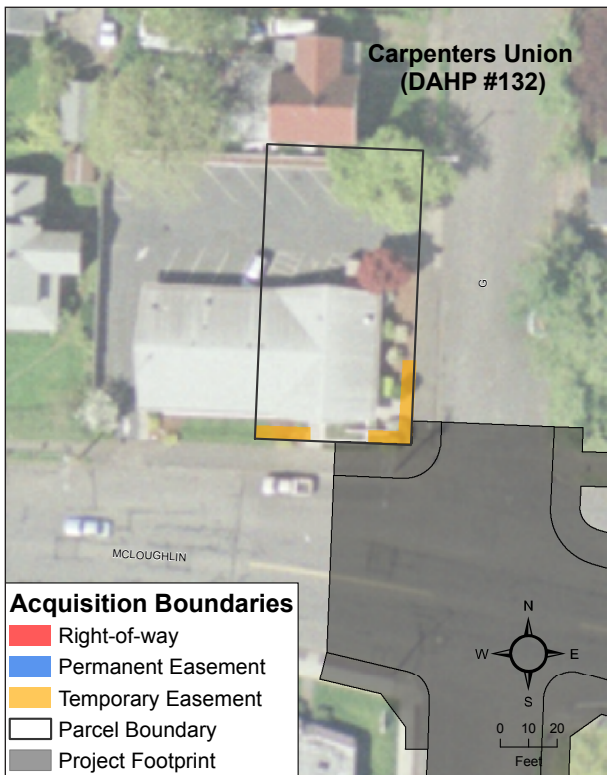
Dimensions are approximate.

Exhibit 5.3-26  
**700 E McLoughlin Boulevard (130)**



Dimensions are approximate.

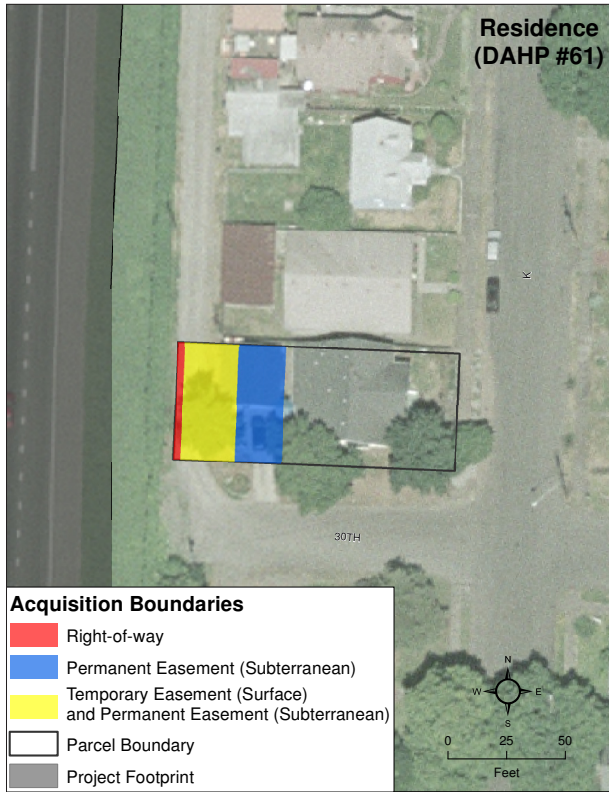
Exhibit 5.3-27  
**Carpenters Union Hall (132)**



Dimensions are approximate.

Exhibit 5.3-28

**Residence, 3000 K Street (61)**



Dimensions are approximate.

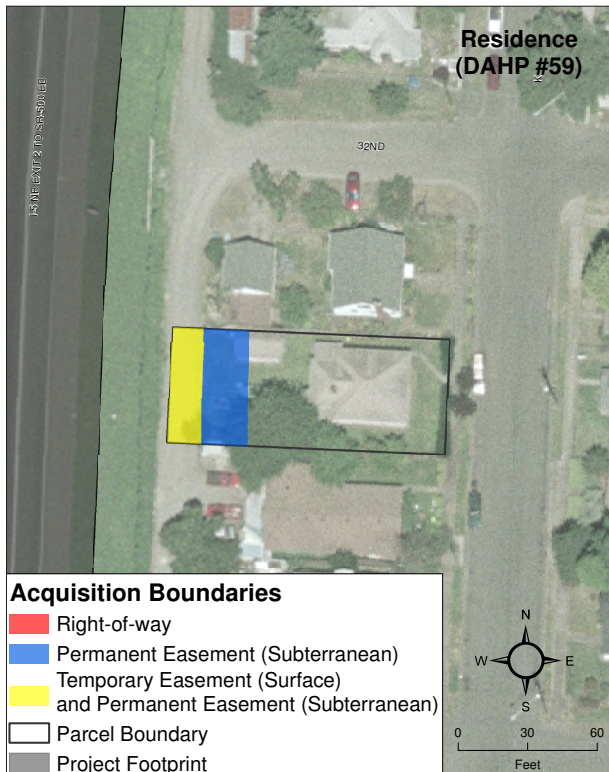
*Residence, 3000 K Street* –The LPA would require the acquisition of a permanent easement totaling about 0.1 acre (2,304 square feet) for the residence at 3000 K Street (Exhibit 5.3-28). This would be required in order to install buried rods to anchor the proposed retaining walls along I-5. There would be no adverse effect to this historic resource, but the permanent acquisition would be a *de minimis* impact under Section 4(f).

*Residence, 3110 K Street* – The LPA would require the acquisition of a permanent easement totaling less than 0.1 acre (1,689 square feet) for the residence at 3110 K Street (Exhibit 5.3-29). This would be required in order to install long rods underneath the house to anchor the proposed retaining walls along I-5. Although there would be no adverse effect to this historic resource, the acquisition of the permanent easement would constitute a *de minimis* impact under Section 4(f).

*Residence, 903 E 31st Street* – The LPA would require the acquisition of a permanent easement totaling less than 0.1 acre (2,983 square feet) for the residence at 903 E 31st Street (Exhibit 5.3-30). This would be required in order to install long rods underneath the house to anchor the proposed retaining walls along I-5. Although there would be no adverse effect to this historic resource, the acquisition of the permanent easement would constitute a *de minimis* impact under Section 4(f).

Exhibit 5.3-29

**Residence, 3110 K Street (59)**



Dimensions are approximate.

**De minimis Findings for Parks and Recreation Resources**

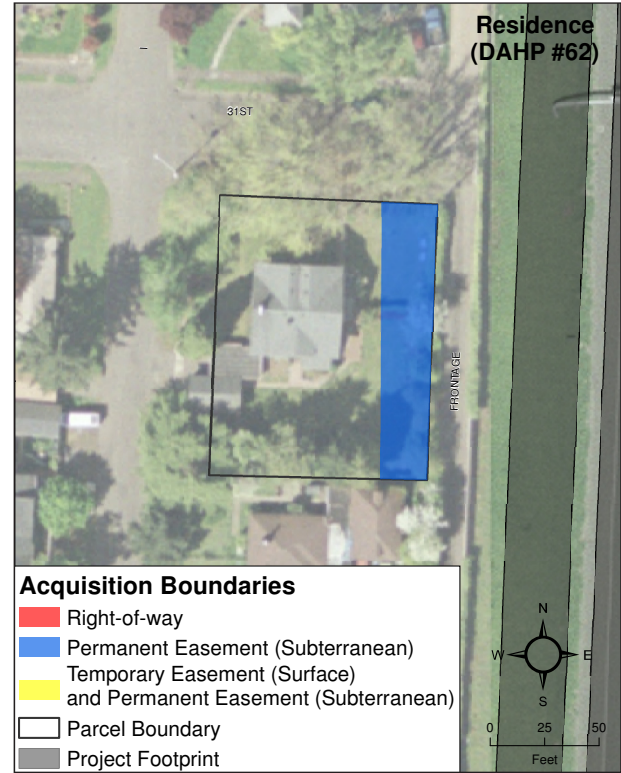
Section 4(f) regulations require agencies to afford the public with an opportunity to review and comment on the effects of the project on the protected activities, features and attributes of the Section 4(f) resources when there is a proposal to make a *de minimis* impact finding on a non-historic 4(f) resource. The findings of *de minimis* impact for parks and recreation areas were made available for review and comment by the public during the DEIS comment period in 2008 and through public open houses in 2009. Few comments were received regarding these impacts. The LPA would not adversely affect the activities, features, or attributes of the parks or recreation areas discussed below. The local officials with jurisdiction over these parks and recreation areas have provided written concurrence with these findings, and FHWA/FTA agrees with

these findings. Concurrence letters are included as an attachment to this document.

FTA and FHWA have found that the following impacts on parklands qualify as *de minimis* because they do not adversely affect the activities, features, or attributes qualifying the property for protection under 23 CFR 774.17 (*de minimis* impact).

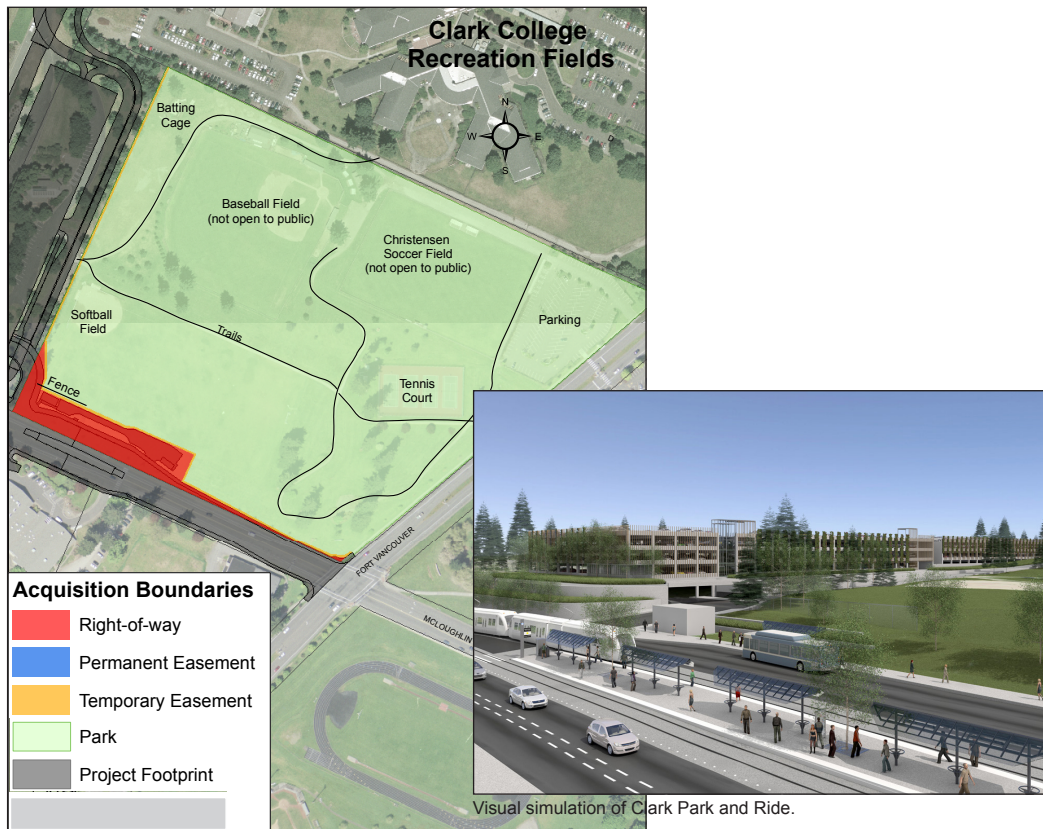
*Clark College Recreation Fields* – Construction associated with the light rail guideway, terminal station, and the Clark Park and Ride would require a permanent use of 1.0 acre of the southern edge of the Clark College Recreation Fields along McLoughlin Boulevard (Exhibit 5.3-31). This permanently acquired area would house small, one-story buildings, including a power substation and a signal communication building for light rail, and an operator building that would include a restroom and break area for the transit agency staff. Further east along the parcel, property would be needed for a widened street cross-section to accommodate a left-turn lane into the Marshall Community Center Complex. Approximately 0.2 acre of the Clark College Recreational Fields would be temporarily used to facilitate the construction of these facilities.

Exhibit 5.3-30  
**Residence, 903 E 31st Street (62)**



Dimensions are approximate.

Exhibit 5.3-31  
**Clark College Recreation Fields**



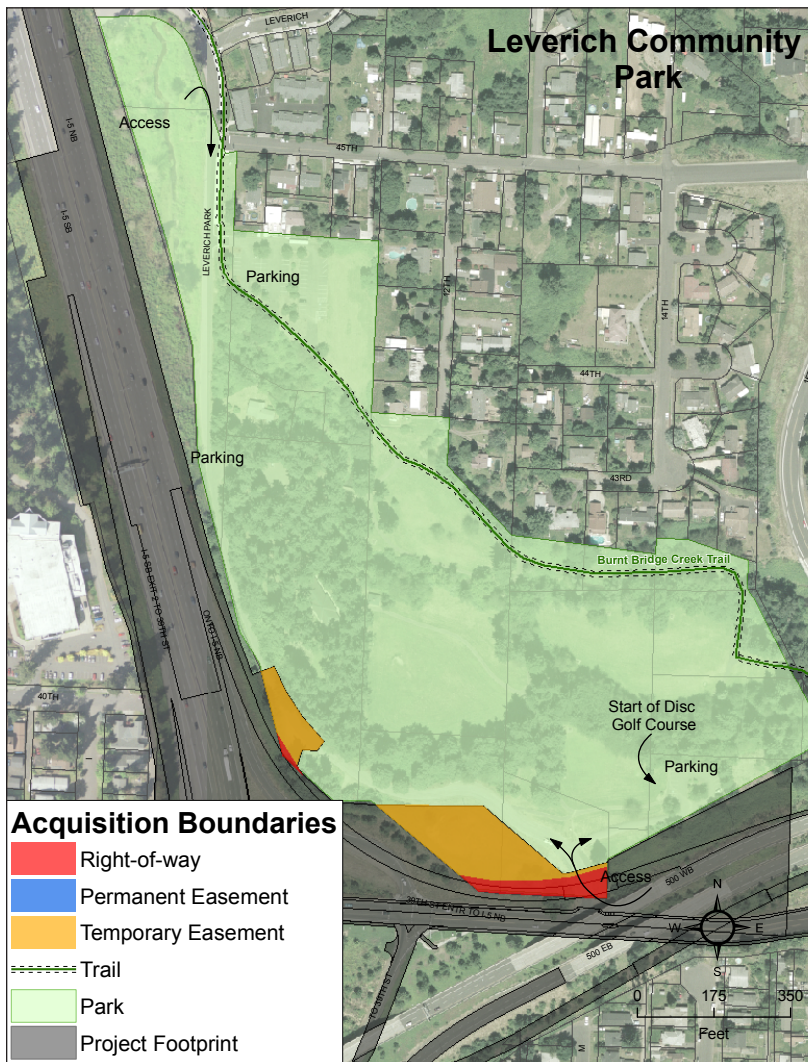
Dimensions are approximate.

The permanently affected area is occupied by a grassy slope serving predominately as a transition area between parking on McLoughlin Boulevard and the softball and multi-use field to the north. This grassy slope contains a line of small trees that would need to be removed. These trees are a part of the “Vancouver Street Tree Arboretum” that extends throughout public facilities on the east side of I-5. Additionally, an irrigation line lying between the sidewalk and street trees may also need to be relocated. These property impacts would constitute approximately 7 percent of the 14-acre recreational property, extending up to the south existing homerun fence for the softball field and south of the multi-use field, and are not expected to interfere with any of the public recreational activities that take place at the park. These impacts would constitute a *de minimis* impact to this park. Clark College has agreed to this finding, and their letter of concurrence can be found at the end of this chapter.

*Leverich Community Park* – Approximately 0.3 acre of vegetated and steeply sloped passive parkland would need to be permanently acquired from Leverich Park for the construction of the SR 500 westbound to I-5 northbound interchange ramp (Exhibit 5.3-32). The elevated ramp would be constructed on a fill wall and piers along the southern and western portions of the park, with

Exhibit 5.3-32

**Leverich Community Park**



Dimensions are approximate.

most of the property acquisition occurring at the access point to the park on 39th Street. The ramp would be constructed over the park access and would not result in any permanent changes to this access. An additional 1.3 acres would need to be temporarily occupied for the construction of the SR 500 westbound to I-5 northbound interchange ramp, including the bridge over the access to Leverich Park, and for the relocation of utilities that extend into the park. The permanent use of 0.3 acre comprises approximately 1 percent of Leverich Park, would be limited to impacts to landscaping, and would not diminish the long term character, use, or enjoyment of the park. These impacts would constitute a *de minimis* impact to this park. The City of Vancouver has agreed to this finding, and their letter of concurrence can be found at the end of this chapter.

Under the highway phasing option, construction of the north legs of the I-5/SR 500 interchange and impacts to Leverich Community Park would be deferred.

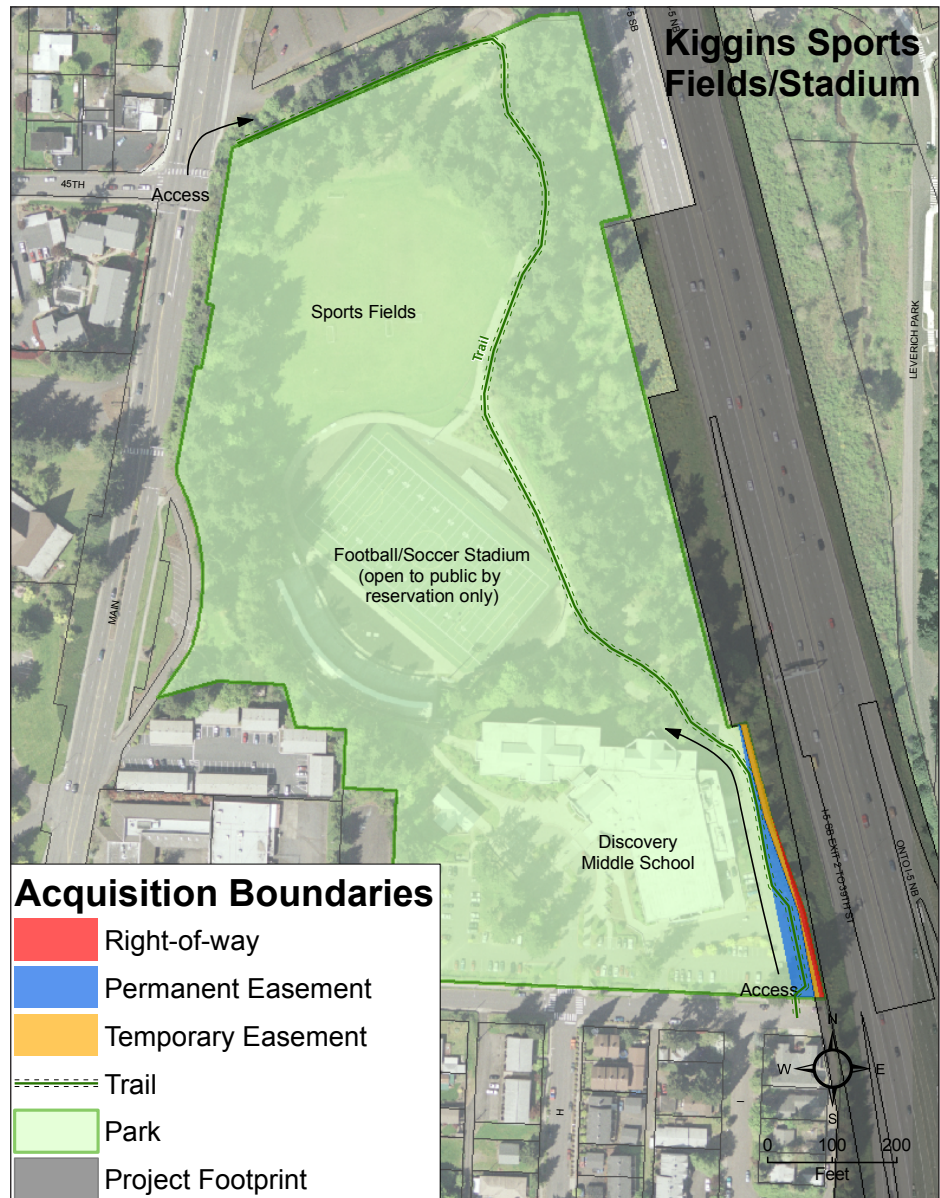
*Kiggins Sports Fields/Stadium (Historic name: Kiggins Bowl Park)* – Less than 0.1 acre (1,675 square feet) of property near the southern access located along the east side of Discovery Middle School would be acquired for the placement of a retaining wall (Exhibit 5.3-33). This use (permanent acquisition) would displace some landscaping, trees, and parking used by the school. A permanent subsurface easement totaling approximately 0.3 acre (11,814 square feet) would extend from the wall under the access road for the installation of long soil nails that will anchor the wall into the soil. This subsurface easement would not permanently affect the aboveground use of this area in any way, but would prohibit excavation below a certain depth. Additionally, temporary construction activities may also take place in a portion of the area (2,982 square feet) identified for the permanent subsurface easement. It is not expected that the use of this road to access the stadium and sports fields or the Discovery Trail would be permanently affected by installing a retaining wall at this location. The permanent use of 0.3 acre in both property acquisition in fee and subsurface easement comprises approximately 1 percent of the 22-acre Kiggins Sports Fields and Stadium and Discovery Middle School Complex, and would not diminish the long-term character, use, or enjoyment of the fields, stadium, or trail by the public. These impacts would constitute a *de minimis* impact to this park. Vancouver Public Schools has agreed to this finding, and their letter of concurrence can be found at the end of this chapter.

Under the highway phasing options, construction of the north legs of the I-5/SR 500 interchange and impacts to Kiggins Sports Fields/Stadium would be deferred.

Under the highway phasing options, construction of the north legs of the I-5/SR 500 interchange and impacts to Kiggins Sports Fields/Stadium would be deferred.

Exhibit 5.3-33

**Kiggins Sports Fields/Stadium (Kiggins Bowl Park)**

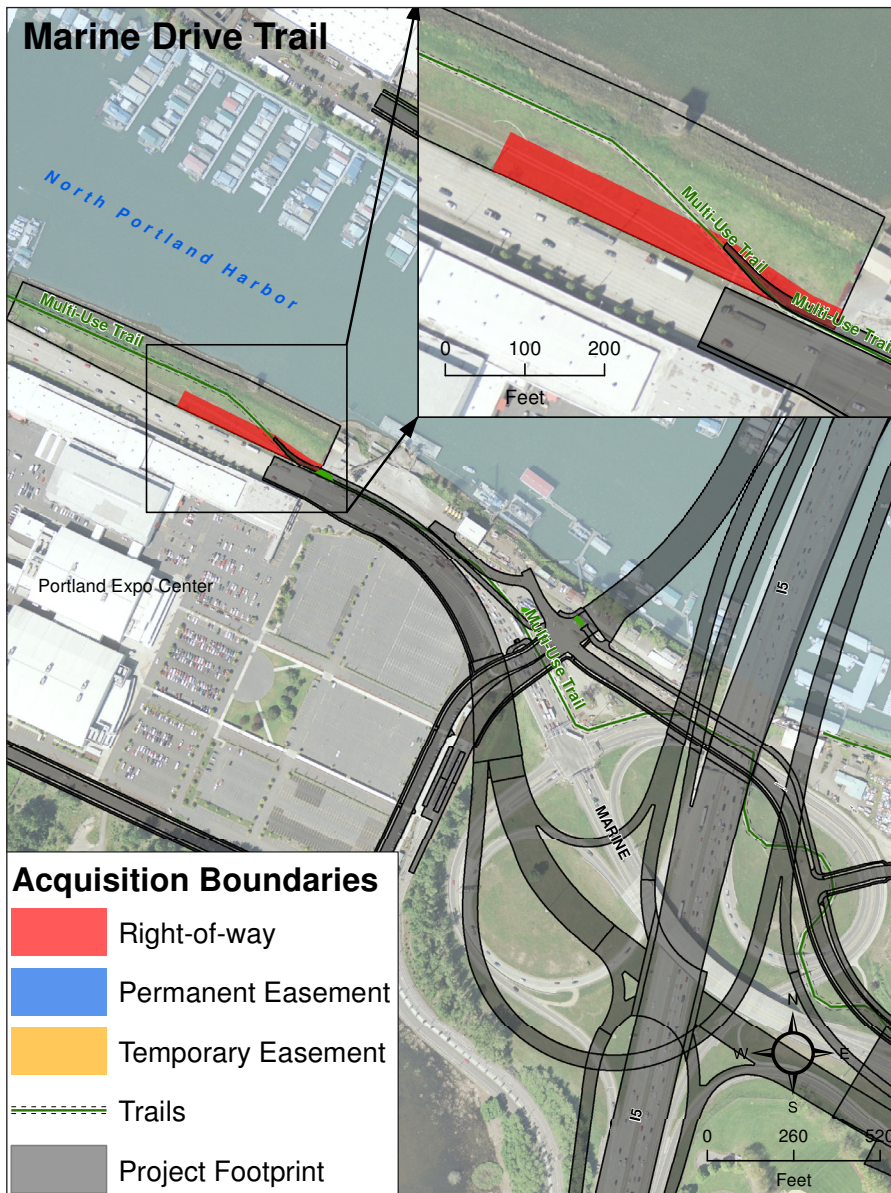


Dimensions are approximate.

*Marine Drive Multi-use Trail* - The realignment and reconstruction of Marine Drive would require that approximately 130 feet of the 5-mile Marine Drive Trail be temporarily closed and demolished during Marine Drive reconstruction, then rebuilt in a similar location to current regional trail standards (Exhibit 5.3-34). This section of the trail is on a parcel owned by Metro, but the trail itself is operated and maintained through an easement held by the City of Portland. In addition to the direct trail impacts, a small stormwater treatment facility would be built on the Metro parcel to treat runoff from Marine Drive. This facility would require approximately 0.5 acre of the 3.6-acre parcel and would not affect the long-term activities, features, or attributes of the Marine Drive Multi-use Trail. During construction, bicycles, pedestrians, and other trail users would be detoured to the other side of Marine Drive and, at times, along the south side of the Portland Expo Center, depending on the stage of construction.

Exhibit 5.3-34

**Marine Drive Multi-use Trail**



Dimensions are approximate.

The rebuilt portion of the trail would be slightly widened to connect with a 16-foot-wide multi-use path along the north side of Marine Drive, which would replace the existing sidewalk. This 16-foot multi-use path would extend to the Marine Drive interchange, connecting to the Expo Center light rail station and the light rail bridge over North Portland Harbor. These new trails would provide safer and more direct bicycle and pedestrian connections than the circuitous paths that exist in and through the Marine Drive interchange today. These impacts would constitute a *de minimis* impact to this trail. The City of Portland has agreed to this finding, and their letter of concurrence can be found at the end of this chapter.



### 5.3.5 Temporary Occupancy

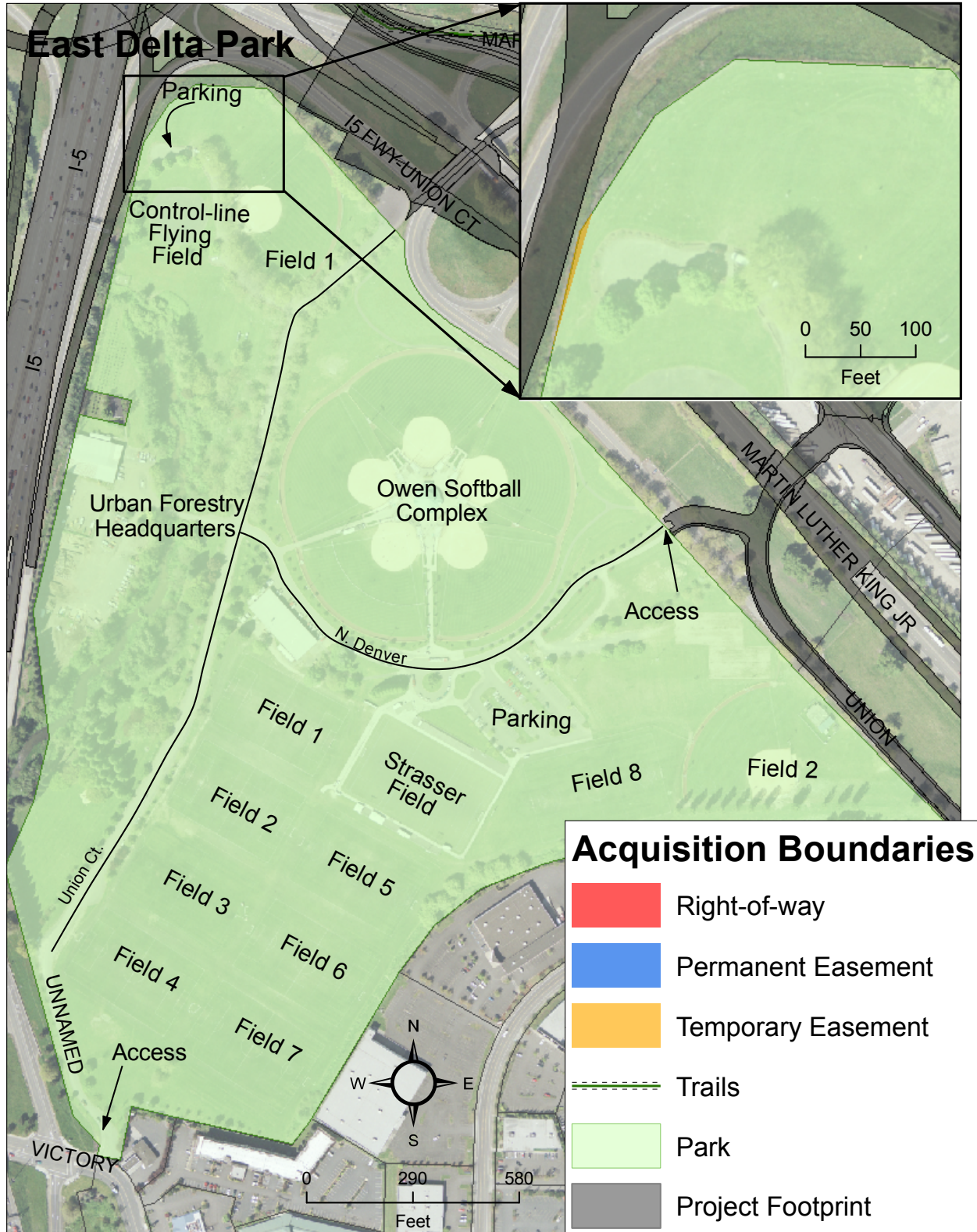
Per 23 CFR 774.13(d), short-term, temporary use of a Section 4(f) resource does not constitute a *use* under Section 4(f) as long as the following conditions are met: occupancy of the resource is temporary (i.e., shorter than the total duration of project construction) and there is no change in ownership of the land; the work is minor and the effects to the resource are minimal; the land is fully restored to original conditions; there is no interference to the protected activities of the resource; there are no permanent adverse impacts resulting from the temporary occupancy; and there is documented agreement between the relevant jurisdictions that the temporary occupancy meets the above conditions. This section describes the temporary occupancy of Section 4(f) resources within the project area, and demonstrates that they do not constitute Section 4(f) *uses*. This section does not describe the temporary occupancy of resources that are also permanently impacted and are already discussed in Sections 5.3.3 and 5.3.4, above.

East Delta Park – Less than 0.1 acre (421 square feet) from the northern corner of East Delta Park (Exhibit 5.3-35) would be required to gain construction access to the I-5 right-of-way in order to build a fill wall. The temporarily affected area of the park is occupied by grass that is periodically mowed. As per Section 4(f) regulations (23 CFR 774.13(d)), these impacts would meet the conditions of an exception for a temporary occupancy as shown through the five factors below:

- Because the temporary use would be specific to access during construction, the Occupancy of the resource would be temporary (i.e., shorter than the total duration of project construction) and there would be no change in ownership of the land.
- The work at East Delta Park would involve only a narrow sliver of land that is currently used as open space, therefore this impact is minor and the effects to the resource are minimal.
- Because of the limited area of impact during construction to an area of the park that has little use, there would be no permanent adverse impacts resulting from the temporary occupancy; and because the area of impact is a small portion of the overall open spaces at the park, there would be no interference to the protected activities of the resource which are found in other areas of the park.
- After construction, the open space would be fully restored, either through replanting of the grass, or through other methods that are acceptable to Portland Parks and Recreation, resulting in the land being fully restored to original conditions.
- A letter of agreement between CRC and Portland Parks and Recreation documents agreement that the temporary occupancy meets the above conditions. This letter is enclosed with the attachments of this document.

Exhibit 5.3-35

**East Delta Park**



Dimensions are approximate.

### 5.3.6 Constructive Use

The project team evaluated the potential for a “constructive *use*” of Section 4(f) resources, consistent with 23 CFR 774.15. This included historic resources for which NHPA Section 106 preliminary “adverse effect” findings were identified based on proximity impacts, as well as park and recreation resources where land would not be incorporated into the CRC project but where proximity impacts (noise, visual, access, vibration) would or could occur. None of these impacts would constitute a constructive *use* under Section 4(f). Only one historic resource, the Barracks Post Hospital in the VNHR, would be adversely impacted by proximity impacts. The setting of the Barracks Post Hospital would be compromised by the proximity of the highway facilities to the structure, but as this Section 4(f) property is already being *used*, by encroachment of a retaining wall within 3 feet of the northwest corner of the building, a constructive *use* finding is not necessary. Additionally, no park or recreation resources were identified as being so substantially impacted by proximity effects to change the functions or characteristics that qualify the resource for protection under Section 4(f).

## 5.4 Avoidance Alternatives

As outlined in 23 CFR 774.3, the DOT may not approve the use of Section 4(f) property unless they first determine that there is no prudent and feasible alternative to the use of land from the property, or that any use of Section 4(f) property would be a *de minimis* impact. An alternative is not prudent, according to 23 CFR 774.17(3), if it compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated Purpose and Need. In other words, alternatives that do not adequately meet the project's Purpose and Need can be dropped from further consideration.

There are no alternatives that can simultaneously meet the CRC project's Purpose and Need while also avoiding all Section 4(f) resources. In short, all the reasonable alternatives use 4(f) resources.

In earlier phases of alternative development, the project team evaluated a wide range of potential alternatives, as summarized in Section 2.7 of the FEIS. Potential avoidance alternatives evaluated during screening included a package of transportation demand management (TDM) and transportation system management (TSM) measures, and five alternate river crossing corridors outside the area immediately surrounding the existing I-5 crossing.

The TSM/TDM alternative included very limited capital construction and therefore did not directly result in impacts to Section 4(f) resources. However, the TSM/TDM alternative did not meet fundamental elements of the project's Purpose and Need.

Exhibit 5.4-1 illustrates the five alternate corridors evaluated during this screening process, located both west and east of the existing I-5 corridor:

- A Western Highway crossing 2 to 3 miles west of I-5 that would connect suburban Clark and Multnomah counties
- A Bi-State Industrial Corridor crossing near the BNSF railroad bridge, 1 mile west of I-5
- A new crossing at 33rd Avenue in Portland, 2 to 3 miles east of I-5
- Improvements to I-205 only
- An Eastern Columbia River crossing 10 to 12 miles east of I-5, that would connect Camas/East Clark County in Washington to Troutdale, Oregon

The initial screening process, described in Section 2.7 of the FEIS, was used to evaluate how well these corridors would meet the Purpose and Need of the project. While most of these alternatives could provide transportation benefits, they would do little to address the mobility, transit or safety problems in the I-5 corridor or to serve the proposed action's targeted travel markets. Therefore, these five corridor alternatives failed to meet most or all of the elements of the project's Purpose and Need.

The Bi-State Industrial Corridor had the potential for improving I-5-related freight mobility, as it would connect the industrial areas in Vancouver to those in Portland. The initial traffic analysis indicated that both this Industrial Corridor and the Western Crossing have the potential to provide

Exhibit 5.4-1

**Alternative Corridors Evaluated During Initial Screening Process**

Dimensions are approximate.

some congestion relief compared to 2030 No-Build conditions. However, the potential highway transportation benefits of these two corridors would be limited and were outweighed by the fact that these, and the three other corridors, would fail to improve the stated needs related to transit performance, bicycle and pedestrian mobility, and highway safety. All alternative corridors evaluated would require substantial out-of-direction travel for transit passengers, bicyclists and pedestrians, and would do nothing to address the identified I-5 safety deficiencies, high crash rates, and seismic vulnerability.

These alternatives would have avoided affecting the Section 4(f) resources impacted by the alternatives evaluated in the DEIS and FEIS, because they would be located in other corridors. However, given the density and distribution of historic and recreational resources within the north Portland and Vancouver areas, these corridors would very likely result in impacts to different Section 4(f) resources. Impacts to Section 4(f) resources from these alternative corridors were not evaluated in detail because all of these alternatives, and the TSM/TDM alternative, failed to meet most or all of the proposed action's Purpose and Need.

Alternatives and options that could avoid one or more of the Section 4(f) properties, but that could not avoid Section 4(f) properties altogether (23 CFR 774.17), are not considered avoidance alternatives. Alternatives and options that would have less impact on Section 4(f) resources or would impact fewer Section 4(f) properties are evaluated in Section 5.6 on Least Overall Harm, but also are considered in Section 5.5 on Measures to Minimize Harm.

## 5.5 Measures to Minimize Harm

Avoiding and minimizing impacts to Section 4(f) resources has been an integral part of identifying, developing and selecting the CRC alternatives and part of refining the LPA. The findings of this evaluation are important in answering the question of which reasonable alternative has the least overall harm. As outlined in the previous section, there are no alternatives that can meet the project's Purpose and Need and avoid all Section 4(f) resources. However, a variety of alternatives, options and refinements can help to avoid at least some of the Section 4(f) resources and minimize impacts to others. This section evaluates how well the alternatives, options, and other potential minimization measures could avoid one or more of the Section 4(f) resources, reduce the impacts to one or more Section 4(f) resources, or potentially mitigate impacts to Section 4(f) resources.

The project team has had ongoing communication with the parties having jurisdiction over the identified Section 4(f) resources. Through these communications with Portland Parks and Recreation (PP&R), NPS, VCPRD, Vancouver Public Schools, DAHP, SHPO, and the City of Vancouver, the proposed project footprint has been refined and the number of Section 4(f) uses has been reduced, and in many cases, only a *de minimis* determination remains. Options considered to minimize harm to the various Section 4(f) resources in the project area are discussed below.

This section also evaluates whether these measures would be reasonable. As outlined in the definition section at 23 CFR 774.17, "*All possible planning*," in evaluating the reasonableness of measures to minimize harm, FHWA and FTA consider the preservation principles of the Section 4(f) statute, along with the following:

- The views of the officials with jurisdiction over the Section 4(f) property.
- Whether the cost of the measures is a reasonable public expenditure in light of the adverse impacts of the project on the Section 4(f) property and the benefits of the measure to the property.
- Any impacts or benefits of the measures to communities or environmental resources outside the Section 4(f) property as determined by the criteria in 774.15.
- Section 23 CFR 774.17 also notes possible measures to minimize harm. For parks, recreational areas and refuges, it states:
  - "With regard to public parks, recreation areas, and wildlife and waterfowl refuges, the measures may include (but are not limited to): design modifications or design goals; replacement of land or facilities of comparable value and function; or monetary compensation to enhance the remaining property or to mitigate the adverse impacts of the project in other ways."
- For historic properties it states:
  - "With regard to historic sites, the measures normally serve to preserve the historic activities, features, or attributes of the site as agreed by the Administration and the official(s) with jurisdiction over the Section 4(f) resource in accordance with the consultation process under 36 CFR part 800."

Based on this analysis, some of the CRC options and other measures that could minimize harm to Section 4(f) resources are not reasonable. Reasonable minimization measures are further discussed in Section 5.6, Least Overall Harm Analysis.

This section is organized geographically from the south end to the north end of the I-5 corridor, and discusses the options and measures in the context of the Section 4(f) resources located in each geographic area of the project. These resources include the following:

- Resources in Portland
- The Columbia River 1917 Bridge (located in both Portland and Vancouver)
- Resources in Vancouver

Exhibit 5.5-7 at the end of this section lists the measures being considered to avoid or minimize harm, indicates which Section 4(f) resources could be benefited by each measure, and indicates which measures are considered reasonable or unreasonable. All reasonable minimization measures have been incorporated into project design or mitigation commitments and compose the least harm alternative.

### **5.5.1 Minimizing Harm to the Resources in Portland**

One Section 4(f) resource in Portland, the Pier 99 Marina (an eligible historic resource), would be impacted by the proposed Marine Drive interchange improvements. The proposed improvements would require displacement of the building and permanent acquisition of up to half of the parcel. Measures to minimize harm are described below. Exhibit 5.5-1 shows the Marine Drive interchange area along with proposed refinements to this interchange to reduce impacts to Pier 99 (discussed below).

#### **Moving the Marine Drive/I-5 Interchange Ramps Farther East**

Relocate, to the east end of the Pier 99 parcel, the proposed eastbound Marine Drive to northbound I-5 and westbound Martin Luther King Jr. Boulevard to northbound I-5 ramps. Relocating these ramps to the east would avoid the Pier 99 building but would result in the displacement of a single-family residence and additional on-land and in-water boat storage associated with this parcel and the business occupying the Pier 99 building. It would also isolate the Pier 99 building between the elevated I-5 mainline to the west and elevated I-5 on-ramps to the east and north. The building would be located much lower than the new facilities, with the building's roof at an elevation just below the bridge decks. The building was designed for, and has been and is used as, a commercial showroom, and while the proposed design refinement would avoid displacing the building, it would eliminate nearly all of the showroom's visibility from local roads and the Interstate.

Access to the building could be maintained, but the removal of upland and in-water boat storage would diminish the viability of the business that occupies Pier 99, as well as the general viability of the building to support continued commercial use.

Exhibit 5.5-1

**Marine Drive Refinement to Reduce Impacts to Pier 99**



Not to scale.

Selecting this ramp alignment would also require the following changes in design of the Marine Drive interchange, which would contradict some project objectives:

- Selecting this alternate alignment would reduce the distance between the Vancouver Way to Martin Luther King Jr. Boulevard connection and the free flow ramp from Martin Luther King Jr. Boulevard to I-5 NB by 310 feet to 930 feet. This would require the connection from Vancouver Way to Martin Luther King Jr. Boulevard to be shifted farther east to provide adequate separation or would reduce the available distance to below minimum allowed values, requiring a design deviation. Shifting the connection would result in different property impacts and make it more difficult to connect into the local street network.
- Selecting this alternate alignment would shift the Marine Drive flyover ramp about 30 feet closer to the Expo Road Wetlands. The Marine Drive Stakeholder Group asked that this ramp be constructed as far away from this wetland as possible.
- Selecting this alternate alignment would result in a wider interchange and right-of-way footprint extending across North Portland Harbor, which is contrary to project goals and community desires, and would create an island of largely unusable space between the new ramp and I-5 mainline south of Pier 99.



Lastly, the relationship of the Pier 99 building with the Oregon Slough Levee further complicates the effort to minimize impacts to this historic resource. The levee is part of the Columbia Slough Drainage District system, which is also a historic district. The system includes earthen levees, pumps, canals, and concrete floodwalls. When the Pier 99 building was constructed, its basement was built into the earthen levee. When the LPA is constructed, this same portion of levee would have to be demolished and rebuilt to accommodate necessary soil stabilization along the south shore of North Portland Harbor. The levee could not be rebuilt to modern standards if the building were to remain. Additionally, demolishing and rebuilding the levee around the existing building may cause damage to the Pier 99 building. Furthermore, if the highway ramps are redesigned to avoid the Pier 99 building, there would be additional sections of the levee (also a Section 4(f) historic resource) that would need to be rebuilt to accommodate the new ramp locations. The Pier 99 building itself, as has been asserted by the property owners, lacks the structural integrity to be moved, due to the building's unique roof design.

The reasonableness of this minimization measure is undermined by a combination of isolating the building and limiting its commercial visibility, diminishing the commercial viability of the other on-site land uses, subsequent design changes, and the structural integration of the building and historic levee. These issues, including the likelihood of a greater impact to the historic levee, make this design change an unreasonable way to minimize harm to the NRHP-eligible Pier 99 building.

### **Moving the Marine Drive/I-5 Interchange Ramps Farther West**

Relocate, farther west, the proposed eastbound Marine Drive to northbound I-5 and westbound Martin Luther King Jr. Boulevard to northbound I-5 ramps. Relocating these ramps farther to the west, directly adjacent to the I-5 mainline, could potentially avoid displacing the Pier 99 building. This would require reducing the radius of the curves for the ramps from Marine Drive and Martin Luther King Jr. Boulevard to northbound I-5, and shifting both ramps farther west as they parallel the I-5 mainline. However, this would not be possible with the LPA because the LPA involves reusing rather than replacing the North Portland Harbor bridges. This prohibits any substantial realignment of I-5 in the vicinity of the Pier 99 building. Realigning I-5 and the ramps was considered a potentially reasonable measure in the DEIS, but with the retention of the North Portland Harbor bridge, this is not possible.

### **Other Measures to Minimize Harm to Pier 99**

Other measures to minimize harm to this Section 4(f) resource include mitigation developed through the Memorandum of Agreement (MOA) with consulting parties, in compliance with Section 106 of the NHPA. Measures include develop Historic American Building Survey/Historic American Engineering Record (HABS/HAER) documentation of the building prior to deconstruction, attempt to relocate and adaptively reuse elements of the building, develop interpretive materials, and develop Multiple Property Documentation for postwar boat and automobile dealership showroom buildings in the greater Portland area.

## 5.5.2 Minimizing Harm to the 1917 I-5 Northbound Bridge

Moving north, the next Section 4(f) resource that would be impacted is the northbound I-5 bridge, constructed in 1917 and listed on the NRHP. The bulk of the Interstate Highway System, including the adjacent 1958 bridge, was exempted from review as a potential historic property, pursuant to 70 Federal Register (FR) 11,928 (March 10, 2005) Exemption Regarding Effects to the Interstate Highway System adopted by the Advisory Council on Historic Preservation. This exemption effectively excludes the majority of the 46,700-mile Interstate System from consideration as a historic property under Section 106. However, the 1917 (northbound) Columbia River Bridge was not subject to this exemption and thus all the provisions of Section 106 apply to the northbound bridge.

Regarding Section 4(f), the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU, Public Law 109-59, Aug. 10, 2005) included a provision (Section 6007) that also exempted the bulk of the Interstate Highway System from consideration as a historic resource under Section 4(f) of the Department of Transportation Act. These exemptions are codified in 23 USC 103 (c)(5)(A). Further, 23 USC 103(c)(5) (B) provided for a process to list certain elements of the Interstate Highway System that would not be exempted from the requirements of 4(f). The 1917 (northbound) Columbia River Bridge was listed and therefore is not exempt; it is subject to all the requirements of Section 4(f). The Final List of Nationally and Exceptionally Significant Features of the Federal Interstate Highway System is located at [http://environment.fhwa.dot.gov/histpres/highways\\_list.asp](http://environment.fhwa.dot.gov/histpres/highways_list.asp). The southbound bridge is not on this list and is therefore exempt from consideration as a historic resource under Section 4(f).

In short, pursuant to 23 USC 103(c)(5) and 70 FR 11,928 (March 10, 2005), the 1958 southbound bridge is exempt from Section 106 of the NHPA and Section 4(f); the 1917 northbound Columbia River Bridge is subject to both Section 106 of the NHPA and Section 4(f).

Between 2005 and early 2007, the project team evaluated a wide range of potential river crossings, including new crossings in other corridors that would avoid the 1917 bridge. However, these crossings in other corridors could not meet the project's Purpose and Need and were dropped from further consideration. In addition, the team evaluated a range of I-5 crossing options that would reuse rather than remove the 1917 bridge. These crossing options were eliminated from further consideration because they either did not meet the project's Purpose and Need or performed poorly when measured against the screening criteria developed for the project (see Section 2.7 of this FEIS for a discussion of alternatives screening).

Of the river crossing options considered in the DEIS, the supplemental crossing would have had less harm on the 1917 bridge. However, the supplemental crossing had an accumulation of performance deficiencies, adverse impacts, and other factors described below that make this an unreasonable alternative and therefore an irrelevant measure to reduce harm to the 1917 bridge.

### Supplemental River Crossing (Alternatives 4 and 5)

The supplemental river crossing evaluated as part of Alternatives 4 and 5 in the DEIS was the only bridge reuse option that passed the screening process. This option would have allowed at least some of the I-5 traffic safety and mobility issues to be addressed while still keeping part of the interstate traffic on the existing bridges. However, the following analysis of this option demonstrates that (a) it would not meet the project's Purpose and Need as well as the replacement crossing, (b) it would have higher adverse impacts on the community and environment, and (c) it would have fewer benefits. Given the collection of problems associated with the supplemental river crossing, it was not considered a reasonable measure for minimizing harm to the 1917 bridge.<sup>1</sup>

The problems with the supplemental river crossing are listed below, followed by more detailed descriptions of each item in this list:

- Higher seismic vulnerability
- Greater impacts and degradation of river navigation safety, potentially to levels that are unacceptable to the United States Coast Guard
- Limited benefits to traffic safety, mobility, congestion and travel time
- Higher adverse impacts on downtown Vancouver land use, circulation, and development
- Higher adverse impacts to neighborhoods and populations on Hayden Island
- Higher adverse impacts and fewer benefits to threatened and endangered species and the natural environment
- Higher maintenance and operation costs

These problems are described in more detail below.

#### SEISMIC VULNERABILITY AND SEISMIC RETROFITS

Improving the seismic safety of the crossing is considered critical, and extensive seismic retrofits would be required under the supplemental crossing alternatives. The existing bridges do not meet basic "no collapse" criteria for safety in the occurrence of a major seismic event. An expert panel, convened to assess this vulnerability, determined that it is technically feasible to upgrade the bridges' seismic stability to withstand a 500-year event at a cost of between \$125 million and \$265 million (CRC Seismic Panel 2006). These retrofits would change the visual character of the existing bridges due to added and strengthened piers, structural members and rebuilt towers. Seismic retrofits would include encasing the existing piers in a suitable material, adding 40 to 60 feet to the width of each of the foundations. This would extend the current foundation limits and reduce the horizontal clearance between piers, worsening the already restricted navigation route that many vessels must traverse between the existing bridges and the downstream BNSF railroad bridge. The supplemental crossing, with major seismic retrofits, would greatly improve the seismic stability of river crossing, but would still be more vulnerable to seismic damage than a new bridge.

<sup>1</sup> Twelve alternative packages were evaluated in 2006, and supplemental bridge options did not perform as well as replacement bridge options (see Section 2.7.6 and Appendix D of the FEIS). Supplemental bridge options were further refined and studied in the DEIS in 2007-2008 and again proved to be less effective at meeting the project's purpose and need.

### NAVIGATION SAFETY AND EFFICIENCY

The river navigation problems associated with the existing bridges would be greatly improved if they were replaced by a new crossing (Alternatives 2 and 3 and the LPA). Navigation problems would be exacerbated by reusing the existing bridges (Alternatives 4 and 5) and adding a supplemental structure. The supplemental crossing would result in nearly three times as many pier sets across the Columbia River as the replacement crossing and would narrow the already tight navigation clearance between the existing piers. While this would further degrade navigational safety for the supplemental crossing, the U.S. Coast Guard has not yet provided an official opinion or determination on their ability to permit or not permit this option. Formal determinations by the Coast Guard are typically not issued prior to submitting permit applications, which occurs much later in the bridge design process. Stakeholders from the commercial river users' community testified in a preliminary Coast Guard hearing that they would not support an alternative that worsened existing navigation hazards.

### TRAFFIC SAFETY, CONGESTION, MOBILITY AND TRAVEL TIME

Because the supplemental crossing would keep northbound interstate traffic on the existing I-5 bridges, it would fail to eliminate most of the sub-standard safety features associated with these bridges. It would not fix the vertical curves that restrict sight distance nor would it eliminate the need for bridge lifts that are associated with higher accident rates. It would also not include standard-width shoulders. Failing to eliminate bridge lifts also means that the congestion and delay associated with bridge lifts would continue. The supplemental crossing, with fewer auxiliary highway lanes, would also do less to address congestion and mobility than a replacement crossing. The supplemental crossing would result in over 11 hours of daily congestion, compared to 3 to 5 hours with the replacement crossing. This added congestion would further contribute to higher accident rates.

The supplemental crossing would also provide poor access for Hayden Island residents to Vancouver destinations, especially during peak periods. This is because the northbound on-ramps at Hayden Island can only access the easternmost bridge, which would also carry all I-5 traffic that needs to exit at SR 14, City Center, Mill Plain or Fourth Plain. This is necessary because of the physical separation of the two existing bridges that would be reused with the supplemental crossing. Because of the high number of trips exiting and entering I-5 at these interchanges, modeling indicates substantial northbound congestion in these two traffic lanes during the peak period.

### DOWNTOWN VANCOUVER LAND USE, CIRCULATION AND DEVELOPMENT

The supplemental crossing would cause a decrease in connectivity in downtown Vancouver and complicate the City's ability to meet parts of the City Center Vision, which includes providing new connections between downtown and the waterfront. Removing the existing bridges (which would occur with Alternatives 2 and 3 and the LPA) would allow Main Street to be extended to the waterfront, whereas keeping the existing bridge (Alternatives 4 and 5) and adding a supplemental bridge would not allow a Main Street extension. The City could still potentially extend other local streets to the waterfront, but these would require tunneling under the BNSF right-of-way and additional property acquisitions.

The supplemental crossing would also close 6th Street, an important east-west connection to the City of Vancouver's Convention Center and City Center (including Esther Short Park).

#### HAYDEN ISLAND NEIGHBORHOOD

The supplemental crossing would require displacement of more floating homes than the replacement crossing.

The supplemental crossing would provide much poorer highway egress off the island during peak periods (as described above under Traffic Safety, Congestion, Mobility and Travel Time). Substantially impaired egress off the island would adversely affect the residents' mobility and would adversely affect emergency vehicle access and response time.

The replacement crossing would allow for a local east-west street connection under I-5 on Hayden Island; the supplemental crossing, similar to existing conditions, would not allow for this. Hayden Island residents and the City of Portland's Hayden Island Concept Plan have identified this east-west link as important to local circulation and to connecting the community on either side of I-5.

#### NATURAL ENVIRONMENT IMPACTS

The supplemental crossing would cause greater short-term and permanent impacts to the natural environment than the replacement crossing. It would require more in-water structures (16 sets of bridge piers, compared to six sets for the replacement crossing). The amount of fill would be similar, but the supplemental crossing would result in nearly three times as many large pier sets across the river and more piers in shallow water. Piers can create habitat for invasive fish species that prey on juvenile salmon. The supplemental crossing would also continue to discharge untreated stormwater runoff from a portion of the crossing directly into the Columbia River, which is critical habitat for threatened and endangered salmon species.

#### COSTS

The cost to maintain and operate the existing bridges would be an order of magnitude higher than the costs for maintaining and operating a new, fixed-span bridge. The costs for routine maintenance for the existing bridges would be approximately \$750,000 per year, compared to about \$35,000 per year for a new facility. However, the existing bridges also have projected major maintenance costs (e.g., for painting and deck replacement) that result in an annualized equivalent cost of about \$3.9 million per year over 30 years. Preliminary estimates indicate capital costs for supplemental alternatives would be roughly 10 to 15 percent less than the replacement alternatives.

#### **Other Measures to Minimize Harm to the 1917 I-5 Bridge**

Other measures to minimize harm to this Section 4(f) resource include mitigation developed through the Memorandum of Agreement (MOA) with consulting parties in compliance with Section 106 of the NHPA. Such measures include: supplement the previously prepared Historic American Engineering Record (HAER) documentation of the bridge prior to deconstruction; prepare a marketing plan to attempt to find an

alternative use for the bridge or individual spans; incorporate decorative or interpretive elements of the existing bridge into the project, or offer them to historical societies/museums; develop and install interpretive programs that communicate the structure's history; create and maintain a historical interpretation Web site; develop a Multiple Property Documentation for the remaining bridges along the old Pacific Highway in Oregon; revise and update previous Multiple Property Documentation for bridges constructed in Washington and determined eligible for the NRHP.

### 5.5.3 Minimizing Harm to Section 4(f) Resources in Vancouver

Section 4(f) resources are located adjacent to both sides of the I-5 right-of-way between the north shore of the Columbia River and the northern terminus of the project and throughout downtown Vancouver. Any action that widens the right-of-way of I-5 or the I-5/SR 14 interchange or that introduces a transit guideway could potentially impact the adjacent Section 4(f) properties listed below:

- The Vancouver National Historic Reserve (VNHR), including:
  - The Waterfront Renaissance Park and Trail (park and recreation resource)
  - Marshall Community Center and Park (park and recreation resource)

These resources would be affected by the highway widening, I-5/SR 14 interchange improvements, and light rail along 17th Street and McLoughlin Boulevard. The following are design options, refinements and other measures considered to minimize harm to the above resources:

- Select the supplemental crossing option with its narrower footprint to reduce harm to the west edge of the VNHR (including the Barracks Post Hospital, the Fort Vancouver Village area of the VNHR, and Old Apple Tree Park), the Providence Academy, Waterfront Trail, and Waterfront Park.
- Shift the replacement crossing alignment to the west to avoid the VNHR.
- Shift the replacement crossing slightly west (Intermediate Alignment) to reduce harm to the VNHR.
- Stack northbound I-5 on-ramps from SR 14 vertically instead of aligning them side-by-side to reduce harm to the west edge of the VNHR.
- Reduce I-5 lane widths and/or shoulder widths below standards to reduce harm to the west edge of the VNHR and Barracks Post Hospital.
- Eliminate one or more proposed auxiliary lanes from I-5 between SR 14 and Mill Plain to reduce harm to the west edge of the VNHR and Barracks Post Hospital.
- Select an SR 14 interchange design that reduces acquisition of VNHR property to reduce harm to the Fort Vancouver Village area of the VNHR and Old Apple Tree Park.
- Select the SR 14 left-loop interchange design to reduce the direct impact to the Fort Vancouver Village area of the VNHR and Old Apple Tree Park.
- Refine the SR 14 dual-loop interchange design to reduce the direct impact to the Fort Vancouver Village area of the VNHR and Old Apple Tree Park.
- Reorient the I-5/SR 14 interchange to reduce direct impacts to the Fort Vancouver Village area of the VNHR and Old Apple Tree Park.

- Assist with the redevelopment and relocation of Waterfront Park and Trail.
- Realign or narrow the Mill Plain to Fourth Plain interchange ramps to minimize impacts to Marshall Community Center and Park.
- Restripe the Marshall Community Center parking lot to minimize the effect of lost off-street parking, and develop a shared-use agreement for use of Clark Park and Ride to minimize the effect of lost on-street parking spaces.

### **Select the Supplemental Crossing Option**

The supplemental crossing (part of Alternatives 4 and 5) would have a narrower cross section than the replacement crossing (part of Alternatives 2 and 3 and the LPA). It would also have made no improvements to the eastern portion of the SR 14 interchange that abuts parts of the VNHR. This option would have resulted in less impact on the VNHR resources, Waterfront Trail, and Waterfront Park, and it would have avoided the property closest to the Barracks Post Hospital. However, the supplemental crossing had an accumulation of performance deficiencies, adverse impacts, and other factors, as described in Section 5.5.2, that demonstrate why this option was not a reasonable measure to reduce harm to Section 4(f) resources.

### **Shift the Replacement Crossing Alignment to the West to Avoid the VNHR**

The CRC team evaluated a potential refinement of the highway design for Alternatives 2 and 3 and the LPA that would shift the existing I-5 alignment, I-5/SR 14 interchange, and proposed improvements farther to the west in order to fully avoid the VNHR (Exhibit 5.5-2). Shifting the alignment west would avoid the following impacts:

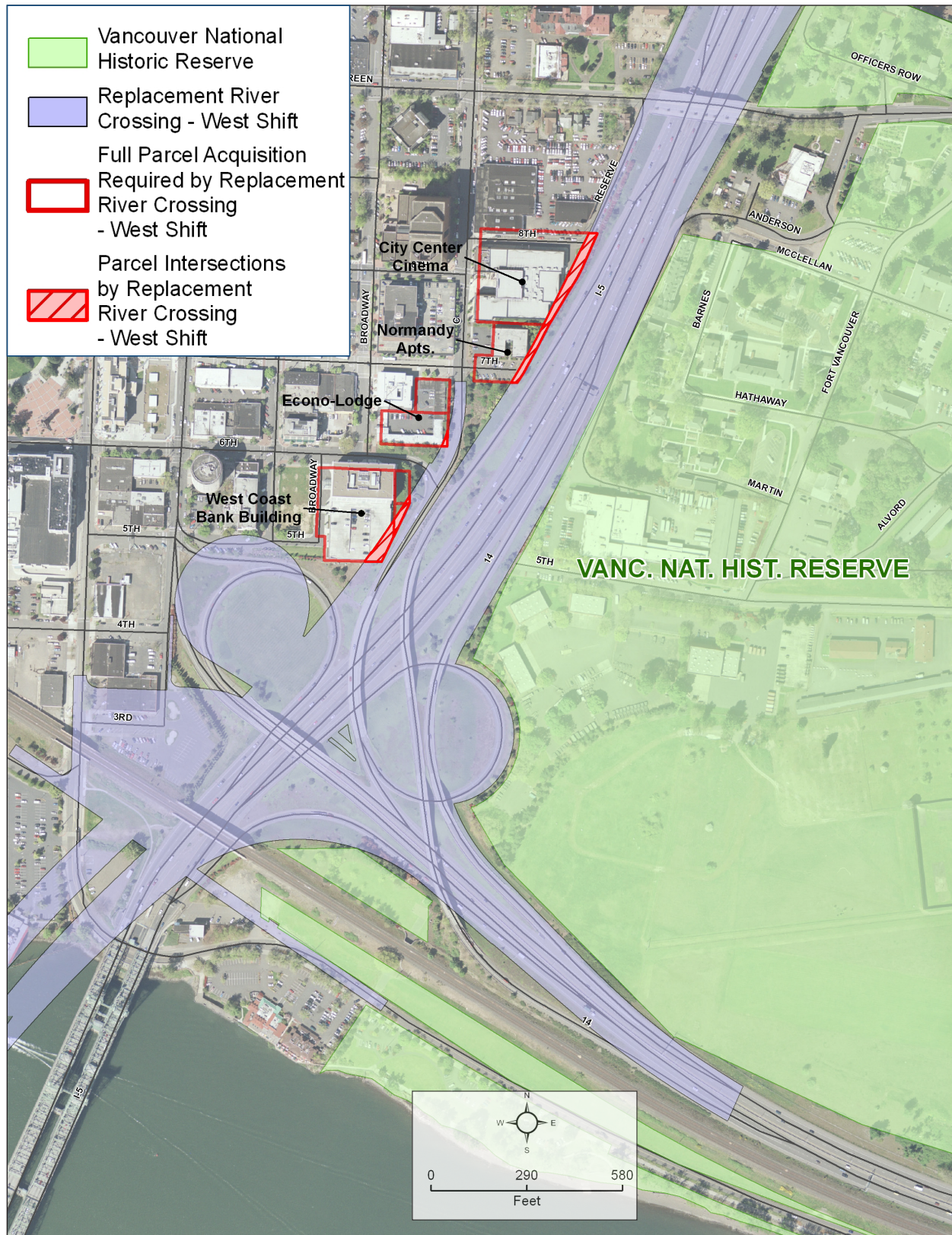
- Acquisition of land within the VNHR.

It is not possible to make this shift without impacting a Section 4(f) resource on the west side of I-5, although the VNHR is a more culturally significant resource than the historic resource (Normandy building) to the west. There are also relatively large residential and commercial uses abutting the west side of I-5. Shifting the I-5 alignment west, in order to fully avoid acquiring any property from the VNHR, would result in the following:

- Demolishing at least a portion of the Normandy Apartments building (a historic resource that is eligible for the NRHP).
- Displacing up to 40 households from the studio and one-bedroom apartments in the Normandy building. Based on U.S. Census data, some of these could be low-income households.
- Demolishing at least a portion of the parking garage associated with the West Coast Bank Building. This recently constructed project (70,000 square feet of commercial space and 21 condominium units) is an important part of the downtown's revitalization and provides parking to residents and businesses in the vicinity.
- Demolishing at least a portion of the EconoLodge motel located just north of the West Coast Bank building.

Exhibit 5.5-2

### Highway Alignment and Proposed Improvements Shifted West



Dimensions are approximate.



- Demolishing at least part of the City Center Cinema building, a 12-theater complex—the largest in downtown Vancouver—that attracts people and activities to downtown, making it integral to the City’s overall vision for an active and vibrant urban center.
- Increasing noise impacts to the Smith Tower, which includes low-income senior housing and is managed by the Vancouver Housing Authority.
- Added costs associated with additional property acquisition, building demolition, and relocation of businesses and residents.

This evaluation assumes that each of the buildings impacted by this minimization measure would be only partially demolished, thus allowing some portion of the existing use of the buildings to continue. However, full demolition of one or more of the buildings may be required. This minimization measure (shifting I-5 to the west to completely avoid acquiring property within the VNHR) would not be a reasonable tradeoff, given that it would partially or fully demolish three buildings west of I-5 (including a cinema, which is a community gathering place); increase impacts on a Section 4(f) resource west of I-5; displace up to 40 households in the Normandy Apartments (which could affect low-income populations including those considered environmental justice households; and eliminate the need for the Evergreen Community Connector, a benefit that directly contributes to community cohesiveness; and other mitigation-related benefits to the VNHR.

### **Shift the Replacement Crossing to an Intermediate Alignment**

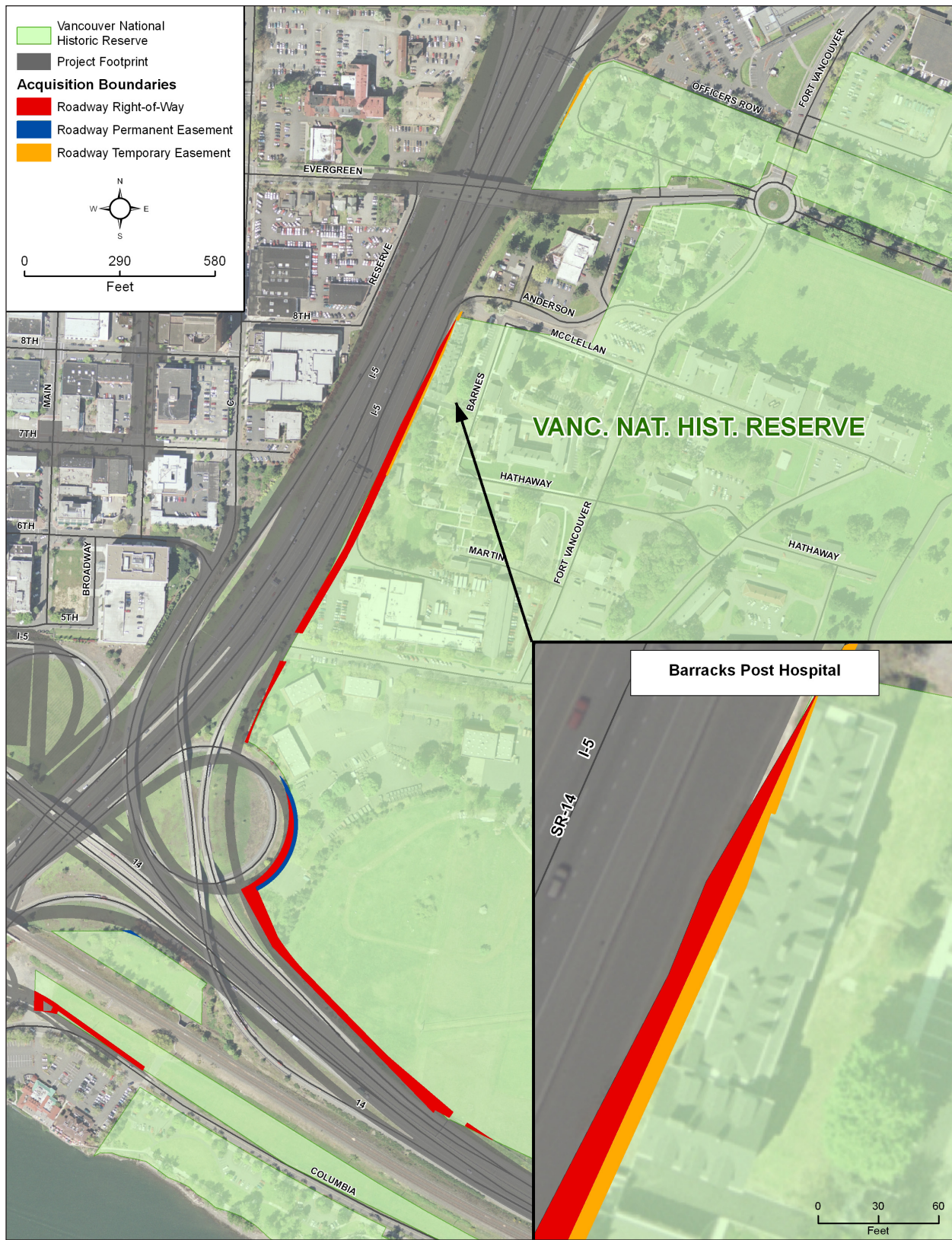
The CRC team evaluated a potential refinement of the highway design for Alternatives 2 and 3 that would shift the I-5 alignment and proposed improvements slightly west in order to reduce impacts to the VNHR (Exhibit 5.5-3), while also minimizing impacts to Section 4(f) and non-Section 4(f) resources on the west side of I-5. This design refinement would reduce land acquired from VNHR along the I-5/SR 14 interchange to less than the 2.7 acres associated with Alternatives 2 and 3 in the DEIS. This would also avoid directly affecting the federal office building on the VNHR and avoid affecting the Normandy Apartments building, the City Center Cinema building, and the parking garage associated with the West Coast Bank building.

This design refinement calls for narrowing the overall cross section of I-5 in this location, including the use of a more expensive wall type (tangent or secant pile wall) to minimize property acquisition. The design shown does not appear to require any deviations from design standards for mainline I-5. It would require deviations for the collector-distributors (CDs) between SR 14 and Mill Plain. However, at this early phase of design, it is prudent to generally note that as design information progresses, some design standard exceptions may be necessary in order to achieve this level of minimization.

This minimization measure has been determined to be reasonable and has been incorporated into the LPA design. I-5 would be realigned between the historic and non-historic structures on the east and west of I-5 so that the project would not displace any buildings, would reduce impacts to the Normandy Apartments property, and would reduce property acquisition from the VNHR.

Exhibit 5.5-3

Shift the Replacement Crossing to an Intermediate Alignment



Dimensions are approximate.

### **Stack I-5 Ramps to Reduce Overall Right-of-way Width**

Stacking ramps vertically where I-5 is adjacent to the VNHR and Barracks Post Hospital would reduce the width of the proposed right-of-way. Selecting this measure (a modification of the highway improvements associated with Alternatives 2 and 3) could reduce but not avoid direct property acquisition from the west edge of the VNHR, but it would locate a two-lane elevated structure approximately 25 feet above grade, adjacent to the VNHR from about SR 14 to north of Evergreen. The structure would be adjacent to the second story of the Barracks Post Hospital, a historic resource located on the VNHR. This would increase the visual and noise impacts to the Barracks Post Hospital, other parts of the VNHR, and other locations in downtown Vancouver. This option is undesirable because of the substantially greater visual impacts to the Barracks Post Hospital and other parts of the VNHR. This measure would also eliminate the SR 14 to Mill Plain direct connection, which would decrease the project's ability to meet purpose and need related to improving mobility and connectivity. Current conditions include this direct connection, and keeping this connection is a high priority for the City of Vancouver.

This is not a reasonable measure for minimizing harm to the VNHR, especially since there are other measures for reducing harm that would result in fewer adverse impacts.

### **Reduce I-5 Lane Widths and/or Shoulder Widths**

Reducing the width of I-5 lanes and/or shoulders (compared to Alternatives 2 and 3 in the DEIS) in this segment would reduce the right-of-way width and thus reduce the direct property acquisitions on one or both sides of I-5. This could reduce, although not completely avoid, property acquired from the west side of the VNHR or from the Providence Academy. The impacts to the VNHR at this location would be relatively limited, as proposed, and would not require displacement of any historic buildings or aboveground features. The disadvantage of this measure is that narrower lanes and shoulders would reduce highway safety and increase crashes.

Some narrowing of lanes and shoulders may be acceptable, but would require additional safety and design analysis, as well as coordination with the NPS to determine if the trade-off is reasonable.

This measure has been determined to be reasonable in some locations and unreasonable in others. Shoulder widths on the CD road have been reduced to 4 feet and 8 feet, rather than the standard 12 feet. In addition, the separation between the CD road and mainline I-5 has been reduced from 12 feet to 2 feet (the width of barrier). However, to maintain key safety improvements associated with the new facility, lane widths and shoulder widths on the mainline have not been reduced. These modifications decrease the impact to the HBC Village area of the VNHR as well as the impacts to Army property and DOT property.

## **Eliminate One or More I-5 Auxiliary Lanes Between SR 14 and Mill Plain Interchanges**

Between SR 14 and Mill Plain Boulevard, the impact of Alternatives 2 and 3 and the LPA on Section 4(f) resources (including the western edge of the VNHR, the Providence Academy, and the Normandy Apartments) could be reduced by eliminating one or two of the proposed auxiliary lanes in this section of I-5. This would reduce the basic I-5 lane configuration of Alternatives 2 and 3 and the LPA to that of Alternatives 4 and 5 (the supplemental crossing) in this section of I-5. The LPA and Alternatives 2 and 3 (as designed in the DEIS) would not require displacing any buildings on the Providence Academy property or Normandy Apartments or any historic buildings or features on the VNHR property. Therefore, reducing the auxiliary lanes in this section of I-5 would not preserve any historic buildings or historic features that would otherwise be displaced (see Section 5.3.3 for a description of the use of these properties). Eliminating auxiliary lanes would not provide a substantial benefit to these Section 4(f) resources. Other minimization measures incorporated into the project have already reduced the LPA's impacts on the Normandy Apartments and the Providence Academy to the point where they are not considered to be a *use* of these Section 4(f) resources.

Therefore, this measure has been determined to be unreasonable. The proposed auxiliary lanes in this area would lengthen the currently substandard weaving distance between the SR 14 and Mill Plain interchanges, which helps the project meet the purpose and need related to improving safety. The moderate benefits to the VNHR and the relatively substantial added safety hazard that would result from eliminating auxiliary lanes in this section are considered unreasonable trade-offs.

However, a modified version of this minimization measure (eliminating one lane on the ramp connecting SR 14 westbound to I-5 northbound) would not substantially compromise safety and would reduce impacts in the Village area, including the archaeological sites in this area of the VNHR. This would be a reasonable trade-off, and it has been incorporated into the LPA.

### **Select the SR 14 Left-loop Interchange**

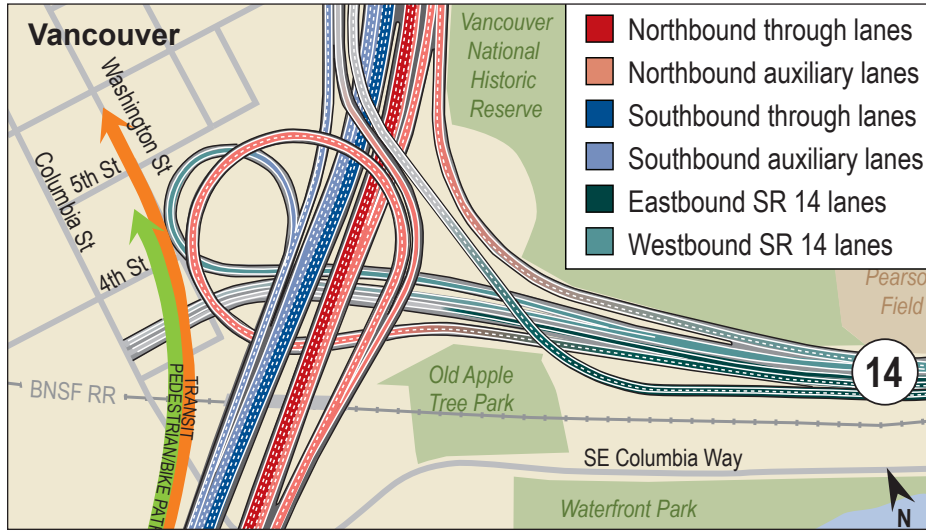
With Alternatives 2 and 3, two basic interchange designs were considered for I-5/SR 14. The dual-loop was designed to meet highway design standards to bring the exit ramps down to grade from the higher bridge structure, while still providing a tight connection to SR 14 and downtown Vancouver.

The left-loop design (Exhibit 5.5-4) could reduce the direct *use* of VNHR property near the Fort Vancouver Village (HBC Village) area. The affected VNHR property is currently vacant, but it is a Section 4(f) resource and contains three archaeological resources worthy of preservation in place.

The left-loop design has been determined not reasonable. It would provide only limited benefit to the Section 4(f) resource while having the disadvantages of substantial additional cost to construct, higher traffic safety risk, more complicated construction staging, more visual intrusion, and greater intrusion into Pearson Field airspace. It would also likely require design deviations from WSDOT design standards.

Exhibit 5.5-4

**SR 14 Interchange Replacement Crossing Left-loop Design from DEIS**



Not to scale.

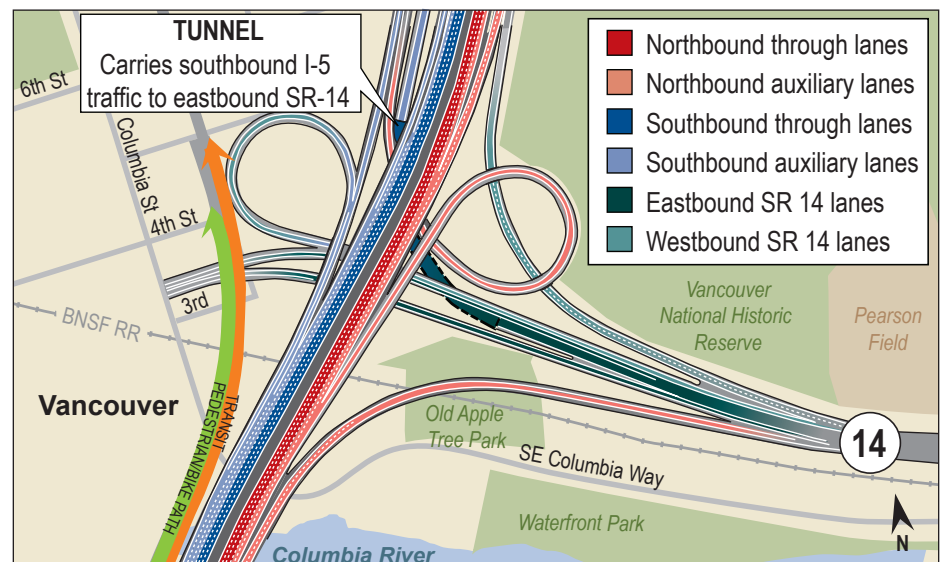
**Refine the SR 14 Dual-loop Interchange Design**

Another potential measure for minimizing the impact of Alternatives 2 and 3 and the LPA in this area is refining the design of the eastern loop of the SR 14 dual-loop interchange (specifically, the I-5 northbound to City Center off-ramp and the SR 14 westbound to I-5 northbound ramp). This would either reduce or avoid altogether the impact on the Fort Vancouver Village area of the VNHR (Exhibit 5.5-5). Potential revisions include moving pier locations to avoid archaeological resources, tightening the curve on the City Center off-ramp, tightening the curve on the SR 14 to I-5 northbound ramp, and increasing ramp grades and decreasing spacing between off-ramps.

Completely avoiding the Fort Vancouver Village area would require very tight curves (about a 15 to 20 mph design speed) for some ramps. Such changes would require deviations from design standards because they would not meet design safety standards for curve radius, ramp design speeds, grade, or spacing between ramps. While design deviations are possible, these would constitute an unacceptable sacrifice to safety and would not be consistent with the safety aspects of the project's purpose and need. Given the trade-offs, full avoidance of the VNHR at this

Exhibit 5.5-5

**SR 14 Interchange Replacement Crossing Dual-loop Design**



Not to scale.

location is not reasonable. However, it would be reasonable to make less severe ramp modifications that would minimize impacts to the Fort Vancouver Village area and archaeological sites without requiring substantial safety and operational reductions. This is a reasonable minimization measure and has been incorporated into the LPA.

### **Reorient the I-5/SR 14 Dual-loop Interchange Design**

This refinement of the dual-loop SR 14 interchange design (part of Alternatives 2 and 3) reorients the I-5/SR 14 interchange, locating the I-5 northbound to SR 14 eastbound ramp farther north to avoid direct *use* of the Old Apple Tree Park. It also shifts the alignment of the I-5 mainline slightly west to enter the SR 14 interchange from a different angle. Lowering the design speed from the recommended 50- to 45-mph speed allows for this change in design.

Exhibit 5.5-6 shows how the ramp that cuts across Old Apple Tree Park under the standard design for the replacement crossing would be relocated to avoid the Old Apple Tree Park with this reoriented design of the I-5/SR 14 interchange. This refinement would increase the impact on the hotel (Red Lion) property located on the west side of the SR 14 interchange. This hotel property would already be impacted by the CRC project even without this reorientation of the I-5/SR 14 interchange. The Red Lion property is not a Section 4(f) resource. This change would not compromise the design speeds of the loop ramps.

This has been determined to be a reasonable minimization measure and has been incorporated into the LPA. As addressed previously in this chapter, there will be visual impacts to the VNHR from the increase in height of the loop ramp. The loop ramp elevation is raised because the I-5 mainline vertical alignment will be raised to provide enough navigational clearance on the Columbia River to eliminate bridge lifts. Because of the proximity of the SR 14 interchange to the Columbia River, the ramps connecting to I-5 must be raised as well. Therefore, it is not feasible to further reduce the height, and associated visual impact, of the loop ramp.

### **Other Measures to Minimize Harm to the VNHR**

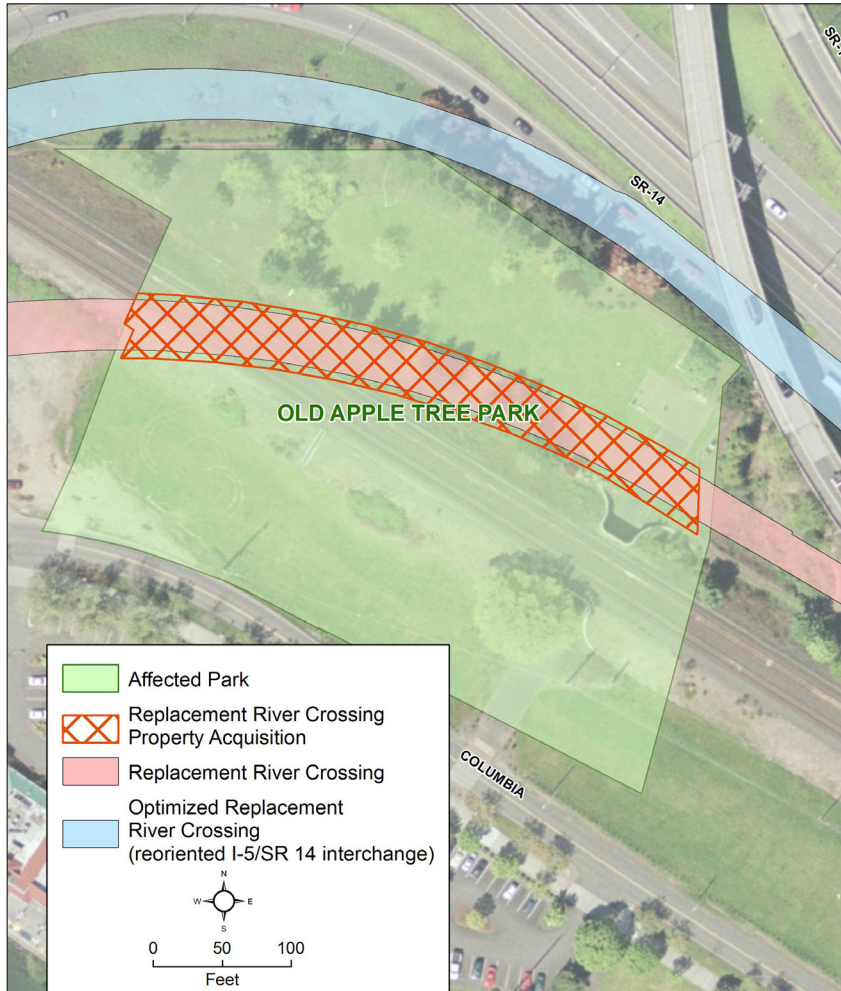
Other measures to minimize harm to the VNHR and resources within the VNHR include mitigation developed through the Memorandum of Agreement (MOA) with consulting parties in compliance with Section 106 of the NHPA. Such measures include: install aesthetically appropriate noise walls; add landscaping elements to the Evergreen Connector (lid over I-5) in front of the Barracks Post Hospital; develop and implement a Construction Vibration and Settlement Management and Monitoring Plan to avoid vibration and settlement impacts during construction; and, provide funding for the design and renovation of an existing building within the VNHR into a curation facility. With these mitigation measures, the project can provide substantial benefits to the VNHR's cultural and recreational mission.

### **Relocate and Redevelop Waterfront Trail and Park**

The Section 4(f) *use* of the Waterfront Park and Trail would be minimized by ensuring that the impacted portion of the trail would be relocated and the impacted portion of the park redeveloped, so as to replace the facilities' recreational qualities and functions in a manner approved by the City of

Exhibit 5.5-6

**Two Ramp Alignment Options at Old Apple Tree Park**



Dimensions are approximate.

Vancouver official having jurisdiction. WSDOT would work with the City to utilize vacated state right-of-way beneath the existing I-5 bridge landings in Vancouver to include this area for the City’s proposed expansion and improvement of Waterfront Park, which is currently under planning. WSDOT would also work with the City to provide access across new state right-of-way beneath the new bridge alignment, in order to provide a connection between Waterfront Park and future waterfront uses west of the new bridge as envisioned in the Vancouver City Center Vision (VCCV) Plan. Following construction, WSDOT will provide site grading, allow use of right-of-way beneath the new bridge for ball courts and other recreational uses, and provide vegetation that will help support the City’s plans for redeveloping and expanding Waterfront Park. This is a reasonable measure to minimize harm to the park and trail and has been included in the LPA.

**Realign or Narrow the Mill Plain to Fourth Plain Ramps**

Realigning or narrowing the Mill Plain to Fourth Plain ramp just north of the Mill Plain interchange along the east side of I-5 could reduce the impacts on Marshall Community Park. Narrowing this ramp would include using a fill wall to support this ramp instead of the more cost-effective fill slope. This

measure has been determined reasonable and has been incorporated into the LPA. The I-5 northbound exit ramp to Fourth Plain Boulevard was realigned to the west to accommodate the new Clark Park and Ride, and an exit lane to the park and ride was eliminated from the ramp, decreasing the overall footprint of the ramp within the park boundaries. Both of these measures decreased necessary property acquisitions from the 1.2 acres required in the DEIS to 0.5 acre with the LPA design.

Impacts cannot be minimized further due to construction constraints at the Mill Plain Boulevard interchange. A temporary structure across Mill Plain Boulevard would be built to accommodate vehicles traveling to the Fourth Plain Boulevard exit during the reconstruction of the interchange. This temporary structure would be located between the I-5 mainline and the new permanent exit ramp, preventing the shifting of the permanent ramp farther west out of the park boundaries.

Despite the decrease in property impacts, the project would still require the displacement of trees that currently serve as a buffer between the Marshall Community Center parking lot and the highway facilities. The project would minimize this impact by working with the VCPRD to develop an appropriate wall design and landscaping plan for the area adjacent to the project improvements. This plan could include planting vegetation to grow up the wall or using peninsulas extending into the parking lot to provide larger trees.

### **Restripe Marshall Community Center Parking Lot and Allow for Shared Use of Clark Park and Ride**

Marshall Community Center and Park are impacted by the loss of eight parking spaces from their western parking lot, as well as the loss of all on-street parking spaces (76 spaces) on McLoughlin Boulevard. According to the VCPRD, this on-street parking is heavily used by park and community center visitors. In addition, while on-street parking on McLoughlin Boulevard is public parking and not assigned to the Marshall Community Center Complex or any other specific use, the loss of this parking decreases direct automobile access to the facility and the park. The impact of the loss of parking would be partially offset by the substantial improvement in transit access afforded by a new light rail station in front of the Center. Other measures to minimize the impact of parking loss would include restriping the parking lot to replace the eight lost spaces and/or allowing park and community center users to park at the Clark Park and Ride during non-peak commute times. This measure has been deemed reasonable and is being coordinated with the VCPRD, C-TRAN, and the City of Vancouver.

Exhibits 5.5-7 and 5.5-8 summarize measures taken to minimize harm to Section 4(f) Resources in the project area.



Exhibit 5.57

**Measures to Minimize Harm for Section 4(f) Resources: Portland to Mill Plain Boulevard Interchange**

Minimization Measure	Reasonable Measure?	Pier 99 Marina	1917 I-5 Northbound Bridge	VNHR/ FVNHS	Old Apple Tree Park	Barracks Post Hospital	Waterfront Renaissance Trail	Waterfront Park
Relocate Marine Drive/I-5 Interchange farther east	Not reasonable because it would require additional acquisition from VNHR.	Minimizes	N/A	N/A	N/A	N/A	N/A	N/A
Relocate Marine Drive/I-5 Interchange ramps farther west	Not reasonable because it would require replacing North Portland Harbor Bridges.	Minimizes; Potentially Avoids	N/A	N/A	N/A	N/A	N/A	N/A
Select supplemental river crossing	Not reasonable because of several performance deficiencies and adverse impacts.	N/A	Minimizes	Minimizes	Avoids	Minimizes	Minimizes	Minimizes
Shift replacement crossing alignment west to avoid VNHR	Not reasonable because it would increase impacts on another Section 4(f) resource, cause more building demolition and displace up to 40 households.	N/A	N/A	Avoids	N/A	Avoids	N/A	N/A
Shift replacement crossing west to intermediate alignment	Reasonable, incorporated.	N/A	N/A	Minimizes	N/A	Minimizes	N/A	N/A
Stack I-5 on-ramps from SR 14 vertically	Not reasonable because it would increase impacts to VNHR and eliminate the SR 14 to Mill Plain direct connection.	N/A	N/A	Minimizes	N/A	Minimizes	N/A	N/A
Reduce I-5 lane/shoulder widths	Reasonable, incorporated.	N/A	N/A	Minimizes	Minimizes	Minimizes	N/A	N/A

Minimization Measure	Reasonable Measure?	Pier 99 Marina	1917 I-5 Northbound Bridge	VNHR/ FVNHS	Old Apple Tree Park	Barracks Post Hospital	Waterfront Renaissance Trail	Waterfront Park
Eliminate one or more I-5 aux. lanes between SR 14 and Mill Plain	Not reasonable because it was not found to preserve any historic buildings or features that would otherwise be displaced, and would decrease safety.	N/A	N/A	Minimizes	Minimizes	Minimizes	N/A	N/A
Eliminate one lane on the ramp from SR 14 WB to I-5 NB	Reasonable, incorporated.	N/A	N/A	Minimizes	Minimizes	Minimizes	N/A	N/A
Select the SR 14 left-loop design	Not reasonable because it would provide only limited benefit while having a substantially greater cost, higher traffic safety risks, and greater visual intrusion.	N/A	N/A	Minimizes	N/A	N/A	N/A	N/A
Refine SR 14 dual-Loop design	Reasonable, incorporated.	N/A	N/A	Minimizes	N/A	N/A	N/A	N/A
Reorient I-5/SR 14 interchange	Reasonable, incorporated.	N/A	N/A	Minimizes	Avoids	N/A	N/A	N/A
Provide assistance for redevelopment of Waterfront Trail and Park	Reasonable, incorporated.	N/A	N/A	N/A	N/A	N/A	Minimizes	Minimizes

Exhibit 5.58

**Measures to Minimize Harm for Section 4(f) Resources: North of Mill Plain Boulevard Interchange**

Minimization Measure	Reasonable Measure?	Marshall Community Center, Luepke Senior Center, and Marshall Park
Realign or narrow ramps north of Mill Plain	Reasonable, incorporated.	Minimizes
Restripe parking lot and/or allow for use of Clark Park and Ride	Reasonable, incorporated.	Minimizes

## 5.6 Least Overall Harm Analysis

As discussed in Section 5.4, there are no prudent and feasible alternatives that would avoid all Section 4(f) resources. Therefore it is necessary to analyze which alternative would cause the least overall harm. Section 5.5 identifies the reasonable measures to minimize harm or mitigate for adverse impacts. This is an important consideration in determining the least harm alternative. In addition, regulations in 23 CFR 774.3(c) provide the following direction for determining the alternative that would cause the least overall harm:

- (c) *If the analysis ... concludes that there is no feasible and prudent avoidance alternative, then the Administration may approve only the alternative that:*
- (1) *Causes the least overall harm in light of the statute's preservation purpose. The least overall harm is determined by balancing the following factors:*
- i. The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property);*
  - ii. The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection;*
  - iii. The relative significance of each Section 4(f) property;*
  - iv. The views of the official(s) with jurisdiction over each Section 4(f) property;*
  - v. The degree to which each alternative meets the purpose and need for the project;*
  - vi. After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f); and*
  - vii. Substantial differences in costs among the alternatives.*

Exhibit 5.6-1 summarizes how the alternatives perform relative to each of these seven factors. These summaries draw from the information and analysis in this 4(f) evaluation. The locations of that information are cited in the first column of the exhibit. The last column of the exhibit indicates which alternative has the least harm for each factor. The least overall harm alternative is the LPA, based on the consideration and balancing of all factors.

Exhibit 5.6-1

**Summary of Least Overall Harm Analysis**

Factors	LPA <sup>a</sup>	Alternatives 2 and 3 Replacement Crossing	Alternatives 4 and 5 Supplemental Crossing	Least Harm
<p><i>Ability to mitigate impacts to 4(f) properties, including any benefits to properties</i> (addressed in Sections 5.5 and 5.6.1)</p>	<p>There is limited ability to mitigate impacts to the 1917 I-5 bridge or Pier 99 building as neither can be avoided and both would be very difficult to relocate. Mitigation will include recording, interpretation and a plan to market these resources for reuse.</p> <p>Mitigation for the VNHR<sup>b</sup> is substantial and beneficial, including a new curation and museum facility, protections during construction to avoid vibration impacts, new vegetative screening and new sound walls to reduce existing and future highway noise.</p> <p>Parkland replacement, new transit access, landscaping and parking will mitigate Marshall Park impacts. The LPA with mitigation will add recreational value to three resources: parkland replacement, improved access, bridge removal and other improvements will mitigate Waterfront Park; reconstruction, realignment and new surfacing will mitigate Waterfront Trail; reconstruction and new surfacing will mitigate Marine Drive Trail. Impacts to other resources are <i>de minimis</i>.</p>	<p>Same as LPA</p>	<p>Ability to mitigate impacts to most resources is similar to the LPA, although there is lower ability to mitigate impacts or improve recreational value for Waterfront Park and Waterfront Renaissance Trail because the existing bridge will still pass very low over these properties and without the removal of the existing bridges, there will be no surplus property to convert to new parkland. These alternatives would use four historic 4(f) uses that would be avoided or would have <i>de minimis</i> impact with the LPA. The impacts would be relatively low (partial acquisitions) but there would be little ability to mitigate those impacts.</p>	<p>All alternatives have similar ability to mitigate impacts, but the LPA and Alternatives 2 and 3 would provide the most benefit to 4(f) resources.</p>
<p><i>Severity of remaining harm after mitigation</i> (addressed in Sections 5.3, 5.5 and 5.6.2)</p>	<p>After mitigation, severity would be high for the I-5 northbound bridge, moderate for Pier 99, and low for the Waterfront Renaissance Trail, Waterfront Park, Marshall Park, and VNHR including the Barracks Post Hospital and Officer's Row. All other impacts would be <i>de minimis</i>.</p>	<p>Similar to the LPA but in addition would have remaining low impact to Old Apple Tree Park (within VNHR) and three additional historic 4(f) resources (see below).</p>	<p>Similar to the LPA except: the severity would be lower (moderate) for the I-5 northbound bridge, and higher (but still low) for Clark College Recreational Fields and Marshall Park. These alternatives also would use four additional historic 4(f) resources that are not used by the LPA (resources described below). After mitigation the remaining harm to these historic resources would be low but not <i>de minimis</i>.</p>	<p>All alternatives have generally equivalent severity of impacts after mitigation.</p>

Factors	LPA <sup>a</sup>	Alternatives 2 and 3 Replacement Crossing	Alternatives 4 and 5 Supplemental Crossing	Least Harm
<p><i>Relative significance of each 4(f) property</i> (addressed in Sections 5.2 and 5.6.3)</p>	<p>All of the alternatives affect the same 4(f) properties of highest significance, including the VNHR (national significance) and the 1917 I-5 northbound bridge (regional significance). Affected trails have local and regional significance; other affected historic and park resources are less significant.</p>	<p>Similar to the LPA except that it would use three additional historic 4(f) properties, including two residences on McLoughlin and one on 31st Street. These 20th-century single-family residences are not highly significant properties.</p>	<p>Similar to the LPA except that they would use four additional historic 4(f) properties, including two residences on McLoughlin, one on 31st Street and one on K Street. These 20th-century single-family residences are not highly significant properties. These alternatives would also avoid the use of the Waterfront Trail (which would be used/reconstructed by the other alternatives) but would use the Clark College Recreational Fields (a 4(f) parks property not used by the LPA). Both of these properties have local recreational significance.</p>	<p>Relative significance of 4(f) properties is similar for all alternatives.</p>
<p><i>Views of officials with jurisdiction</i> (addressed in Sections 5.2 and 5.6.4)</p>	<p>NPS and City of Vancouver view the VNHR as the most significant historic resource affected by the project. The Department of the Interior expressed support for a range of alternatives as long as the project included all feasible measures to reduce impacts to VNHR, and provided adequate mitigation for unavoidable impacts. Input from these agencies and DAHP resulted in design refinements that reduced impacts to VNHR compared to Alternatives 2 and 3 and led to the intensive VNHR mitigation (museum and curation facility). SHPO and DAHP did not express a preference for a particular alternative but support the mitigation. City of Vancouver, City of Portland, Vancouver Public Schools and Clark College all provided input leading to impact reduction and current mitigation for the parkland resources that they manage. These agencies concurred with findings of <i>de minimis</i> impacts.</p>	<p>Same as LPA</p>	<p>Similar to the LPA, except that NPS indicated a preference for the removal of existing bridge towers that intrude on views from the VNHR. The lift towers are removed with all alternatives except Alternatives 4 and 5. City of Vancouver preferred the LPA over these alternatives, in part because the LPA provides better connectivity to the waterfront including park and trail.</p>	<p>Officials with jurisdiction who expressed a preference generally prefer the LPA (modified version of Alternative 3).</p>

Factors	LPA <sup>a</sup>	Alternatives 2 and 3 Replacement Crossing	Alternatives 4 and 5 Supplemental Crossing	Least Harm
<i>Degree to which alternative meets the purpose and need for the project</i> (addressed in Section 5.6.5)	LPA provides the highest overall ability to meet the purpose and need. It is the most effective at addressing growing travel demand and congestion; impaired freight movement; safety and vulnerability to incidents; and seismic vulnerability. It is generally equal in meeting the bicycle and pedestrian need. It is better than Alternatives 2 and 4 at meeting the public transportation need but provides less frequent LRT service than Alternative 5.	Alternative 3 is similar to the LPA. Alternative 2 is also similar to the LPA except that it is less effective at meeting the transit need because BRT would not perform as well as LRT.	<p>Alternatives 4 and 5 are less effective than the other alternatives at meeting several stated needs including congestion; impaired freight movement; highway safety and vulnerability to incidents (more crashes and related congestion); and seismic vulnerability (would retrofit old bridges rather than replace them).</p> <p>Alternative 4 is also less effective at meeting the transit need than the LPA, Alternative 3 or Alternative 5 because BRT would not perform as well as LRT.</p>	LPA best meets purpose and need. Alternatives 4 and 5 are considerably less effective at meeting purpose and need.
<i>Magnitude of impacts to non-Section 4(f) resources after mitigation</i> (see Section 5.6.6)	More right-of-way acquisition and displacement of existing uses adjacent to I-5 (9–17 more commercial uses and 4–12 more residences) compared to the other alternatives. These will be mitigated with relocation assistance, full market value acquisition, and support for redevelopment.	Similar to LPA but with lower right-of-way acquisition impacts (9–17 fewer commercial uses and 5–12 fewer residences).	Compared to LPA, lower right-of-way acquisition impacts (8–16 fewer commercial uses and 4–12 fewer residences). These alternatives would have higher adverse impacts even after mitigation to river navigation and safety; local traffic circulation and movement; air quality; local connectivity; and natural resources. They are also less consistent with local and regional plans.	Magnitude of non-Section 4(f) impacts is lowest for Alternatives 2 and 3 (fewer acquisitions) and generally equivalent for the LPA and Alternatives 4 and 5.
<i>Substantial cost difference among alternatives</i> (see Section 5.6.7)	Capital costs differ by less than 10% among the alternatives.	Capital costs differ by less than 10% among the alternatives.	Alternative 4 has the lowest estimated capital cost but costs differ by less than 10% among the alternatives. Alternatives 4 and 5 have the highest estimated annual operations and maintenance costs.	There is no substantial cost difference among alternatives.

a LPA Option A and Option B are the same in terms of impacts to Section 4(f) resources and the least overall harm analysis.

b There would be a use of the VNHR and related resources. Impacts to the individual resources and districts that are part of the VNHR (as described in Section 5.3 and summarized in Exhibit 5.3-1 and 5.3-2) are not called out above but they are considered in the least overall harm analysis.

The least overall harm analysis compares the LPA, the replacement alternatives (Alternatives 2 and 3) and the supplemental alternatives (Alternatives 4 and 5). The LPA is a refined version of Alternative 3 and is also very similar to Alternative 2, except that it includes light rail transit rather than bus rapid transit. For the least harm analysis, the primary difference between the LPA and Alternatives 2 and 3 is that the LPA has incorporated many refinements and mitigation measures to reduce harm to Section 4(f) resources, in order to ensure that it is the alternative that causes the least overall harm.

The following addresses each of the factors in the least overall harm analysis.

### **5.6.1 Factor (i) Ability to Mitigate Adverse Impacts to Section 4(f) Resources, Including Any Measures That Result in Benefits**

All of the alternatives have a similar ability to mitigate impacts to Section 4(f) resources. Section 5.5 analyzes the measures that could be used to minimize impacts to Section 4(f) resources and determines which measures would be considered reasonable.

#### **The Locally Preferred Alternative (and Alternatives 2 and 3)**

All of the reasonable measures for minimizing harm, as described in Section 5.5, can be implemented with the LPA and with Alternatives 2 and 3 from the DEIS. These measures, listed below, have been incorporated into the LPA:

- Shifted I-5 west to intermediate alignment in order to minimize impacts to the west side of VNHR, including the Barracks Post Hospital.
- Reduced I-5 lane and shoulder widths in order to minimize impacts to the west side of VNHR, including the Barracks Post Hospital.
- Eliminated one lane on the ramp from SR 14 westbound to I-5 northbound in order to minimize impacts to the VNHR, including the Village area.
- Refined the SR 14 dual-loop design in order to minimize impacts to the VNHR, including the Village area.
- Reoriented the I-5/SR 14 interchange in order to minimize impacts to the VNHR, including the Village area, and to avoid impacts to Old Apple Tree Park.
- Realign and narrow I-5 ramps north of Mill Plain in order to minimize impacts to Marshall Community Center and Park.
- Other Section 4(f) mitigation measures incorporated into the LPA include the following:
  - Realign and rebuild Waterfront Trail in coordination with the City of Vancouver's on-going planning to redevelop and expand Waterfront Park.
  - Provide improved access, use of right-of-way for ball courts and other recreational activities, site re-grading, vegetation and other improvements to help the City of Vancouver implement its proposed Waterfront Park redevelopment.

- Restripe parking lot, allow for shared use of Clark Park and Ride, protect driveway access, provide vegetative screening, and provide replacement property in order to minimize impacts to Marshall Community Center and Park.
- Construct the Evergreen Community Connector over I-5 to improve pedestrian and bicycle connections.
- Provide financial assistance for the VNHR to construct a curation and museum facility.
- Replant vegetation temporarily lost during construction in East Delta Park, the VNHR, and Leverich Park. Install new landscaping in Leverich Park to provide visual screening.
- Reconstruct the Marine Drive Multi-use Trail that would be temporarily rerouted during construction.
- Other mitigation for impacts to historic resources, as described in the Section 106 MOA, including HABS/HAER documentation of historic resources prior to removal, develop marketing plans for adaptive reuse of historic resources (the Pier 99 building and elements of the I-5 northbound bridge), incorporate decorative or interpretive elements of the I-5 bridge into the new project, develop interpretive materials and Multiple Property Documentation, install aesthetically appropriate noise walls adjacent to impacted portions of the VNHR, and implement construction monitoring and management to avoid vibration or settlement impacts to the Barracks Post Hospital.
- Other mitigation for archaeological resources, as described in the Section 106 MOA, including data recovery excavations guided by an archaeological treatment plan, curation of artifacts, interpretive panels and exhibits, other outreach initiatives, and ongoing coordination with consulting parties.

None of the reasonable mitigation measures is very effective at mitigating impacts to the 1917 I-5 bridge or the Pier 99 building. Neither resource can be avoided, and it is likely that neither could be successfully relocated or reused.

Mitigation for the VNHR and the resources within the VNHR is substantial and beneficial, as listed above and detailed in the Section 106 MOA. This includes a new curation and museum facility, protections during construction to avoid vibration impacts, vegetative screening, and new sound walls to reduce existing and future highway noise. Marshall Park impacts will be successfully mitigated with parkland replacement lands, new transit access, landscaping and replacement parking.

The LPA with mitigation will benefit the recreational value of three resources including Waterfront Park, Waterfront Trail and the Marine Drive Trail. Parkland replacement, improved access, bridge removal and other improvements will mitigate impacts to Waterfront Park. Removing the existing bridge provides additional area for the City's proposed redevelopment and expansion of Waterfront Park and replaces the currently low overhead structure of the bridge with a new structure that



has about twice the vertical clearance (up to 80 feet). Raising the height of the bridge provides a more open feeling than the current bridge that passes over the park and still provides a covered area for the City's plans to redevelop a portion of this area into active recreation such as ball courts. Reconstruction, realignment, bridge removal and new surfacing will mitigate impacts to Waterfront Trail. Reconstruction and new surfacing will mitigate impacts to the Marine Drive Trail Multi-use Trail.

Impacts to all other 4(f) resources would be avoided or *de minimis*.

### **The Supplemental Alternatives (Alternatives 4 and 5)**

Alternatives 4 and 5 would have similar ability to the LPA and Alternatives 2 and 3 to mitigate impacts to most resources. Alternatives 4 and 5 would have more impacts on Marshall Park and Clark College Recreational Fields than the LPA, but the ability to mitigate these impacts would be very similar for all alternatives. Alternatives 4 and 5 would acquire less property from Waterfront Park but would not remove the existing I-5 bridges that currently pass low over a substantial portion of the park. The LPA would open this area for park redevelopment, build replacement bridges that provide nearly twice the vertical clearance above the park, and provide new direct access to the park and waterfront via Main Street. Because of these unique features of the LPA, Alternatives 4 and 5 have slightly less ability to mitigate impacts or to benefit Waterfront Park and Waterfront Trail.

Alternatives 4 and 5 would have a 4(f) use of historic resources that the LPA would avoid or have a *de minimis* impact on, including the following locations: 401 E McLoughlin Boulevard, 611 E McLoughlin Boulevard, 903 E 31st Street, and 3110 K Street. These are all partial property acquisitions that do not displace these properties. The impacts are relatively low but there is little ability to mitigate them.

## **5.6.2 Factor (ii) Severity of Impacts after Mitigation**

### **The Locally Preferred Alternative (and Alternatives 2 and 3)**

The 1917 I-5 northbound bridge, even with mitigation, would have a high severity of impacts with the LPA. There will be a concerted effort to find reuse options for the bridge, possible incorporation of some bridge components into interpretative facilities, and historic documentation of the facility prior to removal. However, because the bridge will be fully removed, the impact severity would remain high.

The historic Pier 99 facility would be removed with the LPA. Mitigation would include efforts to find reuse options, as well as historic documentation prior to removal. Severity of impacts after mitigation would be moderate.

After mitigation, the severity of impacts to the VNHR would be low. Mitigation for the VNHR is substantial and beneficial (a new curation and museum facility, protections during construction to avoid vibration impacts, and new sound walls to reduce existing and future highway noise).

The severity of impacts after mitigation would be low or *de minimis* for all other resources impacted by the LPA or by Alternatives 2 and 3. Three

park and recreation resources affected by these alternatives would also receive recreational benefit from the project-related changes combined with mitigation. These are the Marine Drive Multi-use Trail, Waterfront Park, and Waterfront Renaissance Trail. These benefits result from the changes and mitigation provided by the LPA, as described in Section 5.6.1. Apple Tree Park would not be directly affected but would receive improved pedestrian access with the LPA.

### **The Supplemental Alternatives (4 and 5)**

After mitigation, the 1917 I-5 northbound bridge would have a moderate impact with Alternatives 4 and 5. The seismic retrofitting and addition of an adjacent new, modern, higher and wider bridge would result in an adverse effect to this historic resource but would not remove the structure. Mitigation would include attempting to conduct the substantial seismic retrofit so as to minimize the aesthetic changes to the existing structure.

Like the LPA, Alternatives 4 and 5 would also remove the historic Pier 99 facility. Mitigation would include efforts to find reuse options, as well as historic documentation prior to removal. Severity of impacts after mitigation would be moderate.

After mitigation, Alternatives 4 and 5 would have remaining impact to the Clark College Recreational Fields (the LPA would have a *de minimis* impact) and would have remaining impact to four historic 4(f) resources that would be avoided by or have only a *de minimis* impact from the LPA. These resources are listed above in Section 5.6.1. The impacts to these resources from Alternatives 4 and 5 after mitigation would be low but not *de minimis*.

With mitigation, the Marine Drive Multi-use Trail is likely to have greater recreational value after the project than before, the same as the LPA's effects following mitigation.

### **5.6.3 Factor (iii) Relative Significance of Section 4(f) Properties**

For all of the alternatives, the VNHR is the most significant 4(f) resource that would be affected. Some of the resources within the VNHR are of regional or national historic significance, and the Reserve provides recreational opportunities that are locally important. Most of the area of the VNHR that would be directly used by the CRC project does not contain any historic structures or significant recreational functions but does contain historic archaeological resources as previously discussed. Three of the archaeological sites have been determined to warrant preservation in place, although the NPS has been excavating and recovering similar sites in the area as part of a public archaeology field school. Most of the area impacted is currently owned by the Department of the Army, the FHWA and the City of Vancouver. The VNHR as a whole is the most significant historic resource that would be affected by all of the CRC alternatives.

The 1917 I-5 northbound bridge is a regionally significant historic resource and is also affected by all of the alternatives. Affected trails have local and regional significance.

Alternatives 2, 3, 4 and 5 would use three historic 4(f) properties that would not be used by the LPA, including two residences on McLoughlin and one on 31st Street. Alternatives 4 and 5 would also affect a residence on K Street not used by any other alternatives. These 20th-century single-family residences are not highly significant properties.

Alternatives 4 and 5 would result in a use of the Clark College Recreational Fields, a 4(f) park property with local recreational significance. The other alternatives would have a *de minimis* impact on this property.

#### **5.6.4 Factor (iv) Views of Officials With Jurisdiction Over Each Section 4(f) Property**

The NPS has indicated that the VNHR, which they manage, is a nationally and regionally significant cultural resource. The City of Vancouver and DAHP have agreed that it is the most significant historic resource affected by the CRC alternatives. The NPS has also expressed a strong desire to protect the Barracks Post Hospital (within the VNHR) from vibration effects and to protect and enhance the cultural experience at the VNHR, including in the Village area. They have planned for and expressed a strong desire to develop new space for curating archaeological resources and to establish new interpretive opportunities. See the correspondence from the NPS at the end of this document.

In 2008 the Department of the Interior (DOI) made the following comments regarding preferences: “The Department prefers the option of shifting the replacement crossing alignment west to reduce harm to, or completely avoid FOVA and the VNHR. However, we recognize that this option may not be feasible or cost effective. We would support shifting the replacement crossing to an intermediate alignment. We also tentatively support the supplemental crossing, but strongly encourage additional design refinements and mitigation measures”. In subsequent discussions the NPS further indicated that they preferred the removal of the existing I-5 bridges’ lift towers that intrude on views from the VNHR. Input from the DOI, NPS, City, and the DAHP resulted in design refinements (including incorporating the intermediate alignment for I-5 into the LPA) that reduced impacts to the VNHR compared to Alternatives 2 and 3, and led to the intensive VNHR mitigation (including museum and curation facility). The SHPOs did not express a preference for a particular alternative but support this mitigation.

The City of Vancouver owns part of the land within the VNHR that would be affected by the CRC alternatives and has jurisdiction over several affected parks. The City has emphasized their vision of a new lid over I-5 just south of Evergreen Boulevard to connect the VNHR to downtown Vancouver. They have also expressed a strong desire to expand and improve Waterfront Park as well as access to the park, protect Marshall Community Center and Park (including the need to provide adequate parking), protect Leverich Park (including the need to maintain access during construction and restore areas disturbed by project construction), protect the Heritage Apple Tree and improve access to the Old Apple Tree Park, and ensure full replacement of any affected trails. They have agreed that the LPA as currently designed would have a *de minimis* impact on Leverich Park. See the correspondence

from the VCPRD at the end of this document. The City of Vancouver prefers the LPA over the other alternatives, in part because the LPA provides better connectivity to the waterfront including the area they have proposed for a redeveloped Waterfront Park and Waterfront Trail.

The Vancouver Public School District owns the Kiggins Sports Fields/Stadium. They have indicated the need to maintain access to the sports fields along the eastern boundary of their property and they have agreed that the LPA as currently designed would have a *de minimis* impact on this resource. See correspondence from the school district at the end of this document.

Clark College has expressed that the recreational activities at the Clark College Recreation Fields are important to the Clark College community and the general public and has indicated a willingness to accommodate the project impacts as long as the recreational activities and values are not compromised. They have agreed that the LPA as currently designed would have a *de minimis* impact on the Recreation Fields. See correspondence from Clark College at the end of this document.

The City of Portland, manager of the Marine Drive Multi-use Trail and East Delta Park, has emphasized the regional significance of this trail as part of the 40-mile loop. The City has agreed that the temporary rerouting of one part of the trail, followed by rebuilding that section after construction is complete, would be a *de minimis* impact, and that the temporary use of a portion of East Delta Park during construction would be consistent with the temporary occupancy exclusion in 23 CFR 774.13(d). See correspondence from the City of Portland at the end of this chapter.

The City of Vancouver, City of Portland, Vancouver Public Schools and Clark College all provided input leading to impact reduction and current mitigation for the parkland resources that they manage.

### **5.6.5 Factor (v) Degree to Which Alternative Meets Purpose and Need**

The LPA provides the highest overall ability to meet the purpose and need. It is the most effective at addressing growing travel demand and congestion, impaired freight movement, safety and vulnerability to highway incidents, and seismic vulnerability. It is generally equal to other alternatives in meeting the bicycle and pedestrian need. It is better than Alternatives 2 and 4 at meeting the public transportation need but provides less frequent light rail transit service than Alternative 5.

Alternatives 4 and 5 are less effective than the other alternatives at meeting several stated needs including growing travel demand and congestion, impaired freight movement, highway safety and vulnerability to incidents, and seismic. Alternative 4 is also less effective at meeting the transit need than the LPA, Alternative 3 or Alternative 5 because bus rapid transit would not perform as well as light rail transit.

## **Growing Travel Demand and Congestion, Safety and Vulnerability to Highway Incidents, and Impaired Freight Movement**

Because Alternatives 4 and 5 would keep northbound interstate traffic on the existing I-5 bridges, they would fail to eliminate most of the substandard safety features associated with these bridges. The supplemental crossing would not fix the vertical curves that restrict sight distance nor eliminate the need for bridge lifts that are associated with higher accident rates. It would also not include standard-width shoulders. Failing to eliminate bridge lifts also means that the congestion and delay associated with bridge lifts would continue. The supplemental crossing, with fewer auxiliary highway lanes, would also do less to address congestion and mobility than a replacement crossing. The supplemental crossing would result in about 11 hours of daily congestion, compared to 3 to 5 hours with the replacement crossing. This added congestion would further contribute to higher accident rates.

The supplemental crossing would also provide poor access for Hayden Island residents to Vancouver destinations, especially during peak periods. This is because the northbound on-ramps at Hayden Island can only access the easternmost bridge, which would also carry all I-5 traffic that needs to exit at SR 14, City Center, Mill Plain or Fourth Plain, thus resulting in more conflicting movements and higher congestion. This is necessary because of the physical separation of the two existing bridges that would be reused with the supplemental crossing. Because of the high number of trips exiting and entering I-5 at these interchanges, modeling indicates substantial northbound congestion in these two traffic lanes during the peak period.

The supplemental crossing would also fail to provide direct local access for traffic between Hayden Island and local roads on the Portland mainland, such as Marine Drive and Martin Luther King Jr. Boulevard. These local trips would be required to use the interstate, whereas the LPA and other replacement crossing alternatives would allow these local trips to make this connection without using the I-5 mainline.

The LPA and Alternatives 2 and 3, because they are considerably more effective at reducing the duration of congestion, improving highway safety and reducing crashes, are also more effective at improving freight movement than Alternatives 4 and 5.

### **Bicycle and Pedestrian**

The LPA and Alternatives 2 and 3 would be equally effective at meeting the bicycle and pedestrian needs identified for the project, providing substantially safer and wider multi-use pathways, new extensions, resurfacing of existing trails, and better connectivity to the existing trail system. The pedestrian and bicycle facilities with Alternatives 4 and 5 would be similarly effective at meeting the project's stated need.

### **Public Transportation**

The light rail transit component, included with the LPA and Alternatives 3 and 5, is the most effective at meeting the public transit need identified for the project. Alternative 5 was the most effective because it would provide

shorter headways than the LPA or Alternative 5. Alternative 5 has higher transit operation costs (due to more trains and shorter headways) which result in lower cost effectiveness. Bus rapid transit, included with Alternatives 2 and 4, would also meet the public transit need but to a substantially lower degree than light rail transit.

### **Seismic Vulnerability**

Improving the seismic safety of the crossing is considered critical, and extensive seismic retrofits would be required under the supplemental crossing alternatives. The existing bridges do not meet basic “no collapse” criteria for safety in the occurrence of a major seismic event. Seismic retrofits would include encasing the existing piers in a suitable material, thereby adding 40 to 60 feet to the width of each of the foundations. The supplemental crossing (included with Alternatives 4 and 5), with major seismic retrofits, would greatly improve the seismic stability of the river crossing, but the retrofitted bridges would still be more vulnerable to seismic damage than a replacement bridge (included with the LPA and Alternatives 2 and 3).

## **5.6.6 Factor (vi) Magnitude of Non-Section 4(f) Impacts**

The LPA would require more right-of-way acquisition and displacement of existing uses adjacent to I-5 (9 to 17 more commercial uses and 4 to 12 more residences) compared to the other alternatives. These added impacts are primarily due to information available since the DEIS indicating that in some locations more property would be needed for construction and that some buildings contain more small businesses than previously known. These impacts would be mitigated with relocation assistance, full market value compensation, and support for reuse and/or redevelopment of acquired properties that can be resold after construction.

Besides acquisitions, the LPA would generally have lower impacts on non-Section 4(f) resources. Overall, Alternatives 4 and 5 would have higher impacts on non-Section 4(f) resources than the LPA, including the following:

- River navigation and safety impacts
- Downtown Vancouver land use, circulation and development impacts
- Hayden Island neighborhood access impacts
- Natural environment impacts

The primary differences in impacts on non-Section 4(f) resources for the various alternatives are compared below.

### **Navigation Safety and Efficiency**

The river navigation problems associated with the existing bridges would be greatly improved if they were replaced by a new crossing (LPA or Alternatives 2 and 3). Navigation problems would be exacerbated by reusing the existing bridges (the supplemental crossing with Alternatives 4 and 5). The supplemental crossing would result in nearly three times as many pier sets across the Columbia River as the LPA, and it would result in narrowing the already tight navigation clearance between the existing piers. While this would further degrade navigational safety for the supplemental crossing, the

U.S. Coast Guard has not yet provided an official opinion or determination on their ability to permit or not permit the supplemental crossing. Formal determinations by the Coast Guard are typically not issued prior to submitting permit applications, which occurs much later in the bridge design process. Stakeholders from the commercial river users' community testified in a preliminary Coast Guard hearing that they would not support an alternative that worsened existing navigation hazards.

### **Downtown Vancouver Land Use, Circulation and Development**

The supplemental crossing would cause a decrease in connectivity in downtown Vancouver and complicate the City's ability to meet parts of the City Center Vision, which includes providing new connections between downtown and the waterfront. Removing the existing bridges (which would occur with the LPA and Alternatives 2 and 3) would allow Main Street to be extended to the waterfront, whereas keeping the existing bridge (Alternatives 4 and 5) would not allow a Main Street extension. The City could still potentially extend other local streets to the waterfront, but these would require tunneling under the BNSF right-of-way and additional property acquisitions.

The supplemental crossing would also close 6th Street, an important east-west connection to the City of Vancouver's Convention Center and City Center (including Esther Short Park).

### **Hayden Island Neighborhood Access and Mobility**

The supplemental crossing (Alternatives 4 and 5) would provide much poorer highway egress off the island during peak periods (see Factor (v) above). Substantially impaired egress off the island would adversely affect the residents' mobility and would adversely affect emergency vehicle access and response time.

The replacement crossing (LPA and Alternatives 2 and 3) would allow for a local east-west street connection under I-5 on Hayden Island; the supplemental crossing, similar to existing conditions, would not allow for this. Hayden Island residents and the City of Portland's Hayden Island Concept Plan have identified this east-west link as important to local circulation and to connecting the community on either side of I-5.

### **Natural Environment Impacts**

The supplemental crossing (Alternatives 4 and 5) would cause greater short-term and permanent impacts to the natural environment than the replacement crossing (the LPA and Alternatives 4 and 5). It would require more in-water structures (16 sets of bridge piers, compared to six sets for the replacement crossing). The amount of fill would be similar, but the supplemental crossing would result in nearly three times as many large pier sets across the river and more piers in shallow water. Piers can create habitat for invasive fish species that prey on juvenile salmon. The supplemental crossing would also continue to discharge untreated stormwater runoff from a portion of the crossing directly into the Columbia River, which is critical habitat for threatened and endangered salmon species.

### 5.6.7 Factor (vii) Substantial Cost Difference

The differences in capital costs between the alternatives do not vary by more than approximately 10 percent. The current cost estimate for the LPA is lower than for the cost estimates for all the alternatives in the DEIS. However, the DEIS alternatives included options for extending the light rail transit further north and they had not yet incorporated cost-reducing measures that have become part of the LPA. Overall, there are not substantial capital cost differences among the alternatives.

On the other hand, annual maintenance and operations costs for the LPA (as well as Alternatives 2 and 3) would be an order of magnitude lower than for the supplemental crossing (Alternatives 4 and 5). The costs for routine maintenance for the existing bridges would be approximately \$750,000 per year, compared to about \$35,000 per year for a new facility. The existing bridges also have projected major maintenance costs (e.g., for painting and deck replacement) that result in an annualized equivalent cost of about \$3.9 million per year over 30 years.

### 5.6.8 Conclusion of Least Overall Harm Analysis

Based on the above analysis, as summarized in Exhibit 5.6-1, the least overall harm alternative is the LPA. The LPA consists of:

- Replacement river crossing
- Associated highway and interchange improvements
- Light rail transit to Clark College
- Design refinements and mitigation measures described above in Section 5.6.1

As the project continues into final design, the CRC project team will continue to consider ways to further reduce impacts on Section 4(f) resources, so that the action will include all possible planning to minimize harm.



## 5.7 Coordination

The CRC project sponsors and/or the federal co-lead agencies have coordinated with eleven Native American tribes, the Washington Department of Archaeology and Historic Preservation, the Oregon State Historic Preservation Office, the National Park Service, the City of Vancouver, the Vancouver Public School District, Clark College, the City of Portland, and other interested parties in identifying Section 4(f) resources, evaluating the *use* of Section 4(f) resources, and identifying measures for minimizing harm to these resources. Coordination occurred during the preparation of the DEIS, the selection of an LPA, and the refinement of the LPA during the preparation of the FEIS. The DOI formally reviewed and commented on the Section 4(f) Evaluation during the DEIS public comment period in 2008, and the DOI and other agencies were given an opportunity to review the revised Section 4(f) Evaluation during the summer of 2011, prior to publishing the FEIS. The U.S. Department of Transportation will make its Section 4(f) approval, under 23 CFR 774.3(a), as part of the FEIS or Record of Decision.

See the attachments at the end of this chapter for copies of select correspondence with the agencies with jurisdiction over the Section 4(f) resources. For further information, please see the FOE Concurrence Forms included in the appendices of the Historic Built Environment Technical Report, included as an electronic appendix to this FEIS. 5.2-11 was updated to reflect the revised noise impact findings.

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**ATTACHMENTS**

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# Columbia River CROSSING

700 WASHINGTON STREET  
SUITE 300  
VANCOUVER, WA 98660  
360-737-2726 | 503-256-2726

March 1, 2010

Pat McDonnell  
City Manager  
City of Vancouver  
210 E 13<sup>th</sup> Street  
PO Box 1995  
Vancouver, WA 98668-1995

RECEIVED

MAR 15 2010

Columbia River Crossing

RE: Columbia River Crossing Project and Leverich Community Park

Dear Mr. McDonnell:

Thank you for your department's coordination and input regarding the use of land from Leverich Community Park that would result from the proposed improvements to the I-5/SR 500 interchange. The purpose of this letter is to request your department's concurrence that this use would not adversely affect the activities, features, and attributes that qualify the park for protection under Section 4(f) of the USDOT Act.

Leverich Community Park is afforded special protections under Section 4(f) of the USDOT Act (recodified in 48 U.S.C. 303 and 23 U.S.C. 138). Under the provisions of Section 4(f), if the proposed transportation project would result in adverse effects to the park or recreation facility, the transportation agency must conduct an evaluation to demonstrate that there is no prudent and feasible alternative to using the 4(f) property. Because this evaluation can be expensive and potentially result in project delays, an exemption is provided in cases where the official with jurisdiction over the park or recreation area concurs in a determination that the impacts would be *de minimis* (minimal) – that is, that they would not adversely impact the activities, features or attributes that qualify the park for protection under Section 4(f). This concurrence enables the FHWA and FTA to make a *de minimis* finding, which satisfies the requirements of Section 4(f) and precludes the need for a Section 4(f) Evaluation. According to our past discussions, the impacted area at Leverich Community Park will not adversely impact the use, function, or development of the Park. This impact finding is discussed in more detail in the attachment.

For purposes of federal law, including Section 4(f) of the USDOT Act of 1966, any land permanently acquired for the project will be considered transportation right-of-way, not parkland, and will be purchased from the City of Vancouver in accordance with applicable federal and state laws. As noted in previous discussions, the proposed project would require approximately 0.3 acres of right-of-way permanently, and 1.3 acres temporarily by easement, as shown on the attached map. Based on your department's previous input, efforts to minimize impacts to this property have been incorporated into the project design.



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If you concur that the acquisition of right-of-way shown on the attached figure would not adversely affect the recreational activities, features, and attributes that qualify Leverich Community Park for protection under Section 4(f), please sign and date this letter in the space below. We will maintain a copy of this letter, as well as previous correspondences, in the project file.

**As the official with jurisdiction over Leverich Community Park, located in the northeast quadrant of the I-5/SR 500 Interchange, I concur with the determination that the proposed transportation project as described in this letter and shown on the accompanying attachments would not adversely affect the activities, features, and attributes that qualify Leverich Community Park for protection under Section 4(f). I have also been informed that, based on my concurrence, the FHWA and FTA intend to make a *de minimis* finding regarding impacts to Leverich Community Park, thus satisfying the requirements of Section 4(f).**

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

3-5-2010

After signing and dating this letter, please return a copy to my attention within two weeks of the date of this letter to the following address:

Columbia River Crossing Project  
700 Washington Street, Suite 300  
Vancouver, WA 98660

We appreciate your assistance in this planning process. If you have any questions or concerns, please contact me at (360) 816-2199.

Sincerely,

Heather Wills  
CRC Environmental Manager

cc:

Peter Mayer, Director, Vancouver-Clark Parks and Recreation Department  
Jane Tesner Kleiner, Planning and Development Manager, VCPRD  
John McAvoy, Major Projects Manager, FHWA  
Linda Gehrke, Deputy Regional Administrator, Region 10, FTA

# Columbia River CROSSING

700 WASHINGTON STREET  
SUITE 300  
VANCOUVER, WA 98660  
360-737-2726 | 503-256-2726  
February 12, 2010

Bob Williamson  
Vice President of Administrative Services  
Clark College  
1933 Fort Vancouver Way  
Vancouver, WA 98663

RECEIVED  
FEB 22 2010

RE: Columbia River Crossing Project and Clark College Recreation Fields Columbia River Crossing

Dear Mr. Williamson:

Thank you for your coordination and input regarding the use of land from Clark College Recreation Fields that would result from the proposed Columbia River Crossing project. The purpose of this letter is to request your agency's concurrence that this use will not adversely affect the activities, features, and attributes that qualify the park for protection under Section 4(f) of the USDOT Act.

Clark College Recreation Fields is afforded special protections under Section 4(f) of the USDOT Act (recodified in 48 U.S.C. 303 and 23 U.S.C. 138). Under the provisions of Section 4(f), if the proposed transportation project would result in adverse effects to the park or recreation facility, the transportation agency must conduct an evaluation to demonstrate that there is no prudent and feasible alternative to using the 4(f) property. Because this evaluation can be expensive and potentially result in project delays, an exemption is provided in cases where the official with jurisdiction over the park or recreation area concurs in a determination that the impacts would be *de minimis* (minimal) – that is, that they would not adversely impact the activities, features or attributes that qualify the park for protection under Section 4(f). This concurrence enables the FHWA and FTA to make a *de minimis* finding, which satisfies the requirements of Section 4(f) and precludes the need for a full Section 4(f) Evaluation. According to our past discussions, the impacted area at Clark College Recreation Fields will not adversely impact the use, function, or development of the Park. This impact finding is discussed in more detail in the attachment.

For purposes of federal law, including Section 4(f) of the USDOT Act of 1966, any land permanently acquired for the project will be considered transportation right-of-way, not parkland, and will be purchased from the Clark College, in accordance with applicable federal and state laws. As noted in previous discussions, the proposed project would require approximately 1.0 acre of right-of-way permanently, and 0.2 acre temporarily, as shown on the attached map. Based on your previous input, efforts to minimize impacts to this property have been incorporated into the project design.

If you concur that the acquisition of right-of-way shown on the attached figure would not adversely affect the recreational activities, features, and attributes that qualify Clark College Recreational Fields for protection under Section 4(f), please sign and date this

# Columbia River CROSSING

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letter in the space below. We will maintain a copy of this letter as well as previous correspondences in the project file.

As the official with jurisdiction over Clark College Recreation Fields, located east of I-5 on McLoughlin Boulevard, I concur with the determination that the proposed transportation project as described in this letter and shown on the accompanying attachments would not adversely affect the activities, features, and attributes that qualify Clark College Recreation Fields for protection under Section 4(f). I have also been informed that, based on my concurrence, the FHWA and FTA intend to make a *de minimis* finding regarding impacts to Clark College Recreation Fields, thus satisfying the requirements of Section 4(f).

Signature:  \_\_\_\_\_

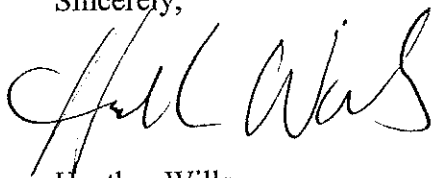
Date: 2/17/10 \_\_\_\_\_

After signing and dating this letter, please return a copy to my attention within X days of the date of this letter to the following address:

Columbia River Crossing Project  
700 Washington Street, Suite 300  
Vancouver, WA 98660

We appreciate your assistance in this planning process. If you have any questions or concerns, please contact me at (360) 816-2199.

Sincerely,



Heather Wills  
CRC Environmental Manager

cc:

John McAvoy, Major Projects Manager, FHWA  
Linda Gehrke, Deputy Regional Administrator, Region 10, FTA



# Columbia River CROSSING

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February 5, 2010

RECEIVED

MAR 02 2010

Columbia River Crossing

Todd Horenstein  
Assistant Superintendent for Facility Support Services  
Vancouver Public Schools  
P.O. Box 8937  
Vancouver, WA 98668

RE: Columbia River Crossing Project and Kiggins Sports Fields & Stadium

Dear Mr. Horenstein:

Thank you for your coordination and input regarding the use of land from the Kiggins Sports Fields and Stadium that would result from the proposed improvements at the I-5/SR 500 interchange. The purpose of this letter is to request your agency's concurrence that the use would not adversely affect the activities, features, and attributes that qualify the park for protection under Section 4(f) of the USDOT Act.

The Kiggins Sports Fields and Stadium is afforded special protections under Section 4(f) of the USDOT Act (recodified in 48 U.S.C. 303 and 23 U.S.C. 138). Under the provisions of Section 4(f), if the proposed transportation project would result in adverse effects to the park or recreation facility, the transportation agency must conduct an evaluation to demonstrate that there is no prudent and feasible alternative to using the 4(f) property. Because this evaluation can be expensive and potentially result in project delays, an exemption is provided in cases where the official with jurisdiction over the park or recreation area concurs in a determination that the impacts would be *de minimis* (minimal) – that is, that they would not adversely impact the activities, features or attributes that qualify the park for protection under Section 4(f). This concurrence enables the FHWA and FTA to make a *de minimis* finding, which satisfies the requirements of Section 4(f) and precludes the need for a Section 4(f) Evaluation of that resource. According to our past discussions, the impacted area at the Kiggins Sports Fields and Stadium will not adversely impact the public use, function, or development of the Park. This impact finding is discussed in more detail in the attachment.

For purposes of federal law, including Section 4(f) of the USDOT Act of 1966, any land permanently acquired for the project will be considered transportation right-of-way, not parkland, and will be purchased from the Vancouver Public School District, in accordance with applicable federal and state laws. As noted in previous discussions, the proposed project would require less than 0.1 acre of right-of-way permanently, and 0.3 acre of permanent subsurface easement, as shown on the attached map. Additionally, temporary construction activities may also take place in the area identified for the permanent subsurface easement. Based on your previous input, efforts to minimize impacts to this property have been incorporated into the project design.

# Columbia River CROSSING

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If you concur that the acquisition of right-of-way shown on the attached figure would not adversely affect the recreational activities, features, and attributes that qualify the public use of the Kiggins Sports Fields and Stadium for protection under Section 4(f), please sign and date this letter in the space below. We will maintain a copy of this letter as well as previous correspondence in the project file.

**As the official with jurisdiction over *the Kiggins Sports Fields and Stadium*, located in the *northwest quadrant of the SR 500/I-5 interchange*, I concur with the determination that the proposed transportation project as described in this letter and shown on the accompanying attachments would not adversely affect the activities, features, and attributes that qualify *the public use of the Kiggins Sports Fields and Stadium* for protection under Section 4(f). I have also been informed that, based on my concurrence, the FHWA and FTA intend to make a *de minimis* finding regarding impacts to *the Kiggins Sports Fields and Stadium*, thus satisfying the requirements of Section 4(f).**

Signature: \_\_\_\_\_

*Todd Yench*

Date: \_\_\_\_\_

*26 Feb 2010*

After signing and dating this letter, please return a copy to my attention within two weeks days of the date of this letter to the following address:

Columbia River Crossing Project  
700 Washington Street, Suite 300  
Vancouver, WA 98660

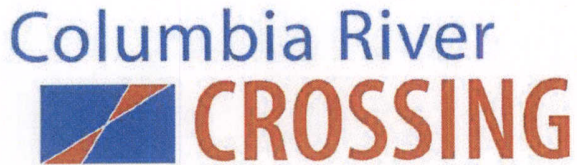
We appreciate your assistance in this planning process. If you have any questions or concerns, please contact me at (360) 816-2199.

Sincerely,

Heather Wills  
CRC Environmental Manager

cc:

John McAvoy, Major Projects Manager, FHWA



700 WASHINGTON STREET  
SUITE 300  
VANCOUVER, WA 98660  
360-737-2726 | 503-256-2726

July 14, 2010

Zari Santner  
Director  
Portland Parks and Recreation  
1120 SW 5<sup>th</sup> Ave, Suite 1302  
Portland, OR 97204

RECEIVED

AUG 09 2010

Columbia River Crossing

RE: Columbia River Crossing Project and East Delta Park – Section 4(f) Temporary Occupancy

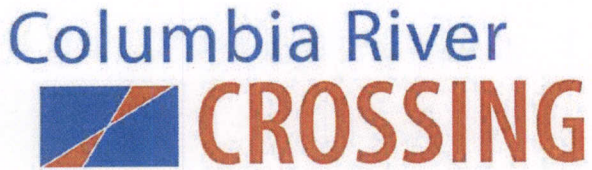
Dear Ms. Santner:

Thank you for your past coordination and input regarding the temporary impacts to East Delta Park that would result from the proposed Columbia River Crossing project. To allow the temporary impacts, the Portland Parks and Recreation will need to issue a temporary construction easement to the Oregon Department of Transportation (ODOT). The purpose of this letter is to request your agency's concurrence that these impacts would meet the conditions of a temporary occupancy under Section 4(f) of the USDOT Act, and as per Federal Register Rules and Regulations 23 CFR 774.13(d).

This temporary occupancy would encompass slivers of land, shown in the attached exhibit, which would be required to gain access to the I-5 right-of-way in order to construct a fill wall to support the exit ramp from I-5 northbound to Marine Drive. The use of a fill wall at this location, rather than a fill slope, allows the project to avoid a permanent impact to the park. The impacted land is currently open space area adjacent to the existing highway, is used only incidentally by park users, provides a spatial buffer between the transportation facilities and the adjacent Control-Line Flying Field and softball Field 1, the uses of which are not dependent upon the impacted area, and includes no special or unique recreational features or attributes.

The scope of work involving the temporary occupancy would be minor. Less than 0.1 acre of land abutting the existing highway in the northern corner of East Delta Park would need to be occupied under the temporary easement. The area occupied would constitute less than 0.1 percent of the land area of the park. The nature and the magnitude of these changes to the Park are minimal. The temporary occupancy would last for less than the time needed for construction of the project, and would involve no change in ownership of the Park land.

As mentioned above, the impacted area directly accommodates no protected activities, features, or attributes. While the temporary occupancy will likely disturb grass where construction vehicles will operate, it is expected to result in no permanent adverse physical impacts to the land or other vegetation. ODOT will coordinate with Portland Parks and Recreation to ensure that the land being used would be fully restored to a condition that is at least as good as the one that existed prior to the occupancy.



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As per Federal Register Rules and Regulations 23 CFR 774.13(d), this temporary easement is considered a temporary occupancy of Section 4(f) parkland. To proceed with the design and construction of the Columbia River Crossing project, there must be documented agreement that the officials having jurisdiction over the resource concur with the work to be completed and agree regarding the above conditions.

Please review the attached map and indicate your concurrence with the work proposed, and that the above conditions are met, by signing below.

**I concur that the proposed work constitutes a Temporary Occupancy of East Delta Park, as described above. To obtain temporary use of Portland Parks & Recreation property, the Columbia River Crossing project will need to submit a Non-Park Use Permit application, at least 3 months prior to using this property. A permit application fee of \$1,000 will be required upon submittal of the application. There will be an additional use fee, and it will be calculated by the amount of land used, nature of use, and duration of your use. The Non-park use application can be found at: [www.portlandonline.com/parks/index.cfm?c=41434](http://www.portlandonline.com/parks/index.cfm?c=41434)**

A handwritten signature in black ink, appearing to read "D. Sawyer", written over a horizontal line.

Signature

A handwritten date "7/19/10" written in black ink over a horizontal line.

Date

After signing and dating this letter, please return a copy to my attention within 14 days of the date of this letter to the following address:

Columbia River Crossing Project  
700 Washington Street, Suite 300  
Vancouver, WA 98660

We appreciate your assistance in this planning process. If you have any questions or concerns, please contact me at (360) 816-8892.

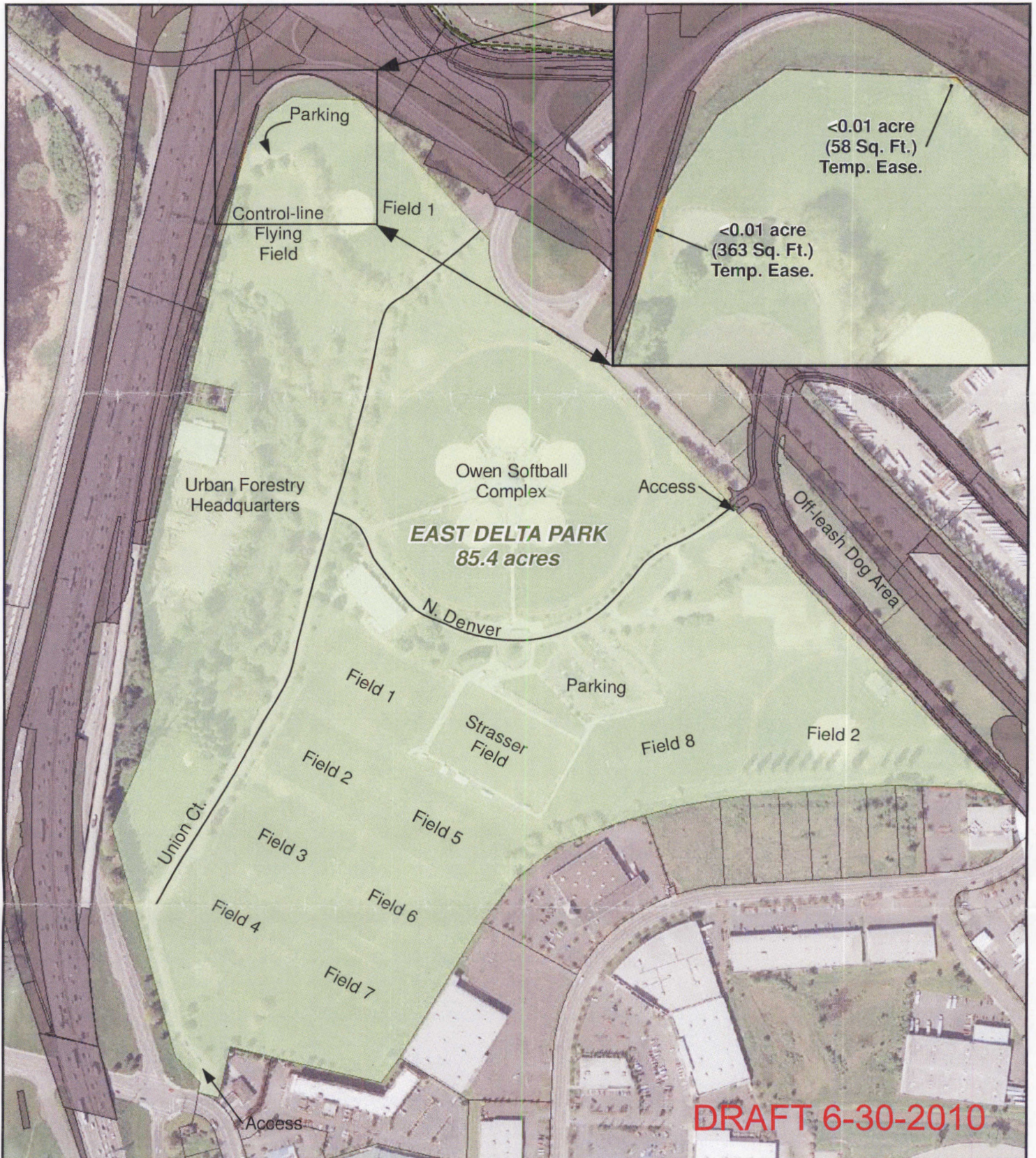
Sincerely,

A handwritten signature in blue ink, appearing to read "Stephen Morrow", written over a horizontal line.

Steve Morrow  
CRC Environmental Coordinator

cc:

John McAvoy, Major Projects Manager, FHWA  
Linda Gehrke, Deputy Regional Administrator, Region 10, FTA



**Project Design Footprint**

- Project Design Footprint
- Park
- Tax Lot

**Acquisition Boundaries**

- Roadway Right-of-Way
- Roadway Permanent Easement
- Roadway Temporary Easement

- Transit Right-of-Way
- Transit Permanent Easement
- Transit Temporary Easement

**East Delta Park**

Analysis by J. Koloszar, Analysis Date: June 30, 2010, File Name: 4fmaps\_CM196\_Parks\_RP\_Delta\_A.mxd

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May 20, 2011

Steve Townsen, P.E.  
City Engineer  
City of Portland Bureau of Transportation  
1120 SW Fifth Avenue #800  
Portland, Oregon 97204

RE: Columbia River Crossing Project and Marine Drive Multi-Use Trail

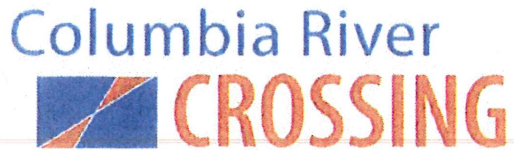
Dear Mr. Townsen:

Thank you for your coordination and input regarding the impact of the Columbia River Crossing project on the Marine Drive Multi-use Trail. The purpose of this letter is to request your agency's concurrence that this impact will not adversely affect the activities, features, and attributes that qualify the trail for protection under Section 4(f) of the USDOT Act.

The Marine Drive Multi-use Trail is afforded special protections under Section 4(f) of the USDOT Act (recodified in 48 U.S.C. 303 and 23 U.S.C. 138). Under the provisions of Section 4(f), if the proposed transportation project would result in adverse effects to a public park or recreation facility, the transportation agency (the Columbia River Crossing project) must conduct an evaluation to demonstrate that there is no prudent and feasible alternative to using the 4(f) property. Because such an evaluation can be expensive and potentially result in project delays, an exemption is provided in cases where the official with jurisdiction over the park or recreation area concurs in a determination that the impacts to the recreational resource would be *de minimis* – that is, that there would be no long-term, adverse impact to the activities, features or attributes that qualify the park for protection under Section 4(f). This concurrence enables the FHWA and FTA to make a *de minimis* (minimal impact) finding, which satisfies the requirements of Section 4(f) and precludes the need for a full Section 4(f) Evaluation. According to our past discussions, the impacted portions of the Marine Drive Multi-use Trail will not adversely impact the long-term use, function, or development of the Trail. This impact finding is discussed in more detail in the attachment.

As noted in previous discussions, the proposed project would require that a 130-foot length of trail would need to be temporarily closed, demolished, and rebuilt, as shown on the attached map.

If you concur that the acquisition of right-of-way shown on the attached figure would not adversely affect the recreational activities, features, and attributes that qualify the Marine Drive Trail for protection under Section 4(f), please sign and date this letter in the space below. We will maintain a copy of this letter as well as previous correspondences in the project file.



700 WASHINGTON STREET  
SUITE 300  
VANCOUVER, WA 98660  
360-737-2726 | 503-256-2726

As the official with jurisdiction over the Marine Drive Trail, located west of I-5 along Marine Drive, I concur with the determination that the proposed transportation project as described in this letter and shown on the accompanying attachments would not adversely affect the activities, features, and attributes that qualify the Marine Drive Trail for protection under Section 4(f). I have also been informed that, based on my concurrence, the FHWA and FTA intend to make a *de minimis* finding regarding impacts to the Marine Drive Trail, thus satisfying the requirements of Section 4(f).

Signature: Steve Town

Date: 5/23/11

After signing and dating this letter, please return a copy to my attention within two weeks of the date of this letter to the following address:

Columbia River Crossing Project  
700 Washington Street, Suite 300  
Vancouver, WA 98660

We appreciate your assistance in this planning process. If you have any questions or concerns, please contact me at (360) 816-2199.

Sincerely,

A handwritten signature in blue ink, appearing to read "Heather Wills", is written over a horizontal line.

Heather Wills  
CRC Environmental Manager

cc:

John McAvoy, Major Projects Manager, FHWA  
Linda Gehrke, Deputy Regional Administrator, Region 10, FTA  
John Gillam, Policy & Systems Planning Section Manager, City of Portland Bureau of Transportation