



Hood River - White Salmon

BRIDGE REPLACEMENT PROJECT

Draft Section 6(f) Technical Report

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ACRONYMS AND ABBREVIATIONS

API	area of potential impact
BMP	best management practices
EIS	environmental impact statement
I-	Interstate
lbs.	pounds
LWCF	Land and Water Conservation Fund
MATS	Mt. Adams Transportation Service
mph	miles per hour
NEPA	National Environmental Policy Act
NPS	National Park Service
OAR	Oregon Administrative Rule
ODFW	Oregon Department of Fish and Wildlife
OHWM	ordinary high-water mark
OPRD	Oregon Parks and Recreation Department
PRISM	Project Information System Database
RCO	Washington State Recreation and Conservation Office
Section 6(f)	Section 6(f) of the Land and Water Conservation Fund Act
SR	State Route
the Port	Port of Hood River
the Project	Hood River-White Salmon Bridge Replacement Project
TS&L	type, size, and location
U.S.	United States
USACE	U.S. Army Corps of Engineers
WDFW	Washington Department of Fish and Wildlife

1. INTRODUCTION

The Hood River-White Salmon Bridge Replacement Project (the "Project," formerly named the SR-35 Columbia River Crossing Project) would construct a replacement bridge and then remove the existing Hood River Bridge between White Salmon, Washington, and Hood River, Oregon (Exhibit 1). The bridge is owned by the Port of Hood River (the Port), serving an average of over 4 million trips annually.

Exhibit 1. Project Area



The purpose of this Project is to improve multi-modal transportation of people and goods across the Columbia River between the communities of White Salmon and Bingen, Washington and Hood River, Oregon. The Project is intended to: a) improve traffic operations for current and future cross-river traffic and at connections to I-84 and SR 14; b) provide a cross-river connection for bicyclists and pedestrians; c) improve vehicle and freight travel safety by reducing real and perceived hazards; d) maintain and improve a transportation linkage between the White Salmon, Bingen, and Hood River communities, businesses, and services; e) fulfill the legislative directives tied to the Project funding; f) improve river navigation for vessels passing under the bridge; and g) improve the river crossing's seismic resiliency.

The overall need for the Project is to rectify current and future transportation inadequacies and deficiencies associated with the existing bridge. Specifically, these needs are to:

- Present Capacity: substandard width and operational issues are causing traffic congestion on the bridge and at both approaches
- Future Transportation Demand: the existing bridge is not designed to meet future travel demand for vehicles
- Bicycle and Pedestrian Facilities: lack of bicycle and pedestrian facilities limits multi-modal mobility
- Safety: narrow lanes and lack of shoulder create real and perceived safety hazards
- Social Demands/Economic Development: the existing bridge restricts the current and projected flow of goods, labor and consumers across the river
- Legislation: comply with federal funding obligation Transportation Equity Act for the 21st Century (TEA-21), the Washington State Legislature designation of the SR-35 corridor, and Oregon HB 2017
- River Navigation: the substandard horizontal clearance creates difficulties for safe vessel navigation
- Seismic Deficiencies: the existing bridge does not meet current seismic standards and is vulnerable to a seismic event

The Project began in 1999 with a feasibility study that ultimately resulted in the publication of the State Route (SR) 35 Columbia River Crossing Draft Environmental Impact Statement (EIS) in 2003, which identified the "EC-2 West Alignment" as the preliminary preferred alternative. In 2011, the Type, Size, and Location (TS&L) Study recommended a fixed-span concrete segmental box girder bridge as the recommended bridge type. In 2017, the Project was relaunched to complete the National Environmental Policy Act (NEPA) process. This report provides a summary of park and recreation facilities that have received federal Land and Water Conservation Fund (LWCF) grant funding and are thus protected under Section 6(f) of the LWCF Act, ("Section 6(f)") as well as park and recreation facilities that have received state grant funding with stewardship requirements. This report describing the existing conditions of these grant-funded park and recreation facilities and anticipated construction, direct, and indirect impacts. Measures to avoid, minimize, and/or mitigate these impacts are also identified in this report.

2. PROJECT ALTERNATIVES

Four alternatives are being evaluated to address the Project's purpose and need:

- No Action Alternative
- Preferred Alternative EC-2
- Alternative EC-1
- Alternative EC-3

Exhibit 2 shows the alignment of the existing bridge, which represents the No Action Alternative, and the three build alternatives. The build alternatives connect to SR 14 in White Salmon, Washington, and Button Bridge Road in Hood River, Oregon, just north of the Interstate 84 (I-84)/United States Highway 30 (US 30) interchange (Exit 64).

Each alternative is summarized in Exhibit 3 and described in more detail in the following sections. Exhibit 4 illustrates the navigational clearance for the existing bridge and the replacement bridge (same for each build alternative).

Exhibit 2. Location of the Preferred Alternative EC-2, Alternative EC-1, and Alternative EC-3

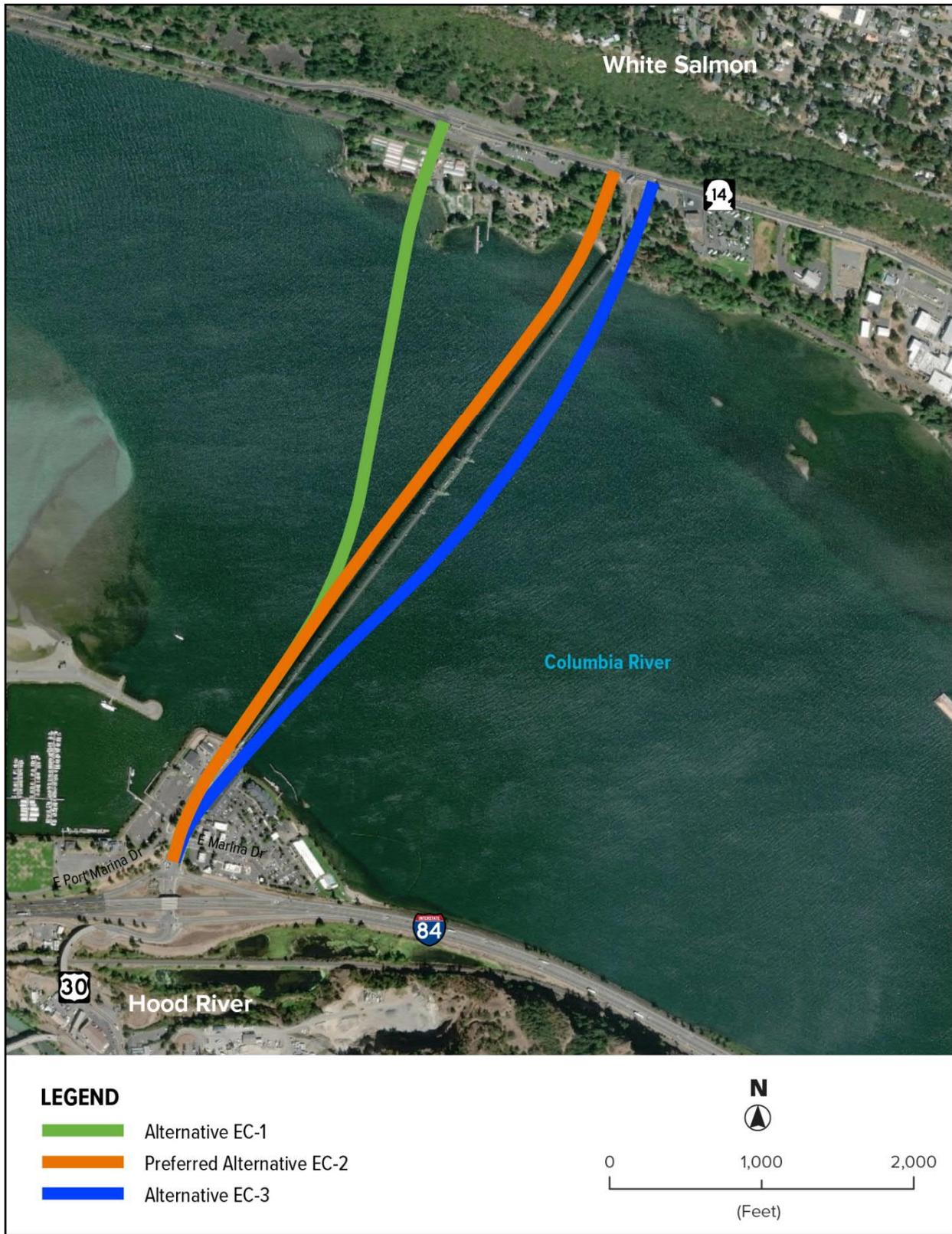
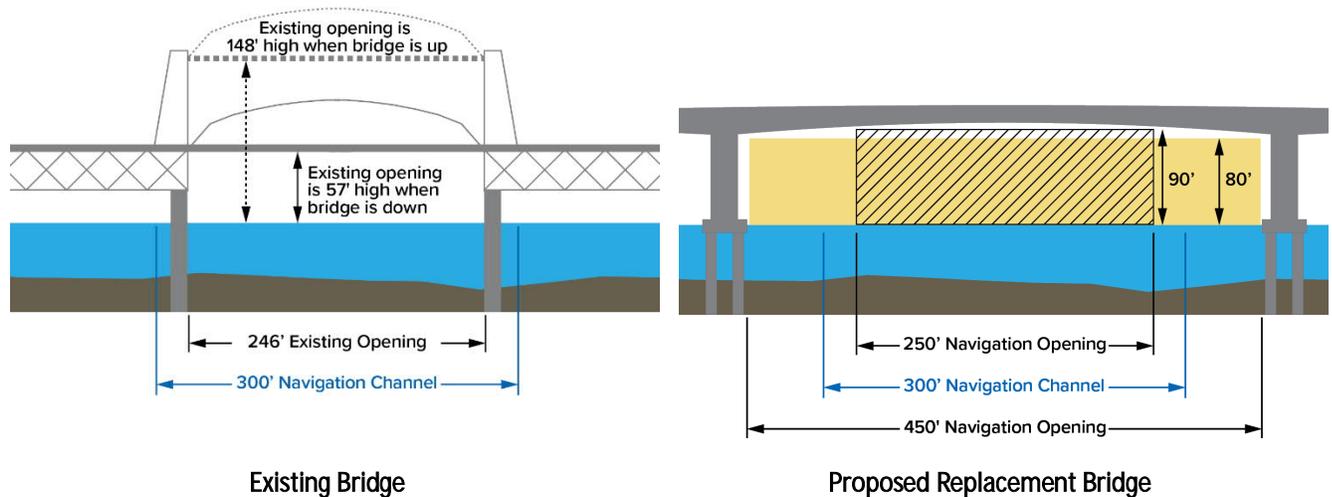


Exhibit 3. Summary Comparison of Key Elements of Alternatives

	No Action Alternative	Preferred Alternative EC-2	Alternative EC-1	Alternative EC-3
Bridge alignment	No change	Slightly west of existing	WA: West of existing OR: Slightly west of existing	Slightly east of existing
Bridge structure				
Bridge type	Steel deck truss bridge with vertical lift span	Segmental concrete box girder bridge (fixed span)		
Total number of piers (in water / on land)	28 (20 / 8)	13 (12 / 1)	13 (11 / 2)	13 (12 / 1)
Structure length	4,418 feet	4,412 feet	4,375 feet	4,553 feet
Travel lanes	9-foot 4.75-inch lanes	12-foot lanes		
Roadway shoulders	No shoulders	8-foot shoulders		
Vehicle height limit	14 feet-7 inches	None		
Shared Use Path	None	12-foot wide, only on west side with overlooks		
Bridge deck	Steel-grated	Concrete		
Vehicle Gross Weight Limit	80,000 pounds (lbs.); no trip permit allowance for overweight vehicles	> 80,000 lbs., with approved trip permit		
Design speed	Unknown	50 miles per hour (mph)		
Posted speed	25 mph	35 mph		
Toll collection	Toll booth on Oregon side	Electronic tolling/No toll booth		
Stormwater treatment	None	Detention and water quality treatment		
Navigation clearance	246 feet horizontal by 57 feet vertical when bridge is down and up to 148 feet vertical when lifted	450 feet horizontal x 80 feet vertical (maximum horizontal opening) 250 feet horizontal x 90 feet vertical (centered within maximum vertical opening)		
SR 14/Hood River Bridge intersection	Signalized intersection	Roundabout slightly west of existing intersection; SR 14 raised approximately 2 feet above existing road level	Roundabout with connection to N. Dock Grade Road west of existing intersection; SR 14 raised approximately 17 feet above existing road level	Roundabout slightly east of existing intersection; SR 14 remains at existing road level
Button Bridge Road/E. Marina Way intersection	Signalized intersection	Signalized intersection		
Anticipated construction duration	None	6 years (3 years to construct the replacement bridge and 3 years to remove the existing bridge)		

Exhibit 4. Navigation Clearance of Existing Bridge and Proposed Replacement Bridge



2.1. No Action Alternative

The No Action Alternative would retain the existing bridge in its existing condition and configuration. Routine operations would continue and maintenance would be implemented to continue operations. Under the No Action Alternative, elements of the existing bridge include:

- **Alignment:** The bridge would continue to span the Columbia River between its northern terminus at the SR 14/Hood River Bridge intersection in White Salmon, Washington, and its southern terminus at the Button Bridge Road/E. Marina Way intersection in Hood River, Oregon, as shown in the aerial photograph in Exhibit 2.
- **Type:** The bridge would continue to be a 4,418-foot steel deck truss bridge with a vertical lift span. The bridge would continue to have 20 piers in the Columbia River.
- **Ownership:** The bridge will continue to be owned and operated by the Port.
- **Vehicle lanes:** The bridge will continue to have one narrow (9 feet, 4.75 inches) travel lane in each direction and no shoulders.
- **Bicycle and pedestrian facilities:** The bridge would continue to have no pedestrian or bicycle facilities, and signage would continue to prohibit pedestrians and bicycles on the bridge.
- **Speed:** The posted speed limit on the bridge would continue to be 25 mph.
- **Vehicle restrictions:** Vehicles would continue to be weight-restricted to 80,000 lbs.; vehicles with approved trip permits would still not be allowed to use the bridge. Wide loads would continue to be prohibited without special arrangements, and large vehicles would be encouraged to turn their mirrors in. The height limit for vehicles would continue to be 14 feet, 7 inches where the lift span occurs.
- **Tolling:** The bridge would continue to be tolled for all vehicles with a toll booth on the south end of the bridge and electronic tolls collected through the Port's Breezeby system. Plans to shift to all ETC are being considered, but there is no certainty they will be implemented.

- Navigational clearance: The horizontal clearance for marine vessels would continue to be 246 feet, narrower than the navigation channel width of 300 feet, as shown Exhibit 4. The vertical clearance would continue to be 57 feet when the lift span is down and 148 feet when it is raised; vessels would continue to be required to request bridge lifts in advance. The lift span section would continue to use gate and signals to stop traffic for bridge lifts.
- Seismic resilience: The bridge would continue to be seismically vulnerable and would not be cost effective to be seismically retrofitted.
- Stormwater: No stormwater detention or water quality treatment would be provided for the bridge. Stormwater on the bridge would continue to drain directly into the Columbia River through the steel-grated deck.
- Roadway connections: The bridge would continue to connect to SR 14 on the Washington side at the existing signalized SR 14/Hood River Bridge intersection. On the Oregon side, the southern end of the bridge would continue to transition to Button Bridge Road, connecting to the local road network at the existing signalized Button Bridge Road/E. Marina Way intersection north of I-84. The bridge would continue to cross over the BNSF Railway tracks on the Washington side and over the Waterfront Trail along the Oregon shoreline.
- Bicycle and pedestrian connections: The bridge would continue not to provide bicycle or pedestrian connections across the Columbia River. Bicyclists and pedestrians wanting to cross the river would continue to need to use an alternate means of transportation, such as the Mt. Adams Transportation Service (MATS) White Salmon/Bingen to Hood River bus (buses provide bicycle racks), or a private vehicle.

The Supplemental Draft EIS considers two scenarios for the No Action Alternative:

- End of bridge lifespan: assumes that the existing Hood River Bridge would remain in operation through 2045¹ and would be closed sometime after 2045 when maintenance costs would become unaffordable. At such a time, the bridge would be closed to vehicles and cross-river travel would have to use a detour route approximately 21 miles east on SR 14 or 23 miles east on I-84 to cross the Columbia River using The Dalles Bridge (US 197). Alternatively, vehicles could travel 25 miles west on SR 14 or 21 miles west on I-84 to cross the Columbia River via the Bridge of the Gods. When the bridge would be closed, the lift span would be kept in a raised position to support large vessel passage that previously required a bridge lift or the existing bridge would be removed.
- Catastrophic event: addresses the possibility that an extreme event that damages or otherwise renders the bridge inoperable would occur prior to 2045. Such events could include an earthquake, landslide, vessel strike, or other unbearable loads that the bridge structure cannot support.

¹ The year 2045 is the design horizon for the Project. The design horizon is the year for which the Project was designed to meet anticipated needs.

2.2. Preferred Alternative EC-2

Alternative EC-2 would construct a replacement bridge west of the existing bridge. The existing bridge would be removed following construction of the replacement bridge. Under Alternative EC-2, elements of the replacement bridge would include:

- **Alignment:** The main span of the bridge would be approximately 200 feet west of the existing lift span. The bridge terminus in White Salmon, Washington, would be located approximately 123 feet west of the existing SR 14/Hood River Bridge intersection, while the southern terminus would be in roughly the same location at the Button Bridge Road/E. Marina Way intersection in Hood River, Oregon, as shown in Exhibit 5 and Exhibit 6.
- **Type:** The bridge would be a 4,412-foot fixed-span segmental concrete box girder bridge with a concrete deck and no lift span. The bridge would have 12 piers in the Columbia River and one land-based pier on the Washington side of the river.
- **Ownership:** While the Port may own and operate the replacement bridge, other options for the ownership and operation of the replacement bridge that may be considered include other governmental entities, a new bi-state bridge authority, and a public-private partnership, depending on the funding sources used to construct the replacement bridge.
- **Vehicle lanes:** The bridge would include one 12-foot travel lane in each direction, an 8-foot shoulder on each side, as shown in Exhibit 7.
- **Bicycle and pedestrian facilities:** The bridge would include a 12-foot wide shared use path separated from traffic with a barrier on the west side, as shown in Exhibit 7. In the middle of the bridge the shared use path would widen an additional 10 feet in two locations to provide two 40-foot long overlooks over the Columbia River and west into the CRGNSA with benches; the overlook locations are shown in Exhibit 5 and Exhibit 6. The cross-section of the overlooks is shown in Exhibit 7.
- **Speed:** The design speed for the bridge would be 50 mph with a posted speed limit of 35 mph.
- **Vehicle restrictions:** Vehicles would no longer be limited by height, width, or weight. Vehicles exceeding 80,000 lbs. that have approved trip permits could use the bridge.
- **Tolling:** Tolls for vehicles would be collected electronically so there would be no toll booth on either side of the bridge. No tolls would be collected from non-motorized users (e.g., pedestrians, bicyclists) who travel on the shared use path.
- **Navigational clearance:** Vertical clearance for marine vessels would be a minimum of 80 feet. The horizontal bridge opening for the navigation channel would be 450 feet, greater than the existing 300-foot wide federally recognized navigation channel, as shown in Exhibit 4. Centered within this 450-foot opening, there would be a 250-foot wide opening with a vertical clearance of 90 feet. Similar to the existing bridge, the replacement bridge would cross the navigation channel at roughly a perpendicular angle as shown in Exhibit 5 and Exhibit 6.
- **Seismic resilience:** The bridge would be designed to be seismically sound under a 1,000-year event and operational under a Cascadia Subduction Zone earthquake.

- Stormwater: Stormwater from the entire Project area (bridge and improved roadways) would be collected and piped to detention and treatment facilities on both sides of the bridge as shown in Exhibit 6. On the Washington side, separate stormwater facilities would be used for the roadways and the bridge.
- Roadway connections: The bridge would connect to SR 14 on the Washington side at a new two-lane roundabout slightly west of the existing SR 14/Hood River Bridge intersection, as shown in Exhibit 6. On the Oregon side, the southern end of the bridge would transition to Button Bridge Road, connecting to the local road network at the existing signalized Button Bridge Road/E. Marina Way intersection north of I-84. The private driveway on Button Bridge Road north of E. Marina Way may be closed under this alternative. Like the existing bridge, the replacement bridge would cross over the BNSF Railway tracks on the Washington side and over the Waterfront Trail along the Oregon shoreline.
- Bicycle and pedestrian connections: The new shared use path would connect to existing sidewalks along the south side of SR 14 in Washington and to roadway shoulders (for bicyclists) on both sides of SR 14 at the new roundabout with marked crosswalks, as shown in Exhibit 6. On the Oregon side, the shared use path would connect to existing sidewalks, bicycle lanes, and local roadways at the signalized Button Bridge Road/E. Marina Way intersection.
- Cost: Total Project construction cost is estimated to be \$300 million in 2019 dollars.

Exhibit 5. Preferred Alternative EC-2 Alignment

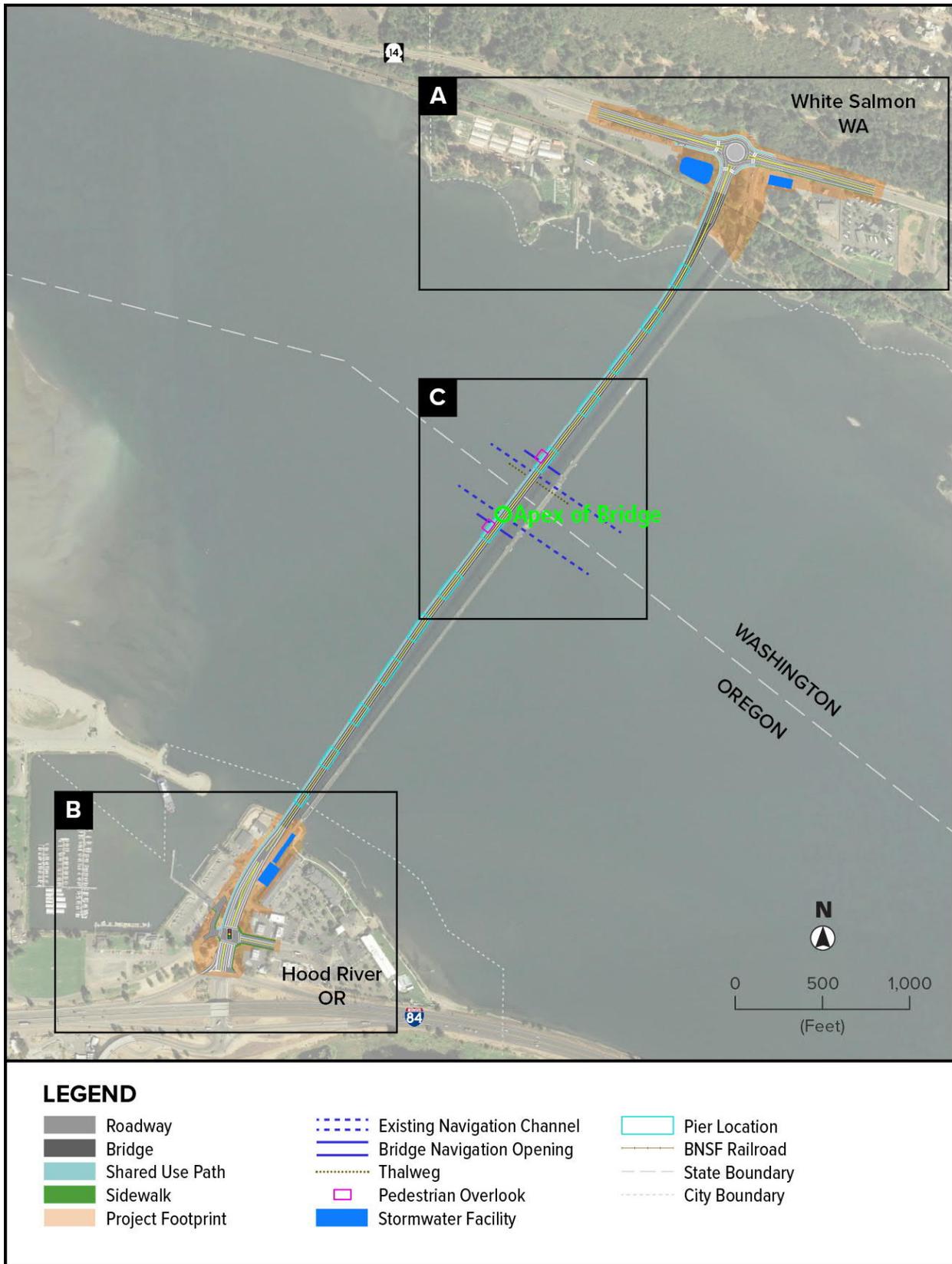


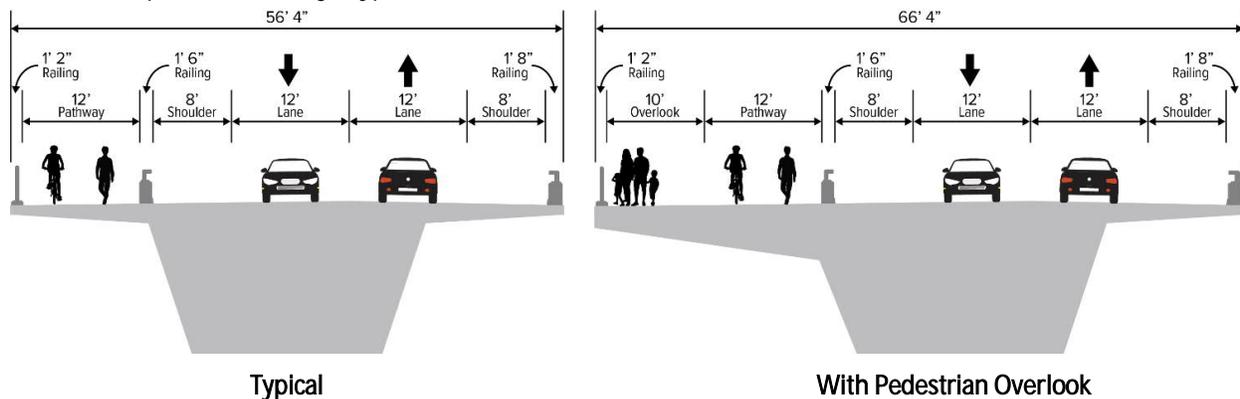
Exhibit 6. Preferred Alternative EC-2 Enlargements



- 1 New two-lane roundabout with marked crosswalks
- 2 New shared use path across bridge
- 3 New stormwater detention and water quality treatment facilities
- 4 Elimination of toll booth
- 5 New wider bridge opening crosses navigation channel at a perpendicular angle

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Exhibit 7. Replacement Bridge Typical Cross-Section



2.3. Alternative EC-1

Alternative EC-1 would construct a replacement bridge west of the existing bridge. Like Alternative EC-2, the existing bridge would be removed following construction of the replacement bridge. Exhibit 8 shows alignment of Alternative EC-1 and Exhibit 9 provides enlargements of the improvements that would be constructed under Alternative EC-1.

Like Preferred Alternative EC-2, the total Project construction cost for Alternative EC-3 is estimated to be \$300 million in 2019 dollars. Under Alternative EC-3, elements of the replacement bridge would be the same as the elements described for Alternative EC-2 except:

- **Alignment:** The main span of the bridge would be approximately 700 feet west of the existing lift span. The bridge terminus in White Salmon, Washington, would be located approximately 2,309 feet west of the existing SR 14/Hood River Bridge intersection, while the southern terminus would be in roughly the same location as the existing terminus at the Button Bridge Road/E. Marina Way intersection in Hood River, Oregon.
- **Type:** The bridge would be a 4,553-foot fixed-span segmental concrete box girder bridge with a concrete deck and no lift span. Like Preferred Alternative EC-2, the bridge would have 12 piers in the Columbia River and one land-based pier on the Washington shore.
- **Navigational clearance:** The navigational opening would be the same as Alternative EC-2, but the bridge would cross the navigation channel at a more skewed angle than under Alternative EC-2.
- **Roadway connections:** Connections to roadways would generally be the same as Alternative EC-2, but the bridge would connect to SR 14 on the Washington side at a new two-lane roundabout at the SR 14/Hood River Bridge/N. Dock Grade Road intersection west of the existing bridge. Access to S. Dock Grade Road would be provided via the driveway east of the Mt. Adams Chamber of Commerce and Heritage Plaza Park and Ride.
- **Bicycle and pedestrian connections:** Connections to bicycle and pedestrian facilities would generally be the same as Alternative EC-2, but the roundabout intersection with SR 14 on the Washington side would be located further west at N. Dock Grade Road.

Exhibit 8. Alternative EC-1 Alignment

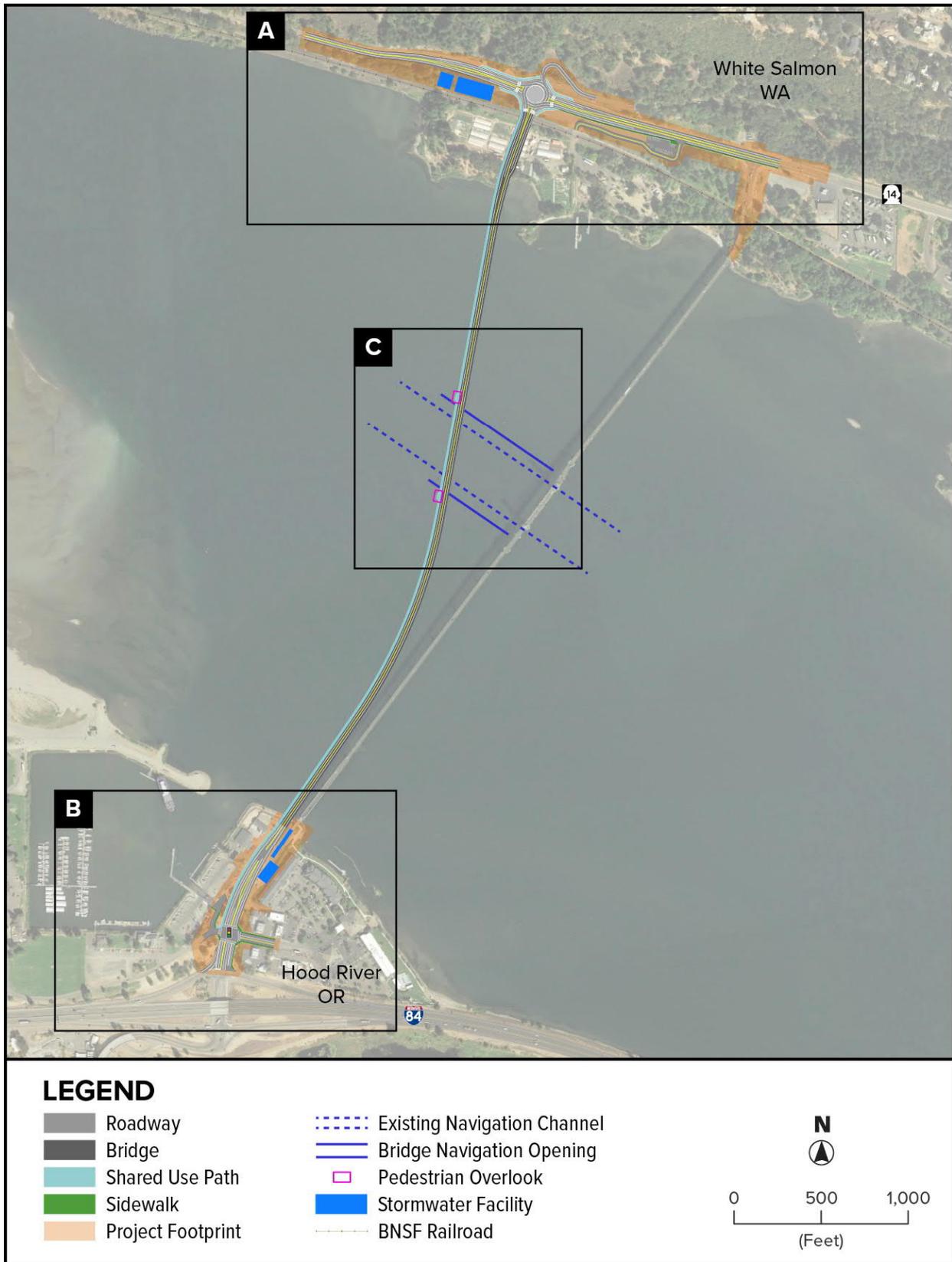


Exhibit 9. Alternative EC-1 Enlargements



- 1 New two-lane roundabout with marked crosswalks
- 2 New shared use path across bridge
- 3 New stormwater detention and water quality treatment facilities
- 4 Access to S. Dock Grade Road provided from eastern end of Heritage Plaza Park and Ride
- 5 Elimination of toll booth
- 6 New wider bridge navigation opening crosses navigation channel at a skewed angle

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2.4. Alternative EC-3

Alternative EC-3 would construct a replacement bridge east of the existing bridge. Like Alternative EC-2, the existing bridge would be removed following construction of the replacement bridge. Exhibit 10 shows alignment of Alternative EC-3 and Exhibit 11 provides enlargements of the improvements that would be constructed under Alternative EC-3.

Like Preferred Alternative EC-2, the total Project construction cost for Alternative EC-3 is estimated to be \$300 million in 2019 dollars. Under Alternative EC-3, elements of the replacement bridge would be the same as the elements described for Alternative EC-2 except:

- **Alignment:** The main span of the bridge would be approximately 400 feet east of the existing lift span. The bridge terminus in White Salmon, Washington, would be located approximately 140 feet east of the existing SR 14/Hood River Bridge intersection, while the southern terminus would be roughly the same as the existing terminus at the Button Bridge Road/E. Marina Way intersection in Hood River, Oregon.
- **Type:** The bridge would be a 4,553-foot fixed-span segmental concrete box girder bridge with a concrete deck and no lift span. Like Alternative EC-2, the bridge would have 12 piers in the Columbia River and one land-based pier on the Washington side of the river.
- **Roadway connections:** Connections to roadways would generally be the same as Alternative EC-2, but the bridge would connect to SR 14 on the Washington side at a new two-lane roundabout slightly east of the existing SR 14/Hood River Bridge intersection. On the Oregon side, improvements extend slightly further south to the Button Bridge Road/I-84 on and off ramps. The private driveway on Button Bridge Road north of E. Marina Way would be closed under this alternative.
- **Bicycle and pedestrian connections:** Connections to bicycle and pedestrian facilities would generally be the same as Alternative EC-2, but the roundabout intersection with SR 14 on the Washington side would be located approximately 264 feet further east than under Alternative EC-2.

Exhibit 10. Alternative EC-3 Alignment

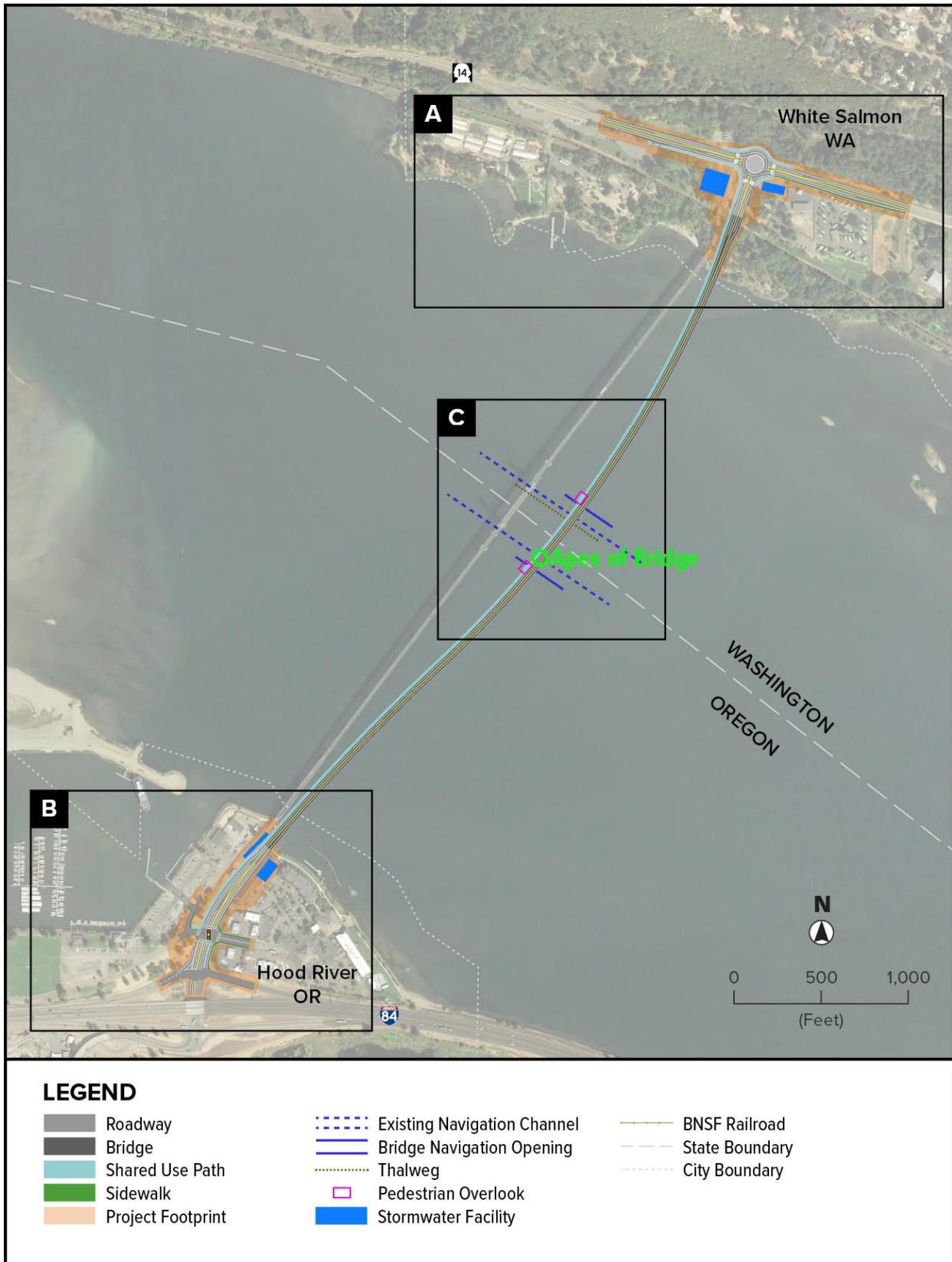
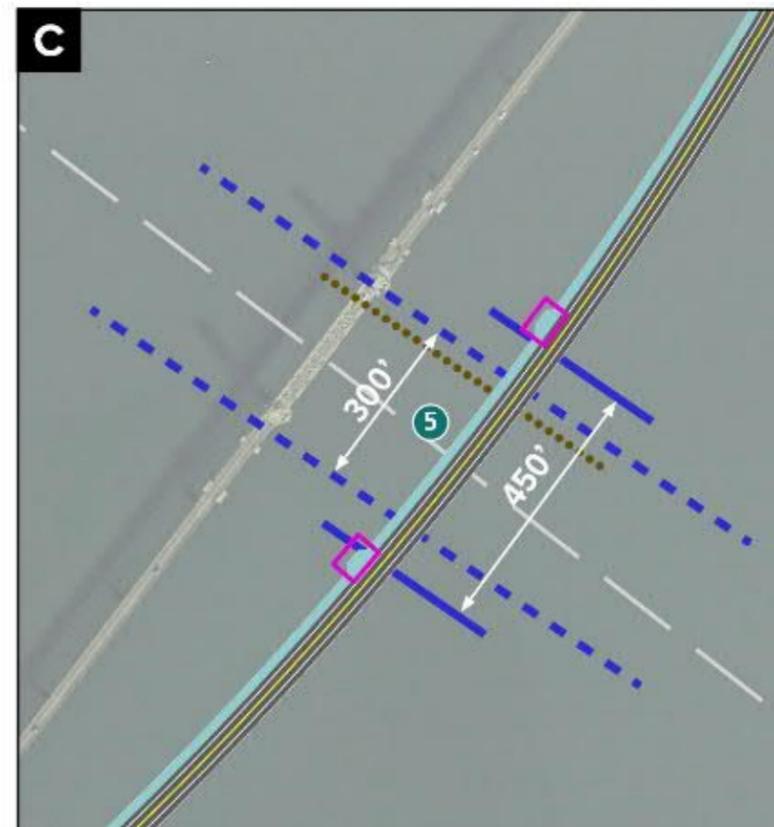


Exhibit 11. Alternative EC-3 Enlargements



- 1 New two-lane roundabout with marked crosswalks
- 2 New shared use path across bridge
- 3 New stormwater detention and water quality treatment facilities
- 4 Elimination of toll booth
- 5 New wider bridge opening crosses navigation channel at a perpendicular angle

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2.5. Construction of the Build Alternatives

Construction of the build alternatives would be similar in duration and approach.

- **Timeline and sequencing:** The NEPA process is anticipated to be complete in 2021; subsequent phases of the Project would be dependent on funding availability. Construction would take approximately 6 years and would require work during approximately six in-water work windows (IWWWs). Approximately three IWWWs would be necessary to construct the replacement bridge, and approximately three additional IWWWs would be necessary to complete the removal of the existing bridge.
- **In-water work window:** Certain construction and removal activities conducted below the OHWM of the Columbia River would be restricted to an IWWW established for the Project. The IWWW would be established in permits for the Project through inter-agency coordination including Washington Department of Fish and Wildlife (WDFW), Oregon Department of Fish and Wildlife (ODFW), NOAA Fisheries, and USFWS. Preliminary discussions with these agencies indicate that the authorized IWWW would likely be October 1-March 15 of each year. In-water work activities that would be restricted to this IWWW would include vibratory and impact pile installation, installation of drilled shaft casings, installation of cofferdams, and unconfined wiresaw removal of the existing pier foundations. Vibratory pile removal would not be restricted to the IWWW.
- **Mobilization and site preparation:** The contractor would likely mobilize equipment to the construction site via barges and trucks. Erosion control measures (e.g., silt fences, etc.) and debris containment devices (i.e., floating debris booms) would be installed and clearing and grubbing limits would be established prior to vegetation removal. Barges would require anchoring, tethering, and spudding.
- **Construction staging:** At least two staging areas would be necessary for staging and storage of materials and equipment; the location of these areas would be determined later in the design process, including obtaining all relevant environmental permits and land use approvals. It is estimated that a minimum of 2 acres would be necessary for staging and storage of materials and equipment. Materials arriving by barge may be offloaded to upland staging areas or may be temporarily stored on barges. All staging areas and equipment fueling areas would be located above the OHWM and outside of environmentally sensitive areas. Staging and temporary access areas will occur in upland locations, on areas that are either already disturbed or that will be restored post-Project.
- **Temporary work structures:** The Project would likely require the installation of several temporary in-water structures during construction and removal of the existing bridge. These structures would include temporary work bridges, cofferdams, drilled shaft casings, and temporary piles. These temporary features would be designed by the contractor after a contract is awarded, but prior to construction.

Three temporary work bridges would likely be installed to support construction activities. One temporary work bridge would be installed at each end of the replacement bridge alignment. A third temporary work bridge would be constructed on the Washington side of the river to support the removal of the existing bridge. These temporary structures would likely be supported by 24-inch steel pipe piles.

Additional temporary piles would be necessary throughout construction and removal of the existing bridge for a variety of purposes, including supporting falsework and formwork, pile templates, reaction piles, and for barge mooring. These temporary piles would also likely be 24-inch steel pipe piles.

Barges would be used as platforms to conduct work activities and to haul materials and equipment to and from the work site. Three barges would typically be needed at each pier during drilled shaft construction, and at least one barge would remain at each pier after shaft construction to support column and superstructure construction.

Temporary cofferdams would likely be installed to create isolated in-water work areas for certain activities. A temporary cofferdam would likely be installed to create an isolated in-water work area for construction of a spread footing foundation on the Washington shoreline. Sheet pile cofferdams may also be installed at one or more piers on the existing bridge to create an isolated work area for removal of the existing bridge foundations.

Drilled shaft shoring casings would also be installed as temporary work structures to create isolated work areas for drilled shaft construction. An outer steel casing, with a diameter approximately 12-inches larger than that of the finished drilled shaft, would be installed to act as an isolation structure. The outer cases will be 84 inches in diameter for the 72-inch shafts, and 108 inches in diameter for the 96-inch shafts.

- Work area isolation and fish salvage: To minimize impacts to fish, fish salvage measures would be employed to remove fish from temporarily isolated in-water work areas during and after the installation of drilled shaft shoring casings and cofferdams. Fish salvage would follow the best management practices (BMPs) established in the biological opinion for FHWA and ODOT's Federal Aid Highway Program programmatic consultation and would be supervised by a fish biologist. A fish biologist with the experience and competence to ensure the safe capture, handling, and release of all fish will supervise all fish capture and release. To minimize take, efforts will be made to capture ESA-listed fish known or likely to be present in an in-water isolated work area using methods that are effective, minimize fish handling, and minimize the potential for injury. Attempts to seine and/or net fish, or the use of minnow traps shall precede the use of electrofishing equipment. Isolation structures will be installed such that they will not be overtopped by high water. A reasonable effort would be made to re-locate threatened or endangered fish using methods that minimize the risk of injury.
- Bridge foundation installation: The foundations for the replacement bridge would consist of three different foundation types: 1) pile-supported foundations; 2) drilled-shaft-supported foundations; and 3) spread footings. In general, pile-supported foundations would be used at locations where the depths to bedrock are relatively deep (greater than 50 feet below ground surface) while drilled shaft-supported foundations would be more economical in locations where depths to bedrock are nearer to the surface (less than 50 feet below ground surface). Spread footings would be used where bedrock is located at or near the surface and deep foundations are not required.

Pile-supported foundations would be supported by 48-inch diameter steel pipe piles. The typical in-water foundation would require 25 piles, whereas smaller terrestrial pile-supported foundations would require fewer piles. Piles would be installed with a vibratory hammer to the extent practicable, as a means of minimizing impacts associated with underwater noise. An impact hammer would be used to drive the piles to the final tip elevation, and/or to proof the piles to verify load-bearing capacity.

Drilled shaft-supported foundations would be supported by either 72-inch-diameter drilled shafts or 96-inch-diameter drilled shafts. The larger-diameter drilled shafts would be used on the bents that flank the navigation channel. Installation of drilled shafts would be conducted by first oscillating an outer steel casing to a specified design depth. As the casing is being advanced to the design depth, soil would be removed from inside the casing using an auger and clamshell. Excavated soils would be temporarily placed onto a barge with appropriate containment and ultimately placed at an approved upland site. Once the interior of the casing has been excavated to the design depth, an interior steel casing of the finished diameter of the shaft would be installed. This casing would be installed either with an oscillator or vibratory hammer. Once the interior casing has been installed to final depth, a steel reinforcement cage would be installed within the casing, and the shaft would be filled with concrete.

Construction of spread footing foundations below the OHWM of the river would be conducted within a temporarily dewatered work area within a cofferdam. Once the cofferdam is installed and the work area established, formwork would be installed for the spread footing, steel reinforcing would be installed within the forms, and the concrete for the footing would be poured. The cofferdam would remain in place until the concrete is fully cured to allow the concrete to cure in a dewatered environment. Once the concrete for the footing is fully cured, the formwork would be removed followed by the temporary cofferdam.

- Bridge superstructure construction: Once the foundation piles and drilled shafts are installed, a concrete pile cap would be installed atop the shafts at the waterline, and the concrete pier and superstructure would be installed atop the pile cap. Pile caps may be either precast or cast-in-place.

The superstructure would consist of both precast and cast-in-place concrete segments. Additional finish work would also be conducted, including surfacing, paving, and installation of other finish features, such as striping and signage.

Work on the superstructure would be conducted either from the bridge deck, from the deck of temporary work bridges, or from barges. It is anticipated that the superstructure would be constructed using a balanced cantilever method that uses paired sets of form travelers to build outwards from each pier. It is assumed that a contractor may operate up to four pairs of form travelers at a given time to expedite the construction of the superstructure.

Many of the bridge superstructure components would be composed of precast concrete. Precast elements would likely include bridge columns, beams, girders, and deck panels. Precast bridge elements would be constructed in upland controlled environments and would be transported to the Project site by either barge or truck.

- Dismantling and removal of the existing bridge: The existing bridge would remain open until the replacement bridge is constructed and operational, at which point it would be dismantled and removed. This work would be conducted via barges and/or temporary work platforms and may require in-water isolation.

Removal of the superstructure would most likely be conducted by barge-mounted cranes. Removal of the superstructure would likely begin with removal of the counterweights, followed by the lift towers and the individual truss sections. The lift towers and truss sections would be cut into manageable pieces and loaded onto barges or trucks by a crane. Each section would then be either transported to an upland site for further dismantling or disposed of directly at an appropriately permitted upland facility.

Removal of the existing foundations would be conducted by one of the following two methods:

- Wiresaw removal to mudline, without a cofferdam. A diamond wire/wire saw would be used to cut the foundation into manageable pieces that would be transported to a barge and disposed of in a permitted off site upland location. The foundations would be removed to the mudline and the substrate would be naturally restored with surrounding sediments.
- Wiresaw or conventional pier removal techniques within a cofferdam. Conventional removal techniques consist of using a hydraulic ram to break the piers into rubble, and torches or other cutting methods to cut reinforcement. Materials would then be transported to a barge and disposed of in a permitted off site upland location. The foundations would be removed to the mudline and the substrate would be naturally restored with surrounding sediments.

It is assumed that the cofferdam removal option would be used at both piers that flank the navigation channel, but may also be used in other pier locations. At the two navigation channel piers, once cofferdams are installed and fish salvage has occurred, approximately 7,800 cubic yards of existing riprap would be removed. Riprap would be removed via a barge mounted clamshell, and loaded onto barges, and disposed of at an off-site permitted upland location. Once riprap has been removed, the existing piers would either be removed using one of the methods described above.

- Post-Project site restoration: Construction of the Project would result in temporary impacts to native and non-native vegetation on both the Oregon and Washington sides of the river. Areas temporarily disturbed during construction would be restored upon completion of the Project consistent with state and local regulations.

On the Oregon side of the river, most temporary disturbance would occur within areas that are either impervious or already developed. Temporary disturbance would occur within areas that consist of landscaping, lawns, or similar heavily managed vegetation. Post-Project site restoration in these areas would likely consist of replacement landscaping with similar ornamental species. No native plant communities would be disturbed on the Oregon side of the river.

On the Washington side of the river, vegetation would be cleared within temporary work zones to allow construction equipment to access the site, to construct the replacement bridge abutments and stormwater treatment facilities, and to remove the existing bridge. A portion of the area to be cleared would be within a forested riparian area that is within the 200-foot shoreline jurisdiction of the Columbia River, and is regulated by the City of White Salmon under its Shoreline Master Program (City of White Salmon 2016). A large oak tree that is present east of the existing bridge would be preserved and would not be affected.

Temporarily disturbed areas within ODOT and WSDOT rights-of-way would be replanted consistent with applicable ODOT and WSDOT requirements and design standards. Temporarily disturbed vegetation within the riparian shoreline buffer on the Washington side of the river would be conducted consistent with requirements in the City of White Salmon Critical Areas Ordinance (White Salmon Municipal Code Chapter 18.10) (and Shoreline Master Program (City of White Salmon 2016)).

- **Compensatory Mitigation:** The Project would result in permanent impacts to wetland and aquatic habitats, and a compensatory mitigation plan would likely be required by federal, state and local regulations to offset these permanent impacts. The compensatory mitigation plan would be developed during the permitting phase of the project. The mitigation plan would identify the amount, type, and specific locations of any proposed compensatory mitigation actions, specific impact avoidance and minimization measures to be implemented, as well as the goals, objectives, and performance standards for measuring success. Full implementation of the compensatory mitigation plan would be a condition of the applicable permits of the agencies with jurisdiction (i.e., USACE Section 404 permit, the Oregon Department of Environmental Quality [DEQ] and the Washington State Department of Ecology [Ecology] Section 401 permits, the Oregon Department of State Lands [DSL] Removal-Fill permit, WDFW Hydraulic Project Approval, and City of White Salmon Shorelines and Critical Areas permits), and the mitigation would comply fully with all applicable permit terms and conditions.

The method of delivery for Project final design and construction has not been determined at this time. Traditional delivery methods, such as design-bid-build, and alternative delivery methods, such as design-build and public-private-partnerships to name a few, will continue to be considered by the Port. As part of Oregon's HB 2017, the Port was provided legal authority by the state to enter into a public-private-partnership.

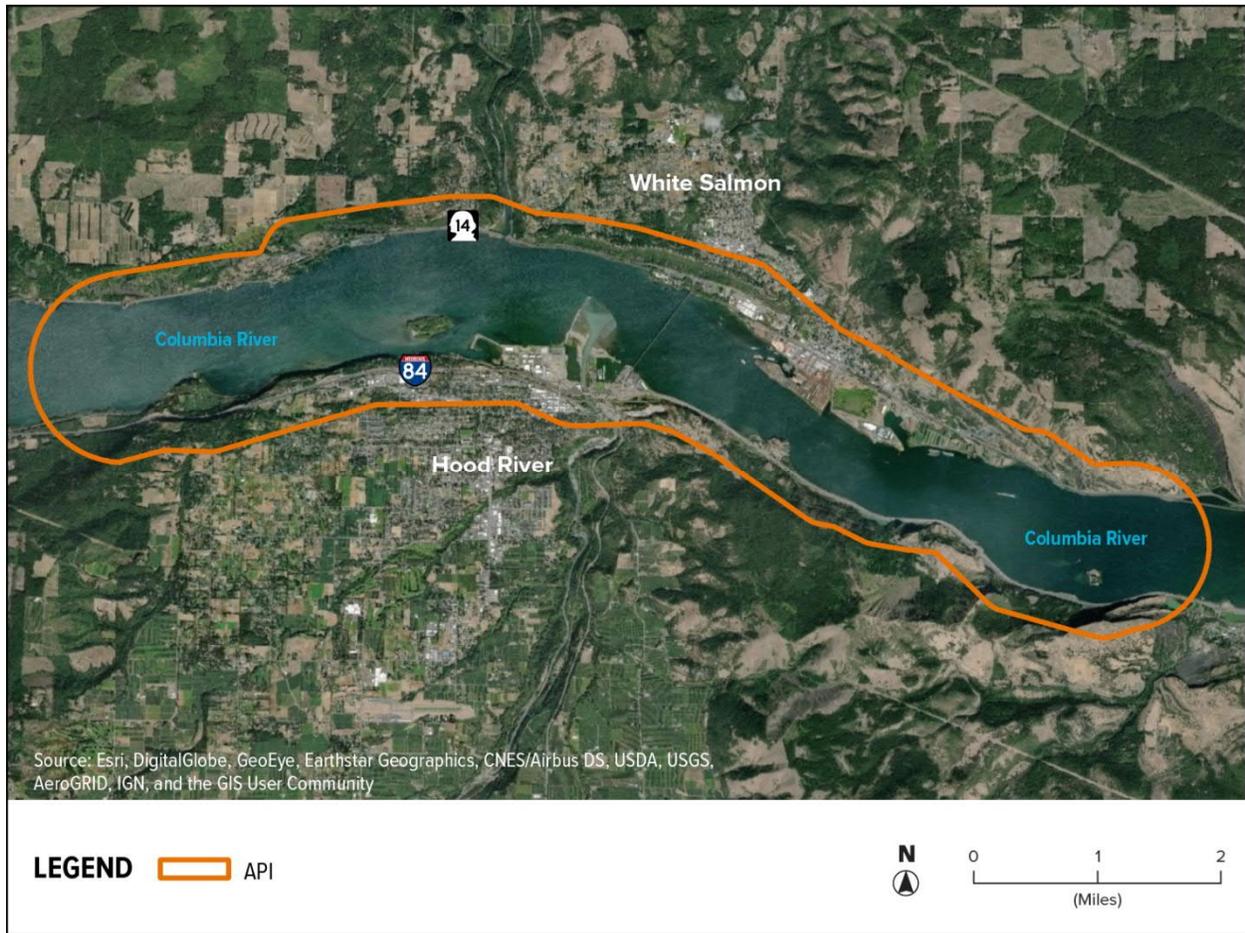
3. METHODOLOGY

Public and privately-owned park and recreation facilities were previously analyzed in the Project's Draft EIS and Social and Economic Technical Report (Parsons Brinckerhoff 2003); however, specific analysis of Section 6(f) properties and other state grant-funded park and recreation facilities was not included.

3.1. Area of Potential Impact

The area of potential impact (API) for Section 6(f) properties and state grant-funded park and recreation facilities is shown in Exhibit 12, which encompasses an area approximately 4 miles upstream and downstream of the existing bridge and ¼-mile north of SR 14 on the Washington side and ¼-mile south of I-84 on the Oregon side to capture park and recreation facilities associated with the Columbia River. This API encompasses the area anticipated for direct and indirect impacts to Section 6(f) and state grant-funded properties resulting from the Project. This API matches the API studied in the Park and Recreation Technical Report and the Section 4(f) Analysis.

Exhibit 12. Section 6(f) Properties and State Grant-Funded Park and Recreation Facilities API



3.2. Regulations, Standards, and Guidelines

Federal, state, and local regulations, standards and guidelines relevant to Section 6(f) properties and state grant-funded park and recreation facilities that apply to the Project are listed below.

- NEPA of 1969
- Section 6(f) of the LWCF Act of 1965
- LWCF State Assistance Program Federal Financial Assistance Manual (2008)
- Oregon Administrative Rule (OAR) Chapter 736, Division 6 Distribution of State Funding Assistance to Units of Local Government for Public Parks and Recreation
- Revised Code of Washington Chapter 79A.15 Acquisition of Habitat Conservation and Outdoor Recreation Lands, Section 30 Allocation and use of moneys – Grants
- Washington State Recreation and Conservation Office (RCO) Manual 7 Long-Term Obligations (2016)

Section 6(f) requires that properties that receive LWCF funding be maintained as public outdoor recreation facilities in perpetuity; if property is converted to a non-recreation use, replacement property is required and the conversion must be approved by the National Park Service (NPS) (NPS 2008). Similar to LWCF funding, Washington State RCO grants come with long-term obligations to maintain the funded site and structures as originally funded and to maintain public outdoor opportunities in a safe and attractive manner and at reasonable hours and times of the year. These obligations are described in the Manual 7 Long-Term Obligations (RCO 2016). Oregon Parks and Recreation Department (OPRD) grants have stewardship obligations to maintain the funded site for park and recreation purposes for at least 25 years (OAR 736-006-00140).

3.3. Sources of Existing Data

Since publication of the Draft EIS there have been some land use changes in the Project area, including the planning and development of additional park and recreation facilities such as the City of Hood River's Waterfront Park (Phase I completed in 2008) and LWCF and/or state grant funding that has been authorized since 2003. The following existing data sources were used to update the list of park and recreation facilities included in the Park and Recreation Technical Report, which were then reviewed to determine which have received federal and/or state grant funding:

- City of White Salmon Comprehensive Plan – Parks, Open Space, and Recreation
- Columbia River Gorge Commission Maps
- Columbia Gorge Wind and Water Association Gorge Launch Sites Map
- Google Earth and Google Street View
- Hood River County Parks Map
- Hood River Valley Parks and Recreation District Master Plan: 2012-2022
- Klickitat County iMap
- Oregon Department of Transportation Historic Columbia River Highway Bike Maps
- OPRD Land Ownership LWCF Agreements GIS layer
- Oregon State Parks Columbia River Gorge Visitor Guide
- Port of Hood River Waterfront Report and Waterfront Recreation website
- Port of Klickitat Conservation and Recreation websites
- Washington State RCO Project Information System (PRISM) Database

3.4. Data Collection or Development

In addition to the existing data available for park and recreation facilities (described in Section 3.3 above), coordination with the NPS, OPRD, and Washington State RCO was used to collect data on park and recreation facilities that have received LWCF and/or state grant funding.

Data for temporary easements, permanent land use acquisitions, and Project improvements that could impact park and recreation facilities was developed in coordination with the Project team engineers.

3.5. Impact Analysis Techniques

The updated impact assessment of park and recreation facilities is documented in the Park and Recreation Technical Report. Park and recreation facilities that qualify for protection under Section 6(f) or that have state grant funding have been further assessed in this Section 6(f) Technical Report.

3.5.1. Construction Impacts

Construction impacts to Section 6(f) properties and state grant-funded park and recreation facilities and people that use these facilities was identified through coordination with the Project team engineers to review the temporary construction footprint and how construction activities could impact access to or use of these facilities. The analysis also includes a discussion of whether any temporary construction easements on park and recreation properties would be needed for Project construction. This information was used to make a preliminary assessment of whether any of the temporary construction activities on Section 6(f) properties and state grant-funded park and recreation facilities could potentially constitute a temporary non-conforming use or conversion.

3.5.2. Direct Impacts

Long-term impacts to Section 6(f) properties and state grant-funded park and recreation facilities and their users were assessed by identifying changes to existing and planned park and recreation facilities in the API that would result from Project construction, such as closure of an access point or conversion of park land to transportation right-of-way. This information was used to make a preliminary assessment of whether any of the direct impacts on Section 6(f) properties and state grant-funded park and recreation facilities could potentially constitute a conversion.

3.5.3. Indirect Impacts

Indirect impacts to Section 6(f) properties and state grant-funded park and recreation facilities and their users were assessed by identifying impacts that could happen later in time or further in distance. This information was used to make a preliminary assessment of whether any of the indirect impacts on Section 6(f) properties and state grant-funded park and recreation facilities could potentially constitute a conversion.

3.6. Agency Coordination

As described in Section 3.4, coordination with state and federal agencies was used to obtain data about park and recreation facilities that have received LWCF and/or state grant funding. Exhibit 13 provides a log of agency coordination regarding LWCF and state grant funding to-date.

Exhibit 13. Summary of Agency Coordination

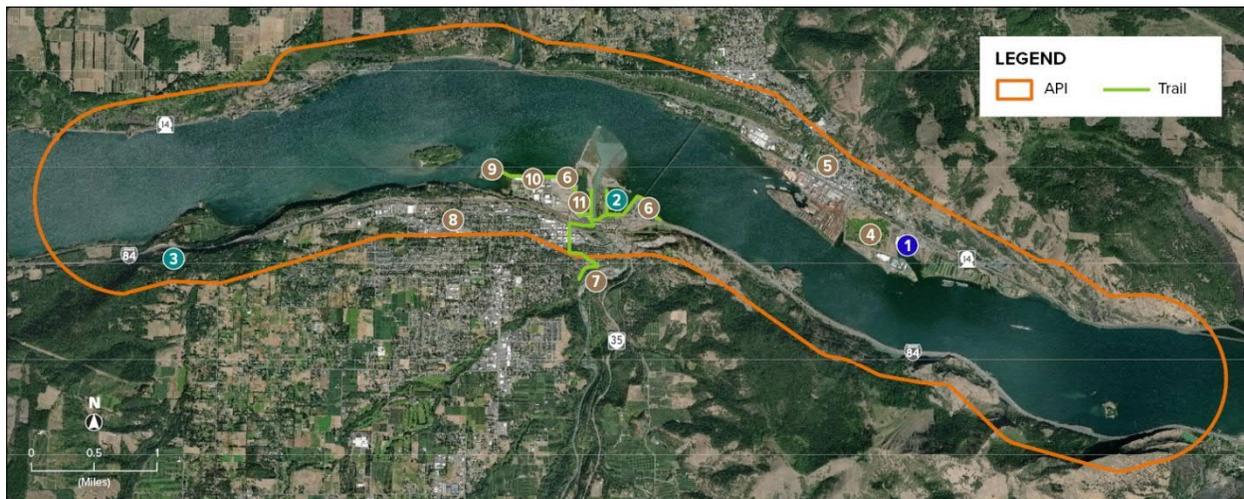
Date(s)	Type	From	To	Request/Information Provided
6/13/2018	Email	Jennifer Rabby, WSP	Heather Ramsay, NPS	Requested current list of LWCF grants in Project area counties
6/13/2018 6/15/2018	Email	Heather Ramsay, NPS	Jennifer Rabby, WSP with cc to Michele Scalise, OPRD, and Myra Barker, Washington State RCO	Provided current list of LWCF grants in Project area counties
5/16/2019	Email	Jennifer Rabby, WSP	Heather Ramsay, NPS	Requested updated list of LWCF grants in Project area counties
5/17/2019	Email	Heather Ramsay, NPS	Jennifer Rabby, WSP	Provided list of LWCF grants in Project area counties and contact information for state grant programs
5/17/2019	Email	Jennifer Rabby, WSP	Heather Ramsay, NPS, Michele Scalise OPRD, and Myra Barker, Washington State RCO	Requested additional information on the LWCF grants awarded for the Port Marina Park and Bingen Point Marina, and requested information on state grants awarded in the Project area counties
5/30/2019	Email	Myra Barker, Washington State RCO	Jennifer Rabby, WSP	Provided list of state grants in Klickitat and Skamania Counties, link and directions for using Washington State RCO PRISM database to identify grant-funded projects, and information on property conversion
6/3/2019	Email	Michele Scalise, OPRD	Jennifer Rabby, WSP	Provided list of state grants in Hood River and Wasco counties and a link to OPRD mapping for LWCF sites
6/3/2019	Email	Jennifer Rabby, WSP	Michele Scalise, OPRD, with cc to Heather Ramsay, NPS	Requesting clarification on grant spreadsheet, copies of the grant documentation for the grants awarded to Port Marina Park, and information on stewardship obligations
6/4/2019	Email	Michele Scalise, OPRD	Jennifer Rabby, WSP, with cc to Heather Ramsay, NPS	Provided response to clarification question, copies of the LWCF grant agreements for Port Marina Park, map of Port Marina Park LWCF 6(f) boundary, and OAR for conversion requirements
6/6/2019	Email	Heather Ramsay, NPS	Michele Scalise, OPRD, with cc to Jennifer Rabby, WSP	Provided disclaimer regarding boundary accuracy and the need for a potential 6(f) boundary determination
6/6/2019	Email	Michele Scalise, OPRD	Heather Ramsay, NPS, with cc to Jennifer Rabby, WSP	Provided agreement on service description for GIS map and the potential need for a 6(f) boundary determination

Note: Table captures all substantive correspondence regarding LWCF and state grants to park and recreation facilities. Additional non-substantive correspondence (e.g., acknowledgement of information received, follow-up requests) is not documented in this table.

4. AFFECTED ENVIRONMENT

There are three park and recreation facilities located within the API that have received LWCF funding and are thus protected under Section 6(f) ("Section 6(f) properties"). These facilities are described in Section 4.1. One of these properties, the Bingen Marina and Marina Park, also received state grant funding. Eight additional park and recreation facilities, described in Section 4.2, have received state grant funding with stewardship commitments similar to LWCF funding. One of the state-grant funded facilities, Waterfront Trail, is partially located within the LWCF Section 6(f) boundary of the Hood River Marina Park and Basin; therefore, that segment of the trail is also protected under Section 6(f). Exhibit 14 identifies the locations of Section 6(f) properties and state grant-funded park and recreation facilities.

Exhibit 14. Section 6(f) Properties and Other State Grant-Funded Park and Recreation Facilities in the API



Facilities with LWCF and State Grant Funding

- 1 Bingen Marina and Marina Park

Facilities with LWCF Funding

- 2 Hood River Marina Park and Basin
- 3 Wygant State Natural Area

Facilities with State Grant Funding

- 4 Bingen Lake
- 5 Daubenspeck Park
- 6 Waterfront Trail
- 7 Indian Creek Trail
- 8 Rotary Skatepark (Jaymar)
- 9 The Hook
- 10 Waterfront Park
- 11 Nichols Basin

All of Section 6(f) properties and state grant-funded park and recreation facilities are also protected under Section 4(f), as discussed in the Park and Recreation Technical Report and the Section 4(f) Analysis. Additional park and recreation facilities that have not received grant funding are described in the Project's Park and Recreation Technical Report.

4.1. Section 6(f) Properties

The following section describes properties that have received LWCF funding and, therefore, qualify for protection under Section 6(f). Maps of Section 6(f) properties that could be impacted by the Project are presented in Section 5.

4.1.1. Bingen Marina and Marina Park

The Bingen Marina and Marina Park is located about 1.9 miles east of the Hood River Bridge on the Washington side of the Columbia River. The site can be accessed from E. Marina Way. The park is a

1.75-acre site located on the north side of Bingen Harbor and owned and maintained by the Port of Klickitat.

Bingen Marina provides a two-ramp boat launch and a parking area for boat trailers. The Bingen Marina is typically used by beginner and intermediate windsurfers. The smooth, flat water makes it an excellent spot to practice watersports and other skills. There is a sandy launch area and rigging occurs on the large open grassy area. The Port of Klickitat plans to develop a full-service boat moorage and related amenities at Bingen Harbor. Marina Park includes parking, restrooms, and picnic tables.

This site received LWCF grant funding in 1968 for development of the boat marina (Project Number 44-00067); therefore, this site qualifies as a Section 6(f) property (NPS 2019, RCO 2019a, and RCO 2019c). The Port of Klickitat also received Boating Facilities Program grant funding from the Washington State RCO in 1968 for development of the boat marina (PRISM Project #68-092), in 1995 for updates and improvements to the boat ramp (PRISM Project #95-021), and in 2000 for redesign/realignment of the boat ramp and dock (PRISM Project #00-1597) (RCO 2019a and 2019c).

4.1.2. Wygant State Natural Area

Wygant State Natural Area is located approximately 4.2 miles west of the Hood River Bridge on the Oregon side of the Columbia River. The site is accessible from I-84. The site is approximately 667 acres and owned by OPRD.

This park adjoins Seneca Fouts Memorial and Vinzenz Lausmann Memorial State Natural Areas. The park is forested, steep-walled Columbia River Gorge land. In the 1930s, day use developments, including trails, were made by the Civilian Conservation Corps. A trail traverses the park in a dense, hilly wilderness area which was once the old Oregon Trail, and later the Historic Columbia River Highway.

Wygant State Natural Area received LWCF funding in 1974 (Project Number 41-00610) for the Lausmann-Wygant Footpath (NPS 2019 and OPRD 2019b), and therefore is protected under Section 6(f).

4.1.3. Hood River Marina Park and Basin

Marina Park and Basin is located 0.1 mile west of the Hood River Bridge on the Oregon side of the Columbia River. The site is accessed via E. Port Marina Drive. This is the closest currently developed park and recreation facility to the existing Hood River Bridge. The Port owns the Marina Park and Basin, which is approximately 26.6 acres. This site includes the Hood River Marina, Marina Beach, Marina Green, Port Marina Picnic Shelter, Yacht Club, Boat Launch, Cruise Ship Dock, History Museum, and the Port's administrative office and maintenance shop, which functionally support recreational activities at the Hood River Marina Park and Basin. Waterfront Trail (Section 4.2.3) runs through Marina Park. On the south side of the park, E. Port Marina Drive is identified as a bike route with shared-lane ("sharrow") markings; this provides a bicycle connection between the local street network and Waterfront Trail, as well as the various amenities within the park.

The Hood River Marina offers year-round and transient moorage as well as a public boat launch, fuel dock, and the Hood River Yacht Club building. In addition to moorage, the marina area hosts youth sailing lessons and small watercraft launching for kayaks, outrigger canoes, rowing skulls, small sail craft, and stand up paddle boards.

The park areas, lawn, beach, and trails provide areas for play, sports, or passive enjoyment. The picnic shelter is available for reservations. Marina Beach is a popular location for kitesurfing and general beach goers and provides parking, restrooms, and picnic tables. Marina Green provides a playing field for youth sports, adult recreation, dog exercising, and space for special events, and includes restrooms.

The preferred option identified in the Port's 2007 Marina Basin Planning Study identifies additional improvements for the marina area, which include adding boat slips, adding a dinghy storage dock, reprogramming the existing Port maintenance area for additional community education storage and small sailing club use, addition of a large boat launch pier/lift, extending the boat ramp, relocating the cruise ship dock, and adding additional trailer parking spaces.

This park received LWCF grant funding in 1970, 1972, 1973, and 1974 for boat ramp, dock, and marina utility improvements (Project Numbers 41-00260, 41-00357, 41-00513, and 41-00568) (NPS 2019 and OPRD 2019b)); therefore, this park qualifies as a Section 6(f) property. The LWCF grant agreements and OPRD's GIS data layers identify the Section 6(f) boundary as including the northeastern area of the property where the Port's administrative office and maintenance shop are located and the southern area used for commercial office space, as well as the areas used for Hood River Marina, Marina Beach, Marina Green, Port Marina Picnic Shelter, Yacht Club, Boat Launch, Cruise Ship Dock, and History Museum, as illustrated in Exhibit 15.

Exhibit 15. Port Marina Park and Basin Current and Planned Uses

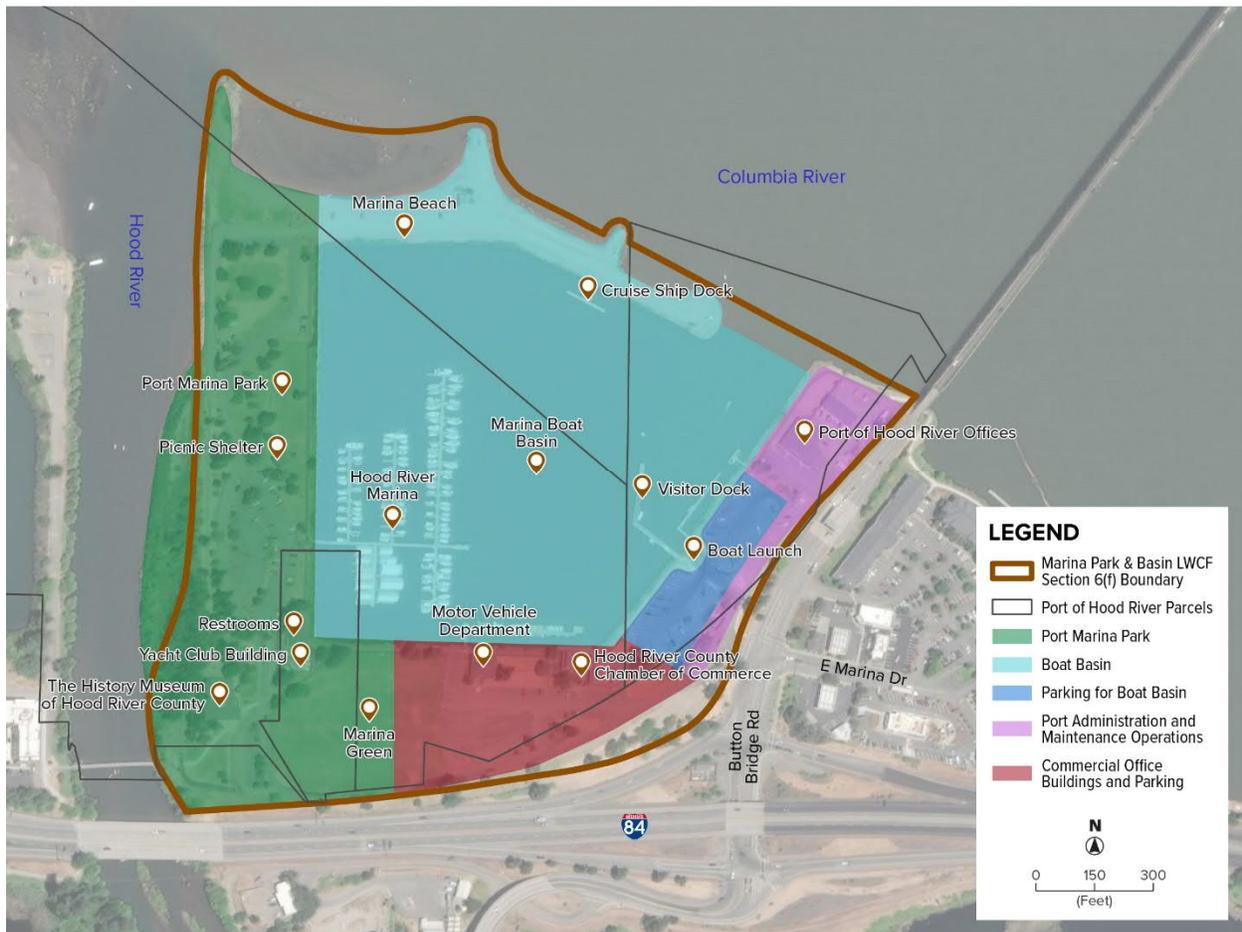


Exhibit 15 illustrates that Section 6(f) boundary mapped by OPRD and NPS extends beyond areas owned and managed by the Port. Next steps would include the Port requesting a “6(f) boundary determination” of all 6(f) properties that could be impacted by the Project. The Port’s request would prompt OPRD and NPS to begin the process of determining the current 6(f) boundary of all the 6(f) properties, as applicable, which is needed before impacts can be fully assessed.

4.2. Park and Recreation Facilities with State Grant Funding

The following section describes properties that have received state grant funding from OPRD or the Washington RCO. Maps of state grant-funded properties that would be impacted by the Project are presented in Section 5.

4.2.1. Daubenspeck Park

Daubenspeck Park is located approximately 1.0 mile east of the existing Hood River Bridge. This 3.5-acre site is owned by the City of Bingen and is accessible from SR 14 and Walnut Street.

This park provides a skatepark, a playground, basketball courts, picnic tables, a gazebo, restrooms, and large grassy areas.

The City of Bingen received Outdoor Recreation Account funding from the Washington State RCO in 1969 for acquisition of land for “Bingen Municipal Park,” which was later named Daubenspeck Park (PRISM Project #69-173) (RCO 2019a and 2019c).

4.2.2. Bingen Lake

Bingen Lake is located approximately 1.5 miles east from the Hood River Bridge in the Columbia River floodplain on the Washington side of the river. The site is accessible from E. Bingen Point Way. The lake itself covers approximately 27 acres while the entire wetland, including buffer zone, encompasses about 37 acres, located within the Bingen Point Business Park. The Port of Klickitat owns the site.

Bingen Lake provides habitat for a variety of birds and waterfowl as well as amphibians, reptiles, and small mammals. Bingen Lake and the buffer zone that surrounds it are currently off-limits to the public. Entry is currently allowed by permit only. However, plans and permits are in place to construct ADA-compliant, shared use paths and a viewing platform (or blind) that will ultimately offer passive recreation opportunities with views of the lake and the wildlife that inhabits it from a safe distance. The Port of Klickitat has taken initial steps to construct the paths but does not anticipate constructing the first one before 2022 (Port of Klickitat 2019b). In addition, the Port of Klickitat is actively engaged in invasive species eradication and native plant restoration programs.

The Port of Klickitat received Aquatic Lands Enhancement Account grant funding from the Washington State RCO for construction of the planned pathways and wildlife observation sites on Bingen Lake (PRISM Project #89-016) (RCO 2019a and 2019c).

4.2.3. Waterfront Trail

Waterfront Trail, also referred to as Shoreline Path or Shoreline Trail, runs along the waterfront of the Columbia River on the Oregon side. The shared use trail is about 2.8 miles in length. The western most 2.6 miles of the trail are owned and maintained by the Port; the eastern 0.2 mile of the trail are located on private property along the Columbia River waterfront in front of the Marketplace/Hood River Inn complex; this portion is maintained by the private property owner but is open to the public.

The trail runs from The Hook on its western end through Waterfront Park, Jensen Beach, Event Site Park, Nichols Basin, The Spit/Sandbar, and Hood River Marina Park and Basin before passing under the existing Hood River Bridge. East of the bridge, the trail extends along the waterfront past the Hood River Inn to the Hood River Waterplay site. The trail is accessible from many points.

The Port received Local Government Grant Program and Regional Trails Grant funding from OPRD in 2007, 2008, 2013, 2014, and 2015 (Agreement Numbers LP0225, LGP0283, RTP-13-05, LG14-004, and LG15-018) for construction of various segments of Waterfront Trail (OPRD 2019b). The segment of Waterfront Trail located within the Hood River Marina Park and Basin LWCF Section 6(f) boundary is also protected as part of that Section 6(f) resource.

4.2.4. The Hook

The Hook is located about 1.3 miles west of the existing Hood River Bridge on the Oregon side of the Columbia River. The site is west of the Port's Industrial Park and can be accessed via Portway Avenue. The paved Portway Avenue becomes an unpaved road running the length of The Hook. The Port owns The Hook, which is approximately 3.8 acres in size.

Activities on The Hook include windsurfing, kiteboarding, and fishing. The Hook provides a protected cove for beginning windsurfing and kayaking lessons and other uses, as well as a launch site on the western side. The site provides day-use parking, picnic tables, and portable restrooms and serves as the western terminus of the Waterfront Trail.

The Port received Local Government Grant Program funding from OPRD for the segment of Waterfront Trail at The Hook in 2015 (Agreement Number LG15-018) (OPRD 2019b).

4.2.5. Waterfront Park

Waterfront Park is located about 0.9 mile west of the existing Hood River Bridge on the Oregon side of the Columbia River. The site is accessible from Portway Avenue on the south side. The Port donated the land for the park to the City of Hood River who now owns this 6.4-acre park.

The park includes: restrooms, a playground, picnic shelters, drinking fountains, a launch ramp for windsurfers and stand up paddle boarders, a rinsing shower, a stage, seat-walls, utilities, emergency vehicle access, landscaping to create shade and wind breaks, and berms and landscaping. Waterfront Trail traverses the park.

The City of Hood River received Local Government Grant Program funding from OPRD for development of Waterfront Park in 2007, 2008, 2010, and 2012 (Agreement Numbers LGP0225, LGP0291, LP0340, and LGPL-12-08) (OPRD 2019b).

4.2.6. Nichols Basin

Nichols Basin is located about 0.5 mile west of the existing Hood River Bridge on the Oregon side of the Columbia River. The site is accessible from N. 1st Street. The Port owns this 2.8-acre site.

Nichols Basin provides a protected cove, Slackwater Beach, and a launch site for small non-motorized watercraft. The user groups are mainly stand up paddle boards, kayaks, and outrigger canoes. Beginner windsurfing, stand up paddle boarding, and kayak lessons are taught in this location. Waterfront Trail runs through this site.

The Port's Confluence Business Park Subdivision Application (2017) shows future expansion of the northern park area of Nichols Basin by shifting N. 1st Street west. With this development, the northern end of N. 1st Street from Anchor Way to Portway Avenue, adjacent to Nichols Basin, would be designed as a "festival street" that could be closed to vehicles for pedestrian-only access to accommodate special events.

The Port received Local Government Grant Program funding from OPRD for the recreation facility and segment of Waterfront Trail on the western edge of Nichols Basin in 2014 (Agreement Number LG14-004) (OPRD 2019b).

4.2.7. Rotary Skatepark (Jaymar)

Rotary Skatepark, previously named Jaymar Park, is approximately 1.6 miles west of the existing Hood River Bridge on the Oregon side of the Columbia River. This park is accessible from Cascade Avenue (US 30), 20th Street, and Wasco Street. This 2.9-acre site is owned by the City of Hood River and maintained by the Hood River Valley Park and Recreation District.

The park includes a skate park, BMX track, restrooms, and playground area. The Westside Community Trail runs through the park.

The Hood River Valley Parks and Recreation District received Local Government Grant Program funding from OPRD for skate park improvements in 2005, 2007, and 2008 (Agreement Numbers LGP0173, LGP0260, and LGP0281) (OPRD 2019b).

4.2.8. Indian Creek Trail

Indian Creek Trail spans across the Lower Hood River Valley, from Hazel Avenue to Barrett Park. The trail is owned by the Hood River Valley Parks and Recreation District and is currently 3.8 miles long. The Parks District is still working on full trail connectivity, but there are eight trail heads to access different sections of the trail.

The Hood River Valley Parks and Recreation District received Local Government Grant Program funding from OPRD for development of Indian Creek Trail in 2003 (Agreement Number LGP0126) (OPRD 2019b).

5. ENVIRONMENTAL CONSEQUENCES

5.1. No Action Alternative

5.1.1. Direct Impacts

Although increased traffic volumes over time under the No Action Alternative would result in minor, imperceptible increases to noise levels (0 decibels to 3 decibels) at Section 6(f) properties or state grant-funded park and recreation facilities closest to I-84 and the bridge, including Hood River Marina Park and Basin and Waterfront Trail, there would be no physical alterations to these properties. There would be no construction that would disrupt users, access to these facilities would remain unchanged, and park and recreation land would not be converted to other uses. This alternative would not cause a conversion of land protected under Section 6(f) or state grant funding obligations.

5.1.2. Indirect Impacts

At such a point that the existing bridge exceeds its operational life or a catastrophic event occurs and the bridge is closed to all cross-river traffic, access to park and recreation facilities would be altered for visitors traveling across the Columbia River to reach these destinations. Park users would have to utilize alternate travel routes via The Bridge of the Gods or The Dalles Bridge to access park and recreation facilities on the opposite side of the river. Closure of the bridge would reduce traffic noise levels at park and recreation facilities near the existing bridge with the elimination of cross-river vehicular traffic on the bridge, although traffic noise from I-84 and SR 14 would remain, with those facilities closest to the bridge experiencing the greatest reduction in noise levels. This change in cross-river accessibility would not violate the LWCF and state grant funding requirements that facilities be kept “reasonably open, accessible, and safe for public use” (NPS 2008) as they would still be accessible from public roadways.

The change in travel routes would likely result in changes in visitation patterns of park and recreation facilities. For instance, Washington residents and tourists would be less likely to visit park and recreation facilities on the Oregon side of the bridge due to the added length of travel routes; in turn, these residents and tourists may increase the frequency with which they visit facilities on the Washington side of the bridge. Likewise, Oregon residents and tourists would not be able to visit park and recreation facilities on the Washington side as easily and might increase their use of facilities on the Oregon side. Changes in visitation patterns could result in other indirect impacts to these facilities such as changes in parking demand and maintenance needs; however, none of these indirect impacts would be anticipated to result in a conversion of protected land or a violation of Section 6(f) or state grant funding stewardship requirements.

5.2. Preferred Alternative EC-2

5.2.1. Construction Impacts

Construction of the replacement bridge under Alternative EC-2 would result in temporary impacts on users of Section 6(f) properties and state grant-funded park and recreation facilities within the API. Impacts would be more noticeable at those facilities closer to construction limits. Construction is anticipated to last up to 2.5 years but may not affect all areas within the Project footprint for the entire duration. Construction impacts would include:

- Temporary changes in travel patterns and access to park and recreation facilities due to road closures, sidewalk closures, and detours
- Temporary increases in noise levels, dust, and air pollution at park and recreation facilities from construction equipment and activities
- Temporary changes in the visual environment at park and recreation facilities due to construction equipment, signage, and activities visible from the facilities.

Additional temporary construction impacts on specific Section 6(f) properties and state-grant funded park and recreation facilities closest to the replacement bridge are described in the sections below.

Hood River Marina Park and Basin

A temporary access road may be developed in the Hood River Marina Park and Basin to provide access to the Port’s maintenance shop during construction. If construction impacts to either the Port’s administrative office and/or the maintenance shop and/or storage areas occur that render the facilities nonfunctional or inaccessible, then the facilities may be required to be relocated.

Portions of the Hood River Marina Park and Basin closest to the alignment of the replacement bridge, including some parking spaces near the boat launch and parking spaces that serve the Port's administrative office and maintenance shop, could be temporarily closed during periods of construction to ensure safety.

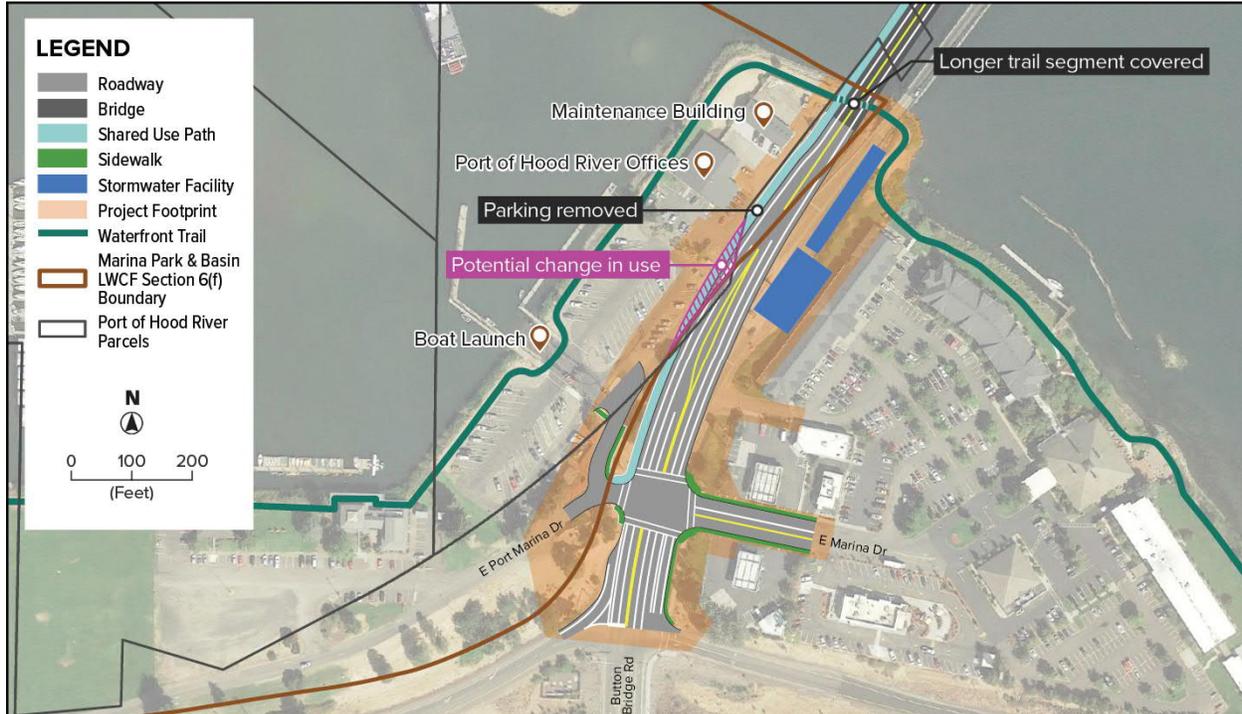
Use of areas within the Section 6(f) boundary for construction activities could potentially constitute a temporary non-conforming use under Section 6(f) and could require approval by OPRD and NPS. If these closures exceed 180 days, they could potentially constitute a conversion under Section 6(f). Additional coordination with OPRD and NPS is needed, including a request for a 6(f) boundary determination for this park, before Section 6(f) impacts can be determined. Exhibit 16 and Exhibit 17 show the estimated construction and direct impacts on Hood River Marina Park and Basin; areas of the park within the Project footprint (shown in orange) could potentially be closed during construction of Alternative EC-2.

Exhibit 16. Preferred Alternative EC-2 Estimated Construction and Direct Impacts on Hood River Marina Park and Basin



Note: Project footprint (orange shading) includes both construction-related and permanent impacts. The permanent impacts are shown with the linework for the roadways, and the orange that is visible represents the areas disturbed during construction, but not permanently changed. New right-of-way limits would extend a few feet beyond the improvements shown in the exhibit.

Exhibit 17. Preferred Alternative EC-2 Estimated Construction and Direct Impacts on Hood River Marina Park (Enlargement) and Basin and Waterfront Trail



Note: Project footprint (orange shading) includes both construction-related and permanent impacts. The permanent impacts are shown with the linework for the roadways, and the orange that is visible represents the areas disturbed during construction, but not permanently changed. New right-of-way limits would extend a few feet beyond the improvements shown in the exhibit.

Waterfront Trail

The 0.1-mile portion of Waterfront Trail between the Port's northeast corner of the marina and the east side of the existing bridge where the trail connects to the Marketplace/Hood River Inn complex would be temporarily closed as needed during Project construction but access would continue via a detour route. When this segment of the trail is closed, pedestrians and bicyclists using the western portion of Waterfront Trail would need to use a detour to reach the eastern extent of the trail. The detour would be signed. Exhibit 18 illustrates a potential detour route that would use sidewalks and marked crossings through the Port's parking lot to connect to the marked crossings and sidewalks at the Button Bridge Road/E. Marina Way intersection; from there, trail users would use sidewalks to travel east on E. Marina Way to the sidewalks and marked crossings in the Marketplace/Hood River Inn complex to reach the eastern extent of the Waterfront Trail. Trail users on the eastern side of the existing bridge would use the same facilities to reach the western extent of the trail. Coordination with private property owners would be needed to implement any detour routes across private property, although they have preliminarily agreed to the conceptual detour route as shown in Exhibit 18.

Exhibit 18. Preferred Alternative EC-2 Estimated Construction Impacts on Waterfront Trail



As noted for the Hood River Marina Park and Basin 6(f) boundary, additional coordination with OPRD and NPS is needed, including a request for a 6(f) boundary determination for the park, before determinations can be made regarding impacts to the segment of the Waterfront Trail located within the Marina Park and Basin LWCF Section 6(f) boundary.

5.2.2. Direct Impacts

Direct impacts to Section 6(f) properties and state grant-funded park and recreation facilities in the API resulting from Alternative EC-2 would include the following:

- Park and recreation facility users would experience a minor change in scenic views of the Columbia River and surrounding landscape. The replacement bridge would be relatively comparable to the existing bridge in terms of scale, form, and harmonious materials and would not alter the memorability or vividness of the surrounding landscape or negatively alter views of the landscape. The replacement bridge would be compatible with the visual character of the existing environment. The proximity to the replacement bridge would be slightly different from the proximity to the existing bridge depending on the location of the park and recreation facility. The Project's Visual Impact Assessment Report provides further assessment of changes in visual quality resulting from this alternative.

- Pedestrian and bicycle access to park and recreation facilities would be enhanced with the new connectivity provided by the shared use path on the bridge. This addition would provide an opportunity for visitors coming from either side of the Columbia River to reach park and recreation facilities using non-motorized travel.

Once consultation with the regulatory agencies (OPRD and NPS, with the Port) begins with a request for determination of the official 6(f) boundary for the park, a discussion of estimated impacts can begin.

Additional long-term direct impacts to specific Section 6(f) properties and state grant-funded park and recreation facilities closest to the replacement bridge are described in the sections below.

Hood River Marina Park and Basin

The replacement bridge would result in long-term direct impacts to the Hood River Marina Park and Basin, which is immediately adjacent to the existing bridge and the proposed alignment of the replacement bridge. Anticipated impacts to the Hood River Marina Park and Basin include:

- Less than 1 acre of Hood River Marina Park and Basin property may be needed for permanent incorporation into the transportation facility
- The E. Port Marina Drive (which traverses the southern portion of Hood River Marina Park and Basin LWCF Section 6(f) boundary) connection to the Button Bridge Road/E. Marina Way intersection would be realigned
- Removal of up to three parking spaces within the Hood River Marina Park and Basin that serve the boat launch would be needed to accommodate the wider bridge
- Removal of up to 15 parking spaces that serve the Port's administrative office and removal of some additional unstriped parking area and exterior storage areas within the Hood River Marina Park and Basin that serve the Port's maintenance shop would be needed to accommodate the wider bridge
- Potential relocation of the Port's administrative office and/or the maintenance shop and/or storage areas if permanent impacts occur that render the facilities nonfunctional or inaccessible

To the extent practical, the parking areas would be reconfigured to replace parking spaces within the Hood River Marina Park and Basin removed by the Project. Construction of the replacement bridge may impact the configuration and location of planned facilities identified in the Port's 2007 Marina Basin Planning Study, including the relocated cruise ship dock and the trailer parking area.

This alternative could result in a formal NPS review to determine the likelihood of whether a conversion of Section 6(f) property would result from the transportation actions. Exhibit 16 illustrates the Section 6(f) boundary based on OPRD GIS maps and the impacts of Alternative EC-2 improvements on this park. Exhibit 17 provides an enlargement of the section of the park potentially impacted by Alternative EC-2. As noted previously, additional coordination with OPRD and NPS is needed once right-of-way ground surveys, legal descriptions, and title research begins, including a formal 6(f) boundary determination for this park.

Waterfront Trail

The replacement bridge would result in long-term direct impacts to Waterfront Trail, which crosses under the existing bridge and the alignment of the replacement bridge; however, the trail would remain open and accessible, and no change in use of this property is anticipated. The replacement bridge would cover a longer segment of the trail than the existing bridge does; the existing bridge is about 24 feet wide, while the replacement bridge would be more than 56 feet wide and would cover a 60-foot long segment of the trail, as shown in Exhibit 17. This longer covered trail segment could result in increased safety and security concerns due to reduced visibility and lighting under the structure; however, additional lighting would be incorporated into the Project design to improve lighting and visibility. As noted for the Hood River Marina Park and Basin, additional coordination with OPRD and NPS is needed, including a request for a 6(f) boundary determination for that park, before determinations can be made regarding Section 6(f) impacts to the segment of the Waterfront Trail located within the Marina Park and Basin LWCF Section 6(f) boundary and impacts to this state grant-funded facility.

5.2.3. Indirect Impacts

Indirect impacts to Section 6(f) properties and state grant-funded park and recreation facilities under Alternative EC-2 could include:

- Enhanced cross-river pedestrian and bicycle access to park and recreation facilities could result in changes in visitation patterns, which could have minor indirect impacts on maintenance needs. If fewer park and recreation users are driving to reach these facilities, it could slightly reduce vehicle parking demand (particularly at park and recreation facilities closest to the bridge), although there could be greater demand for bicycle parking.
- If tolls are increased for the replacement bridge, this could deter cross-river vehicle traffic, which could alter visitation patterns as park and recreation users may opt to visit park and recreation facilities that do not require crossing the bridge. Potential impacts of tolling are discussed in the Social and Economic Technical Report.

None of these indirect impacts would be anticipated to result in a conversion of protected land or a violation of Section 6(f) or state grant funding stewardship requirements.

5.3. Alternative EC-1

5.3.1. Construction Impacts

Construction impacts of Alternative EC-1 on Section 6(f) properties and state grant-funded park and recreation facilities would be the same as those identified for Alternative EC-2 in Section 5.2.1.

Hood River Marina Park and Basin

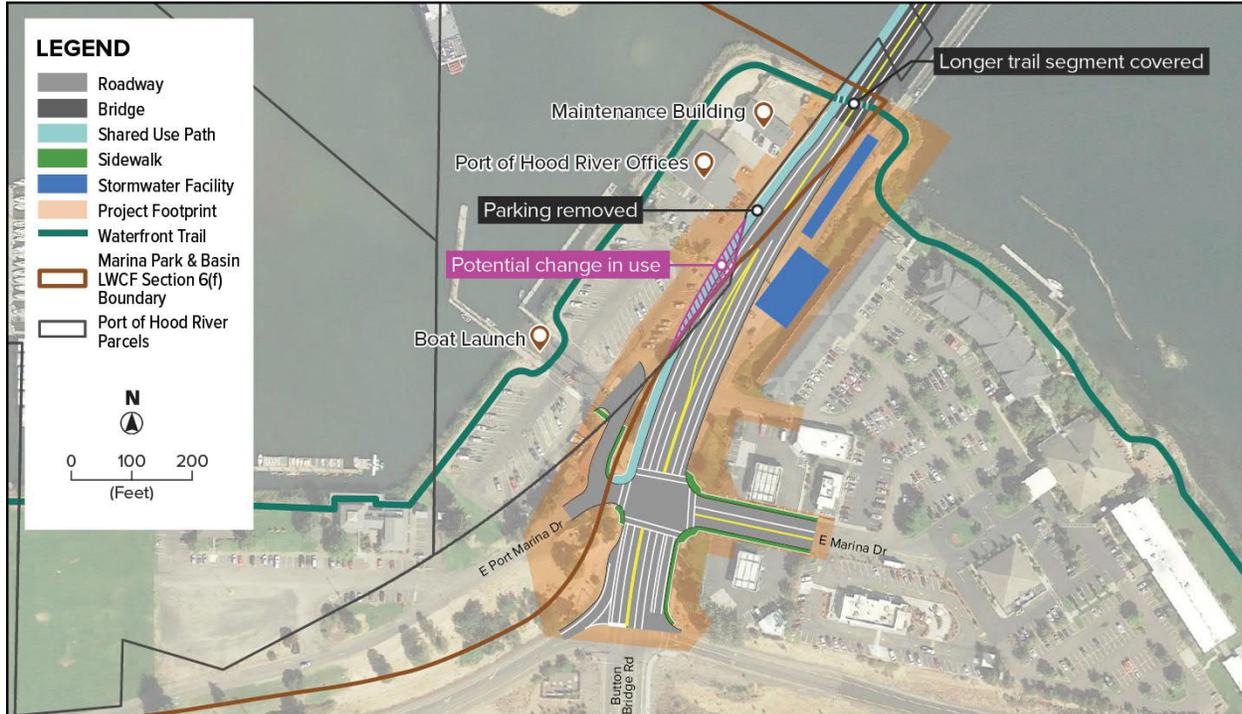
Like Alternative EC-2, areas within the Hood River Marina Park and Basin LWCF Section 6(f) boundary (Exhibit 19 and Exhibit 20) could be temporarily closed during construction during construction of Alternative EC-1. Additional coordination with OPRD and NPS is needed, including a request for a formal 6(f) boundary determination for this park, before Section 6(f) impacts can be determined.

Exhibit 19. Alternative EC-1 Estimated Construction and Direct Impacts on Hood River Marina Park and Basin



Note: Project footprint (orange shading) includes both construction-related and permanent impacts. The permanent impacts are shown with the linework for the roadways, and the orange that is visible represents the areas disturbed during construction, but not permanently changed. New right-of-way limits would extend a few feet beyond the improvements shown in the exhibit.

Exhibit 20. Alternative EC-1 Estimated Construction and Direct Impacts on Hood River Marina Park and Basin (Enlargement) and Waterfront Trail



Note: Project footprint (orange shading) includes both construction-related and permanent impacts. The permanent impacts are shown with the linework for the roadways, and the orange that is visible represents the areas disturbed during construction, but not permanently changed. New right-of-way limits would extend a few feet beyond the improvements shown in the exhibit.

Waterfront Trail

Like Alternative EC-2, a 0.2-mile segment of Waterfront Trail would be temporarily closed as needed during Project construction during construction of Alternative EC-1. The potential detour route for Waterfront Trail would generally be the same as the route shown for Alternative EC-2 in Exhibit 18. As noted for the Hood River Marina Park and Basin, additional coordination with OPRD and NPS is needed, including a request for a 6(f) boundary determination for that park, before determinations can be made regarding Section 6(f) impacts to the segment of the Waterfront Trail located within the Marina Park and Basin LWCF Section 6(f) boundary and impacts to this state grant-funded facility.

5.3.2. Direct Impacts

Direct impacts to Section 6(f) properties and state grant-funded park and recreation facilities in the API resulting from construction of Alternative EC-1 would be similar to those described for Alternative EC-2 in Section 5.2.2.

Hood River Marina Park and Basin

Impacts to Hood River Marina Park and Basin resulting from Alternative EC-1 would be similar to impacts under Alternative EC-2, as illustrated in Exhibit 19 and Exhibit 20. As noted for Alternative EC-2, additional coordination with OPRD and NPS is necessary, including a request for a 6(f) boundary determination for the park, before Section 6(f) impacts can be determined.

Waterfront Trail

Impacts to Waterfront Trail resulting from Alternative EC-1 would be similar to impacts of Alternative EC-2 and are shown in Exhibit 20. Like Alternative EC-2, the replacement bridge would cover a 60-foot segment of the trail, more than twice the length of the existing covered segment (24 feet); additional lighting would be incorporated into the Project design to offset lighting and visibility concerns. As noted for the Hood River Marina Park and Basin, additional coordination with OPRD and NPS is needed, including a request for a 6(f) boundary determination for that park, before determinations can be made regarding Section 6(f) impacts to the segment of the Waterfront Trail located within the Marina Park and Basin LWCF Section 6(f) boundary and impacts to this state grant-funded facility.

5.3.3. Indirect Impacts

Indirect impacts resulting from construction of Alternative EC-1 would be similar to those described for Alternative EC-2 in Section 5.2.3. None of the indirect impacts would be anticipated to result in a conversion of protected land or a violation of Section 6(f) or state grant funding stewardship requirements.

5.4. Alternative EC-3

5.4.1. Construction Impacts

Construction impacts of Alternative EC-3 on Section 6(f) properties and state grant-funded park and recreation facilities would be the same as those identified for Alternative EC-2 in Section 5.2.1, except as described below.

Hood River Marina Park and Basin

Like Alternative EC-2, areas within the Hood River Marina Park and Basin Section 6(f) boundary (Exhibit 21 and Exhibit 22) could be temporarily closed during construction of Alternative EC-3 including parking spaces near the boat launch (but not spaces that serve the Port's administrative office and maintenance shop). Like Alternative EC-2, additional coordination with OPRD and NPS is needed, including a request for a 6(f) boundary determination for this park, before Section 6(f) impacts can be determined.

Exhibit 21. Alternative EC-3 Estimated Construction and Direct Impacts on Hood River Marina Park and Basin



Note: Project footprint (orange shading) includes both construction-related and permanent impacts. The permanent impacts are shown with the linework for the roadways, and the orange that is visible represents the areas disturbed during construction, but not permanently changed. New right-of-way limits would extend a few feet beyond the improvements shown in the exhibit.

Exhibit 22. Alternative EC-3 Estimated Construction and Direct Impacts on Hood River Marina Park and Basin (Enlargement) and Waterfront Trail



Note: Project footprint (orange shading) includes both construction-related and permanent impacts. The permanent impacts are shown with the linework for the roadways, and the orange that is visible represents the areas disturbed during construction, but not permanently changed. New right-of-way limits would extend a few feet beyond the improvements shown in the exhibit.

Waterfront Trail

Like Alternative EC-2, a 0.1-mile segment of Waterfront Trail would be temporarily closed as needed during construction of Alternative EC-3. The potential detour route for Waterfront Trail would generally be the same as the route shown for Alternative EC-2 in Exhibit 18. As noted for the Hood River Marina Park and Basin, additional coordination with OPRD and NPS is needed, including a request for a 6(f) boundary determination for that park, before determinations can be made regarding Section 6(f) impacts to the segment of the Waterfront Trail located within the Marina Park and Basin LWCF Section 6(f) boundary and impacts to this state grant-funded facility.

5.4.2. Direct Impacts

Direct impacts to Section 6(f) properties and state grant-funded park and recreation facilities in the API resulting from construction of Alternative EC-3 would be similar to those described for Alternative EC-2 in Section 5.2.2 except as noted below.

Hood River Marina Park and Basin

Impacts to Hood River Marina Park and Basin resulting from Alternative EC-3 would differ from Alternative EC-2, as the replacement bridge would be located further east of the existing bridge, and therefore farther from the Hood River Marina Park and Basin. Anticipated impacts to the Hood River Marina Park and Basin include:

- Less than 1 acre of Hood River Marina Park and Basin property may be needed for permanent incorporation into the transportation facility
- The E. Port Marina Drive connection to the Button Bridge Road/E. Marina Way intersection would be realigned.

These impacts are illustrated in Exhibit 21 and Exhibit 22. Construction of the replacement bridge would also potentially impact the configuration and location of planned facilities identified in the Port's 2007 Marina Basin Planning Study, including the relocated cruise ship dock and the trailer parking area.

This alternative could result in a formal NPS review to determine the likelihood of whether a conversion of Section 6(f) property would result from the transportation actions. As noted for Alternative EC-2, additional coordination with OPRD and NPS, including a request for a 6(f) boundary determination for this park, is necessary before Section 6(f) impacts can be determined.

Waterfront Trail

Impacts to Waterfront Trail under Alternative EC-3 would be similar to Alternative EC-2, although the segment of the trail crossing under the bridge would be longer than under Alternative EC-2 because the alignment of the Alternative EC-3 replacement bridge would be further east and would cross the trail at more of a skewed angle. Under Alternative EC-3, a 150-foot segment of the trail would be covered, compared with 24 feet under the existing bridge and 60 feet under Alternative EC-2. The longer covered trail segment could result in greater safety and security concerns than under the existing bridge or Alternative EC-2. Additional lighting would be incorporated into the Project design to offset increased safety and security concerns. Impacts to Waterfront Trail are shown in Exhibit 22. Like Alternative EC-2, the trail would remain open and accessible. As noted for the Hood River Marina Park and Basin, additional coordination with OPRD and NPS is needed, including a request for a 6(f) boundary determination for that park, before determinations can be made regarding Section 6(f) impacts to the segment of the Waterfront Trail located within the Marina Park and Basin LWCF Section 6(f) boundary and impacts to this state grant-funded facility.

5.4.3. Indirect Impacts

Indirect impacts resulting from construction of Alternative EC-3 would be similar to those described for Alternative EC-2 in Section 5.2.3. None of the indirect impacts would be anticipated to result in a conversion of protected land or a violation of Section 6(f) or state grant funding stewardship requirements.

5.5. Summary of Impacts by Alternative

Exhibit 23 provides a comparison of anticipated impacts to Section 6(f) Properties and state grant-funded park and recreation facilities by alternative.

Exhibit 23. Summary of Potential Impacts to Section 6(f) Properties and State Grant-Funded Park and Recreation Facilities by Alternative

Impacts	No Action Alternative	Preferred Alternative EC-2	Alternative EC-1	Alternative EC-3
Construction Impacts	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • Temporary changes in travel patterns and access to park and recreation facilities • Temporary increases in noise levels, dust, and air pollution at park and recreation facilities • Temporary changes in visual environment at park and recreation facilities • Temporary closures of parking areas within Hood River Marina Park and Basin boundary • Temporary closure of a 0.2-mile segment of Waterfront Trail • Detour required for Waterfront Trail 		
		<ul style="list-style-type: none"> • If needed, a new temporary access road would be developed to provide access to the Port's maintenance shop • If Port's administration office and/or maintenance shop and associated storage become non-functional or inaccessible during construction, these facilities would be relocated 	<ul style="list-style-type: none"> • No additional impacts 	
		<p>Potential formal consultation and NPS Review needed to determine likelihood of Section 6(f) temporary non-conforming use or conversion of Hood River Marina Park and Basin including the segment of Waterfront Trail within the Marina Park and Basin LWCF Section 6(f) boundary</p>		

Impacts	No Action Alternative	Preferred Alternative EC-2	Alternative EC-1	Alternative EC-3
<p>Direct Impacts</p>	<ul style="list-style-type: none"> Minor changes in noise levels at Hood River Marina and Waterfront Trail due to increase in traffic volumes <p>No conversion or violation of stewardship requirements</p>	<ul style="list-style-type: none"> Change in scenic views of the Columbia River and surrounding landscape Enhanced pedestrian and bicycle connectivity to park and recreation facilities Potential permanent change of less than 1 acre of Hood River Marina Park and Basin to transportation right-of-way use Reconstruction of E. Port Marina Drive connection to Button Bridge Road/E. Marina Way intersection 		
		<ul style="list-style-type: none"> Removal of 3 parking spaces for Hood River Marina boat launch, 15 spaces for Port administration office, and unstriped parking and exterior storage areas for maintenance shop Possible reconfiguration of boat launch parking to replace displaced parking spaces If Port's administration office and/or maintenance shop become non-functional after construction, relocation of these facilities would occur 60-foot segment of Waterfront Trail covered by bridge, raising lighting and visibility concerns under the bridge 	<ul style="list-style-type: none"> 150-foot segment of Waterfront Trail covered by bridge, increasing lighting and visibility concerns under the bridge 	
		<p>Potential formal consultation and NPS Review needed to determine likelihood of Section 6(f) conversion impacts of Hood River Marina Park and Basin including the segment of Waterfront Trail within the Marina Park and Basin LWCF Section 6(f) boundary.</p>		

Impacts	No Action Alternative	Preferred Alternative EC-2	Alternative EC-1	Alternative EC-3
Indirect Impacts	<ul style="list-style-type: none"> • Reduced vehicle access to park and recreation facilities on the opposite side of the Columbia River • Reduced noise levels at park and recreation facilities closest to the existing bridge • Changes in visitation patterns, parking demand, and maintenance needs at park and recreation facilities <p>No conversion or violation of stewardship requirements anticipated</p>	<ul style="list-style-type: none"> • Minor changes in visitation patterns, bicycle and vehicle parking demand, and maintenance needs at park and recreation facilities <p>No conversion or violation of stewardship requirements anticipated</p>		

6. AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

6.1. Construction Impacts

The following measures would be implemented by the bridge owner to avoid, minimize, or mitigate construction impacts to Section 6(f) properties and state grant-funded park and recreation facilities:

- Pedestrian and bicycle access to Waterfront Trail would be maintained during construction. A signed, ADA-accessible detour route would be provided when portions of the trail are temporarily closed during construction.
- Advanced notice to park and recreation users about sidewalk, trail, and/or park closures and temporary access changes during construction would be provided.
- Contractors would be required to minimize dust and air pollutant emissions. Potential control measures are included throughout the WSDOT standard specifications and ODOT standard specifications Section 290. These control measures include vehicle and equipment idling limitations and minimize vehicle track-out and fugitive dust. These measures would be documented in the erosion and sediment control plan that the contractor is required to submit prior to the preconstruction conference. To reduce the impact of construction delays on traffic flow and resultant emissions, road or lane closures should be restricted to non-peak traffic periods when possible.

6.2. Long-Term Impacts

The following measures will be implemented to avoid, minimize, or mitigate long-term impacts to Section 6(f) properties and other state grant-funded park and recreation facilities:

- Appropriate lighting along the segment of the Waterfront Trail covered by the replacement bridge would be incorporated as part of the Project to mitigate lighting and visibility concerns caused by the wider bridge.
- Wayfinding signage would be provided for the new shared use path indicating connections to park and recreation facilities.
- Alternative EC-2 and Alternative EC-1: Opportunities would be considered to reconfigure the Hood River Marina Park and Basin boat launch parking area to replace parking spaces removed by the Project.

7. PREPARERS

Individuals involved in preparing this technical report are identified in Exhibit 24.

Exhibit 24. List of Preparers

Name	Role	Education	Years of Experience
Jennifer Rabby	Park and Recreation/ Section 4(f)/Section 6(f) Technical Lead	MCRP, Planning BA, Biology and Environmental Studies	17
Angela Findley	Project Manager; QC	MS, Forest Resources BA, Mathematics	25
Scott Polzin	Environmental Task Lead; QC	MCRP, Planning BS, Finance	24

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