Hood River – White Salmon BRIDGE REPLACEMENT PROJECT

Final Park and Recreation Technical Report

November 2020

Prepared for:

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LIST OF EXHIBITS

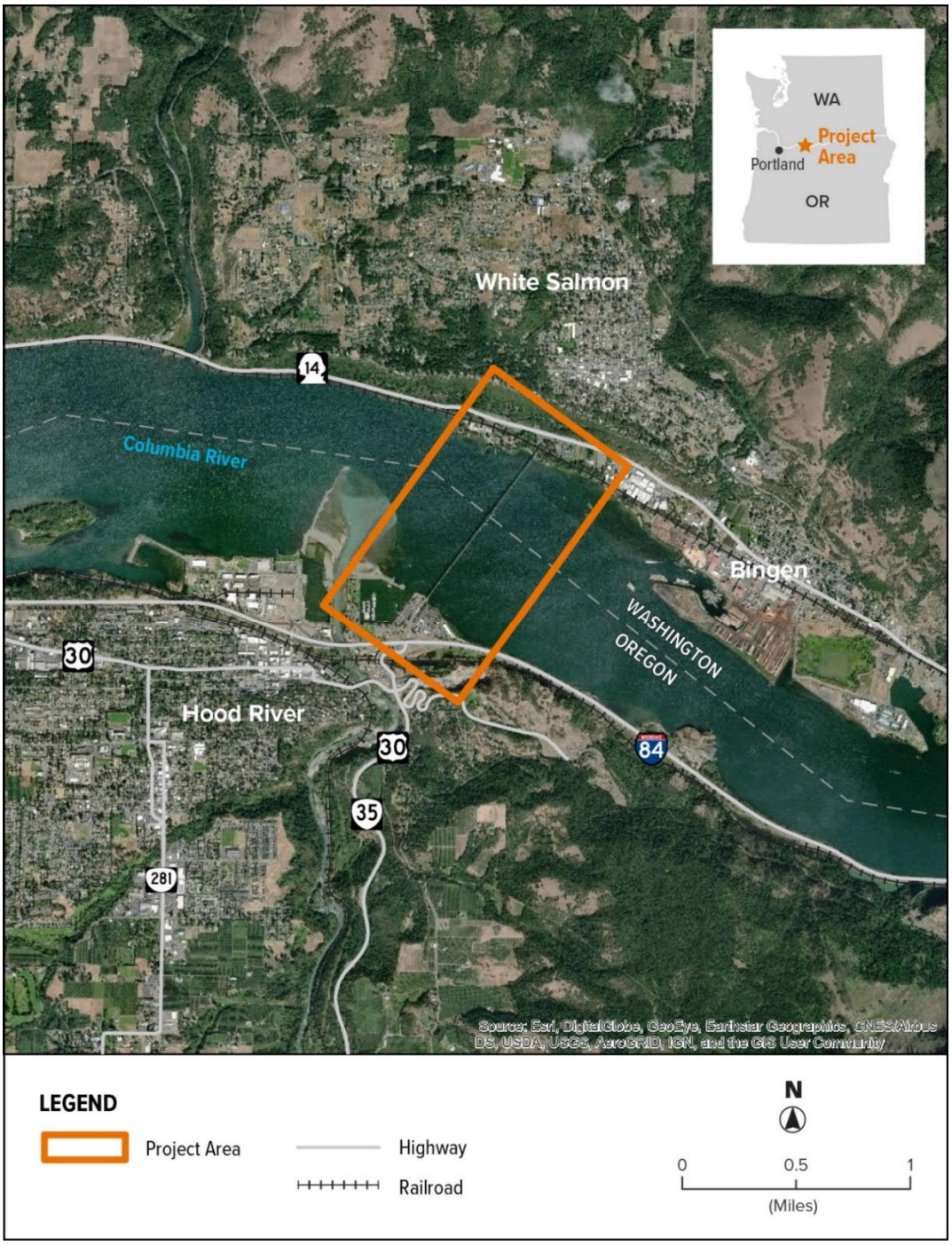
ACRONYMS AND ABBREVIATIONS

API	area of potential impact
BMPs	best management practices
CRGC	Columbia River Gorge Commission
CRGNSA	Columbia River Gorge National Scenic Area
EIS	environmental impact statement
HCRH	Historic Columbia River Highway
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
ODOT	Oregon Department of Transportation
OHWM	ordinary high water mark
OPRD	Oregon Parks and Recreation Department
RCO	Washington State Recreation and Conservation Office
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	United States Army Corps of Engineers
U.S.C.	United States Code
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 an update to the 2003 Social and Economic Technical Report describing the existing conditions and anticipated construction, direct, and indirect impacts on park and recreation facilities. 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

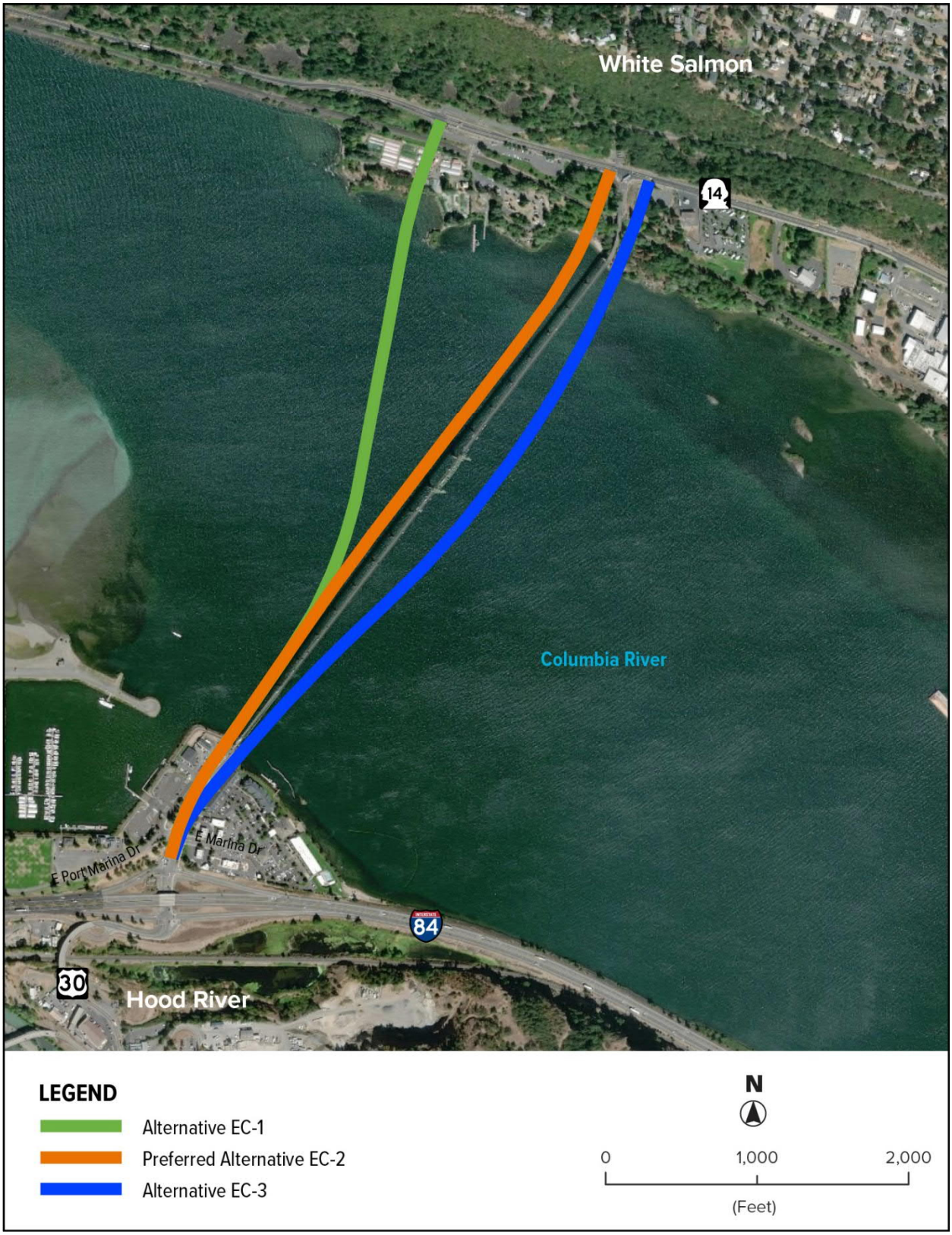
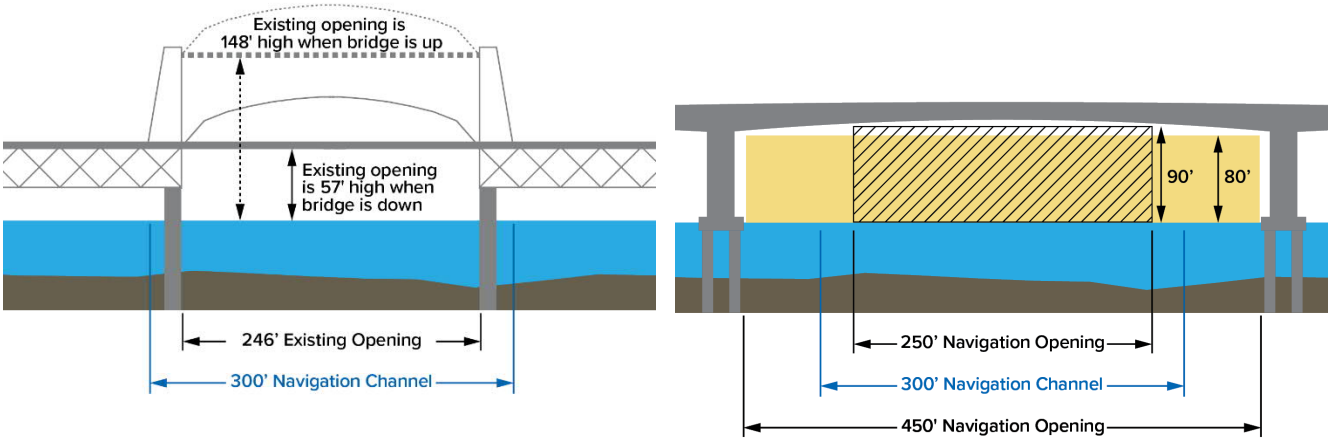


Exhibit 3. Summary Comparison of Key Elements of Alternatives

	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



Existing Bridge

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 2045[1] 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

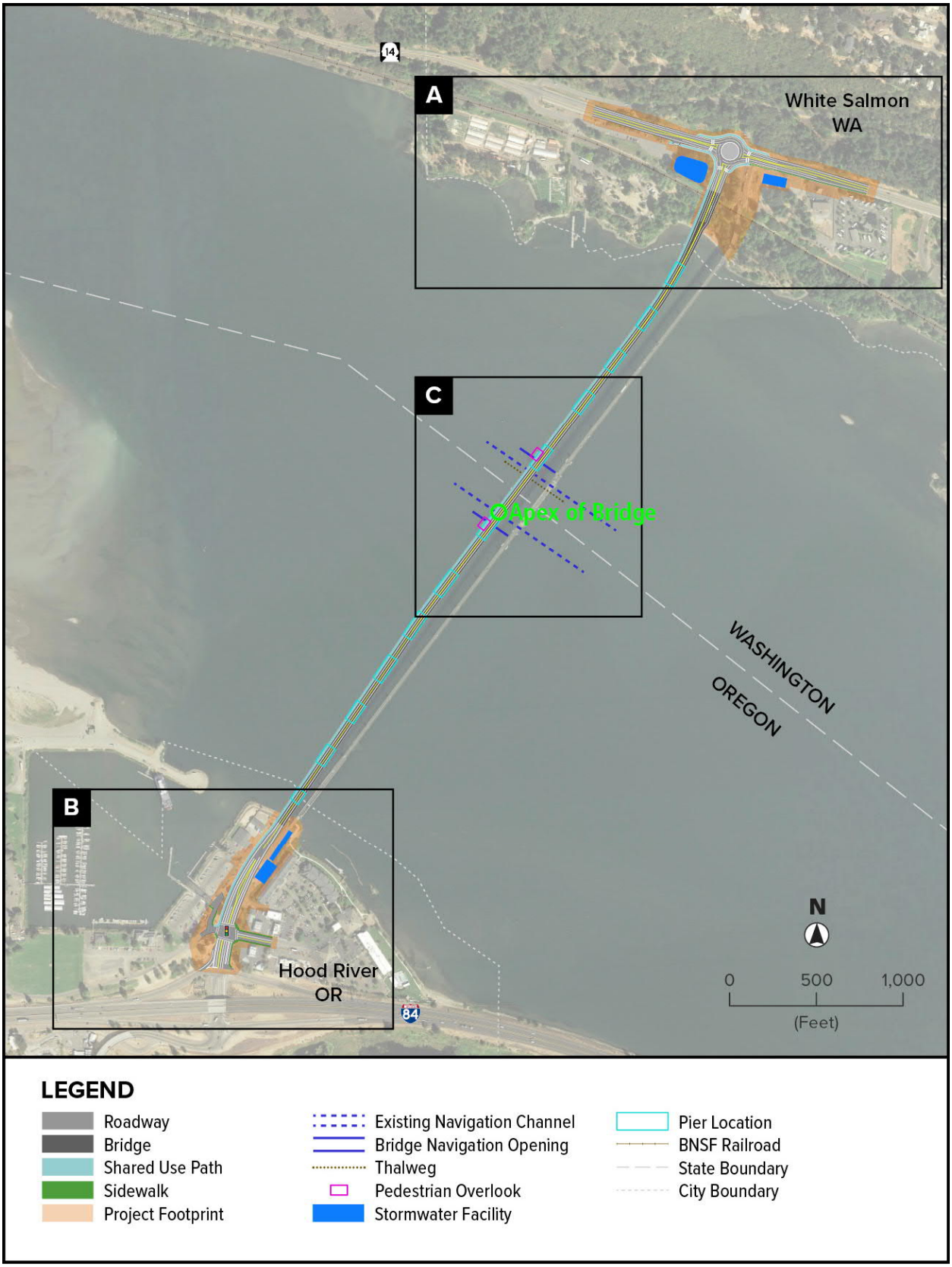
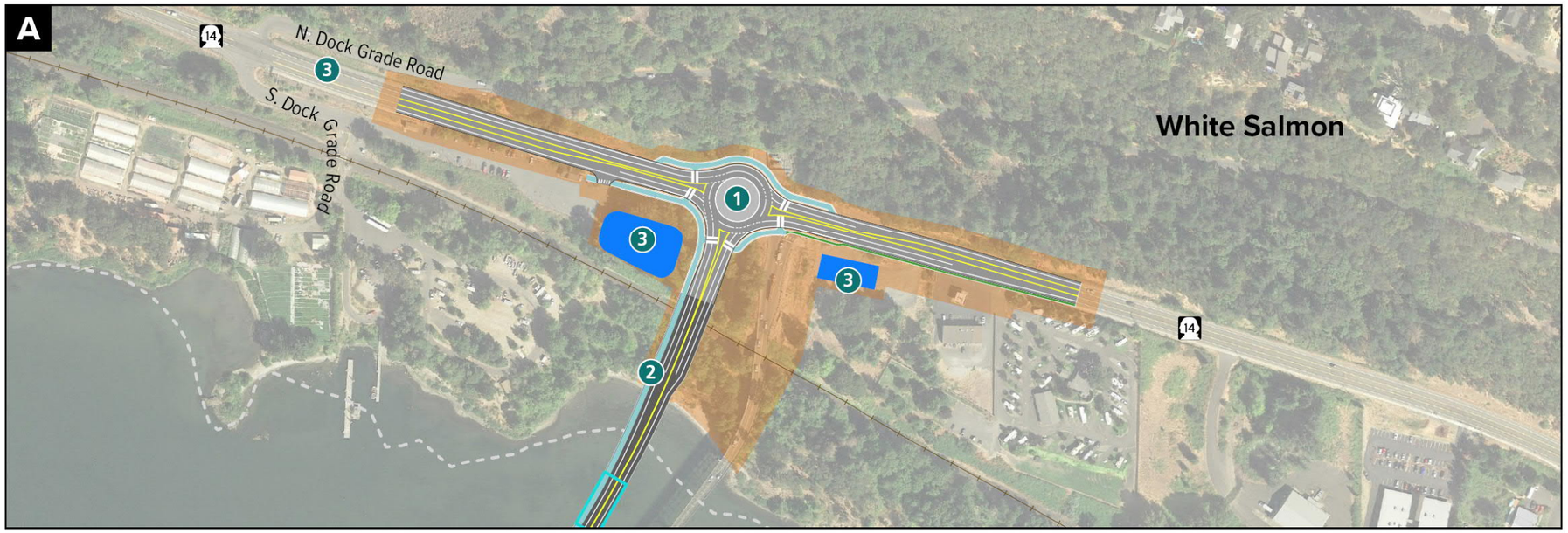
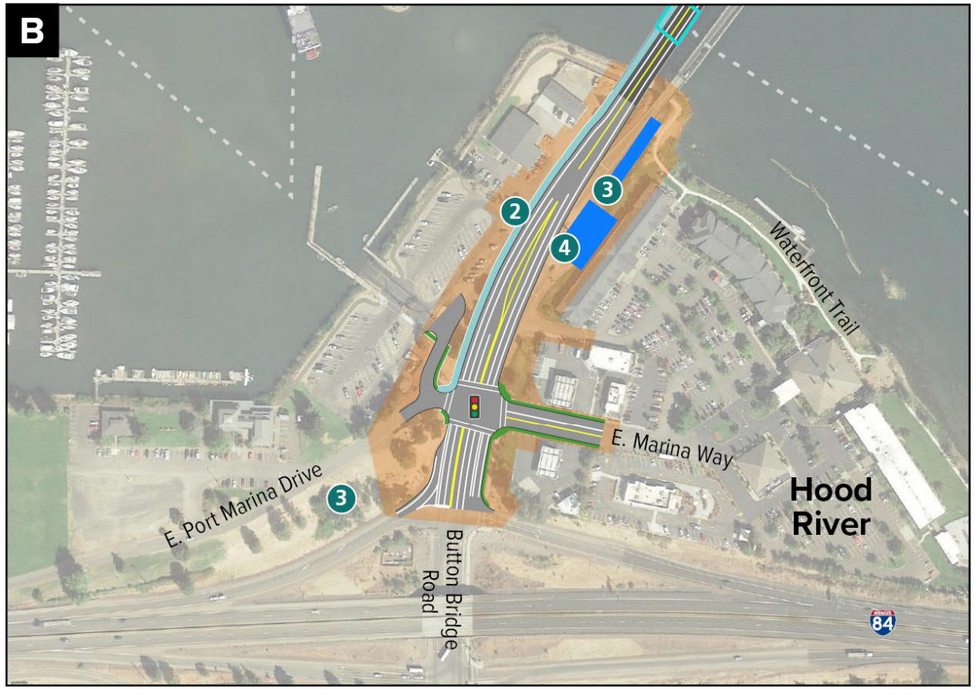
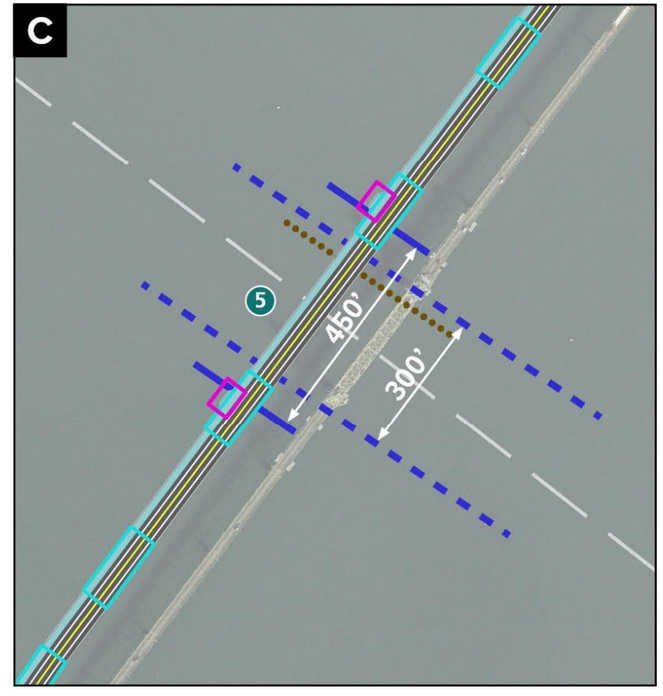


Exhibit 6. Preferred Alternative EC-2 Enlargements







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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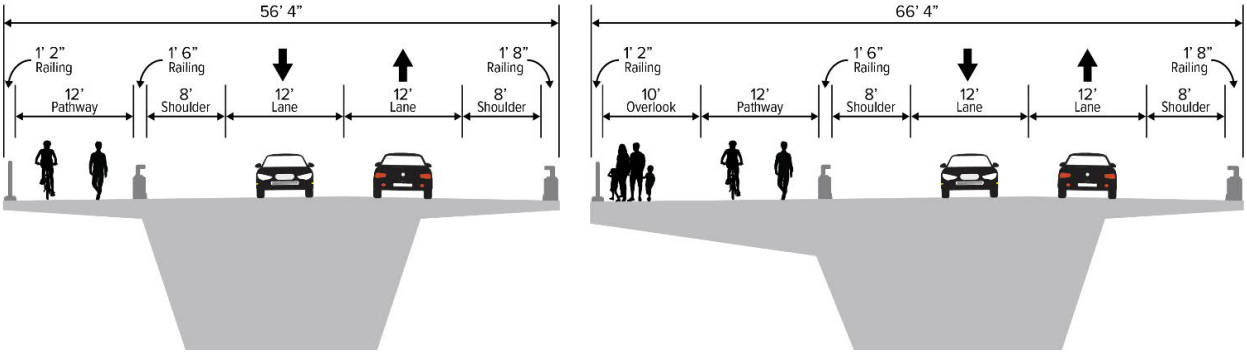
Exhibit 7. Replacement Bridge Typical Cross-Section



Typical

With Pedestrian Overlook

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

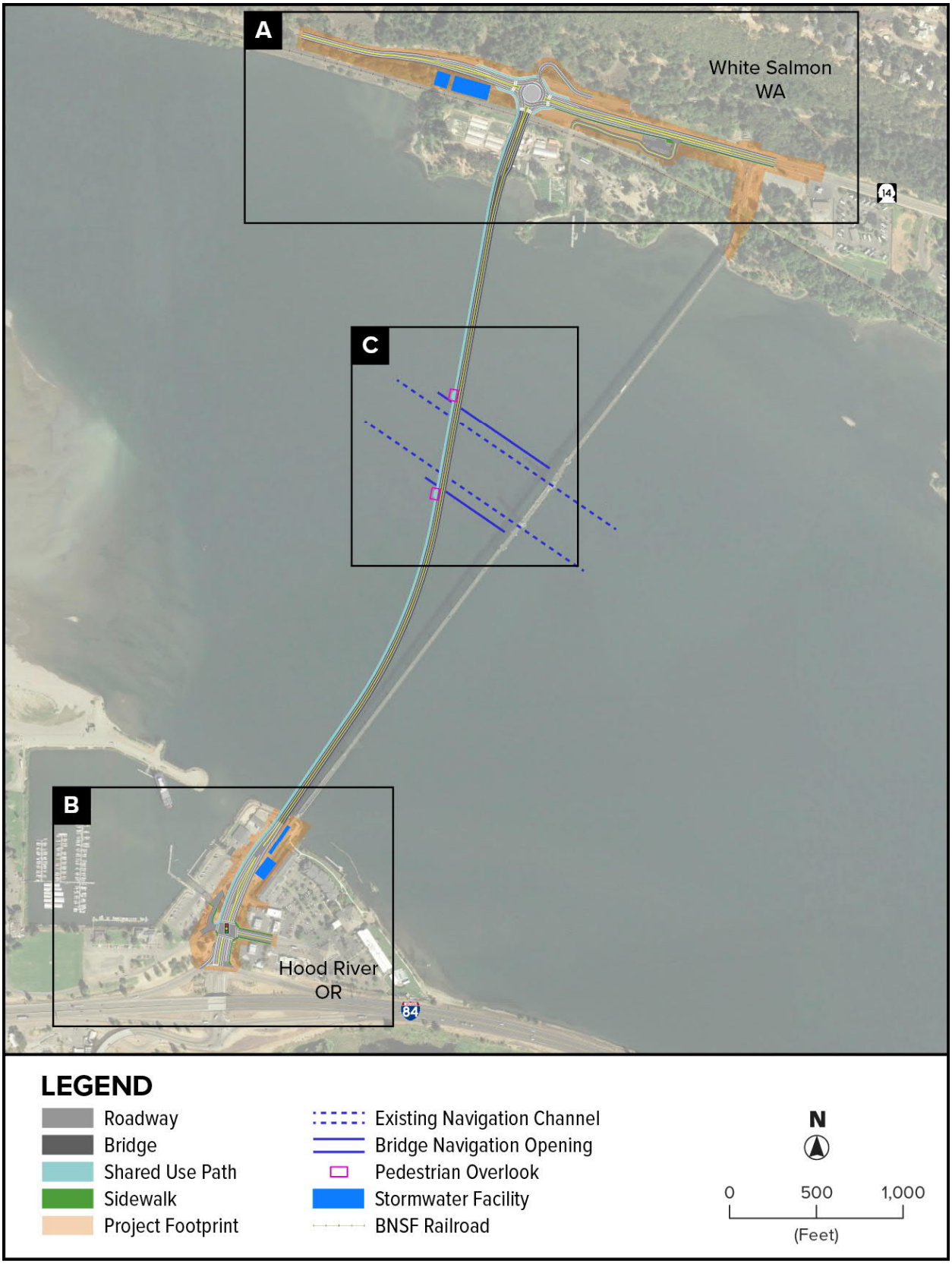
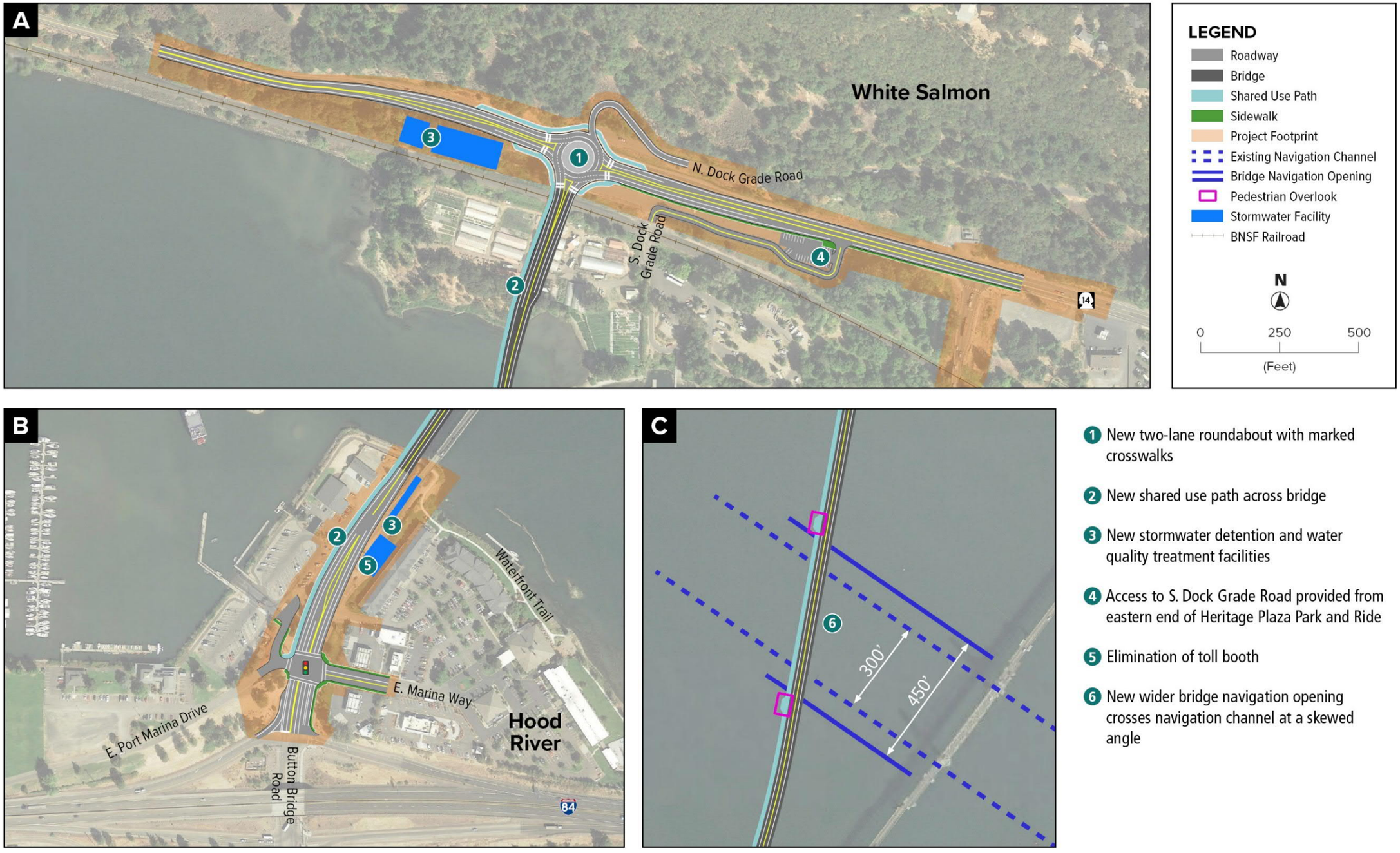


Exhibit 9. Alternative EC-1 Enlargements



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

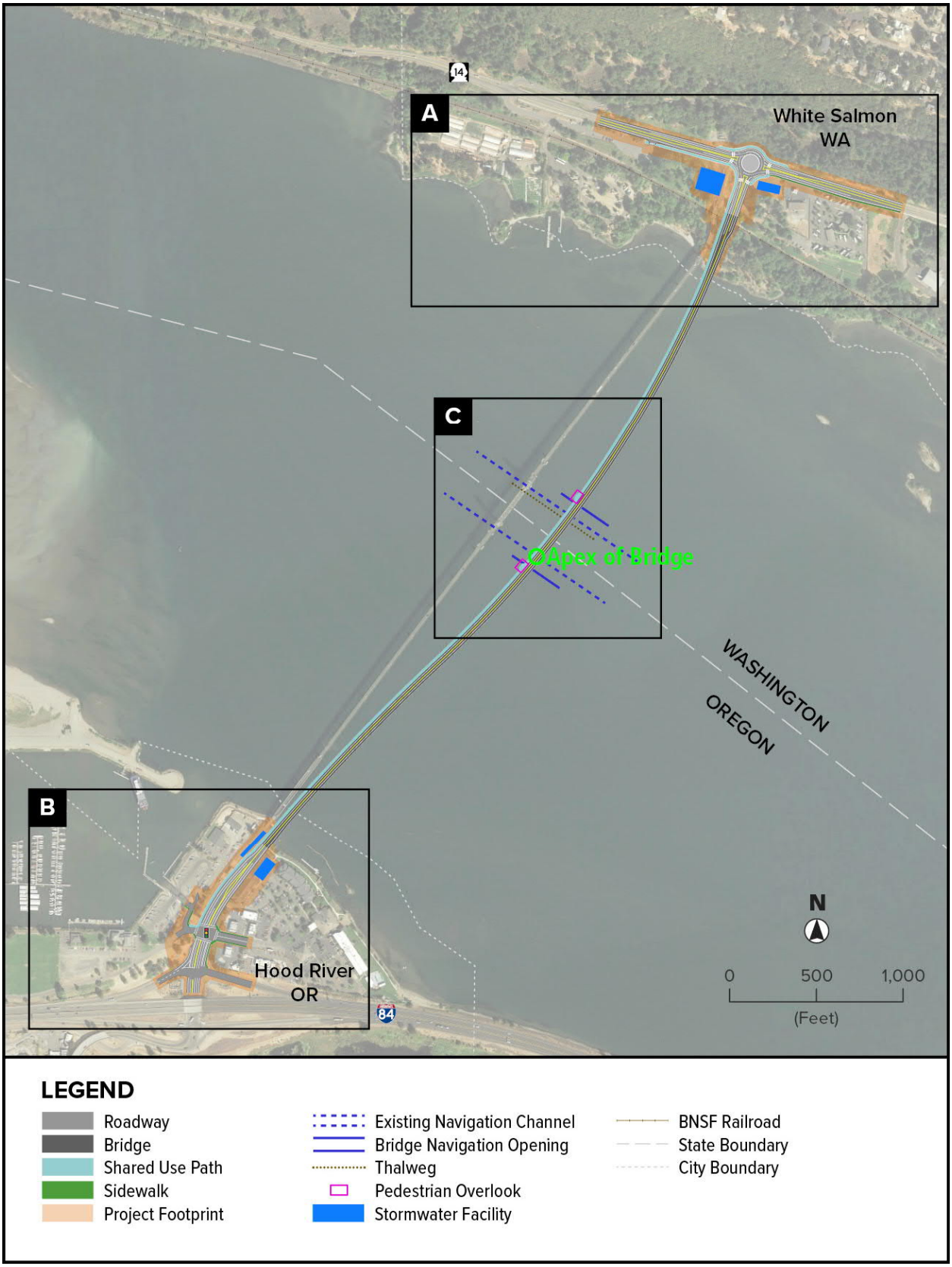
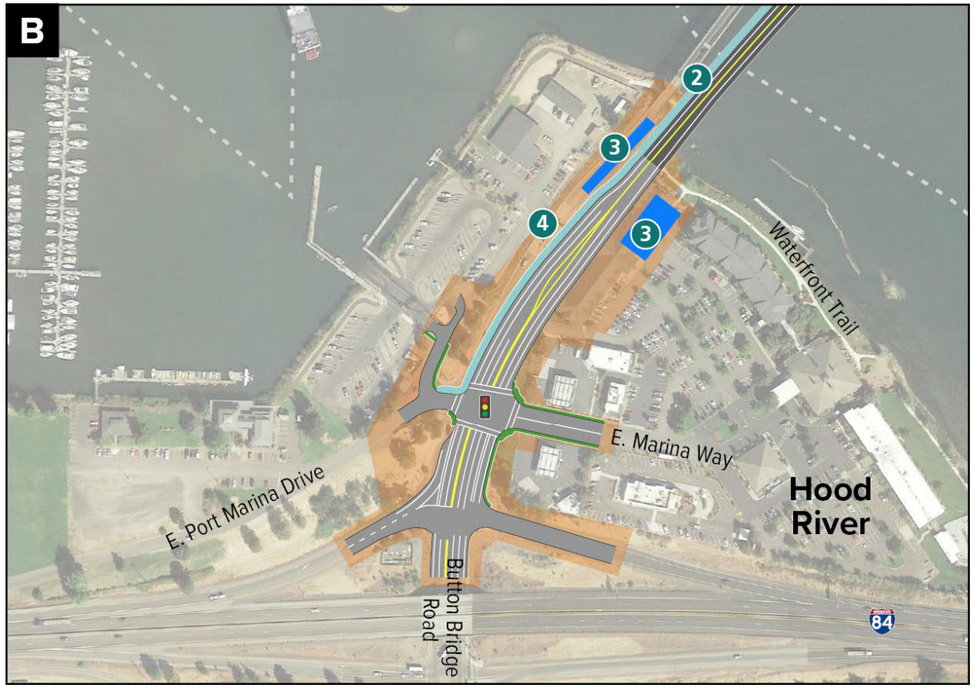
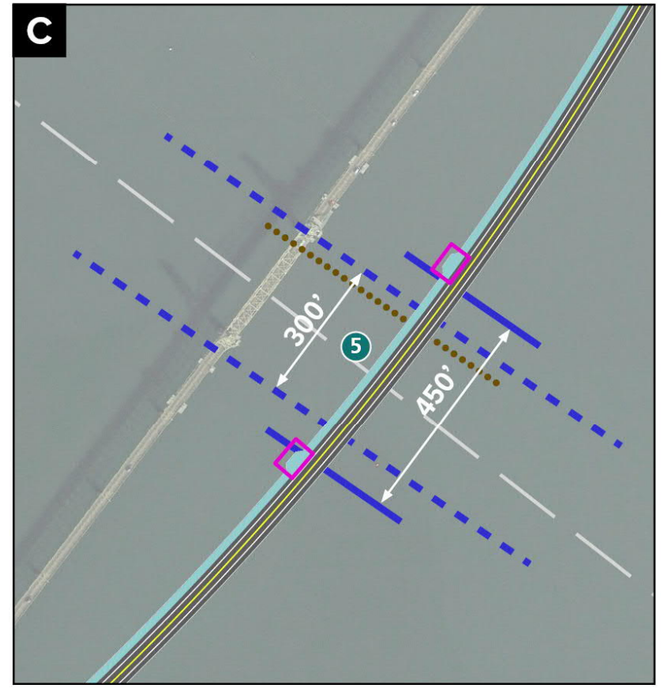


Exhibit 11. Alternative EC-3 Enlargements





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, where-as 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.

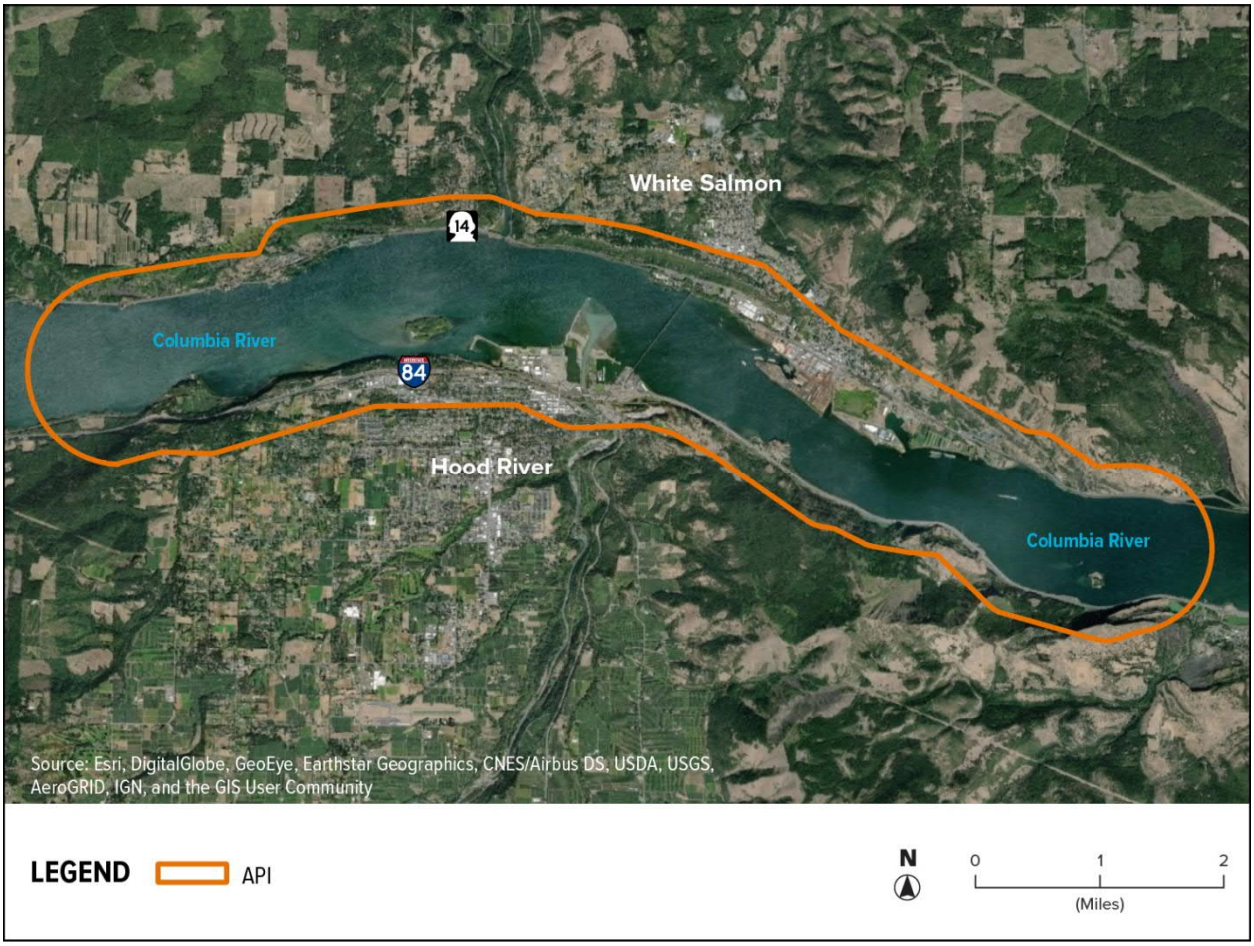
3. METHODOLOGY

Public and privately-owned park and recreation facilities were previously analyzed in the Project's 2003 Draft EIS and Social and Economic Technical Report (Parsons Brinckerhoff 2003). For this phase of the environmental review process, the updated park and recreation analysis has been documented in this separate Park and Recreation Technical Report.

3.1. Area of Potential Impact

The area of potential impact (API) for park and recreation facilities is shown in Exhibit 12, which encompasses an area approximately 4 miles upstream and downstream of the 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 area encompasses the area anticipated for direct and indirect impacts to park and recreation facilities resulting from the Project.

Exhibit 12. Park and Recreation API



3.2. Regulations, Standards, and Guidelines

Federal, state and local regulations, standards and guidelines relevant to park and recreation facilities that apply to the Project are listed below.

- National Environmental Policy Act (NEPA) of 1969
- Section 4(f) of the Department of Transportation Act of 1966
- Section 6(f) of the Land and Water Conservation Fund (LWCF) Act of 1965
- Title 42 U.S.C. Section 4601, Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended

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 conceptual plans for "Bridge Park" on Klickitat County-owned land in the City of White Salmon (2018). The following existing data sources were used to update the list of park and recreation facilities:

- City of White Salmon Comprehensive Plan – Parks, Open Space, and Recreation
- Columbia River Gorge Commission (CRGC) 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 (ODOT) Historic Columbia River Highway Bike Maps
- 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 Recreation and Conservation Office 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 National Park Service, Oregon Park and Recreation Department, and Washington Recreation and Conservation Office was used to collect data on park and recreation facilities that have received state and/or federal grant funding. Data for temporary easements and permanent land use acquisitions 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 this technical report. Resources that qualify for protection under Section 4(f) and/or Section 6(f) have been further assessed in the updated Section 4(f) Analysis and Section 6(f) Technical Report.

3.5.1. Construction Impacts

Construction impacts to 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 park and recreation facilities. The analysis also includes a discussion of whether any temporary construction easements on park and recreation properties would be needed for Project construction. Temporary impacts identified to park and recreation facilities that qualify for protection under Section 4(f) and/or Section 6(f) have been further assessed in the Section 4(f) Analysis the and Section 6(f) Technical Report.

3.5.2. Direct Impacts

Long-term impacts to 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. Direct impacts to park and recreation facilities that qualify for protection under Section 4(f) and/or Section 6(f) have been further assessed in the Section 4(f) Analysis and Section 6(f) Technical Report.

3.5.3. Indirect Impacts

Indirect impacts to park and recreation facilities and their users were assessed by identifying impacts that could happen later in time or further in distance. For example, if the Project results in the removal of a park or recreation facility, it might result in more users frequenting other facilities in the area and potentially putting a greater strain on those resources. Indirect impacts to park and recreation facilities that qualify for protection under Section 4(f) and/or Section 6(f) have been further assessed in the Section 4(f) Analysis and Section 6(f) Technical Report.

3.6. Agency Coordination

As described in Section 3.4, coordination with local, state, and federal agencies has been used to obtain data about existing and planned park and recreation facilities.

4. AFFECTED ENVIRONMENT

In general, park and recreation facilities in the API are located along the Columbia River and/or associated with river-based activities. Most of the sites are located along the Oregon shore. The dominant activities associated with these sites are river related, including boating, sailing, wind surfing, kiteboarding, and fishing. The Columbia River Gorge, and the City of Hood River area in particular, are world renowned for windsurfing, kiteboarding, and stand up paddle boarding. Other recreation activities in the area include kayaking, wildlife viewing, hiking, and camping.

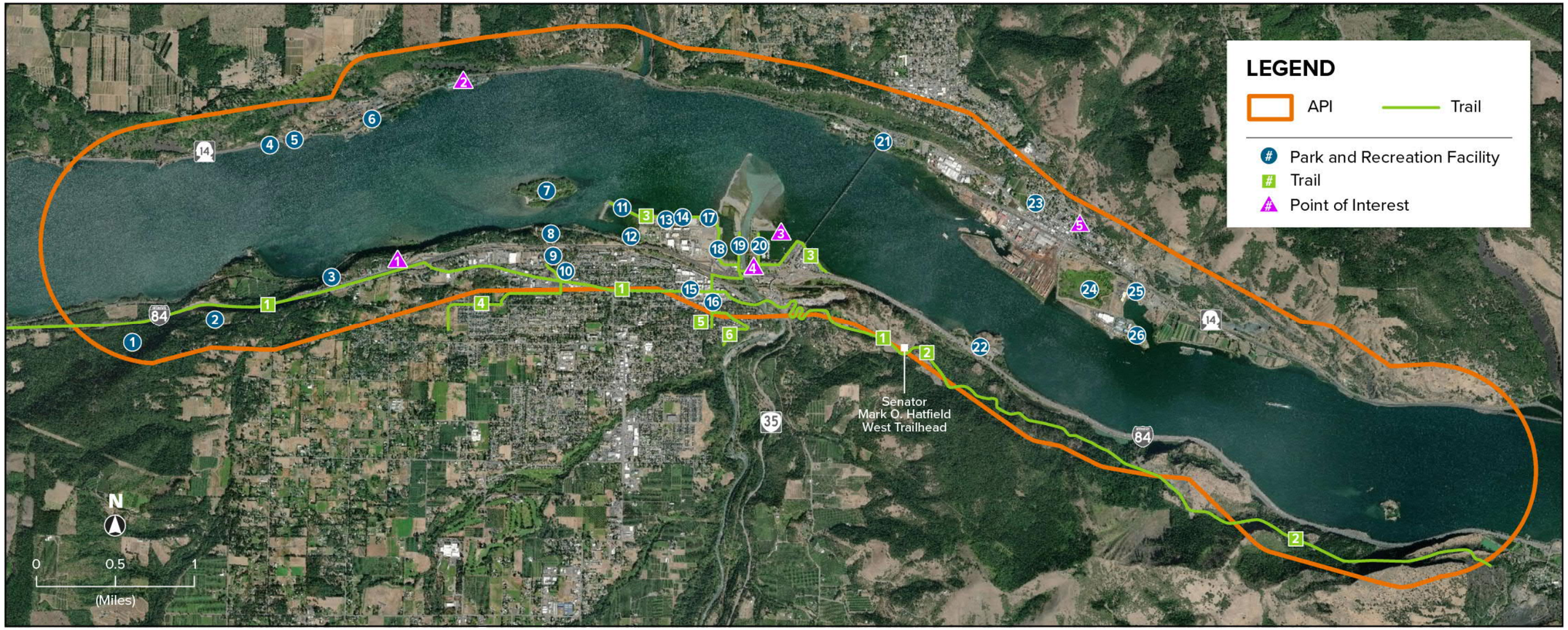
The entire API is located within the CRGNSA, which was created in 1986 to protect and enhance the scenic, natural, cultural, and recreation resources of the Columbia River Gorge while encouraging economic development. The CRGNSA offers extensive recreational opportunities, including hundreds of miles of trails, windsurfing, campsites, wildflowers, waterfalls, and unique viewpoints.

The locations of the park and recreation facilities within the API are shown in Exhibit 13. Those facilities along the Columbia River and/or associated with river-based facilities, are described from west to east for the Washington side and then the Oregon side in the following subsections on park and recreation facilities, trails, and points of interest.

4.1. Park and Recreation Facilities

There are 26 existing and proposed park and recreation facilities located within the API as shown in Exhibit 13. Nineteen (19) of these park and recreation facilities are located along the Columbia River and/or associated with river-based activities; these facilities are described in detail in Sections 4.1.8 through 4.1.7. Additional park and recreation facilities located within the API, but not along the river or associated with river-based activities, are listed in Section 4.1.20. All park and recreation facilities in the API are day-use only sites.

Exhibit 13. Park and Recreation Facilities in the API



PARK AND RECREATION FACILITIES

1. Seneca Fouts Memorial State Natural Area
2. Wygant State Natural Area
3. Ruthton Park
4. Swell City
5. Cheap Beach
6. Spring Creek Hatchery State Park
7. Wells Island
8. Morrison Park
9. Morrison Disc Golf Park
10. Rotary Skatepark (Jaymar)
11. The Hook
12. Island Parkland
13. Waterfront Park
14. Jensen Beach
15. Georgianna Smith Neighborhood Park
16. Memorial Overlook Park and Stratton Gardens
17. Event Site Park
18. Nichols Basin
19. The Spit/Sandbar
20. Hood River Marina Park and Basin
21. Bridge Park (Proposed)
22. Koberg Beach State Recreation Site
23. Daubenspeck Park
24. Bingen Lake
25. Bingen Marina and Marina Park
26. Sailboard Park

TRAILS

1. Historic Columbia River Highway Route
2. Historic Columbia River Highway State Trail
3. Waterfront Trail
4. Westside Community Trail
5. 2nd Street Steps Right-of-Way Trail
6. Indian Creek Trail

POINTS OF INTEREST

1. Columbia Gorge Hotel and Wah Gwin Gwin Falls
2. Spring Creek National Fish Hatchery
3. Cruise Ship Dock
4. The History Museum of Hood River County
5. Gorge Heritage Museum

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4.1.1. Swell City

Swell City is located about 4.0 miles west of the existing Hood River Bridge on the Washington side of the Columbia River. The site is accessed from SR 14 approximately one-quarter mile west of the entry road to the Spring Creek National Fish Hatchery. This 1.0-acre site is privately owned by the Columbia Gorge Windsurfing Association.

Swell City provides restrooms and limited parking (entrance fee required). Swell City is known for excellent wind and waves and is a popular launching site for intermediate and advanced windsurfers. Due to its popularity, the site is crowded in the summer. Entry to the river can be gained from two or three rocky spots along the shore. Rigging occurs on a small grassy area or near the parking.

This site does not qualify for protection under Section 4(f) as it is not publicly owned. This site has not received LWCF grants and, therefore, does not qualify for protection under Section 6(f).

4.1.2. Cheap Beach

Cheap Beach is a windsurfing launch site located about 3.6 miles west of the existing Hood River Bridge on the Washington side of the Columbia River. This site is accessed from SR 14 near milepost 56. This site is located on privately-owned property.

This launch site provides limited parking, a difficult launch, and a primitive rigging area.

This site does not qualify for protection under Section 4(f) as it is not publicly owned. This site has not received LWCF grants and, therefore, does not qualify for protection under Section 6(f).

4.1.3. Spring Creek Hatchery State Park

Spring Creek Hatchery State Park, also known as “The Hatchery,” is located about 3.2 miles west of the Hood River Bridge on the Washington side of the Columbia River. The site is accessed from SR 14 at the same access road that leads to the Spring Creek National Fish Hatchery. Washington State Parks manages the site through a lease with the U.S. Army Corps of Engineers (USACE).

The park provides restrooms, parking (purchase of parking pass required), and picnic tables. Advanced intermediate and expert windsurfers find strong westerly winds and large swells at this park. The site is known for big waves and as a result can get crowded. There are three main launching areas with steep rocks towards the west end and a small cove with sand and grass to the east. Rigging occurs on the grassy areas or near parked vehicles. The conditions at this site provide excellent viewing opportunities for spectators.

Spring Creek Hatchery State Park qualifies as a Section 4(f) property because the property is publicly owned, it is open to the public, its major purpose is park and recreation activities, and it is significant as a park and recreation facility as demonstrated by its inclusion in Washington State Parks maps and documents. This site has not received LWCF grants and, therefore, does not qualify for protection under Section 6(f).

4.1.4. Bridge Park (Proposed)

Bridge Park, also referred to as “Riverfront Park” or “Waterfront Park,” is a proposed park that would be located on a 12-acre site directly under the existing Hood River Bridge on the Washington side of the Columbia River. The property is owned by Klickitat County; the City of White Salmon plans to purchase

the property from the County for development as a park. Acquisition and development of this park is identified as a potential capital improvement project in the Parks, Open Space, and Recreation element of the City of White Salmon's Comprehensive Plan (2016).

A conceptual design for the park was developed in a workshop in 2017 that was sponsored by the City of White Salmon and the NPS's Rivers, Trails, and Conservation Assistance Program. A two-phase concept plan was presented to the White Salmon City Council in March 2018. In 2018, the City of White Salmon applied for a grant from the Washington State Recreation and Conservation Office (RCO) to develop this park but was not awarded funding.

The conceptual design shows that access to the park would require crossing the BNSF Railway tracks. The concept plans show a gateway entrance at the Mt. Adams Chamber of Commerce parking area with an information kiosk and bathroom. A pedestrian and bicycle bridge over the tracks would connect the gateway area to the main park site adjacent to the Columbia River. The concept for the park site includes viewpoints, picnic areas, children's nature play areas, beach access, a stand up paddle boarding ramp, and a natural area.

Although it is a planned facility, Bridge Park qualifies as a Section 4(f) property because the property is publicly owned, and the site is formally designated for park and recreation purposes in the Parks, Open Space, and Recreation element of the City of White Salmon's Comprehensive Plan. This designation in the City's Comprehensive Plan also demonstrates Bridge Park's significance as a park and recreation facility and that it is more than a "mere expression of interest or desire." This site has not received LWCF grants and, therefore, does not qualify for protection under Section 6(f).

4.1.5. 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.

Although Bingen Lake is not currently open to the public, it is a planned facility and qualifies as a Section 4(f) property because the site is publicly owned, and it is formally designated for park and recreation purposes in the Port of Klickitat's Bingen Point Comprehensive Parks and Recreation Plan (2000). This designation in the Bingen Point Comprehensive Plan also demonstrates Bingen Lake's significance as a park and recreation facility and that it is more than a "mere expression of interest or desire."

This site has not received LWCF grants and, therefore, does not qualify for protection under Section 6(f). The Port of Klickitat has, however, received grant funding from the Washington State RCO for

construction of the planned pathways and wildlife observation sites on Bingen Lake. Similar to LWCF funding, 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.

4.1.6. 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.

The Bingen Marina and Marina Park qualifies as a Section 4(f) property because the property is publicly owned, it is open to the public, its major purpose is park and recreation activities, and it is significant as a park and recreation facility as demonstrated by its inclusion in the Bingen Point Comprehensive Parks and Recreation Plan (2000) and in Port of Klickitat's list of recreation facilities.

This site received LWCF grant funding in 1968 for development of the boat marina; therefore, this site qualifies as a Section 6(f) property. The Port of Klickitat also received RCO grant funding for updates and improvements to the boat ramp in 1995, and redesign/realignment of the boat ramp and dock in 2000.

4.1.7. Sailboard Park

Sailboard Park is located about 2.0 miles east of the existing Hood River Bridge on the Washington side of the Columbia River. The site is accessible from E. Bingen Point Way. This 1.75-acre site is located along the Columbia River in the Bingen Point Business Park, owned by the Port of Klickitat.

Near the eastern end of the point, this park offers a large, open area, access to the Columbia River, parking, picnic tables, and portable restroom facilities. In the mid-90s, this location hosted the Gorge Games and several speed competitions.

Sailboard Park qualifies as a Section 4(f) property because the property is publicly owned, it is open to the public, its major purpose is park and recreation activities, and it is significant as a park and recreation facility as demonstrated by its inclusion in the Bingen Point Comprehensive Parks and Recreation Plan (referred to as a Waterfront Park, 2000) and the Port of Klickitat's list of recreation facilities. This site has not received LWCF grants and, therefore, does not qualify for protection under Section 6(f).

4.1.8. Ruthton Park

Ruthton Park is located roughly 3.0 miles west of the existing Hood River Bridge, situated between I-84 and the Columbia River on the Oregon side. Westcliff Drive provides access to the park. Ruthton Park is about 1.5 acres in size and owned by Hood River County.

Park amenities include a small parking area and picnic tables. A walking trail and high viewpoints above the Columbia River allow for watching windsurfers and kiteboarders down below.

Ruthton Park qualifies as a Section 4(f) property because the property is publicly owned, it is open to the public, its major purpose is park and recreation activities, and it is significant as a park and recreation facility as demonstrated by its inclusion in the Hood River County Parks Map (2019) and the Hood River Valley Parks and Recreation District Master Plan (2012). This site has not received LWCF grants and, therefore, does not qualify for protection under Section 6(f).

4.1.9. Wells Island

Wells Island is undeveloped parkland located about 1.5 miles west of the existing Hood River Bridge, about 500 feet offshore on the Oregon side of the Columbia River. The site is accessible only by boat as there is no bridge connecting the island to shore. In 1991, as part of the CRGNSA Act, Wells Island was sold to the Trust for Public Land and then to the U.S. Forest Service. The site is still managed by the U.S. Forest Service. Wells Island is approximately 53.3 acres in size.

As an undeveloped natural area, Wells Island contains the only Great Blue Heron rookery in the Bonneville Pool and is an important habitat location for a variety of wildlife species. It offers naturalists wildlife viewing opportunities.

Wells Island qualifies as a Section 4(f) property because the property is publicly owned, it is open to the public, its major purpose is open space, and it is significant as a park and recreation facility as demonstrated by its designation as a Special Management Area by the Management Plan for the CRGNSA (CRGC 2016) and its inclusion in the Hood River Valley Parks and Recreation District Master Plan (2012). This site has not received LWCF grants and, therefore, does not qualify for protection under Section 6(f).

4.1.10. Morrison Park

Morrison Park is undeveloped parkland located about 1.5 miles west of the existing Hood River Bridge on the Oregon side of the Columbia River. The site is located between I-84 and the BNSF Railway tracks adjacent to the Columbia River, accessible from Westcliff Drive. This 5.8-acre site is owned by the City of Hood River and serves as a natural area.

Morrison Park qualifies as a Section 4(f) property because the property is publicly owned, it is open to the public, its major purpose is park and recreation activities, and it is significant as a park and recreation facility as demonstrated by its inclusion in the Hood River Valley Parks and Recreation District Master Plan (2012). This site has not received LWCF grants and, therefore, does not qualify for protection under Section 6(f).

4.1.11. 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 Hook qualifies as a Section 4(f) property because the property is publicly owned, it is open to the public, its major purpose is park and recreation activities, and it is significant as a park and recreation facility as demonstrated by its inclusion in the Hood River Valley Parks and Recreation District Master Plan (2012), the 2018 Port of Hood River Waterfront Report, and the Port's list of waterfront recreation sites.

This site has not received LWCF grants and, therefore, does not qualify for protection under Section 6(f). The Port received funding from the Oregon Parks and Recreation Department (OPRD) for the segment of Waterfront Trail at The Hook in 2015. OPRD grants come with stewardship obligations to maintain the funded site for park and recreation purposes for at least 25 years (Oregon Administrative Rule (OAR) 736-006-00140).

4.1.12. Island Parkland

Island Parkland is undeveloped parkland located within The Hook about 1.3 miles west of the existing Hood River Bridge on the Oregon side of the Columbia River. This island is about 80 feet from the nearest shore and is accessible only by boat. The Port owns this 4.5-acre site.

Island Parkland qualifies as a Section 4(f) property because the property is publicly owned, it is open to the public, its major purpose is park and recreation activities, and it is significant as a park and recreation facility as demonstrated by its inclusion in the Hood River Valley Parks and Recreation District Master Plan (2012). This site has not received LWCF grants and, therefore, does not qualify for protection under Section 6(f).

4.1.13. 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.

Waterfront Park qualifies as a Section 4(f) property because the property is publicly owned, it is open to the public, its major purpose is park and recreation activities, and it is significant as a park and recreation facility as demonstrated by its inclusion in the Hood River Valley Parks and Recreation District Master Plan (2012), the 2018 Port of Hood River Waterfront Report, and the Port's list of waterfront recreation sites.

This site has not received LWCF grants and, therefore, does not qualify for protection under Section 6(f). The City of Hood River received OPRD funding for development of Waterfront Park in 2007, 2008, 2010, and 2012.

4.1.14. Jensen Beach

Jensen Beach is located adjacent to Waterfront Park 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 and is owned by the Port.

The western half of the parking lot west of the Jensen Building is available for public parking (pass or meter payment required) and serves as an additional space for events and concessions. The Waterfront Trail runs through the northern portion of the site, and the site provides an unimproved launch site for windsurfers.

Jensen Beach qualifies as a Section 4(f) property because the property is publicly owned, it is open to the public, its major purpose is park and recreation activities, and it is significant as a park and recreation facility as demonstrated by its inclusion in the 2018 Port of Hood River Waterfront Report and the Port's list of waterfront recreation sites. This site has not received LWCF grants and, therefore, does not qualify for protection under Section 6(f).

4.1.15. Event Site Park

Event Site Park is located about 0.6 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 owns the 5.5-acre park.

Event Site Park is a popular spot for kiteboarding, windsurfing, stand up paddle boarding, and windfoiling (also referred to as windsurf hydrofoiling). Rigging occurs on the large grassy area or on the small rocks near the water. There are many people that come to the Event Site Park to watch the sports and enjoy the beach. The site provides parking (parking pass purchase required) as well as restrooms, picnic tables, and water fountains. Concessions at this site include windsurfing, kiteboarding, and stand up paddle boarding lessons, food, and photography. The site hosts several events throughout the year. Waterfront Trail traverses this park.

Event Site Park qualifies as a Section 4(f) property because the property is publicly owned, it is open to the public, its major purpose is park and recreation activities, and it is significant as a park and recreation facility as demonstrated by its inclusion in the Hood River Valley Parks and Recreation District Master Plan (2012), the 2018 Port of Hood River Waterfront Report, and the Port's list of waterfront recreation sites. This site has not received LWCF grants and, therefore, does not qualify for protection under Section 6(f).

4.1.16. 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.

Nichols Basin qualifies as a Section 4(f) property because the property is publicly owned, it is open to the public, its major purpose is park and recreation activities, and it is significant as a park and recreation facility as demonstrated by its inclusion in the 2018 Port of Hood River Waterfront Report and the Port's list of waterfront recreation sites.

This site has not received LWCF grants and, therefore, does not qualify for protection under Section 6(f). The Port received OPRD funding for the recreation facility and segment of Waterfront Trail on the western edge of Nichols Basin in 2014.

4.1.17. The Spit/Sandbar

The Spit/Sandbar 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 Nichols Parkway. The Port owns the 4.7-acre open space area.

The Spit/Sandbar is a popular spot for kiteboarding, walking, and relaxing. The size of the Sandbar changes with river levels, and strong currents and unpredictable changes in water depth require extreme caution by users. This site provides picnic tables, parking, and portable restrooms.

The Spit/Sandbar qualifies as a Section 4(f) property because the property is publicly owned, it is open to the public, its major purpose is park and recreation activities, and it is significant as a park and recreation facility as demonstrated by its inclusion in the Hood River Valley Parks and Recreation District Master Plan (2012), the 2018 Port of Hood River Waterfront Report, and the Port's list of waterfront recreation sites. This site has not received LWCF grants and, therefore, does not qualify for protection under Section 6(f).

4.1.18. 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. The Waterfront Trail 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.

Hood River Marina Park and Basin qualifies as a Section 4(f) property because the property is publicly owned, it is open to the public, its major purpose is park and recreation activities, and it is significant as a park and recreation facility as demonstrated by its inclusion in the Hood River Valley Parks and Recreation District Master Plan (2012), the 2018 Port of Hood River Waterfront Report, and the Port's list of waterfront recreation sites.

This park received LWCF grant funding in 1970, 1972, 1973, and 1974 for boat ramp, dock, and marina utility improvements; 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.

4.1.19. Koberg Beach State Recreation Site

Koberg Beach State Recreation Site is located approximately 1.3 miles east of the existing Hood River Bridge on the Oregon side of the Columbia River. Access to the site can only be gained by traveling westbound on I-84. This 75.8-acre park is owned by OPRD.

This site includes a beach behind Stanley Rock, which screens its recreational access from I-84. Recreational opportunities include picnicking, bird watching, beach access, and fishing. It is also a launch site for intermediate to advance windsurfers. There is no fee to use the site and it is open year-round.

Koberg Beach State Recreation Site qualifies as a Section 4(f) property because the property is publicly owned, it is open to the public, its major purpose is park and recreation activities, and it is significant as a park and recreation facility as demonstrated by its inclusion in Oregon State Parks maps and documents. This site has not received LWCF grants and, therefore, does not qualify for protection under Section 6(f).

4.1.20. Other Park and Recreation Facilities

Other park and recreation facilities located within (or partially within) the API, but not located along the Columbia River or associated with river-based activities, include the following:

- Seneca Fouts Memorial State Natural Area, 425.5 acres, owned by OPRD
- Wygant State Natural Area, 666.7 acres, owned by OPRD
- Morrison Disc Golf Park, 4.8 acres, owned by the City of Hood River

- Rotary Skatepark (Jaymar), 2.9 acres, owned by the Hood River Valley Park and Recreation District
- Georgianna Smith Neighborhood Park, 0.5 acres, owned by the Hood River County Library District
- Memorial Overlook Park and Stratton Gardens, 0.2 acres, owned by the City of Hood River
- Daubenspeck Park, 3.5 acres, owned by the City of Bingen

These publicly-owned park and recreation facilities are all eligible for protection under Section 4(f). Wygant State Natural Area is the only one of these facilities that has received LWCF funding. It received LWCF funding in 1974 for the Lausmann-Wygant Footpath, and therefore is protected under Section 6(f). In addition, the Hood River Valley Parks and Recreation District received OPRD funding for improvements at the Rotary Skatepark in 2005, 2007, and 2008, and the City of Bingen received RCO funding in 1969 for Daubenspeck Park.

4.2. Trails

There are five shared use trails within the API as show in Exhibit 13. Two of these trails are located along the Columbia River and/or parallel the river to provide scenic views of the Columbia River Gorge; these trails are described in Section 4.2.1 and 4.2.2. Additional trails that are located within the API connect to these river-based trails, but are not located along the river, are listed in Section 4.2.3. All trails in the API are day-use only facilities.

4.2.1. Historic Columbia River Highway Route and State Trail

The Historic Columbia River Highway (HCRH) is located along the south side of the Columbia River between the cities of Troutdale and The Dalles, Oregon. The HCRH was left partially intact after I-84 was built, with the middle section cut into pieces or partially destroyed. Efforts are underway to create vehicle-free paths for cyclists and pedestrians, transforming the abandoned sections into the HCRH State Trail. Of the original 73 miles, 65 miles of the HCRH are now open to travel either by motor vehicle, bicycle, or foot. The current HCRH route consists of three types of travel segments: freeway (bicycles may travel on the shoulder, no pedestrian travel), historic highway or connecting county roads (bicycles can travel on the roadway, pedestrians can use the shoulder or sidewalk), and HCRH State Trail (foot or bicycle travel only; motor vehicles are prohibited). In the future, the freeway segments will be replaced by HCRH State Trail segments so that bicyclists and pedestrians will be able to travel the entire length of the HCRH.

The HCRH route runs through the API with the western extent currently running along I-84 (bicyclists on roadway shoulders, no pedestrian access). At I-84 Exit 62, the route follows US 30 (bicycles on roadway, pedestrians on sidewalk/shoulder) through the City of Hood River to the Senator Mark O. Hatfield West Trailhead where it continues for 4.5 miles as the HCRH State Trail through the Mosier Twin Tunnels to Mosier, east of the API. The trailhead provides parking (fee required), restrooms, picnic tables, and a visitor center.

The HCRH is owned and managed by the ODOT. OPRD manages the HCRH State Trail in partnership with ODOT.

The HCRH State Trail, existing and planned segments, qualifies as a Section 4(f) property because the trail is publicly owned, it is open to the public, its major purpose is park and recreation activities, and it

is significant as a park and recreation facility as demonstrated by its inclusion in Oregon State Parks maps and documents. The non-trail portion of the HCRH does not qualify as a Section 4(f) property because it functions primarily for transportation, rather than for recreation purposes. The HCRH State Trail has not received LWCF grants and, therefore, does not qualify for protection under Section 6(f).

4.2.2. 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 Waterfront Trail qualifies as a Section 4(f) property because the trail is publicly owned, it is open to the public, its major purpose is park and recreation activities, and it is significant as a park and recreation facility as demonstrated by its inclusion in the Hood River Valley Parks and Recreation District Master Plan (2012), the 2018 Port of Hood River Waterfront Report, and the Port's list of waterfront recreation sites.

This trail has not received LWCF grants; however, a segment of the trail is located within the LWCF Section 6(f) boundary of the Hood River Marina Park and Basin (see Section 4.1.18). Therefore, that segment of the trail is protected under Section 6(f). The Port received funding from OPRD in 2007, 2008, 2013, 2014, and 2015 for construction of various segments of Waterfront Trail.

4.2.3. Other Trails

Other shared use trails located entirely or partially within the API, but not along or paralleling the Columbia River, include the following:

- Westside Community Trail, owned by the City of Hood River
- 2nd Street Steps Right-of-Way Trail, owned by the City of Hood River
- Indian Creek Trail, owned by the Hood River Valley Parks and Recreation District

These publicly-owned trails are all eligible for protection under Section 4(f). None of these trails have received LWCF grants and, therefore, they do not qualify for protection under Section 6(f). The Hood River Valley Parks and Recreation District received OPRD funding for development of Indian Creek Trail in 2003.

4.3. Points of Interest

In addition to the park and recreation facilities and trails described above, there are additional points of interest along the Columbia River within the API that draw visitors to this area. None of these points of interest have received LWCF funding and, therefore, none are protected under Section 6(f).

4.3.1. Spring Creek National Fish Hatchery

The Spring Creek National Fish Hatchery is located about 2.6 miles west of the Hood River Bridge on the Washington side of the Columbia River. The site is accessible from SR 14 on Spring Creek Hatchery Road. The hatchery is funded by the USACE and administered by the U.S. Fish and Wildlife Service.

Established in 1901, the hatchery was one of several egg collection stations for the Bureau of Commercial Fisheries Clackamas Hatchery near Portland. As the pressure from heavy fishing and habitat destruction increased, the federal government established a fish hatchery at this site. The original hatchery was flooded in 1938 with the completion of the Bonneville Dam. The hatchery was redesigned and rebuilt by the USACE in 1972. Today more than 10 million Tule Fall Chinook salmon are raised annually at the hatchery.

Although the hatchery is publicly owned and publicly accessible, its main purpose is to restore salmon populations, not as a park and recreation facility. Therefore, this hatchery does not qualify as a Section 4(f) resource.

4.3.2. Gorge Heritage Museum

The Gorge Heritage Museum is located 1 block north of SR 14 approximately 1.5 miles east of the existing Hood River Bridge on the Washington side of the Columbia River. The museum may be accessed from Humboldt Street.

Housed in the former Bingen Congregational Church, dedicated in 1912, the West Klickitat County Historical Society established the Gorge Heritage Museum in 1984. Displays explore the heritage of Native Americans, explorers, trappers, pioneer settlers, fruit growers, ranchers, miners, and loggers. The museum is currently open by appointment only.

The museum is not publicly-owned and thus does not qualify as a Section 4(f) resource.

4.3.3. Columbia Gorge Hotel and Wah Gwin Gwin Falls

Sitting high on a cliff overlooking the Columbia River on the Oregon side and next to Wah Gwin Gwin Falls, the Columbia Gorge Hotel provides guests and visitors with views up and down the Columbia River Gorge. The Hotel is located off I-84 at Exit 42 approximately 2.5 miles west of the existing Hood River Bridge.

The site of the Columbia Gorge Hotel was originally developed in 1904 by Bobby Rand, a Hood River pioneer to serve streamers moving up and down the Columbia River. In 1920 the hotel was sold to Simon Benson who envisioned an extravagant hotel to serve travels on the recently completed Columbia Gorge Scenic Highway. The hotel is listed on the National Register of Historic Places.

Wah Gwin Gwin Falls is located on the grounds of the Columbia Gorge Hotel about 2.5 miles west of the existing Hood River Bridge. The falls are accessible from Westcliff Drive. Visitors can park at the hotel and walk around the building, through the gardens to the cliff top views of the river and the falls. This landmark is located on privately-owned property. Wah Gwin Gwin is a Chinook Indian term for “rushing waters.” Discharging at just over 200 feet above the Columbia River, this 15-foot wide horsetail falls is the northern end of Phelps Creek.

Although the site is privately owned, it is eligible for protection as an historic site under Section 4(f) because the hotel is listed on the National Register of Historic Places.

4.3.4. Cruise Ship Dock

The Cruise Ship Dock is located approximately 0.2 mile west of the Hood River Bridge within the Hood River Marina Basin on the Oregon side of the Columbia River. The dock is accessed via E. Port Marina Drive. The Port owns and operates the dock. The Cruise Ship Dock is located on the north side of the basin with a dock of approximately 113 feet in length and 13-foot draft. Approximately 74 cruise ships docked at this facility in 2018.

Although the Cruise Ship Dock is publicly owned and publicly accessible, its main purpose is to serve commercial cruise ships, not as a park and recreation facility. Therefore, this dock does not qualify as a Section 4(f) resource.

4.3.5. The History Museum of Hood River County

The History Museum of Hood River County is located about 0.4 mile southwest of the existing Hood River Bridge within the Hood River Marina Park and Basin on the Oregon side of the Columbia River. The museum may be accessed from E. Port Marina Drive. The museum is operated by the Heritage Council, a non-profit organization.

Museum exhibits range from pre-historic, Native American and pioneers, up through modern times. A section of the museum is dedicated to honoring the Columbia River Gorge's world famous windsurfing activity and documents the history of windsurfing.

The museum is not publicly-owned and thus does not qualify as a Section 4(f) resource.

5. ENVIRONMENTAL CONSEQUENCES

5.1. No Action Alternative

5.1.1. Direct Impacts

Increased traffic volumes over time under the No Action Alternative would result in a direct impact of minor, imperceptible increases to noise levels (0 decibels to 3 decibels) at parks and recreation facilities closest to I-84 and the bridge. 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. There would be no use or conversion of park and recreation land protected under Section 4(f) or Section 6(f).

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 the 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.

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.

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 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 park and recreation facilities are described in the sections below.

Bridge Park

If the proposed Bridge Park is developed prior to construction of the replacement bridge, all or a portion of the park could be closed during construction of the replacement bridge and removal of the existing bridge. An approximately 2.6-acre temporary construction easement would be needed on this property.

Waterfront Trail

The 0.1-mile portion of Waterfront Trail between the northeastern 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 14 illustrates a potential detour route that would use the 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 the owners have preliminarily agreed to the conceptual detour route described above.

Exhibit 14. Preferred Alternative EC-2 Potential Detour Route for Waterfront Trail During Construction

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 this park 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.

5.2.2. Direct Impacts

Direct impacts to parks 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.

There would be additional long-term direct impacts to several park and recreation facilities closest to the replacement bridge. These are described in more detail in the sections below.

Bridge Park

The replacement bridge would result in direct impacts to the proposed Bridge Park, which is located directly underneath the existing bridge and the alignment of the replacement bridge. Anticipated impacts and benefits to Bridge Park include:

- The concept plan for the park incorporate the existing bridge crossing over the park site, but under this alternative, the replacement bridge would be located approximately 123 feet further west, so it would cross over areas identified for beach access, picnic pads, and viewpoints with benches, and trails in the concept plans. Removal of the existing bridge would open a portion of the site for additional park features. The change in bridge alignment may result in a need to alter the concept plan designs for the park.
- The replacement bridge would be more than twice as wide (approximately 56 feet) as the existing bridge (24 feet), shading a greater section of the proposed park compared to the existing bridge.

- The shared use path on the replacement bridge would enhance pedestrian and bicycle connectivity to this park.
- Shifting the bridge alignment to the west under this alternative would result in the vehicle traffic on the bridge being closer to the proposed pedestrian/bicycle bridge that would connect the gateway entrance by the Mt. Adams Chamber of Commerce to the park. This could increase noise levels for park users crossing the pedestrian/bicycle bridge, although other portions of the park that would be farther from the bridge alignment would have reduced noise levels.

The impacts to the proposed Bridge Park are analyzed in greater detail in the Project's Section 4(f) Analysis.

Waterfront Trail

The replacement bridge would also result in additional 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. Anticipated impacts and benefits to Waterfront Trail include:

- 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. 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.

The impacts to Waterfront Trail are analyzed in greater detail in the Project's Section 4(f) Analysis and the Section 6(f) Technical Report.

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 also 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.

Impacts to the Hood River Marina Park and Basin, including potential impacts to property protected under Section 6(f), are analyzed in greater detail in the Project's Section 4(f) Analysis and Section 6(f) Technical Report.

5.2.3. Indirect Impacts

Indirect impacts to parks and recreation facilities may 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.

5.3. Alternative EC-1

5.3.1. Construction Impacts

Construction impacts of Alternative EC-1 on park and recreation facilities would be the same as those identified for Alternative EC-2 in Section 5.2.1, except for Bridge Park, which is described below.

Bridge Park

Unlike Alternative EC-2, if Bridge Park is developed prior to construction of the replacement bridge this park would not have to be closed during construction of the replacement bridge because the proposed alignment of Alternative EC-1 would not cross over the park, although the park may have to be closed when the existing bridge is removed. Access to Bridge Park may be temporarily closed or restricted during construction of the SR 14 roadway improvements near the Mt. Adams Chamber of Commerce driveway.

5.3.2. Direct Impacts

Direct impacts to 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. Specific impacts to Waterfront Trail and Hood River Marina Park and Basin would also be similar to impacts under Alternative EC-2. Additional impacts to Bridge Park would be different from Alternative EC-2 and are described in the section below.

Bridge Park

The additional long-term direct impacts to the proposed Bridge Park would be different under Alternative EC-1 than under Alternative EC-2 because the alignment of the replacement bridge would be located west of the park and would not cross over the park. Impacts to this proposed park are analyzed

in greater detail in the Project's Section 4(f) Analysis. Anticipated impacts and benefits to Bridge Park under Alternative EC-1 include:

- The replacement bridge would be located approximately 2,309 feet west of where the existing bridge crosses the site, so the replacement bridge would not cross over the park site. Removal of the existing bridge would remove a pier close to the shoreline, opening scenic views of the river. The change in bridge alignment and pier removal may result in a need or desire to alter the park's concept plan designs. The shift in bridge alignment further away from the park would reduce noise levels in the park.
- The shared use path on the replacement bridge would enhance pedestrian and bicycle connectivity to this park.
- Removal of parking spaces at the Mt. Adams Chamber of Commerce would reduce potential parking for the park.
- Rerouting travelers on S. Dock Grade Road through the parking area by the Mt. Adams Chamber of Commerce would increase vehicle traffic in the parking area, potentially reducing pedestrian safety for park users in the parking area.
- Shifting the bridge alignment to the west under this alternative would result in the vehicle traffic on the bridge being further away from the proposed pedestrian/bicycle bridge that would connect the gateway entrance by the Mt. Adams Chamber of Commerce to the park. This would reduce noise levels for park users crossing the pedestrian/bicycle bridge.

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.

5.4. Alternative EC-3

5.4.1. Construction Impacts

Construction impacts of Alternative EC-3 on park and recreation facilities would be the same as those identified for Alternative EC-2 in Section 5.2.1, except as described below.

Bridge Park

An approximately 1.5-acre temporary construction easement would be needed on this property.

Hood River Marina Park and Basin

Portions of this park closest to the alignment of the replacement bridge, including some parking spaces near the boat launch (but not spaces that serve the Port's administrative office and maintenance shop), could be temporarily closed during periods of construction to ensure safety.

5.4.2. Direct Impacts

Direct impacts to 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. Additional impacts to Bridge Park, Waterfront Trail, and Hood River Marina Park and Basin would be different from Alternative EC-2 and are described in the section below.

Bridge Park

The additional long-term direct impacts to the proposed Bridge Park would be slightly different under Alternative EC-3 than under Alternative EC-2. With Alternative EC-3, the northern end of the replacement bridge would be located east of the existing bridge but would still cross over the proposed park. Impacts to this proposed park are analyzed in greater detail in the Project's Section 4(f) Analysis. Anticipated impacts and benefits to Bridge Park under Alternative EC-3 include:

- The replacement bridge would be located approximately 140 feet east of where the existing bridge crosses the site, so the replacement bridge would cross over areas identified for picnic pads, a children's nature play area, and trails in the concept plans. The change in bridge alignment may result in a need to alter the concept plan designs to account for new placement of bridge piers and impacts to areas directly under the bridge such as noise and shade.
- The replacement bridge would be substantially wider (approximately 56 feet) than the existing bridge (24 feet), shading a greater section of the proposed park than would occur with the existing bridge.
- The shared use path on the replacement bridge would enhance pedestrian and bicycle connectivity to this park.
- Shifting the bridge alignment to the east under this alternative would result in the vehicle traffic on the bridge being further away from the proposed pedestrian/bicycle bridge that would connect the gateway entrance by the Mt. Adams Chamber of Commerce to the park. This would reduce noise levels for park users crossing the pedestrian/bicycle bridge.

Waterfront Trail

The additional long-term direct impacts to Waterfront Trail would be slightly different under Alternative EC-3. With Alternative EC-3, the southern end of the replacement bridge would tie in with Button Bridge Road east of the existing bridge, covering a different portion of Waterfront Trail. Anticipated impacts to Waterfront Trail include:

- The replacement bridge would cover a longer segment of the trail than the existing bridge does; under this alternative, 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 and under Alternative EC-2. Additional lighting would be incorporated into the Project design to offset increased safety and security concerns.

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 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

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.

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.

5.5. Summary of Impacts by Alternative

Exhibit 15 provides a comparison of anticipated impacts park and recreation facilities by alternative.

Exhibit 15. Summary of Impacts to Park and Recreation Facilities by Alternative

Impacts	No Action Alternative	Preferred Alternative EC-2	Alternative EC-1	Alternative EC-3
Construction Impacts	• N/A	• 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 • Potential temporary closures of Bridge Park and a 0.2-mile segment of Waterfront Trail • Detour required for Waterfront Trail • Temporary closures of parking areas within Hood River Marina Park and Basin		
		• 2.6-acre temporary construction easement on Bridge Park property • 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/or storage areas become non-functional or inaccessible during construction, these facilities would be relocated	• No additional impacts	• 1.5-acre temporary construction easement on Bridge Park property
Direct Impacts	• Minor increases in noise levels at park and recreation facilities closest to I-84 and bridge due to increased traffic volumes	• Change in scenic views of the Columbia River and surrounding landscape • Enhanced pedestrian and bicycle connectivity to park and recreation facilities		

Direct Impacts (cont.)		• Areas of Bridge Park planned for active uses under bridge alignment • Wider portion of Bridge Park covered by bridge • Vehicle traffic on bridge closer to Bridge Park pedestrian/bicycle bridge with increased noise levels • Reduced noise in park areas further from the bridge • 60-foot segment of Waterfront Trail covered by bridge, increasing safety and security concerns under the bridge • Potential permanent change of 0.6 acre of Hood River Marina Park and Basin site to transportation right-of-way • Reconstruction of E. Port Marina Drive connection to Button Bridge Road/E. Marina Way intersection • Removal of 3 parking spaces for Hood River Marina boat launch, 15 spaces for the Port administration office, and unstriped parking/storage for maintenance shop • Possible reconfiguration of boat launch parking to replace displaced parking spaces • If Port's administration office and/or maintenance shop and associated storage become non-functional or inaccessible after construction, relocation of these facilities would occur	• No bridge crossing over Bridge Park • Reduced parking for Bridge Park • Increased potential for vehicle/ pedestrian conflicts on rerouted S. Dock Grade Road • Reduced noise levels on Bridge Park pedestrian/ bicycle bridge and in park • 60-foot segment of Waterfront Trail covered by bridge, increasing safety and security concerns under the bridge • Potential permanent change of 0.6 acre of Hood River Marina Park and Basin site to transportation right-of-way • Reconstruction of E. Port Marina Drive connection to Button Bridge Road/E. Marina Way intersection • Removal of 3 parking spaces for Hood River Marina boat launch, 15 spaces for Port administration office, and unstriped parking/storage for maintenance shop • Possible reconfiguration of boat launch parking to replace displaced parking spaces	• Areas of Bridge Park planned for active uses under bridge alignment • Wider portion of Bridge Park covered by bridge • Reduced noise levels on Bridge Park pedestrian/ bicycle bridge and in portions of the park further from the bridge • 150-foot segment of Waterfront Trail covered by bridge, increasing safety and security concerns under the bridge • Potential permanent change of 0.2 acre of Hood River Marina Park and Basin site to transportation right-of-way • Reconstruction of E. Port Marina Drive connection to Button Bridge Road/E. Marina Way intersection

Impacts	No Action Alternative	Preferred Alternative EC-2	Alternative EC-1	Alternative EC-3
			• If Port's administration office and/or maintenance shop and associated storage become non-functional or inaccessible after construction, relocation of these facilities would occur	
Indirect Impacts	• 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	• Minor changes in visitation patterns, bicycle and vehicle parking demand, and maintenance needs at park and recreation facilities		

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 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 would be implemented by the bridge owner to avoid, minimize, or mitigate long-term impacts to 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-3: Coordination with the City of White Salmon would be conducted during the Project's design phase or when the design of Bridge Park advances (if prior to construction of the replacement bridge) to incorporate the proposed alignment and increased width of the replacement bridge in the conceptual plan for Bridge Park.
- Alternative EC-2: Design of the replacement bridge would be coordinated with design of the City of White Salmon's proposed Bridge Park to avoid or address any potential design conflicts between the proposed pedestrian bridge for the park and the stormwater facility for the bridge.
- Alternative EC-1: Additional parking for Bridge Park will be provided to replace parking spaces removed by the Project if additional parking locations are found to be available and feasible.
- Alternative EC-1: Traffic calming measures will be implemented along the rerouted portion of S. Dock Grade Road to enhance pedestrian safety in the parking area by the Mt. Adams Chamber of Commerce.
- 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 16.

Exhibit 16. List of Preparers

Name	Role	Education	Years of Experience
Jennifer Rabby	Park and Recreation 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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