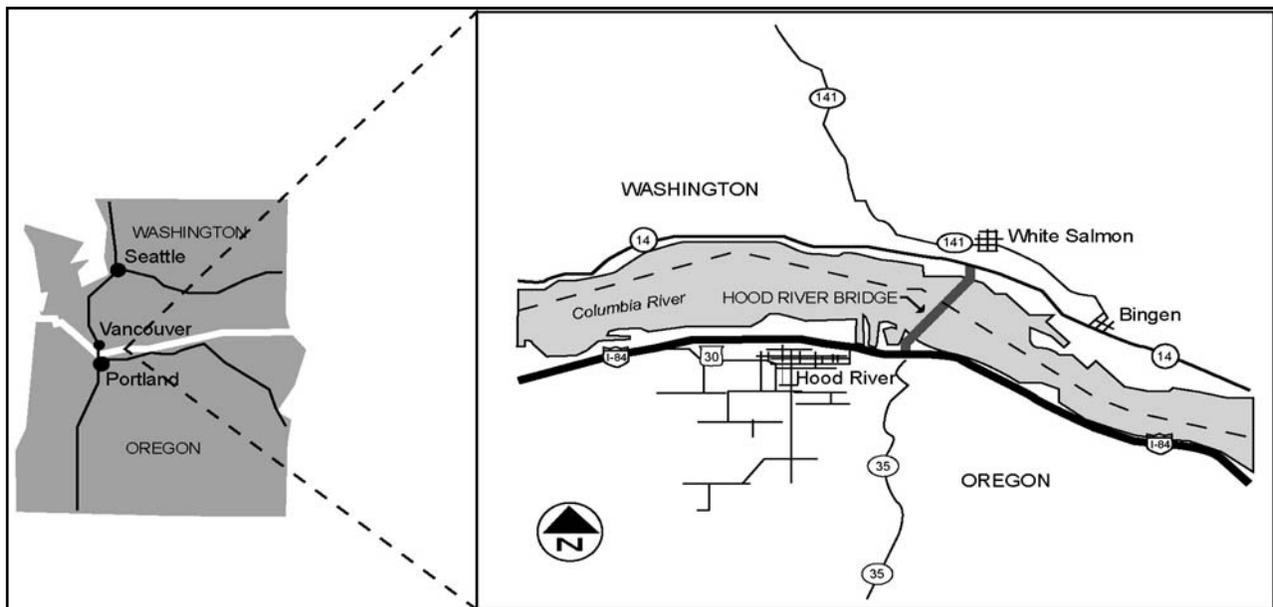

Summary

DEIS

SR-35 - Columbia River Crossing Project

Description of the Proposed Action

The proposed action is to build a new bridge that would cross the Columbia River between Hood River, Oregon, and White Salmon, Washington (Figure S-1). Three alternative alignments are under consideration in the Draft Environmental Impact Statement (DEIS). The existing Hood River Bridge would be removed.



Vicinity Map
Figure S-1

Lead agencies involved in planning for the new bridge are the Southwest Washington Regional Transportation Council (RTC), the Washington State Department of Transportation (WSDOT), and the Oregon Department of Transportation.

The Port of Hood River owns the existing Hood River Bridge. Ownership of the new bridge would likely be either single ownership by ODOT or WSDOT, or joint ownership by the two agencies.

RTC, WSDOT, and ODOT decided to prepare an Environmental Impact Statement (EIS) under the National Environmental Policy Act (NEPA) based on anticipated impacts to threatened and endangered fish species in the Columbia River; impacts to cultural resources, including the existing Hood River Bridge, which may be eligible for the National Register of Historic Places; issues related to navigation and commercial traffic on the river; and the desire to evaluate alternative crossing locations. Compliance with NEPA is required because of federal funding

for the study and for potential future design and construction funding participation through the Federal Highway Administration (FHWA). The FHWA is the lead NEPA agency for the EIS. A Bridge Permit from the U.S. Coast Guard will be needed and also requires NEPA compliance.

Background of Project

The existing Columbia River bridge crossing, which connects White Salmon and Bingen, Washington, and Hood River, Oregon (referred to locally as the Hood River Bridge), was built in 1924. A lift span was added to the bridge in 1938 to respond to higher water elevations in the pool behind Bonneville Dam. The bridge is a steel structure with a narrow roadway deck width of approximately 18 feet 9 inches and has no pedestrian or bicycle facilities. Pedestrians and bicycles are prohibited from using the bridge.

The Washington congressional delegation responded to local constituents' concerns about the functionality of the existing bridge and obtained federal funding for this high-priority project as part of the Transportation Equity Act for the 21st Century (TEA-21) federal transportation-financing bill. The Washington State legislature has recognized the potential for a new Columbia River crossing and has designated a State Route 35 (SR-35) corridor that connects from SR-14 to the Columbia River; however, the exact crossing location was not specified. The crossing location and facility type(s) were to be determined through alternative development and selection of a preferred alternative.

In 1999, a project-planning phase began and a public meeting was held. Major concerns regarding the existing bridge include hazards presented by the narrowness of the travel lanes and lack of bicycle and pedestrian facilities, long-term adequacy of the bridge structure, and impacts to the local economy, especially for commercial vehicles using the bridge. The project planning phase identified three "tiers" that would be undertaken in the SR-35 Columbia River Crossing Feasibility Study: Tier I, a "feasibility" study to determine if a new crossing was feasible; Tier II, which would identify a practical range of short-term and long-term alternatives; and Tier III, which would include preparation of an environmental document (DEIS) and recommendation of a preferred alternative.

The project area comprises the Columbia River and areas landward that connect White Salmon and Bingen, Washington to Hood River, Oregon. The northern end of the Hood River Bridge touches down on the southwestern edge of White Salmon. Bingen is located approximately one mile east of White Salmon. Both cities are in Klickitat County. Skamania County, Washington lies nearby to the west and is also included in the project area due to a range of alternatives considered. The major east/west highway on the Washington side of the Columbia River is SR-14, a National Highway System route, which traverses both Washington cities.

The southern end of the Hood River Bridge touches down in Hood River, Oregon (Hood River County). Interstate 84 (I-84) is the major

east/west highway on the Oregon side of the Columbia River; it connects Portland, Oregon to points east, such as Pendleton, Oregon and Boise, Idaho. Another major highway in the Hood River vicinity is Oregon Route 35 (OR-35), which connects to United States Highway 26 (US-26) (Mount Hood Highway) approximately 40 miles to the south.

Actions by Other Governmental Agencies in the Project Area

Improvements to SR-14 in Washington are currently underway by WSDOT within the project area between the Hood River Bridge and downtown Bingen.

The Bureau of Indian Affairs (BIA), in cooperation with the U.S. Army Corps of Engineers and tribes, plans to construct a new Columbia River treaty fishing access site approximately one-quarter mile east of the existing Hood River Bridge along the Washington shoreline.

The Columbia River Gorge Commission is in the process of updating the Management Plan for the Columbia River Gorge National Scenic Area (CRGNSA). (A map of the CRGNSA in the vicinity of the White Salmon/Bingen and Hood River Urban Areas can be found in Chapter 3.) Based on a meeting with project staff in August 2003, the Gorge Commission recognizes that guidance related to the bridge crossing is needed during the EIS review. In particular, the Commission instructed its staff to begin developing guidance in coordination with the project team for use in developing the FEIS and design of the project. Such guidance would include policies to clarify what scenic standards and designs are appropriate for a new bridge over the Columbia River.

The Port of Hood River plans to replace the existing grated bridge deck with a new grated deck. Some structural repairs are also included. This project is included in this EIS as a short-term improvement that is considered under the No Action Alternative and the Build Alternatives. A portion of the funding for the project is from the FHWA through ODOT, Region 1.

No other major actions have been identified that affect the project area or its immediate vicinity.

Purpose and Need

The purpose of the project is to improve multi-modal transportation of people and goods across the Columbia River between the Bingen/White Salmon, Washington and Hood River, Oregon communities. The overall need for the project is to rectify current and future transportation inadequacies and deficiencies associated with the existing Hood River Bridge. Specific needs addressed by the project are related to capacity, system linkage, transportation demand, social demands, economic development, modal interrelationships, safety, and existing bridge and bridge roadway deficiencies.

Summary of Alternatives Considered

The proposed action is intended to improve the movement of goods and people across the Columbia River between the Bingen/White Salmon, Washington and Hood River, Oregon communities. An extensive review of alternatives has been undertaken involving alternative corridor locations and alternative transportation facility types.

The study of alternatives leading to a recommended preferred alternative was organized into three sequential phases or tiers. Tier I involved identifying, evaluating, and narrowing a range of crossing corridors and facility alternatives. Tier II began with alternatives forwarded from the first tier alternatives screening. Two successive screenings occurred during the second tier resulting in a further narrowing of the alternative corridors and facility types, and the identification of three alternative alignments for review in the DEIS. Tier III has involved comprehensive evaluation of environmental consequences to recommend a preliminary preferred alternative in the DEIS. The alternatives screening process is documented in the Tier I and Tier II final reports (Southwest Washington Regional Transportation Council et al. 2001b, 2002a).

Screening of alternatives used criteria based on the project objectives contained in the Purpose and Need statement:

- Improve cross-river transportation of people and goods while accommodating standard-width river navigation
- Reduce impacts to the natural, built and aesthetic environment
- Reduce impacts to recreation
- Reduce impacts to cultural and historic resources
- Be financially acceptable and support local economic development
- Maintain integrity of the Interstate Highway System and National Highway System

The results of successive screenings were reviewed with committees representing federal and state agencies, local governments, interested groups, and citizens.

Summary of EIS Alternatives

The DEIS evaluates three build alternatives and the No Action Alternative.

No Action Alternative

The No Action Alternative assumes that the existing bridge would remain a lift-span bridge owned by the Port of Hood River. The Port of Hood River would be responsible for continued maintenance, capital

improvements, and operation of the bridge. Under this alternative, the bridge would not be seismically retrofitted. In addition, the bridge would continue to be structurally limited (weight restricted) and functionally limited in terms of height and width restrictions.

Based on the Port of Hood River's current maintenance and capital improvements program, this alternative assumes that the serviceable life of the existing bridge will be about 30 years, after which the bridge will be closed to cross-river vehicular traffic. In the interim, several short-term (within the next five years) improvements are planned or recommended. These improvements are considered to be part of the No Action Alternative.

The short-term improvements include:

- Replace the existing grated steel bridge deck with a new grated steel deck that is quieter
- Install roundabout or traffic signal at the I-84 eastbound ramps and OR-35/Hood River Bridge approach road
- Convert the tollbooth to one-way tolls southbound
- Establish a bridge replacement fund through increased tolls

Common Elements of All Build Alternatives

All of the build alternatives include the short-term improvements that would occur under the No Action Alternative within the next five years.

The build alternatives would also include the mid-term improvements that would be implemented over the next 6 to 10 years, if a long-term build alternative is not scheduled to be constructed for at least ten years. These improvements include:

- Signalize the I-84 westbound ramps at the Hood River Bridge approach road or convert to a roundabout
- Convert the four-way stop at Marina Way and Hood River Bridge approach road to a roundabout or traffic signal. Due to the proximity of this intersection with the I-84 westbound ramp intersection, these two intersections may be combined into a composite roundabout.
- Restrict or close the private driveway onto the Hood River Bridge approach road
- Replace the tollbooth and establish an automated toll collection system
- Signalize SR-14 at the Hood River Bridge approach road

All build alternatives tie into the existing bridge access road on the south end of the corridor at a point between the tollbooth and the four-way stop.

A bridge type has not been selected. Three bridge types that conceptually meet project criteria include (Figure 2-3):

- Girder segmental with 300-foot typical span, except over the navigational channel, which would be a minimum of 450 feet
- Girder segmental with 600-foot parabolic span over the navigation channel
- Girder segmental with 600-foot tied arch span over the navigation channel.

The roadway would consist of two 12-foot travel lanes, two 8-foot shoulders, and one 16-foot pedestrian/bike facility on one side (Figure S-2). Depending on future demand, the roadway could be expanded to two 12-foot travel lanes, one 16-foot center lane for reversible peak hour travel, two 8-foot shoulders, and one 10-foot pedestrian/bike sidewalk on one side of the bridge. This expansion would require widening the superstructure to 66 feet.

The following summarizes additional components of each alternative. The location of each alternative is shown in Figure S-3. The EC included in the designations for each of the alternatives refers to the Existing Corridor. Other corridors examined in the study are discussed in Chapter 2.

EC-1 West Connection to Dock Grade

Alternative EC-1 would be directly adjacent to the west side of the existing bridge until a point north of the shipping channel, where it would shift west to avoid the treaty fishing access site on the Washington side and match into the Dock Grade intersection. The SR-14 intersection at Dock Grade would be signalized and widened to accommodate turn lanes. The grade of SR-14 would be raised and Dock Grade would be realigned at the intersection. Dock Grade would be widened all the way up the hill to tie into SR-141. The length of the bridge on Alternative EC-1 is approximately 4,510 feet.

EC-2 West Alignment

Alternative EC-2 would be directly adjacent to the west side of the existing bridge. The alignment would be just east of the treaty fishing access site on the Washington side. The SR-14 intersection would be signalized and widened to accommodate turn lanes. The length of the bridge is approximately 4,600 feet. This alternative alignment has been identified as the preliminary preferred alternative.

EC-3 East Alignment

Alternative EC-3 would be directly adjacent to the east side of the existing bridge. The SR-14 intersection would be signalized and widened to accommodate turn lanes. The length of the bridge is approximately 4,630 feet.

Preferred Alternative

Alternative EC-2 has been identified as the preliminary preferred alternative. The preferred alternative description in this DEIS is the course of action that the lead agencies have preliminarily determined to be most desirable in terms of balancing functional efficiency and environmental, social, and economic effects. This selection of a preferred alternative is preliminary and subject to revision. The final evaluation and selection of a preferred alternative will be based on a project public hearing, comments on the DEIS, and any other pertinent information that may become available. Comments and information that would assist in such an evaluation are specifically invited.

Summary of Major Beneficial and Adverse Impacts

The following sections summarize the major beneficial and adverse impacts associated with the alternatives considered. Table S-1 at the end of this section summarizes the impacts and mitigation for each alternative. The following summaries provide supplemental discussion of the impacts and mitigation.

Land Use

Applicable Plans and Policies

The SR-35 Columbia River Crossing project was reviewed for consistency against the goals, policies and objectives of the Management Plan for the CRGNSA as well as comprehensive plans, master plans, transportation plans, and environmental documents of the City of Hood River and the City of White Salmon. The recently adopted Klickitat County Regional Transportation Plan recognizes that SR-35 will provide a future link across the Columbia River to Oregon in the Bingen/White Salmon area (Southwest Washington Regional Transportation Council 2003). The downtown plan for the City of Bingen was also reviewed. This review determined that the proposed project would be consistent with each plan, except the CRGNSA Management Plan. The CRGNSA Management Plan does not provide specific guidance concerning uses in the Columbia River; therefore, a consistency determination could not be made. Further coordination between the project team and the Columbia River Gorge Commission is needed to resolve this issue. A recent discussion by the project team with the Gorge Commission (August 2003) recognized the need for policy guidance during the FEIS process. The Commission directed staff to begin developing such policy.

Construction

Construction impacts from the No Action Alternative and three build alternatives would have temporary, localized impacts on land use, such as access restrictions, noise, and dust. These effects would be temporary and short term.

Operation

In Hood River, EC-1 and EC-2 would require partial acquisition of the Port of Hood River parcel just west of the existing bridge approach and would require closing an access to the land uses east of the bridge approach.

In White Salmon, EC-1 would require approximately one partial and one full parcel acquisitions. The full acquisition would be of the commercial nursery parcel, resulting in one business and one residential displacement at the nursery. The partial acquisition would be of the parcel with the park and ride access driveway on it, which would also require the relocation of the access driveway for the park and ride and treaty fishing access site, and improvements to Dock Grade.

For EC-2, in White Salmon, approximately one full parcel acquisitions would be required west of the existing bridge approach. This parcel is currently undeveloped. No businesses or residences would be displaced and no direct impacts to existing businesses would occur.

In Hood River, EC-3 may require one partial acquisition of the D.M. Stevenson Ranch parcel to the east of the existing approach and the closing of an access to land uses east of the bridge approach. No direct impacts to existing land uses are anticipated.

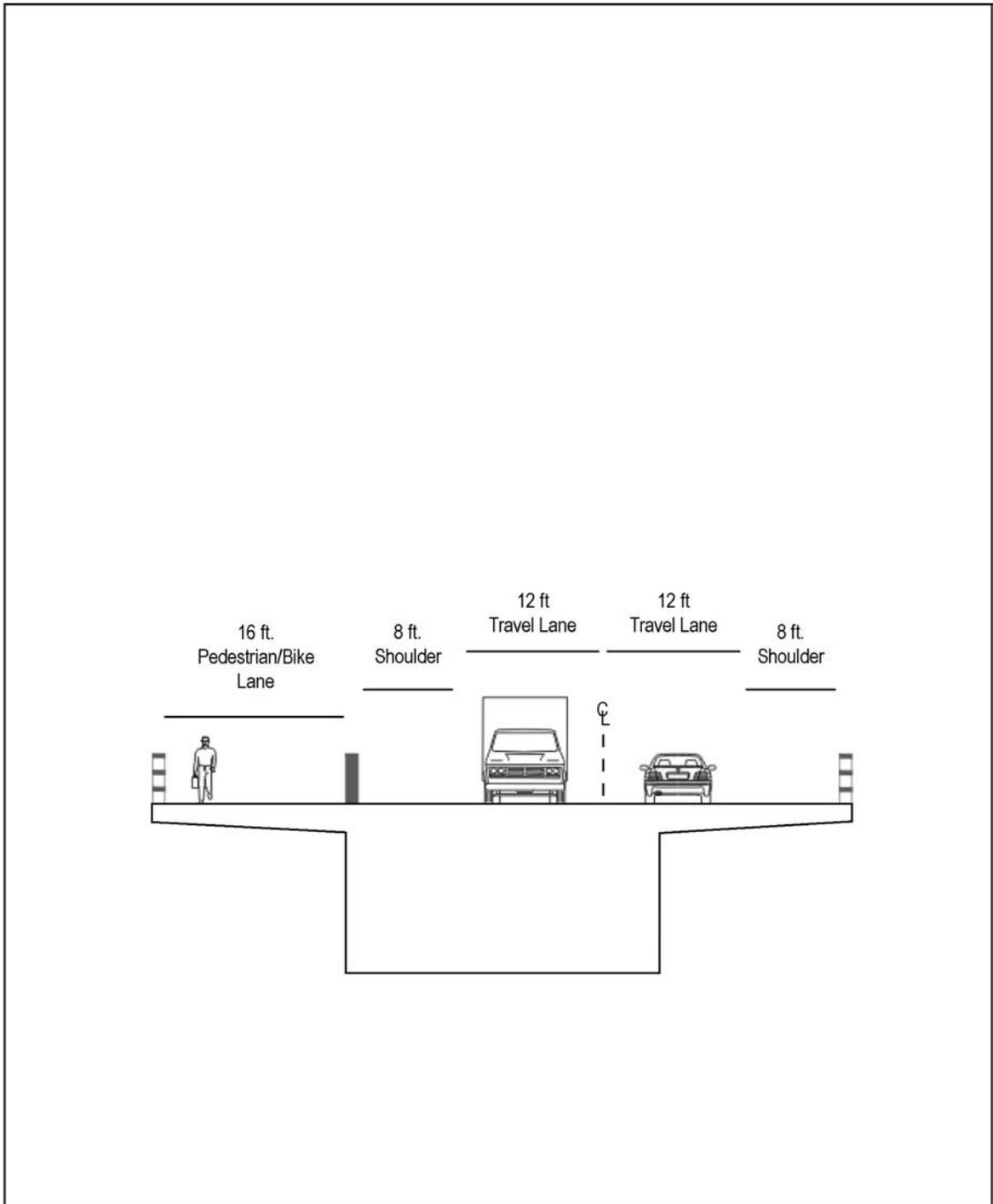
In White Salmon, EC-3 would require approximately one full parcel acquisitions east of the existing bridge approach. This parcel is currently undeveloped. No businesses or residences would be displaced and no direct impacts to existing businesses would occur.

(Figures showing private property parcels on the Oregon and Washington sides of the bridge crossing can be found in Chapter 4.)

Secondary impacts from the project on land use are uncertain. There is debate about the ability of transportation facilities to cause, or induce growth in their proximity. In some cases, research suggests that a connection between roads and higher development levels exists. However, whether this connection is a direct causal relationship has not been definitively established. While the proposed new bridge may have the potential to attract interest in development nearby because of increased efficiency of access to regional transportation facilities and interstate business opportunities, a number of factors influence growth, including city and county comprehensive plans, zoning ordinances, and the CRGNSA Management Plan. These plans and ordinances would be expected to determine the extent to which growth takes place in the area.

A review of projects identified for cumulative analysis found that the projects would acquire additional right of way with several business and residential displacements. Most of the new land use development identified is expected to occur on the Port of Hood River Industrial Park/Expo site, at Bingen Point, and in downtown Bingen.

Figure S-2 Proposed Bridge Cross Section

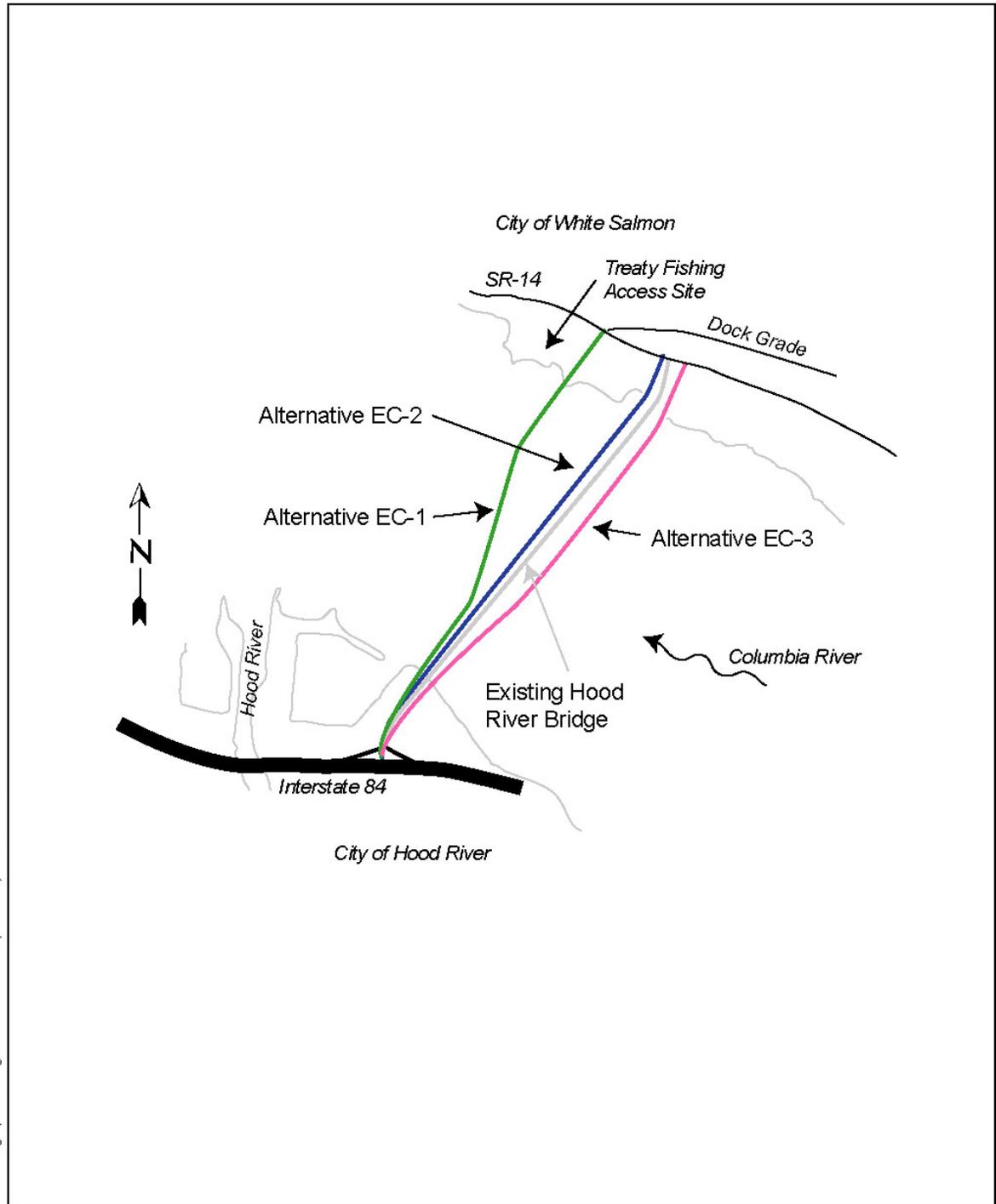


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Figure S-2
Proposed Bridge Cross Section

Fig S-2 (back)

Figure S-3 SR-35 Crossing Alternatives



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Figure S-3
SR-35 Crossing Alternatives

Figure S-3 (back)

Mitigation

The following mitigation would be implemented to reduce impacts to land use:

- Coordinate construction schedules with local businesses and other users, including providing temporary access during construction, if needed; providing notice of access and utility disruptions; restoring disturbed landscaping and amenities, such as the Waterside Trail under the existing Hood River Bridge; and implementing efforts to minimize construction noise, dust, and glare from lighting.
- Implement provisions required under the Uniform Relocation and Real Property Policies Act of 1970, as amended, for all business displacements and real property acquisitions. Compensate property owners at fair market value and provide relocation assistance in accordance the Act.

Transportation

Construction

Traffic

Under the No Action Alternative, temporary impacts to vehicular traffic would accompany short-term improvements, including construction of a roundabout at the eastbound I-84 on and off ramps and OR-35. Replacement of the steel grated bridge deck and tollbooth conversion would affect traffic across the existing bridge.

If roundabouts are constructed at the OR-35 and I-84 on-ramps, traffic may be affected by occasional road closures and local detours.

If a new tollbooth (short-term improvement) were installed stopping only southbound travelers, the queuing on I-84 would be eliminated. Southbound queuing would remain. Some temporary traffic delays may occur during the tollbooth reconfiguration.

The existing bridge would remain open during construction of the new bridge. Temporary disruption of traffic would occur during work at the south approach. Construction of the new bridge, including demolition of the existing bridge, would take between three and five years. Overall business activities that rely on cross-river travel or transport of goods would experience minor delays and detours during construction. If any full closures need to take place, they will likely occur at night or during non-peak traffic periods. The access road to the marina on the Oregon side would be closed for a contractor staging area.

Under EC-1 the driveway on SR-14 to the park and ride lot, nursery property, and tribal fishing access site would be relocated.

Marine

Through the construction zone, the narrowest part of the navigational channel would be longer, which barges would have to navigate.

Passage through the construction zone could present problems where the narrow passage would be as much as five times longer. Larger sailboats and racing boats, which may have masts between 65 feet and 100 feet and which currently require lifting of the bridge to traverse under the Hood River Bridge, would have to be accommodated during construction or banned from the area.

Rail

No construction impacts on rail operations during construction are anticipated. Construction equipment may need to cross the railroad tracks to construct piers. Trains passing through the construction zone could pose a risk to workers.

Operation

Traffic

Under the No Action Alternative, level of service operations at the I-84 ramps would continue to operate at a failing level. Significant backups on ramps would occur at the ramp intersections with OR-35 and at the tollbooth. With implementation of the short-term improvement of collecting tolls only from southbound traffic, the queue at the tollbooth would occur only in the southbound direction on the existing bridge.

All three build alternatives would provide a significant improvement in level-of-service bringing the intersection to level of service C.

The build alternatives would provide pedestrian and bicycle facilities for crossing the Columbia River, and would remove the load restriction and inconveniences for larger truck traffic caused by the existing narrow lanes.

Marine

For the No Action alternative, the bridge opening would remain at 246 feet, which is less than the authorized 300-foot navigation channel. Conflicts of river navigation with recreational uses, such as wind surfing and kite boarding, have increased and may continue to increase as these activities have become year round. Under the No Action Alternative, the navigational issues associated with the narrower bridge opening, wind, and current conditions, would interact with these other conflicts.

Marine transportation would be enhanced with any of the new build alternatives. Each design is proposed to provide for 450 feet of horizontal clearance. The 450 feet of horizontal clearance takes into account the wind and current conditions for barge operations at the navigational channel through the bridge. The 450-foot width was recommended after discussions with the Columbia River Towboat Association, U.S. Coast Guard, and other river users (PB Ports and Marine 2003). Vertical clearance would remain at 80 feet, as no additional clearance is required due to the trend for ship masts and stacks that can be dropped. The channel alignment should also allow

tugs and barges to be aligned with the westerly winds that now hit on the diagonal and cause control problems, especially for tows with empty barges.

Rail

In all three of the alignment alternatives, the proposed new bridge would be grade-separated from the railroad mainline on the Washington side. Therefore, no future impacts to the rail system as a result of the new river crossing are anticipated.

Mitigation

The following measures would mitigate traffic impacts during construction:

- Public notices would be disseminated and coordination of the construction schedule with special events would occur.
- Provide alternate access to the tribal fishing access site during construction would reduce impacts caused by construction of Alternative EC-1.
- Alert river users about changes in the channel during construction would help reduce navigational risks.
- Use appropriate warning signs, lights, and buoys to reduce navigational risks during construction. These would be coordinated with and approved by the US Coast Guard.
- Coordinate with BNSF through the Railroad Permit process to ensure that design and construction requirements are met.
- Provide two flaggers on-site to alert trains of work being done through the construction area.
- Alert construction workers of trains moving through the work zone would reduce risks of accidents.

Geology and Soils

Construction

Impacts to soils and geology from the No Action Alternative are expected to be low. Temporarily increased erosion and sedimentation would occur during implementation of short-term improvements, such as constructing the roundabout, but could be reduced to minimal impact through implementing appropriate erosion and sedimentation control measures. The risk to the existing and proposed structures from geologic hazards is currently low to moderate. The No Action Alternative should not substantially increase this risk.

On the south side of the Columbia River, Alternative EC-1 would require the bridge approach be re-aligned slightly to the west. The erosion hazard from stormwater runoff would be high.

The additional infrastructure would be subject to a moderate risk of earthquake damage. Volcanic activity on Mt. Hood could trigger mudslides (lahars) that could cause damage to the bridge structure. Bridge piers and infrastructure in the Columbia River would be subject to flood risks (low), earthquake risks (low to moderate), and sedimentation or damage from lahars moving down the Hood or White Salmon Rivers (low).

On the north side of the Columbia River, the bridge would cross roughly parallel to the west of the existing bridge and require modifications to the intersection of the new bridge, SR-14 and Dock Grade. The risk of erosion and sediment runoff in this area is expected to be low to moderate. Geologic hazards on the north side of the river would be related to slope failure (high risk) and some earthquake hazards (low to moderate). The addition of fill materials would slightly increase the earthquake hazard.

A smaller risk (low) from lahars generated by volcanic activity exists on the north side of the river than on the south side. Dock Grade would be realigned and pushed deeper into the steep talus slope. These slopes are unstable, and the risk of slope failure is high.

The alignment of Alternative EC-2 on the south side of the Columbia River would be the same as Alternative EC-1 therefore, the impacts described for it would be the same. Impacts to parts of the bridge located in the Columbia River would be the same as those described for Alternative EC-1. Construction impacts on the north side of the project would be less than Alternative EC-1 because no work is required on Dock Grade.

Impacts from Alternative EC-3 would generally be the same on the south side of the Columbia River as those described for Alternative EC-1. Impacts described for the parts of the bridge located in the Columbia River would be the same as those described for Alternative EC-1. On the north side, impacts would be similar to those described for EC-1 and EC-2, with slightly more land surface disturbed. Construction impacts on the north side of the project would be less than Alternative EC-1 because no work is required on Dock Grade.

Operation

With the exception of reduced vegetative cover in some areas from bridge shading that could lead to increased erosion, no impacts to soils and geology from operation of any of the alternatives have been identified.

No secondary impacts to soil and geology resources from the any of the alternatives have been identified. Cumulative impacts to soil and geology resources from any of the alternatives would be limited to a slight risk of minor erosion of exposed soils.

Mitigation

The following mitigation would be implemented to reduce impacts to geology and soils:

- Implement best management practices (BMPs) during construction would reduce erosion and sedimentation potential.
- Design structures in accordance with applicable standards would reduce risks from geologic hazards, such as earthquakes and volcanoes.

Waterways/Water Quality

Construction

The three alternatives would not differ appreciably in their water quality impacts. The only notable difference would be that EC-1 would have potentially greater erosion and sedimentation from the larger area of clearing and grading associated with widening Dock Grade.

The primary water quality impact anticipated from the replacement of the existing Hood River Bridge is localized and temporary turbidity increases during installation and demolition of bridge piers. Additional impacts could come from fuel emissions from barges and motorized vehicles in the water, erosion runoff during the widening of Dock Grade (limited to Alternative EC-1), and potential accidental spills of wet concrete or drilling slurry.

The measures to reduce water quality risks during construction discussed below are based on the use of best management practices (BMPs) for construction in and adjacent to water bodies. With their implementation, it is anticipated that state water quality standards promulgated under the Clean Water Act (CWA) can be met. Monitoring would be conducted to confirm adherence to applicable water quality standards. If problems were identified during construction, measures to improve the effectiveness of the BMPs would need to be undertaken.

Operation

The new bridge would benefit water quality, as compared to the existing bridge, because road runoff from the bridge deck would be collected and treated prior to discharge to the Columbia River. Currently, all oil, grease, metals, and sediments from vehicles may enter the river directly through the grated bridge decking.

The use of a closed drainage system on the bridge will allow for the collection and treatment of stormwater, as well as accidentally spilled fuels or other hazardous materials on the bridge over the life of the bridge. The design will be prepared in accordance with current standard designs for such facilities, which provide accepted performance levels expected to meet water quality standards of both Oregon and Washington. As proposed, the project will reduce contaminant loads to

the Columbia River and provide a long-term minor water quality improvement.

No secondary impacts to waterways or water quality were identified. Cumulative impacts to water resources would be associated with increased cumulative impervious area from development and the increased potential for erosion and sedimentation during construction.

Mitigation

The following mitigation would be implemented to reduce impacts to waterways and water quality:

- Prepare and implement Temporary Erosion and Sediment Control (TESC) and Spill Control Containment and Countermeasures (SPCC) plans to reduce the potential for water quality degradation in the Columbia River during construction.
- Design and build a stormwater runoff collection system and provide water quality treatment prior to stormwater discharges to the Columbia River.
- Isolate in-water work, to the extent feasible, from contact with flowing water.
- Collect all potentially contaminated water during construction and treat appropriately prior to discharge.

Social and Economic

Construction

Under the No Action Alternative, the only construction activities that would occur would be those associated with the short-term improvements.

All of the build alternatives would involve minor traffic disruptions, noise, vibration and dust impacts to nearby businesses and local traffic crossing the bridge or traveling near construction activities associated with short-term improvements, mid-term improvements and bridge replacement. If Alternatives EC-1 or EC-2 were to be selected for construction, the tribal fishing access site located west of the north bridge approach would potentially be disrupted in terms of minor access detours, noise, vibration and dust. Construction activities may utilize parcels adjacent to the treaty fishing access site for staging areas. This use of nearby parcels would cause more traffic on the shared access road that Native Americans use to access the fishing site. Access into the fishing site would remain open; however minor detours may occur, as construction activities would proceed. Native American users of the fishing site would experience noise, dust and vibration associated with construction activities. It is not anticipated that staging areas on the west side of the existing bridge would be used for construction of Alternative EC-3. Thus, the treaty access fishing site would not share access driveways with the construction staging area. Construction generated noise, dust and vibration would be buffered by traffic utilizing

the existing bridge, which would be located between the construction activities and the fishing site. The construction impacts associated with Alternative EC-3 would be expected to be generally less than those impacts that would occur with Alternatives EC-1 and EC-2.

Impacts to recreation activities and special events would adversely affect the overall enjoyment levels. In particular, recreation activities occurring in-water (e.g., windsurfing and kiteboarding) would need to avoid in-water construction activities. And, special events that occur near overland construction, such as at the Hood River Marina and Sailpark, would be directly adjacent to construction activities.

Economic impacts during construction would result in small tradeoffs. Business activities and related transportation would experience disruptions; however, an increased workforce would generate additional business and tax revenues.

Operation

Under the No Action Alternative, the Hood River Bridge would continue to be owned, maintained and operated by the Port of Hood River until the end of the bridge's serviceable life, assumed for EIS analysis to be approximately 30 years. At that time, the bridge would be closed to all vehicular traffic. This closure would have severe social and economic impacts on the interdependent, bi-state communities. In particular, Bingen, White Salmon and nearby rural areas would lose their direct connection to I-84. Residents and businesses-related traffic would need to travel 20 miles east or west before being able to cross the Columbia River at The Dalles or Cascade Locks. This severed direct connection could be detrimental to the long-term economic development of the Washington communities as well as an adverse effect to Hood River businesses and service providers that depend on the workforce and client base that Washington residents supply.

Few adverse impacts would occur as a result of the build alternatives. Population and economic growth would be expected to increase at modest but steady historic rates. Recreational opportunities would be expected to increase with a bridge crossing that has multi-modal facilities and would enable bi-state connections to trails and sidewalks.

Alternative EC-1 would result in approximately one full acquisition and one partial acquisition on the Washington side, and one partial acquisition on the Oregon side. The full acquisition would displace one business and one residence. Alternative EC-2 would result in approximately one partial acquisition on the Oregon side and approximately one full acquisition on the Washington side. Alternative EC-3 would result in approximately one full acquisition on the Washington side. Several driveway accesses would be closed or relocated. These include a driveway to the retail commercial area east of the south bridge approach and a driveway for the park and ride on the west side of the north bridge approach. Other access is available or would be provided so that all currently developed properties maintain access. The only exception would be the displaced business and residence under Alternative EC-1.

No particular secondary impacts have been identified to social and economic elements.

Social and economic elements are not expected to experience adverse cumulative effects from the proposed project and other projects within the area. Conversion of small amounts of property from private to public ownership would slightly reduce property tax revenues.

Mitigation

The following mitigation would be implemented to reduce impacts to social and economic elements:

- Employ measures, such as public notification of construction activities, access restrictions, and utility disruptions, to minimize construction activities impacts to traffic, business and recreation activities occurring in the vicinity.
- Coordinate the construction schedule with special events to help minimize impacts on important recreational activities or events that occur in the area.
- Reconstruct the Waterside Trail, if disturbed during construction, to restore pedestrian access to portions of the Hood River waterfront and integrate the trail with the pedestrian/bicycle features of the new bridge.
- Implement provisions of the Uniform Relocation and Real Property Policies Act for any business or property acquisitions.

Cultural Resources

Several cultural resource studies were undertaken to identify historic properties and archaeological sites that are known to exist in the project area (AINW 2000; AINW 2002; AINW 2003). The Hood River Bridge was identified as a cultural resource that should be investigated to determine if it is eligible for listing on the National Register of Historic Places (NRHP). For the purpose of this project and Draft EIS, it is assumed that the Hood River Bridge would be eligible for listing on the NRHP.

As part of the Final EIS, further studies would be conducted on the preferred alternative to determine whether any cultural resources, including the existing Hood River Bridge, in the project area are eligible for listing in the NRHP. The extent of these studies will comprise the Area of Potential Effect, which the Oregon SHPO, Washington OAH, and affected tribes would have any opportunity to review. If any resources were determined to be eligible, measures would be taken to avoid impacts to these resources. If resources cannot be avoided, then a finding of effect would be made and appropriate mitigation would be developed to resolve any adverse effects.

Construction

Removal of the existing bridge would likely be considered as an adverse effect; however, mitigation measures, including records and documentation of the structure, would be used to preserve a record of the historically important physical characteristics of the bridge.

Each of the three build alternatives potentially could affect known Native American and historical sites in the shoreline area, particularly on the Washington side of the crossing. These include archaeological sites, building sites, and village sites. These sites have been identified, but need further evaluation to determine their condition, extent, and eligibility for the NRHP.

Impacts to unknown cultural resources sites may occur during construction through excavation for bridge and retaining wall foundations. Pile driving or drilling could affect unknown cultural resources within the Columbia River/Bonneville Pool.

Operation

No operational impacts from the proposed project have been identified. Cumulative impacts to cultural resources could result from construction activities for the proposed project and at other sites in Columbia River shoreline areas. Site-specific evaluations for projects by others would be needed to determine the presence of cultural resources and their potential for impact. Projects with federal involvement with funding or permit approvals would be subject to Section 106 of the National Historic Preservation Act.

Mitigation

Implementation of the following mitigation measures would mitigate potential impacts to cultural resources:

- Provide documentation of the existing Hood River Bridge consistent with a Memorandum of Agreement (MOA) that would be developed among the Oregon SHPO and Washington OAHP, WSDOT, and ODOT. Documentation of the existing bridge would be completed prior to demolition. Documentation would be prepared in accordance with the standard of the Historic American Engineering Record (HAER).
- Prepare enameled interpretive panels that tell the story of the crossing, the existing bridge, and the replacement bridge. The panels could be placed on the waterfront at the Port of Hood River and in White Salmon. Some of the text and photos for the panels could come from the HAER documentation.
- Conduct subsurface investigations during final design at onshore pier locations and other disturbance areas for the preferred alternative.

- monitor excavations in shoreline areas, take action to protect resources, if any are found, and coordinate with appropriate agencies

Energy

Each of the build alternatives would improve the energy consumption of traffic using the Columbia River crossing. Differences in operational energy consumption for the build alternatives would range between 8 and 15 percent less than No Action as a result of the higher operating speed and various bridge lengths under the build alternatives. No mitigation is proposed.

Vegetation and Wetlands

Construction

Under the No Action Alternative, minimal impacts to vegetation and no impacts to wetlands would occur. Grading for the roundabout (short-term improvement) would clear previously disturbed vegetation or ornamental vegetation in the I-84 interchange area.

The build alternatives would result in permanent and temporary impacts to the vegetative community. Some vegetation would be permanently removed where bridge piers and abutments are built. An approximately 70-foot-wide work zone would be cleared temporarily to allow construction equipment to access the site. This area would be replanted with native species. The soil in this access area would be compacted, removing air pockets and water-holding spaces. Since plants grow poorly in compacted soil, these sites may take longer to revegetate if not tilled or loosened.

The new bridge deck would shade adjacent areas of vegetation for part of the day and collect rainwater that would otherwise infiltrate or be intercepted by the vegetation. Additional shade may reduce the growth of the plants or select for a more shade-tolerant population of plants in that area. Reduced rainfall may limit plant growth, potentially leaving areas of bare soil.

Alternative EC-1 would widen Dock Grade, from SR-14 to SR-141, to accommodate the higher volume of traffic directed to the area by the bridge. A portion of the Oregon white oak, Ponderosa pine, and Douglas-fir forest along the hillside would be removed to widen the road and build any associated retaining walls. If no retaining walls were built, a larger portion of the hill would have to be graded to ensure slope stability. Hillside seep wetlands would be impacted during grading. These seeps are not likely to be considered jurisdictional by the Corps of Engineers; however, they may be covered under state or local regulations.

Alternatives EC-2 and EC-3 would avoid the impacts associated with Dock Grade widening. No impacts to regulated wetlands are anticipated under EC-2 and EC-3.

No secondary impacts to vegetation or regulated wetlands are anticipated from any of the alternatives under consideration.

Several of the projects identified for cumulative impact analysis would affect Columbia River shoreline or hillside vegetation, including the SR-14 widening, SR-14 slope stabilization projects, and the new tribal fishing access site.

Mitigation

The following mitigation would be implemented to reduce impacts to vegetation and habitat:

- Minimize vegetation removal by setting clearing and grading limits using high visibility construction fencing.
- Minimize grubbing and soil disturbance where not necessary to place permanent foundations.
- Revegetate areas that are temporarily disturbed by construction activities using appropriate native species.
- Till or loosen soil compacted by construction equipment before replanting.
- Revegetate the existing bridge alignment following demolition.
- Use retaining walls along portions of the Dock Grade widening to reduce the amount of the hillside vegetation affected by the road cut from Alternative EC-1.

Fish and Wildlife

Construction

The upland Oregon side of the project is located in a developed area of Hood River and contains very little habitat for wildlife and no habitat for fish outside of the Columbia River. No substantial impacts to wildlife are anticipated.

The upland Washington side of the project would impact a commercial plant nursery (Alternative EC-1) or relatively undeveloped areas of riparian habitat (Alternatives EC-2 and EC-3). Wildlife disturbance and displacement during construction activities would be expected in the undeveloped area on the Washington side. Although sensitive terrestrial wildlife species are present in the project vicinity, no or minimal impacts from the project are expected to them or their habitats.

The Columbia River contains 10 species or runs of endangered and threatened salmonid fish. Temporary, localized increases in suspended sediment during the construction phase may result from in-water work associated with the new bridge and demolition of the existing bridge piers and foundations. Impacts to fish from over-water work and

construction landward of the Columbia River are also possible from accidental, uncontrolled spills of harmful materials or uncontrolled surface water runoff.

In-water work would take place during approved in-water work windows, when feasible, from November 15 to March 15 on the Oregon side according to the Oregon Department of Fish and Wildlife (ODFW), and from November 1 to February 28 on the Washington side of the Columbia River according to the Washington Department of Fish and Wildlife (WDFW). NOAA Fisheries has commented that using a more restrictive in-water work window from a combination of these – November 15 to February 28 – would be preferable to them.

Operation

Currently, fish are negatively affected by stormwater runoff and the direct entry into the Columbia River of contaminants from vehicular traffic using the existing Hood River Bridge. The proposed project would collect and treat stormwater, so an improvement in water quality would be expected to the benefit of fish and other aquatic species in the river.

The new bridge piers could create habitat for predatory fish that may consume migrating juvenile salmonids. Bridge pier design and the number of piers used would determine the amount of habitat created. The new bridge foundations or piers would have similar or less area as the current bridge, so no long-term substantial change in the amount of predatory fish habitat available would result.

The build alternatives may cause a slight, temporary reduction in aquatic productivity due to turbidity and shading from barges used during construction. This secondary impact would be avoided under the No Action Alternative.

Other projects considered in the cumulative impacts analysis would increase the potential for minor erosion and sedimentation impacts to fish and other aquatic resources in the Columbia River. Implementation of BMPs would reduce potential harmful impacts. These projects also would increase the amount of impervious surfaces in the project area, thereby increasing the potential for stormwater to deliver contaminants to the river.

Mitigation

The following mitigation would be implemented to reduce impacts to fish and wildlife:

- Design the bridge to span the shoreline and nearshore areas to minimize predator habitat at bridge piers, thereby reducing impacts to migrating salmonids. The shoreline and nearshore environments are critical to many migrating salmonids. The bridge would be high enough and the spans long enough (approximately 300 feet) so that spanning the shoreline and the nearshore environment could minimize impacts.

- Avoid riprapping or armoring the riverbanks to reduce impacts on migrating salmonids.
- Revegetate areas disturbed by construction to minimize erosion and sedimentation that could directly and indirectly affect listed and other fish in the adjacent river.
- Revegetate disturbed areas with appropriate native species to provide habitat for terrestrial species that could recolonize areas disturbed during construction.

Air Quality

Temporary emissions of pollutants, such as construction equipment exhaust and dust would occur during construction activities associated with any of the alternatives. Following guidance from the Washington Department of Ecology (Ecology) and the Oregon Department of Environmental Quality (DEQ) would reduce pollutant emissions.

The project area is in attainment for all criteria air pollutants. Operation of the project is not expected to cause any substantial effect on air quality.

No secondary impacts are anticipated. Cumulative effects of planned growth would increase traffic emissions in the region.

No mitigation is proposed.

Visual

A qualitative analysis of the potential impacts to visual resources from the four project alternatives was conducted. The visual quality of existing and proposed views was assessed by taking into consideration the vividness, intactness, unity, and setting of the different views from the key viewing areas of the CRGNSA as well as views from Hood River, White Salmon and the existing Hood River Bridge.

Construction

Most construction impacts are expected to be temporary, short in duration, and associated with the presence of construction equipment and workers, materials stockpiles, debris, signage, staging areas, construction barges, temporary work bridges, demolition activities, and lighting.

For the No Action Alternative, short-term improvements to the bridge would result in limited and temporary impacts associated with construction activities.

Operation

Under the No Action Alternative, short-term improvements are not expected to change existing views. If the bridge were left in place, after being closed in approximately 30 years, the opportunity of motorists for views from the bridge would be eliminated.

Under all build alternatives, demolishing the bridge after closing it would alter the views to and from the area of the bridge. The design of the new bridge, which would be different than the existing bridge would alter existing views.

Bridge impacts would be the greatest on visual resources from the inferior (lower) viewer position when the bridge is in the foreground.

Under Alternative EC-1, improvements to Dock Grade may result in additional visual impacts compared to the other build alternatives due to the extent of vegetation removal.

Alternatives EC-2 and EC-3 would not include improvements to Dock Grade, but would include removing mature trees and vegetation along the shoreline on the Washington side. This would alter existing views.

The alignment of EC-3 includes a slight bow. This design feature would increase the visual harmony of the bridge to the surrounding environment.

No specific secondary impacts to visual quality have been identified. A review of projects identified for cumulative analysis found that planned and proposed improvements would create new development that would increase the visual activity along the waterfront at the Port of Hood River Industrial Park/Event Site and at Bingen Point (Port of Klickitat). Other impacts to the visual resources of the area would be expected as a result of slope stabilization efforts along SR-14.

Mitigation

The following mitigation would be implemented to reduce impacts to visual resources:

- Maintain mature trees and vegetation to the extent possible around construction areas would reduce visual impacts during and after construction.
- Employ carefully considered design details to help maintain the integrity of the surrounding environment.
- Locate staging area in locations screened from active recreation areas to reduce construction visual impacts
- Limit work hours, to the extent possible, to daylight to reduce construction lighting impacts.
- Direct permanent lighting toward bridge deck to reduce glare and ambient spillover light impacts.
- Use colors and materials in the design of the bridge that are consistent with the character of the surrounding environmental to assist achieving visual harmony with the surround resources.

Noise

Construction

Under the No Action Alternative, nearby noise-sensitive receptors (including hotels, campgrounds, residences, and outdoor recreational areas) would experience temporary noise impacts during construction of the interim improvements and replacement of the steel grating.

Under all of the build alternatives, nearby receptors would experience temporary noise impacts during construction of the new bridge as well as the replacement of the steel grating and other interim improvements.

Operation

The primary source of existing noise in the project area is I-84, with additional contributions from OR-35, the hum from traffic crossing the steel grating deck of the existing Hood River Bridge, SR-14, aircraft, and trains. Under the No Action Alternative, noise levels are projected to increase by 1 to 4 A-weighted decibels (dBA) at most receptors in the study area as a result of increased traffic in the future.

Under the Alternatives EC-1, EC-2 and EC-3 noise levels are projected to increase by 1 to 4 dBA at most receptors in the study area, as a result of increased traffic in the future, increased capacity, and an increased design speed of 50 mph. However, the results of the noise analysis predicted that the proposed project would not cause noise levels that would exceed the FHWA noise abatement criteria at the nine measured receptors under the No Action Alternative or Alternatives, EC-1, EC-2, and EC-3.

The short-term improvement of replacing the current steel grating deck with a quieter steel grating deck would provide a short-term decrease in traffic noise levels and the noticeable tonality of the bridge deck. As traffic volumes increase, the benefit of the new grating steel deck would decrease.

No secondary impacts related to noise are anticipated.

Projects that improve transportation facilities (SR-14 widening, SR-14 slope stabilization, I-84 repaving, Historic Columbia River Highway repaving), in combination with any of the build alternatives, would cumulatively improve multi-modal transportation infrastructure throughout the area. These improvements could contribute to increased traffic. However, this increase would not be expected to be so great as to adversely affect noise quality within the study area.

Mitigation

The following mitigation would be implemented to reduce impacts related to noise:

- Use enclosures or walls to surround noisy equipment
- Install mufflers on engines

- Substitute quieter equipment or construction methods
- Minimize time of operation of noisy equipment
- Locate equipment farther from sensitive receptors
- Limit construction activities to between 7 a.m. and 10 p.m.

Hazardous Materials

Construction

Construction impacts that are related to hazardous materials include demolition of existing site structures and potential areas of groundwater, sediment, and soil contamination. Demolition of the existing bridge may encounter lead paint and asbestos in bridge equipment. Removal of building structures raises similar issues in addition to the presence of fuel tanks. Current and historic uses of properties that would be acquired suggest that the use, generation, storage, release, or disposal of hazardous materials and petroleum products has occurred.

Operation

Hazardous materials impacts to human health and the environment would not be expected for the project alternatives; however, additional environmental information is needed to determine the presence of environmental contaminants within certain areas of the project area.

Mitigation

The following mitigation would reduce impacts related to hazardous materials:

- Design and build a closed drainage system to mitigate potential spills of hazardous materials on the bridge. Collection and conveyance facilities on the bridge would capture spilled hazardous materials preventing them from entering the Columbia River and would facilitate clean up.
- Use appropriate best management practices (BMPs) to reduce the potential for inadvertent spills and paint overspray into the Columbia River, if painting occurs during construction or maintenance.
- Prepare an emergency response plan for use in the event of a reported release of hazardous materials during operation. Assessment and cleanup of a spill would be conducted in accordance with an appropriate emergency response plan.

Areas of Concern or Controversy

No areas of public or agency concern or controversy have been identified.

Major Unresolved Issues

The project team recommends that the bridge be formally recorded on a Section 106 Documentation Form and that the form be submitted on behalf of the Federal Highway Administration (FHWA), acting as the lead federal agency, to the Oregon SHPO as lead state agency with a copy to the Washington OAHP. A request for concurrence in a determination of eligibility should be requested of the Oregon SHPO and the Washington OAHP. If the bridge is determined to be eligible, a Finding of Effect will be submitted for concurrence. If an adverse effect determination is concluded, mitigation measures including historical documentation will be developed on behalf of the FHWA in consultation with the Oregon SHPO and Washington OAHP. A Section 4(f) evaluation is required if removal of the bridge is determined to be an adverse effect. The DEIS has assumed that the Hood River Bridge is eligible for listing on the National Register and has assumed that removal of the bridge would be considered an adverse effect. A preliminary Section 4(f) evaluation is included in the DEIS as Chapter 6. Consultation under Section 106 and preparation of the final Section 4(f) evaluation will be concluded prior to the issuance of the Final Environmental Impact Statement (FEIS). If the Hood River Bridge were determined to not be eligible for the National Register, a Finding of Effect and Section 4(f) would not be needed. This result would be documented in the FEIS.

A biological assessment (BA), including effects on species listed under the Endangered Species Act (ESA) will be prepared for consultation with the National Oceanic and Atmospheric Administration (NOAA) Fisheries and United State Fish and Wildlife Service (USFWS) after a preferred alternative has been recommended and reviewed by the public and appropriate agencies. Results of the Section 7 consultation with NOAA Fisheries and USFWS will be included in the FEIS.

The BA will also evaluate effects on essential fish habitat (EFH), as required under the Magnuson-Stevens Act (MSA). EFH includes the waters and substrate of the Columbia River that is necessary for spawning, breeding, feeding, and growth to maturity of species covered under the MSA. For the project area, these include Chinook and Coho salmon. The results of the EFH consultation with NOAA Fisheries will also be included in the FEIS.

The U.S. Congress passed the Columbia River Gorge National Scenic Area Act in 1986. This Act established a national scenic area to protect and provide for the enhancement of the scenic, cultural, recreational, and natural resources of the Columbia River Gorge and to protect and support the economy of the Columbia River Gorge area by encouraging growth in existing urban areas. The primary purpose of the Management Plan for the CRGNSA is to ensure the land in the Scenic Area is used consistently with the purposes and standards of the Scenic Area Act. The existing Management Plan for the CRGNSA does not address replacement of an existing bridge with a new bridge. Provisions in the Management Plan were not developed with the intent of being applied to a new bridge over the Columbia River. Since the current

Management Plan provisions do not adequately and clearly address uses in the Columbia River, a determination of whether the project would be consistent or inconsistent with the CRGNSA Management Plan cannot be determined at this time. Without specific guidance, further discussions and coordination between the project team and the Columbia River Gorge Commission are needed to clarify what scenic standards and designs are appropriate for a new bridge over the Columbia River. The Gorge Commission realizes that policy should be developed that provides guidance for the development of the bridge crossing.

List of Actions Required for the Proposed Action

Several approvals and permits would be required prior to construction of the proposed action. These include:

- Endangered Species Act (ESA), Section 7 consultations with NOAA Fisheries and the U.S. Fish and Wildlife Service
- National Historic Preservation Act, Section 106 concurrence with eligibility of the existing Hood River Bridge for the National Register, concurrence with adverse effect determination, and agreement of mitigation
- Columbia Gorge Commission determination of consistency with the CRGNSA Management Plan
- Section 9 Bridge Permit – U.S. Coast Guard
- Section 404 Permit – U.S. Army Corps of Engineers
- Section 401 Water Quality Certification – Washington Department of Ecology, Oregon Department of Environmental Quality
- National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit – Washington Department of Ecology, Oregon Department of Environmental Quality
- Coastal Zone Management Act (CZMA) Certification – Washington Department of Ecology,
- Hydraulic Project Approval – Washington Department of Fish and Wildlife
- Fill and Removal Permit – Oregon Division of State Lands (DSL)
- Aquatic Use Authorization – Washington Department of Natural Resources
- Waterway Lease – Oregon DSL

- Shoreline Substantial Development Permit – City of White Salmon

Consultation with Native American Tribes

The FHWA initiated tribal consultation consistent with section 106 of the National Historic Preservation Act and with Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments) in December 2000. Consultation letters were sent to Native American tribes, including the Warm Springs, Yakama Nation, Umatilla, and Nez Perce tribes, requesting information about cultural issues that could be affected by the project. In addition, meetings were held with Yakama Nation representatives to explain the project and request information that might be helpful in addressing project impacts on cultural sites and the Native American treaty access fishing sites (also referred to as in lieu fishing sites) in the project area. Tribal coordination will continue throughout the project, which will include addressing any cultural, social, treaty, and land use impacts.

A representative from the Bureau of Indian Affairs (BIA) attended two or more of the coordination meetings with the Resource and Regulatory Committee.

List of Environmental Commitments

Mitigation measures for impacts associated with the build alternatives are discussed in Chapter 4 of the EIS and summarized in the environmental matrix (Table S-1). The specific mitigation commitments will be incorporated into the design of the project and construction documents. Some of these will reflect permit stipulations. No specific mitigation commitments to agencies or the public have been made at this time.

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**Table S-1
Summary of Environmental Consequences and Mitigation**

Alternative	Construction Impacts and Benefits	Operational Impacts and Benefits	Mitigation for Adverse Impacts
Land Use			
No Action	<p>Impacts Temporary access restrictions, noise, dust, and traffic disruptions from short-term improvements</p> <p>Benefits No benefits would be expected.</p>	No impacts or benefits would be expected.	Coordinate with users about construction schedule. Provide temporary access.
Build Alternatives	<p>Impacts Temporary, short-term impacts, such as access restrictions, noise, and dust.</p> <p>Benefits No benefits would be expected.</p>	<p>Impacts In Hood River, EC-1 and EC-2 require a partial acquisition of the Port of Hood River parcel to the west. EC-3 may require one partial acquisition of the D.M. Stevenson Ranch parcel to the east of the existing approach. All build alternatives require closing an access to the land uses east of the bridge approach.</p> <p>In White Salmon, EC-1 would require approximately one full and one partial parcel acquisitions. The full acquisition would be of the commercial nursery parcel, resulting in one business and one residential displacement. The partial acquisition would be of the parcel with the park and ride access driveway on it, which would also require relocating a driveway to the park and ride and tribal fishing access site and improvements to Dock Grade.</p> <p>In White Salmon, EC-2 and EC-3 would require approximately one full parcel</p>	<p>Provide public and property and business owners with notice of potential access or utility disruptions.</p> <p>To the extent possible, preserve mature trees and existing vegetation to screen staging and construction activities.</p> <p>Limit construction hours to daylight, when feasible, to reduce disturbance of adjacent land use.</p> <p>Restore disturbed landscaping and amenities such as the Waterside Trail.</p> <p>Restore parking lot and access near the Port of Hood River Marina boat ramp and docks.</p> <p>Implement provisions as required under the Uniform Relocation and Real Property Policies Act of 1970, as amended, for all business displacements and real property acquisitions. All property owners would be compensated at fair market value.</p>

**Table S-1 (Continued)
Summary of Environmental Consequences and Mitigation**

Alternative	Construction Impacts and Benefits	Operational Impacts and Benefits	Mitigation for Adverse Impacts
		acquisition of undeveloped land. No business or residential displacements or direct impacts to businesses. Benefits No benefits would be expected.	
Transportation			
No Action	Impacts Occasional road closures and local detours from short-term improvements (roundabout, deck replacement). Benefits No benefits would be expected.	Impacts Occasional traffic disruption related to maintenance of the existing bridge. Failing level of service (LOS F) at intersections between the tollbooth and I-84 ramps. Backups on I-84 ramps. Bridge opening would remain at 246 feet, which is less than the authorized 300-foot navigation channel. Benefits No benefits would be expected.	Provide notice to public and adjacent businesses. Provide temporary access, if needed.
Build Alternatives	Impacts Occasional road closures and local detours from short-term and mid-term improvements, and bridge replacement. Passage of boats and barges through the construction zone could present problems for marine traffic where the narrow passage would be as much as five times longer. Benefits No benefits would be expected.	Impacts No adverse impacts would be expected. Benefits Substantial improvement in level-of-service bringing the intersection to LOS C. Pedestrian and bicycle facilities would be provided. Load restriction for heavy trucks on the bridge would be eliminated. Marine transportation would be enhanced with any of the new build alternatives.	Prepare traffic management plan for construction. Provide appropriate notification and signage for construction. Provide appropriate marine navigation notifications and lighting. Provide flaggers and notifications for construction workers working near BNSF tracks.

**Table S-1 (Continued)
Summary of Environmental Consequences and Mitigation**

Alternative	Construction Impacts and Benefits	Operational Impacts and Benefits	Mitigation for Adverse Impacts
Geology and Soils			
<p>No Action</p>	<p>Impacts Impacts to soils and geology would be low. Stormwater runoff erosion and sedimentation potential.</p> <p>Benefits No benefits would be expected.</p>	<p>Geologic risk hazard to existing and proposed structures currently low to moderate. The No Action Alternative is not expected to increase this risk.</p>	<p>Implement Best Management Practices (BMPs) during construction to reduce erosion and sedimentation potential.</p>
<p>Build Alternatives</p>	<p>Impacts On the south side, EC-1 and EC-2 require approach realignment slightly to the west. Erosion hazard from stormwater runoff high, but temporary and of short duration. On the north side of the Columbia River, EC-1 requires modifications to SR-14 intersection. Dock Grade realigned and pushed deeper into the steep talus slope. These slopes are unstable, and the risk of slope failure is high. For all build alternatives, risk of erosion and sedimentation accompanies ground disturbance. All of the build alternatives subject to the types of geologic hazards discussed under operational impacts. During construction the risks of damage to partially completed infrastructure would be greater than when the bridge and other infrastructure is completed.</p> <p>Benefits No benefits would be expected.</p>	<p>Impacts With the exception of reduced vegetative cover in some areas from bridge shading that could lead to increased erosion, no impacts to soils and geology. Bridge piers and infrastructure in the Columbia River subject to flood risks (low), earthquake risks (low to moderate) and sedimentation or damage from lahars moving down the Hood or White Salmon Rivers (low). Geologic hazards on the river's north side related to slope failure (EC-1) (high risk) and some earthquake hazards (low to moderate). Addition of fill materials slightly increases the earthquake hazard. A smaller risk (low) from lahars generated by volcanic activity exists on the river's north side than on the south side. Cumulative impacts to soil and geology resources from any of the alternatives would be limited to a slight risk of minor erosion of exposed soils.</p>	<p>BMPs during construction to reduce erosion and sedimentation potential. Design structures in accordance with applicable standards to reduce risks from geologic hazards.</p>

**Table S-1 (Continued)
Summary of Environmental Consequences and Mitigation**

Alternative	Construction Impacts and Benefits	Operational Impacts and Benefits	Mitigation for Adverse Impacts
		<p>Benefits No benefits would be expected.</p>	
Waterways/Water Quality			
No Action	<p>Impacts Minor increased risk of erosion and sedimentation from construction of the short-term improvements, particularly the roundabouts.</p> <p>Benefits No benefits would be expected.</p>	<p>Impacts Stormwater containing a variety of contaminants generated by vehicles would continue to enter the Columbia unabated through the existing bridge's open grate deck.</p> <p>Benefits No benefits would be expected.</p>	Prepare and implement a Temporary Erosion and Sediment Control Plan (TESC) and a Spill Containment and Countermeasures Plan (SCCP) plan to reduce potential water quality impacts.
Build Alternatives	<p>Impacts For build alternatives, localized, temporary turbidity increases during installation and demolition of bridge piers. Erosion and sedimentation potential from ground disturbances. Additional risk from fuel emissions (barges and motorized vehicles) in the water, erosion runoff during Dock Grade widening (limited to EC-1), and potential accidental spills of wet concrete or drilling slurry.</p> <p>Benefits No benefits would be expected.</p>	<p>Impacts Increased snow removal efforts would likely be needed. Increased amounts of de-icing materials would be used on the bridge to manage the increased potential for ice on the bridge deck.</p> <p>Benefits Water quality would improve with all build alternatives as compared to the existing bridge. This is due to stormwater runoff from the bridge deck would be collected and treated prior to discharge.</p>	<p>Prepare and implement an appropriate TESC and SCCP to reduce potential water quality impacts during construction.</p> <p>Provide periodic sweeping of the bridge deck to remove accumulated sand and de-icers used to manage icy conditions on the bridge deck.</p>
Social and Economic			
No Action	<p>Impacts Minor traffic disruptions, noise, vibration, and dust during construction of short-term improvements.</p>	<p>Impacts The Hood River Bridge would continue to be owned, maintained and operated by the Port of Hood River. Assumed to be closed in approximately 30 years.</p>	For construction associated with short-term improvements, mitigation measures would be like those suggested for the build alternatives.

**Table S-1 (Continued)
Summary of Environmental Consequences and Mitigation**

Alternative	Construction Impacts and Benefits	Operational Impacts and Benefits	Mitigation for Adverse Impacts
	<p>Benefits No benefits would be expected.</p>	<p>Closure would have severe social and economic impacts on the interdependent, bi-state communities.</p> <p>Benefits No benefits would be expected.</p>	
Build Alternatives	<p>Impacts Build alternatives would involve traffic disruptions, noise, vibration and dust impacts to nearby businesses and local traffic (vehicular, pedestrian and bicycle) crossing the bridge or traveling near construction activities.</p> <p>Under EC-1 or EC-2, the tribal fishing access site west of the north bridge approach potentially disrupted by minor access detours, noise, vibration and dust. Impacts less with Alternative EC-3.</p> <p>Disturbance to adjacent water recreation and events would reduce overall enjoyment temporarily.</p> <p>Business activities and related transportation would experience disruptions.</p> <p>Benefits An increased workforce due to the influx of construction workers would generate additional business and revenues for some businesses</p>	<p>Impacts Alternative EC-1 would result in approximately one full acquisition and one partial acquisition on the Washington side, and one partial acquisition on the Oregon side. The full acquisition would displace one business and one residence. Alternative EC-2 would result in approximately one partial acquisition on the Oregon side and approximately one full acquisition on the Washington side. Alternative EC-3 would result in approximately one full acquisition on the Washington side.</p> <p>Several driveway accesses would be closed or relocated, including a driveway to the retail commercial area east of the south bridge approach and a driveway for the park and ride west of the north bridge approach.</p> <p>Benefits Population and economic growth would increase at modest, but steady historic rates.</p> <p>Multi-modal facilities would increase recreational opportunities enabling bi-state connections to trails and sidewalks.</p>	<p>Measures are recommended to minimize construction activities impacts to traffic, business and recreation activities occurring in the vicinity. Primarily public notices would be disseminated and coordination of the construction schedule with special events would occur. Other mitigation includes implementing the provisions of the Uniform Relocation and Real Property Policies Act for any business or property that must be acquired.</p>

**Table S-1 (Continued)
Summary of Environmental Consequences and Mitigation**

Alternative	Construction Impacts and Benefits	Operational Impacts and Benefits	Mitigation for Adverse Impacts
Cultural Resources			
No Action	No impacts or benefits would be expected.	<p>Impacts The serviceable lifespan of the existing bridge, which is likely eligible for the National Register, is approximately 30 years at which time it would probably be demolished.</p> <p>Benefits No benefits would be expected.</p>	None proposed.
Build Alternatives	<p>Impacts The existing bridge is assumed to be eligible for listing on the National Register of Historic Properties; thus, removal of this bridge would likely be an adverse effect..</p> <p>Each build alternative potentially could affect known Native American or historical sites in the shoreline area. These include archaeological, building, and village sites.</p> <p>Impacts to previously unknown cultural sites may occur during construction from excavation for bridge and retaining wall foundations and other ground disturbance.</p> <p>Benefits The discovery and evaluation of cultural resources would be documented. Records of these discovered resources would be archived at the Oregon SHPO and Washington OAHF.</p>	No impacts or benefits to cultural resources would be expected.	<p>Provide appropriate documentation of existing Hood River Bridge consistent with a Memorandum of Agreement that would be developed among the Oregon SHPO and Washington OAHF, WSDOT, and ODOT.</p> <p>Conduct subsurface investigations during final design at onshore pier locations and other disturbance areas for the preferred alternative.</p> <p>Monitor excavations in shoreline areas, take action to protect resources, if any are found, and coordinate with appropriate agencies.</p>

**Table S-1 (Continued)
Summary of Environmental Consequences and Mitigation**

Alternative	Construction Impacts and Benefits	Operational Impacts and Benefits	Mitigation for Adverse Impacts
Energy			
No Action	<p>Impacts Very minor consumption of energy associated construction of the short-term improvements.</p> <p>Benefits No benefits would be expected.</p>	No impacts or benefits would be expected.	None proposed.
Build Alternatives	<p>Impacts All build alternatives would result in a very minor consumption of energy with very little difference among them.</p> <p>Benefits No benefits would be expected.</p>	<p>Impacts No adverse impacts would be expected.</p> <p>Benefits All build alternatives would have some degree of increased fuel efficiency as a result of higher vehicle operating speeds compared to the No Action Alternative.</p>	None proposed.
Vegetation and Wetlands			
No Action	<p>Impacts No substantial impacts from the short-term improvements.</p> <p>Benefits No benefits would be expected.</p>	No impacts or benefits would be expected.	None proposed.
Build Alternatives	<p>Impacts Build alternatives have temporary and permanent impacts. Permanent impacts for EC-1 (about 4.2 acres) would be substantially greater than for EC-2 (about 0.9 acre) and EC-3 (about 1 acre)</p>	No impacts or benefits would be expected.	Limit construction work areas to the minimum required to accomplish the work. Fence clearing and grubbing limits. Revegetate temporarily disturbed areas with appropriate species, including native species, to stabilize soil and

**Table S-1 (Continued)
Summary of Environmental Consequences and Mitigation**

Alternative	Construction Impacts and Benefits	Operational Impacts and Benefits	Mitigation for Adverse Impacts
	<p>because of the Dock Grade widening. Temporary impacts slightly greater for EC-3 (0.5 acre) and similar for EC-1 (0.4 acre) and EC-2.</p> <p>EC-1 would affect hillside seeps along Dock Grade. No regulated wetlands would be affected by EC-1 and EC-2.</p> <p>Benefits No benefits would be expected.</p>		<p>provide habitat benefits.</p> <p>Develop and implement a restoration plan for the existing bridge approach.</p> <p>Use retaining walls along the Dock Grade widening (EC-1) to reduce impacts on the white oak community.</p>
Fish and Wildlife			
No Action	<p>Impacts</p> <p>Minimal impact on fish and wildlife species and habitat from short-term improvements.</p> <p>Some risk of spills of hazardous materials during construction of short-term improvements.</p> <p>Benefits No benefits would be expected.</p>	<p>Impacts</p> <p>Risk of spills of hazardous materials is greater with the No Action Alternative than under the build alternatives because of grated bridge deck. Contaminants could have direct or indirect impacts on fish and other aquatic life in the river.</p> <p>Existing bridge piers continue to provide habitat for predator fish, such as the northern pikeminnow, which preys on young salmonids.</p> <p>Benefits No benefits would be expected.</p>	<p>Implementing standard BMPs during construction would reduce potential stormwater runoff and associated risks of erosion and sedimentation.</p>
Build Alternatives	<p>Impacts</p> <p>Impacts to fish, including listed and sensitive species, may result from in-water work.</p> <p>Some terrestrial wildlife temporarily eliminated from construction areas for</p>	<p>Impacts</p> <p>New piers would create habitat for salmonids predators, such as the northern pikeminnow. This would be offset by removal of the existing bridge piers.</p>	<p>Perform in-water work during approved in-water work windows, when feasible, from November 15 to March 15 on the Oregon side, and from November 1 to February 28 on the Washington.</p> <p>Place nearshore piers to span the</p>

**Table S-1 (Continued)
Summary of Environmental Consequences and Mitigation**

Alternative	Construction Impacts and Benefits	Operational Impacts and Benefits	Mitigation for Adverse Impacts
	<p>bridge construction on north shoreline. Typical wildlife would be expected to use the area after construction.</p> <p>Removal of the existing bridge will eliminate perching and nesting areas used by birds, such as swallows and other songbirds.</p> <p>Benefits</p> <p>No benefits would be expected.</p>	<p>Potentially increased light levels at the surface of the river from bridge deck lights could alter nighttime habitat.</p> <p>Benefits</p> <p>The closed stormwater system would reduce existing unabated entry of contaminants into the river benefiting fish and other aquatic species.</p> <p>Fewer piers in the river compared to the existing bridge may result in less overall river substrate coverage after the removal of the existing bridge.</p> <p>Overall predator habitat may be reduced by longer spans (fewer piers) provided by the new bridge compared to the existing bridge.</p> <p>The new bridge may provide perching and nesting opportunities for a variety of birds offsetting the loss of similar opportunities associated with removal of the existing bridge.</p>	<p>shoreline to eliminate the need for riprap and reduce the proximity of predator habitat provided by the piers from shoreline areas frequented by young salmonids.</p> <p>Provide direct bridge lighting toward the bridge deck to minimize nighttime illumination of the water surface.</p> <p>Consider implementing additional fish and wildlife mitigation opportunities identified during the review of the EIS and Biological Assessment.</p>
Air Quality			
No Action	<p>Impacts</p> <p>Temporary emissions construction equipment exhaust and dust during construction of short-term improvements.</p> <p>Benefits</p> <p>No benefits would be expected.</p>	Operation of the existing bridge facility is not expected to cause any substantial adverse impact or benefit on air quality.	None proposed.

**Table S-1 (Continued)
Summary of Environmental Consequences and Mitigation**

Alternative	Construction Impacts and Benefits	Operational Impacts and Benefits	Mitigation for Adverse Impacts
Build Alternatives	<p>Impacts Temporary emissions construction equipment exhaust and dust during construction. Duration greater than under No Action.</p> <p>Benefits No benefits would be expected.</p>	Project area in attainment for all criteria pollutants. Operation not expected to cause any substantial adverse impact or benefit on air quality.	Following guidance from Ecology and the Oregon Department of Environmental Quality (DEQ) would reduce pollutant emissions.
Visual			
No Action	<p>Impacts Short-term improvements to the existing bridge would result in limited and temporary visual impacts associated with construction activities and equipment.</p> <p>Benefits No benefits would be expected.</p>	<p>Impacts Short-term improvements not expected to change existing views. If the bridge were left in place after being closed in approximately 30 years, views from the bridge for motorists would be eliminated. Demolishing the bridge after closing it would alter the views to and from the area of the bridge.</p> <p>Benefits No benefits would be expected.</p>	None proposed.
Build Alternatives	<p>Impacts Build alternative impacts expected to be temporary, short in duration, and associated with the presence of construction equipment and workers, materials stockpiles, debris, signage, staging areas, construction barges, temporary work bridges, demolition activities, and construction lighting.</p> <p>Benefits</p>	<p>Impacts The design of the new bridge, which would be different from the existing bridge, would impact existing views for all build alternatives. Bridge visual impacts would be the greatest from the inferior (lower) viewer position when the bridge is in the foreground. Under EC-1. improvements to Dock</p>	<p>Carefully considered design details would help maintain the integrity of the surrounding environment. Maintain mature trees and vegetation to the extent possible around construction areas. To the extent possible, locate staging areas in area screening from active recreation areas would reduce visual impacts during construction.</p>

**Table S-1 (Continued)
Summary of Environmental Consequences and Mitigation**

Alternative	Construction Impacts and Benefits	Operational Impacts and Benefits	Mitigation for Adverse Impacts
	No benefits would be expected.	<p>Grade may result in additional visual impact from some viewpoints as a result of clearing trees for widening. Alternatives EC-2 and EC-3 would avoid this impact. However, EC-2 and EC-3 would involve removal of mature trees and vegetation, which would alter shoreline views.</p> <p>Benefits</p> <p>The alignment of EC-3 may include a slight curve or bow. This design feature may increase the visual harmony of the bridge with the surrounding environment.</p>	<p>Limit work hours to daylight hours when possible to reduce construction lighting visual impacts.</p> <p>Direct permanent light fixtures downward to minimize glare and ambient spillover light impacts.</p> <p>Use colors and materials in the design of the bridge that are consistent with the character of the surrounding environmental to help achieve visual harmony with surrounding resources.</p>
Noise			
No Action	<p>Impacts</p> <p>Nearby receptors would experience temporary noise impacts during construction of the interim improvements and replacement of the steel grating.</p> <p>Benefits</p> <p>Replacing current steel grating deck with a quieter steel grating deck would provide a short-term decrease in traffic noise levels and the noticeable tonality of the bridge deck. As traffic volumes increase, this benefit would decrease.</p>	Noise levels would not exceed the FHWA noise abatement criteria at nine measured receptors under the No Action Alternative.	None proposed.
Build Alternatives	<p>Impacts</p> <p>Under all of the build alternatives, nearby receptors would experience temporary noise impacts during construction of the project.</p>	<p>Impacts</p> <p>Noise levels are projected to increase by 1 to 4 dBA at most receptors in the study area as a result of increased traffic in the future, increased capacity, and increased design speed (35 mph).</p>	<p>None proposed for operations.</p> <p>Construction mitigation for noise would include measures to reduce the noise during sensitive nighttime hours and to manage noise through choice of construction equipment and its</p>

Table S-1 (Continued)
Summary of Environmental Consequences and Mitigation

Alternative	Construction Impacts and Benefits	Operational Impacts and Benefits	Mitigation for Adverse Impacts
	<p>Benefits No benefits would be expected.</p>	<p>However, the results of the noise analysis predicted that the proposed project would not cause noise levels to exceed the FHWA noise abatement criteria at the 9 measured receptors under the three build alternatives, EC-1, EC-2, and EC-3.</p> <p>Benefits The short-term improvement of replacing the current steel grating deck with a quieter steel grating deck would provide a short-term decrease in traffic noise levels and the noticeable tonality of the bridge deck. As traffic volumes increase, this benefit would decrease.</p>	<p>operation. Temporary noise barriers could be used if noisy equipment were located near sensitive receptors.</p>
Hazardous Materials			
No Action	<p>Impacts Construction may encounter potential asbestos and/or lead based paint located within the existing bridge (short-term improvements) and associated equipment shed that would be acquired and potentially demolished.</p> <p>Benefits Removal and appropriate disposal of hazardous materials would reduce long-term risks to the aquatic environment.</p>	<p>Impacts Direct entry of hazardous materials into the Columbia River would be unabated through the open grate decking, if a spill occurred on the existing bridge.</p> <p>Benefits No benefits would be expected.</p>	<p>Conduct pre-demolition asbestos and lead surveys of the existing bridge and any other buildings to be demolished. Assess all other areas of potential contamination and remediate, if needed.</p>
Build Alternatives	<p>Impacts Construction activities may encounter various contaminated materials. Potential issues associated with chemically treated wood used for</p>	<p>Impacts No adverse impacts would be expected.</p> <p>Benefits Under all of the build alternatives, implementation of a closed stormwater</p>	<p>Complete Initial Site Assessments (ISA) at the plant nursery property (EC-1) and Bubba Louie's Sailboat property (EC-1 and EC-2) for areas of potential contamination.</p>

**Table S-1 (Continued)
Summary of Environmental Consequences and Mitigation**

Alternative	Construction Impacts and Benefits	Operational Impacts and Benefits	Mitigation for Adverse Impacts
	<p>chemically treated wood used for railroad ties or undocumented spills at or adjacent to the Burlington Northern Santa Fe rail and former Bingen and White Salmon docks.</p> <p>Potential hazardous materials issues associated with asbestos and/or lead based paint located within the existing bridge (short term, mid term, and long term improvement impacts) and the tollbooth (mid term improvement impacts).</p> <p>Potential hazardous materials issues are associated with nursery buildings and nursery uses of fertilizers, pesticides, and/or insecticides (EC-1).</p> <p>Potential environmental issues associated with boat maintenance and repair activities at Bubba Louie's Sailboat property (EC-1 & EC-2).</p> <p>Benefits</p> <p>Removal and appropriate disposal of hazardous materials would reduce long-term risks to the aquatic environment.</p>	<p>implementation of a closed stormwater collection and treatment system would reduce the potential risk of spilled hazardous materials from entering the Columbia River.</p>	<p>Assess area surrounding railroad right of way and groundwater, soil, and sediment near proposed pier locations in Columbia River.</p> <p>Arrange with utilities to assess, remove, and relocate transformers.</p> <p>Conduct pre-demolition asbestos and lead surveys of the existing bridge and any other buildings to be demolished.</p>

