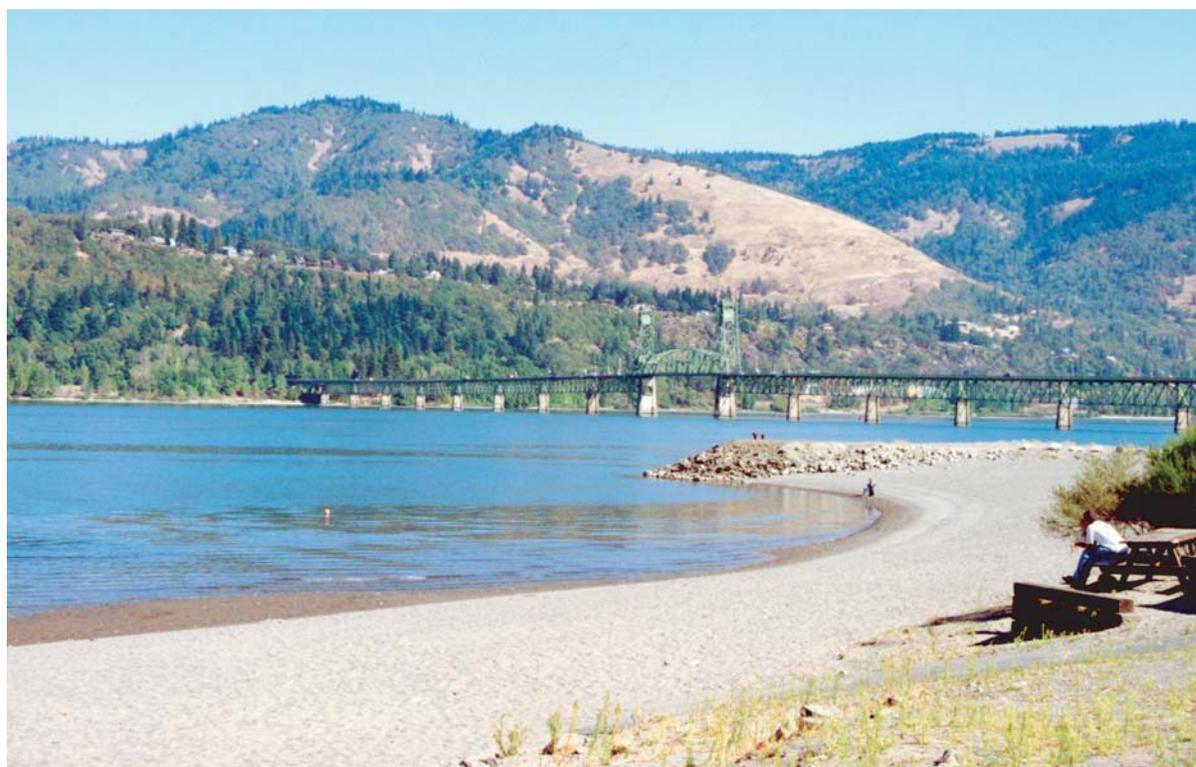


SR-35 Columbia River Crossing

Draft Environmental Impact Statement
and Section 4(f) Evaluation

December 2003





SR-35

Columbia River Crossing Project

Draft Environmental Impact Statement and Section 4(f) Evaluation

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EIS Number: FHWA-WA-EIS-03-02-D

SR-35 Columbia River Crossing
Hood River, Oregon to White Salmon, Washington

Draft Environmental Impact Statement and Section 4(f) Evaluation

Submitted pursuant to Section 42 U.S.C. 4332(2)(c)
(and where applicable 49 U.S.C. 303)

**U.S. Department of Transportation,
Federal Highway Administration**

and

**Washington State Department of Transportation
Oregon Department of Transportation
Southwest Washington Regional Transportation Council
U.S. Coast Guard**

12-1-03

Date of Approval



For Southwest Washington Regional Transportation Council

12/9/03

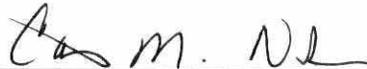
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For Washington State Department of Transportation

12-3-03

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For Oregon Department of Transportation

12/11/03

Date of Approval



For Federal Highway Administration

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This Draft Environmental Impact Statement and draft Section 4(f) Statement document environmental evaluations of a proposal to replace the existing bridge across the Columbia River between Hood River, Oregon and White Salmon, Washington. Under the preferred alternative, the existing bridge would be replaced with a new bridge located just downstream from the existing bridge. Two other alignments—one upstream and another farther downstream—are evaluated also in the DEIS along with the No Action alternative. Major issues addressed in the DEIS include threatened and endangered species, visual, cultural resources, water quality, recreation, economics, and traffic. The DEIS identifies measures to mitigate social, economic, and environmental effects.

Comment on this draft EIS are due by February 16, 2004 and should be sent to:

Dale Robins, Southwest Washington Regional Transportation Council, at the address shown above.

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- (3) D*

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DEIS

SR-35 - Columbia River Crossing Project

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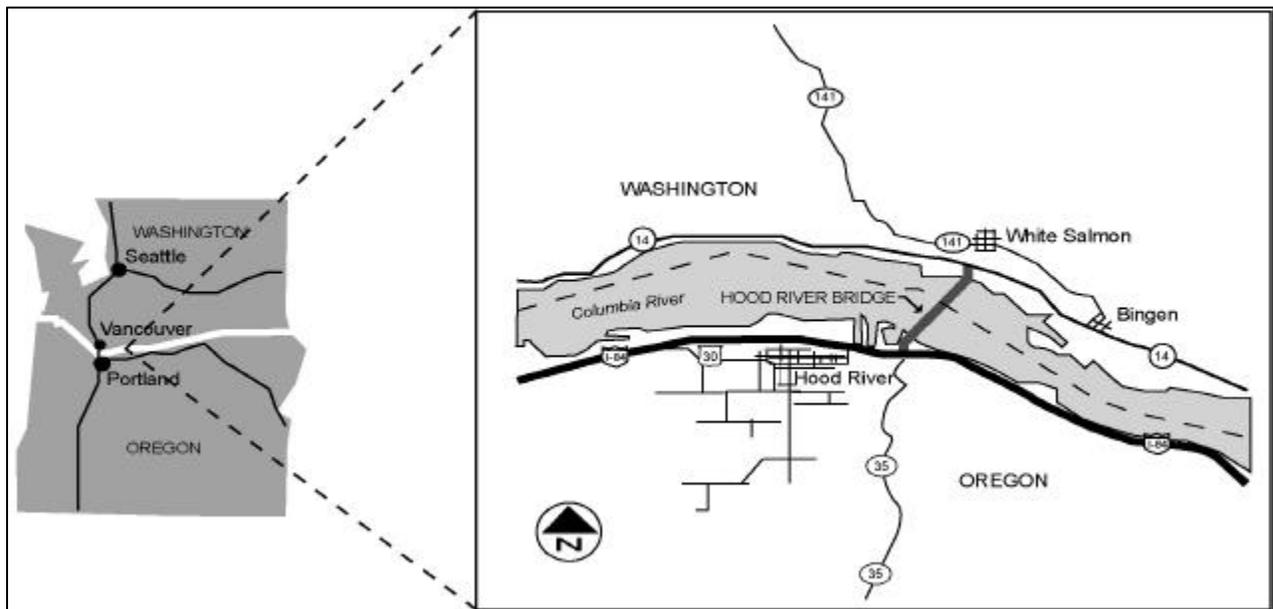
Summary

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.

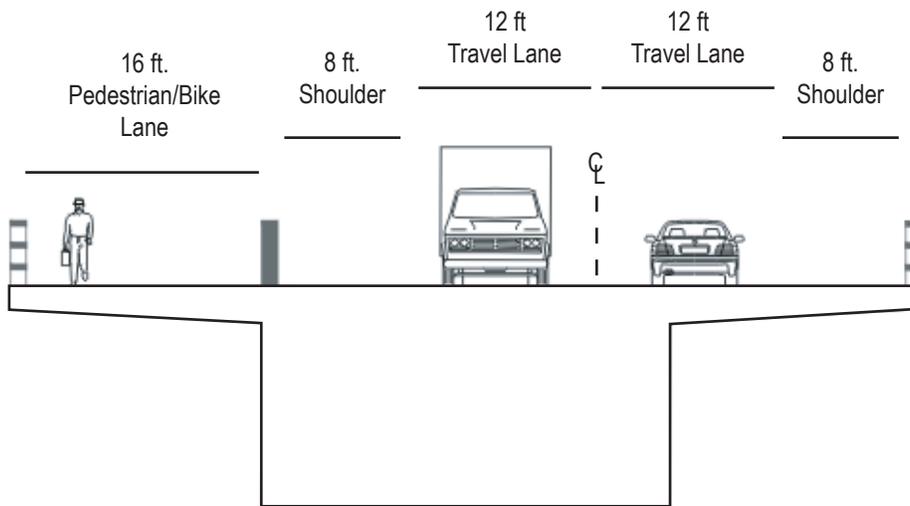


Figure S-2
Proposed Bridge Cross Section

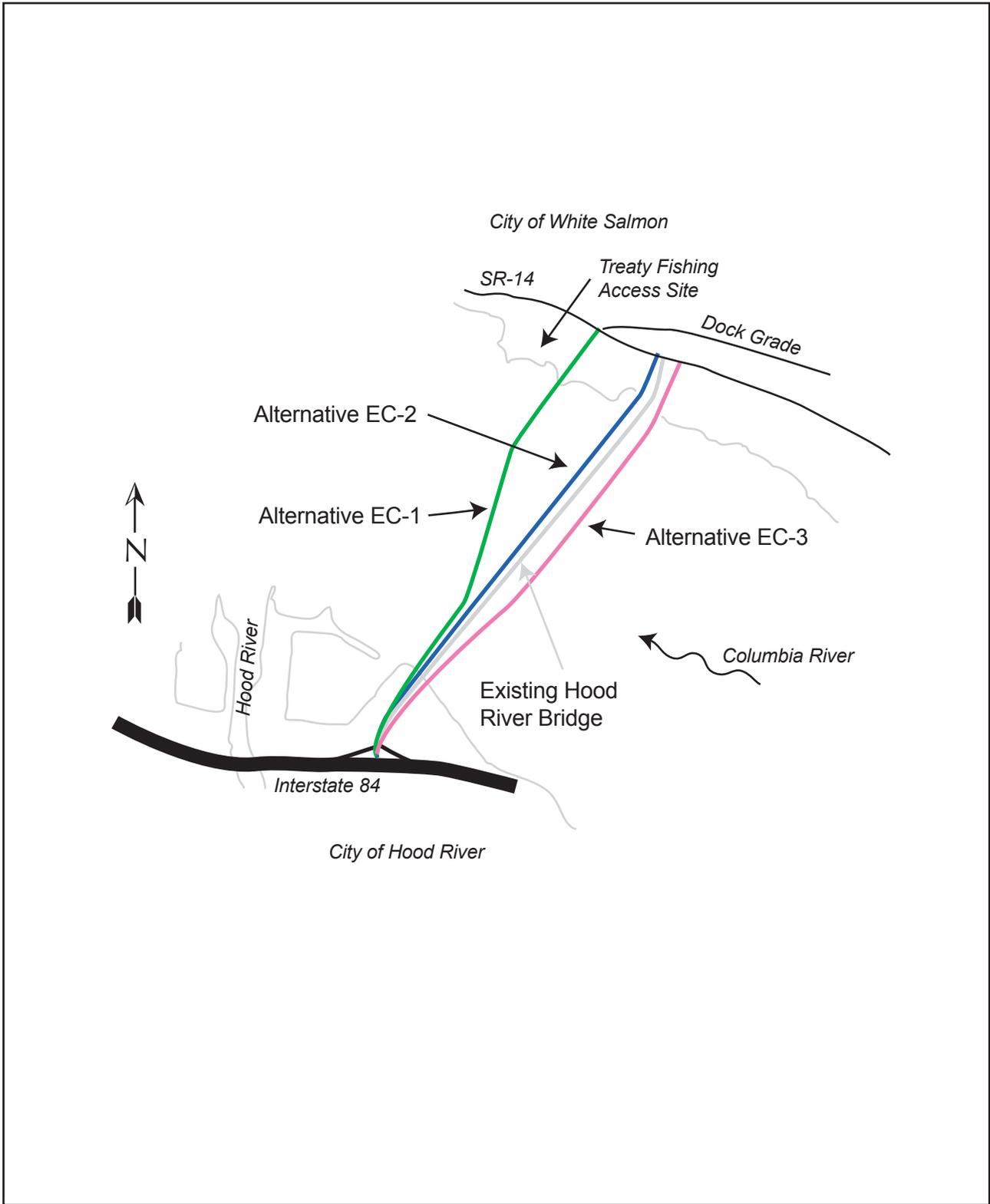


Figure S-3
SR-35 Crossing Alternatives

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 OAHP, 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
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>	<p align="center">Land Use</p> <p>No impacts or benefits would be expected.</p>	<p>Coordinate with users about construction schedule. Provide temporary access.</p>
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
		<p>acquisition of undeveloped land. No business or residential displacements or direct impacts to businesses.</p> <p>Benefits No benefits would be expected.</p>	
Transportation			
No Action	<p>Impacts Occasional road closures and local detours from short-term improvements (roundabout, deck replacement).</p> <p>Benefits No benefits would be expected.</p>	<p>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.</p> <p>Benefits No benefits would be expected.</p>	<p>Provide notice to public and adjacent businesses. Provide temporary access, if needed.</p>
Build Alternatives	<p>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.</p> <p>Benefits No benefits would be expected.</p>	<p>Impacts No adverse impacts would be expected.</p> <p>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.</p>	<p>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.</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 Action	<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 align="center">Geology and Soils</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>
Build Alternatives	<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. 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. 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. 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. 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. 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
Build Alternatives	<p>Benefits No benefits would be expected.</p> <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. 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. Disturbance to adjacent water recreation and events would reduce overall enjoyment temporarily. 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>Closure would have severe social and economic impacts on the interdependent, bi-state communities.</p> <p>Benefits No benefits would be expected.</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. 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. Multi-modal facilities would increase recreational opportunities enabling bi-state connections to trails and sidewalks.</p>	<p>Measures are recommended to minimize construction 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 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 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 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 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>	<p>Operation of the existing bridge facility is not expected to cause any substantial adverse impact or benefit on air quality.</p>	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>	<p>Project area in attainment for all criteria pollutants. Operation not expected to cause any substantial adverse impact or benefit on air quality.</p>	<p>Following guidance from Ecology and the Oregon Department of Environmental Quality (DEQ) would reduce pollutant emissions.</p>
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>	<p>None proposed.</p>
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>

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SR-35 Columbia River Crossing Project

Summary

S-43

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</p>	<p>Impacts No adverse impacts would be expected.</p> <p>Benefits Under all of the build alternatives,</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>

Chapter 1

DEIS

**SR-35 - Columbia River Crossing
Project**

Chapter 1 – Purpose and Need for the Action

Purpose Statement

The purpose of this 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.

Need for Project

The overall need for the State Route 35 (SR-35) Columbia River Crossing project is to rectify current and future transportation inadequacies and deficiencies associated with the existing Hood River Bridge. Specific needs are addressed as follows.

Capacity

Local Hood River Bridge users are dissatisfied with traffic congestion on the bridge as well as congestion on the bridge approaches. Traffic on the existing bridge has increased approximately 350 percent since 1970, a growth rate of approximately 4.5 percent per year. These operational issues have prompted the need to address levels of service (LOS) associated with the existing bridge, approach roads, and major highway connections, according to the SR-35 Columbia River Crossing Traffic Study (Parsons Brinckerhoff 2003).

High levels of traffic occur at the East Hood River I-84 interchange where Oregon-35 (OR-35)/Hood River Bridge access roadway intersects with two off-ramps from I-84 and at the Button Junction/State Street/OR 35 intersection. Moderate levels of congestion (LOS D/E and LOS C, respectively) are associated with these intersections. Seasonal traffic associated with peak windsurfing activities and poor weather conditions that divert traffic from I-84, SR-14, US Highway 26 (US 26), or OR 35 can deteriorate congestion to LOS F.

The preferred alternative must satisfy capacity needs and meet Washington State Department of Transportation (WSDOT) and Oregon Department of Transportation (ODOT) standards regarding traffic operations and queuing and meet at least a LOS D standard for current and projected traffic, to:

- Alleviate congestion at major highway connections
- Alleviate congestion associated with the bridge and bridge access intersections, and
- Alleviate seasonal congestion associated with peak windsurfing activities, winter recreation, and diverted traffic during poor weather conditions.

System Linkage

The existing crossing is an important system linkage between the Oregon and Washington state highway systems as well as provides a connection to the interstate system. The preferred alternative must maintain a system linkage that provides a cross-river connection between Bingen/White Salmon, Washington and Hood River, Oregon to I-84 and SR-14 via a new SR-35 corridor or the current bridge.

Transportation Demand

Projected traffic for the Year 2025 indicates an increase in cross-river transportation demand of 50 to 70 percent over the existing conditions. In conjunction with providing transportation infrastructure that meets capacity and roadway and bridge deficiencies, the preferred alternative must also:

- Accommodate cross-river transportation demand while not increasing per capita vehicle miles traveled as required by the Oregon Transportation Planning Rule
- Accommodate pedestrian and bicycle demand while minimizing out-of-direction travel that would substantially increase the average trip length for these modes

Legislation

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 recognized the potential for a new Columbia River crossing and designated an SR-35 corridor that connects from SR-14 to the Columbia River but does not specify the exact crossing location. The crossing location and facility type(s) are to be determined through alternative development and selection of a preferred alternative.

The preferred alternative must satisfy legislative needs to:

- Comply with TEA-21 programmed high-priority project funding for a feasibility study to replace or improve the Columbia River Crossing along the proposed SR-35 corridor
- Comply with the SR-35 corridor designation by the Washington State legislature

Social Demands and Economic Development

Economic growth and development of the local communities is tied to adequate transportation infrastructure between the two Washington cities and Hood River, Oregon and connecting the nearby Oregon and

Washington major highways (SR-14 and I-84). Due to narrow lanes and a bridge load limitation, the existing bridge restricts the flow of goods and does not accommodate larger vehicles. Commuters and consumers are dissatisfied with the congestion and perceived safety hazards of the existing bridge.

Local and regional economic growth and development that is dependent on adequate transportation infrastructure would be enhanced by diversifying and expanding the use of this crossing rather than diverting prohibited traffic or dissatisfied users to other crossings approximately 20 miles east and west of the Hood River Bridge.

Many users of the existing bridge are demanding that funding for long-term operation and maintenance of a new or improved crossing be considered.

The preferred alternative must satisfy social demands and economic needs to:

- Provide transportation infrastructure for the current and projected flow of goods, labor and consumers across the Columbia River between White Salmon/Bingen and Hood River
- Develop financially acceptable funding strategies for long-term operation and maintenance of a new or improved crossing

Modal Interrelationships

The substandard width of the current crossing constrains the mobility of cross-river truck traffic and prevents cross-river bicycle and pedestrian traffic. The impact on truck mobility affects the movement of goods (most notably perishable goods) from local ports to local and non-local markets. The lack of bicycle and pedestrian facilities severely limits the mobility of those who do not own nor have access to vehicles for cross-river trips. The ability to reduce per capita vehicle miles traveled by alternative modes (bicycle/pedestrian) is reduced due to lack of facilities.

The navigation channel under the bridge has a horizontal clearance of 246 feet, which is less than the Congressionally authorized 300-foot wide navigation channel (PB Ports and Marine 2003). Moreover, the current channel is not effectively aligned with westerly winds. Barges using the Columbia River navigation channel typically measure 42 feet with doublewides at 84 feet. While barge lengths vary between 150 feet and 300 feet, lock sizes limit tow configurations to a total length of 650 feet. During significant winds, barges have to tack through the bridge with the winds pushing the barges sideways. This difficulty is compounded with the bridge opening being narrower than the navigation channel. Although these navigation factors are less than optimal, the existing bridge accommodates river traffic use without recording any accidents that resulted in severe damage or loss of life. Nearby bridges are better suited for navigation with wider clearances. The Bridge of the Gods at Cascade Locks and The Dalles California Highway Bridge at The Dalles are fixed span bridges (i.e., no lift spans)

with horizontal clearances of 655 feet and 551 feet, respectively. However, the Interstate 5 Columbia River crossing, which has a 263-foot horizontal clearance, provides similar difficulties to river traffic, as does the Hood River Bridge.

The preferred alternative must satisfy modal interrelationship needs to:

- Accommodate river navigation by providing a horizontal clearance that meets current standards if any new facility is constructed
- Provide adequate facilities for passenger and commercial vehicles, mass transit services, bicycles, and pedestrians

Safety

The narrow lanes on the existing Hood River Bridge create vehicle driver perception of poor driving conditions although the incidence of accidents is not high. The narrow lanes result in frequent reports of “mirror-to-mirror” collisions between wide vehicles using the bridge at the same time. These safety concerns as well as current bridge geometrics dictate that the speed limit be restricted to 25 mph.

The lack of bicycle and pedestrian facilities provides hazardous conditions for those who bicycle or walk on the bridge and has resulted in a prohibition of bike and pedestrian travel on the bridge. The bridge grating provides a hazardous driving surface for motorcycles.

The substandard horizontal clearance for navigation under the current bridge has contributed to minor collisions of river vessels with the bridge. Over the past seven years, the Port of Hood River recalled that two or three barges have scraped through the bridge opening but not caused any significant damage. Reports of near misses with the bridge are prevalent among river vessel pilots. However, no major collisions have been reported to the U.S. Coast Guard.

The preferred alternative must satisfy safety needs to:

- Reduce real and perceived safety hazards associated with the narrow travel lanes
- Provide safe travel for bicycles and pedestrians
- Provide safe travel surfaces for motorcycles
- Reduce hazards associated with a substandard navigation channel clearance if any new facility is constructed

Roadway and Bridge Deficiencies

The existing bridge and bridge roadway are functionally obsolete or deficient in terms of narrow travel lanes, lack of pedestrian and bicycle facilities, low load carrying capacity, audible noise associated with the bridge deck, and vulnerability to a seismic event.

Each of the two travel lanes is 9.5 feet wide, which hinders large vehicle traffic and creates a perception of hazardous travel conditions for many users. The bridge does not have facilities for bicycle traffic, and therefore, bicycle travel is prohibited. Additionally, the lack of pedestrian facilities has resulted in a prohibition of pedestrians on the bridge. For a two-lane bridge, American Association of State Highway and Transportation Officials (AASHTO) guidelines recommend a preferred minimum width of 28-30 feet to accommodate travel lanes, as well as a shared bicycle/pedestrian facility at a minimum.

Several bridge inspections have been completed for the Port of Hood River on the existing bridge. Current structural conditions, however, are not clearly known due to the timing and specific focus of the previous inspections. Federally funded programs that involve improvements to the existing bridge will likely require an updated bridge inspection. Structural deficiencies identified in a future bridge inspection may need to be addressed in making improvements to the existing bridge.

Noise generated by traffic crossing the existing bridge deck is clearly audible within and outside the immediate vicinity of the bridge. In addition, the existing bridge has not been updated to meet current seismic standards.

The preferred alternative must satisfy roadway and bridge deficiency needs to:

- Increase motorized vehicle travel lane widths to at least 12 feet
- Provide facilities for pedestrian and bicycle use
- Reduce noise created by motorized vehicles traveling on the existing bridge deck
- Meet current seismic design standards

Goals and Objectives

The intent of this section is to identify goals and objectives that balance environmental and transportation values over the long-term while meeting the purpose and need for the proposed action. The goals and objectives are to:

- Improve cross-river multi-modal transportation of people and goods
- Meet current standards for river navigation if any new facility is constructed
- Avoid, minimize, or compensate for impacts to the natural, built, and aesthetic environment
- Avoid, minimize, or compensate for impacts to fish and wildlife and their habitats

- Avoid, minimize, or compensate for impacts to recreational users and facilities
- Be financially acceptable and support local economic development
- Avoid, minimize, or compensate for impacts on cultural and historical resources
- Maintain the integrity of the interstate highway system

The proposed action would use mitigation sequencing to: (1) avoid impacts to the environment where practicable, (2) minimize impacts that cannot be avoided, and (3) compensate for impacts that cannot be avoided.

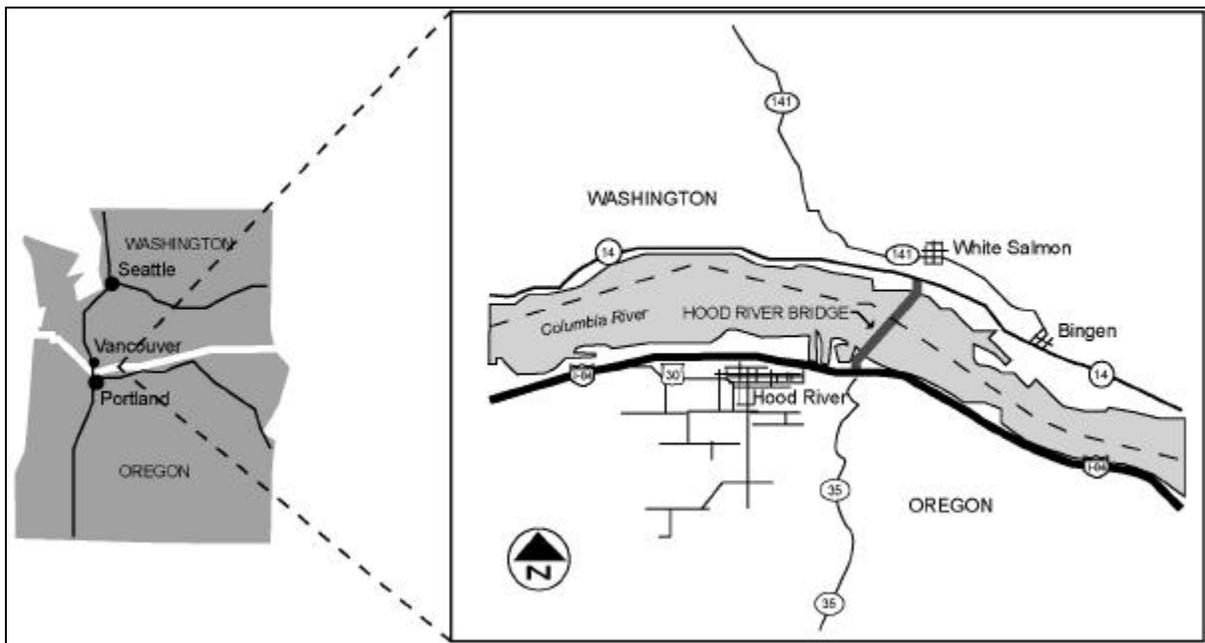
Chapter 2

DEIS

SR-35 Columbia River Crossing

Project Termini and Why They are Logical

The project area comprises the Columbia River and areas landward in the vicinity of White Salmon and Bingen, Washington to Hood River, Oregon (Figure 2-1). This location is approximately 64 miles east of Portland, Oregon along I-84 and a similar distance east of Vancouver, Washington along SR-14. The state line follows the Columbia River in this area.



Vicinity Map of the Project Area
Figure 2-1

The northern end of the Hood River Bridge touches down on the southwestern edge of White Salmon, Washington. Bingen is located approximately one mile east of White Salmon. Both cities are in Klickitat County. 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). 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 OR 35, which connects to US 26 (Mount Hood Highway) approximately 40 miles to the south.

The existing bridge crossing is owned by the Port of Hood River and was built originally as a private bridge. No existing state-owned connection between I-84 and SR-14 exists in the White Salmon/Bingen and Hood River area. The proposed SR-35 Columbia River Crossing would provide a state-owned connection between the two principal state routes on either side of the river. The connection of I-84 and SR-14 would provide greater public management and control, as well as long-term reliability, for the interconnection between the two state routes. The termination of the proposed improvements at the existing I-84 interchange on the Oregon side provides access to the regional and local transportation systems. On the Washington side, the proposed improvements terminate at SR-14 for similar reasons. Both termini offer adequate capacity for traffic using the proposed new crossing.

Alternatives Considered

A wide range of alternatives has been considered in developing the SR-35 Columbia River Crossing project. The alternatives that have been considered include alternative corridor locations and alternative transportation modes or facility types.

The study of alternatives leading to a recommended preferred alternative was organized into three sequential phases or tiers. Tier I involved evaluation and narrowing of a range of crossing corridors and facility types. 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 facilities and the identification of three alternative alignments to be evaluated in the DEIS. Tier III has involved comprehensive evaluation of environmental consequences to recommend a preliminary preferred alternative in the DEIS.

Each successive screening used criteria based on the objectives contained in the Purpose and Need statement for the project:

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

As the screening process progressed, the amount of detailed information available to evaluate the alternatives increased and was used in evaluating the alternatives.

Detailed screening documentation and screening matrices are presented in the Tier I and Tier II Reports (Southwest Washington Regional Transportation Council et al. 2001b and 2002a). These are available on line at the project web site: www.rtc.wa.gov/studies/SR35 and at the office of the Southwest Washington Regional Transportation Council (see cover page for address and telephone number).

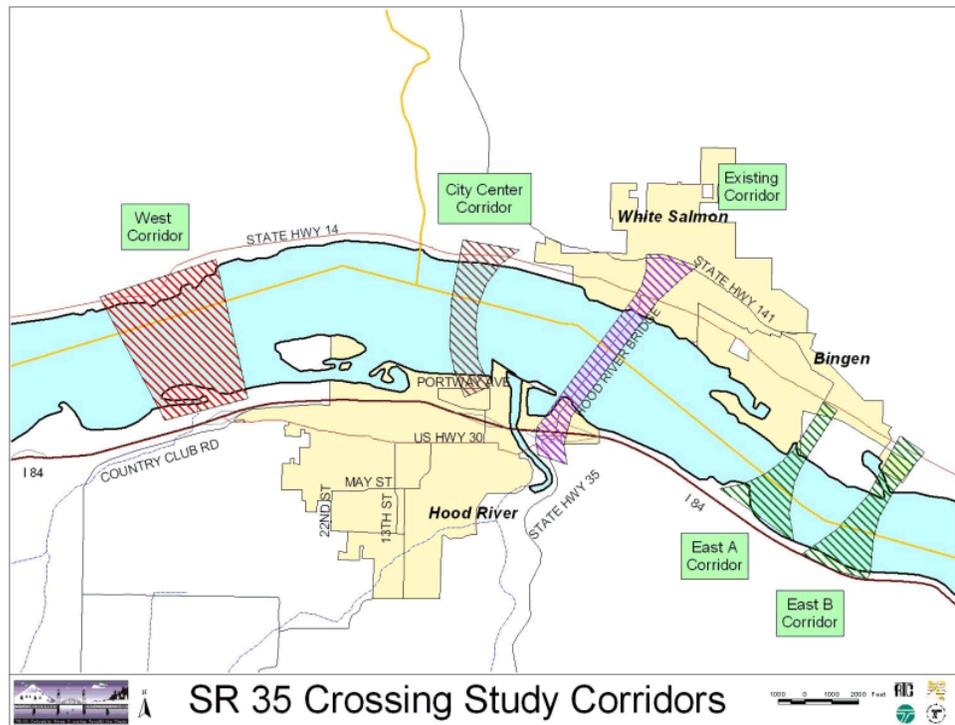
Alternative Crossing Locations

Tier I alternatives included the following six alternative corridors (Figure 2-2):

- West Corridor—West Hood River Interchange to SR-14 near the Spring Creek Hatchery
- City Center Corridor—City Center Interchange to SR-14 between the White Salmon River and Dock Grade
- Existing Corridor (low)—parallel to the existing bridge crossing at a low elevation
- Existing Corridor (high)—parallel to the existing bridge crossing at a higher level (bluff to bluff)
- East A Corridor —Stanley Rock to Port of Bingen
- East B Corridor—east of Stanley Rock to Port of Bingen

The Tier I alternative corridors that were advanced to the next phase of screening evaluations in Tier II included: City Center, Existing Low-Level Corridor, and East A Corridor) The West Corridor, Existing High Level Corridor, and East B Corridor were eliminated from further discussion (see Alternatives Considered but Rejected later in this chapter).

Tier II corridor screenings resulted in the elimination of the City Center and East A corridors leaving only the Existing Corridor for further evaluation in Tier III. Three crossing alignments in the existing corridor were identified for further consideration in Tier III. The second Tier III screening resulted in identifying Alternative EC-2 as the preliminary preferred alternative. The DEIS evaluates all three alternatives within the existing corridor: EC-1, EC-2, and EC-3. These are described in the section Alternatives Selected for Further Study.



Alternative Crossing Corridors Considered
Figure 2-2

Tier I Facility Type Evaluations

A variety of facility types were studied in Tier I. These ranged from ferries to person-based modes (tramway, for example) as well as vehicular (tunnel and bridge). The Tier I evaluation is summarized in Table 2-1.

The facility types recommended for further analysis in Tier II included:

- Short-term improvements to the existing bridge
- Tunnel (various types) at the City Center Corridor
- Floating or movable bridges
- Fixed span bridges

A combination of these facility types at the City Center, Existing, and East A corridors were developed for two Tier II screenings.

Tier II Alternative Screenings of Build Alternatives

During Tier II, two screening processes were conducted. The first screening narrowed 17 build alternatives (combinations of crossing

locations and facility types) to six alternatives. A summary of the initial screening is presented in the Tier II report (SW Washington Regional Transportation Council et al., 2002). The six alternatives that were advanced for the second screening in Tier II included:

Table 2-1 Facility Types Considered in Tier I		
Facility	Recommended for Further Study?	Reasons for Recommendations
Aviation transport	No	Would not adequately accommodate trucks, automobiles Not feasible for most residents
Bicycle/pedestrian only facility	No	Would not adequately accommodate trucks, automobiles
Ferry system	No	Significant impacts on navigation, recreation
Short-term improvements to the existing bridge and adjacent roads (e.g., one-way toll, reversible lanes, traffic lights)	Yes	Low capital cost investments, which have short-term positive effect
Single new bridge, multi-modal draw or fixed span or tunnel that accommodates automobiles, trucks, bicycles, and pedestrians. Remove existing bridge.	Yes	Would accommodate all identified modes of travel, using current highway standards
Tramway	No	Would not adequately accommodate trucks, automobiles Not visually subordinate
Transit-only facility	No	Would not adequately accommodate trucks, automobiles
Truck/bicycle/pedestrian bridge or tunnel, in conjunction with existing bridge for passenger vehicles	Yes	Would accommodate all identified modes of travel, using current highway standards shared between a new tunnel or bridge and the existing bridge.
Vehicle-only bridge or tunnel, in conjunction with the existing bridge set aside for bicycles and pedestrians	Yes	Would accommodate all identified modes of travel, using current highway standards shared between a new tunnel or bridge and the existing bridge.

- City Center Corridor -- new fixed span bridge for all modes
- City Center Corridor -- new tunnel with existing bridge retrofit for pedestrian and bicycle use
- Existing Corridor – new fixed span bridge for all modes
- Existing Bridge – retrofit for all modes
- East A Corridor – new fixed span bridge with existing bridge retrofit for pedestrian and bicycle use
- East A Corridor – new fixed span bridge for all modes

The result of the Tier II screenings was advancing a new bridge crossing in the Existing Corridor. Alternatives in the City Center Corridor and East A Corridor were eliminated. In addition, the retrofit of the existing bridge was eliminated. Table 2-2 provides rationale for their elimination.

Table 2-2 Summary of Rationale to Advance or Eliminate Alternatives from Tier II			
Corridor	Alternative	Recommendation for Further Study	Reason
City Center	New fixed span bridge for all modes	Eliminate	Adverse impacts associated with water-based recreation, including crossing areas used substantially for sail boarding and kite boarding. The Oregon approach would affect areas used by sail boarders and kite boarders for staging and river access. Severe geologic constraints on Washington side bridge landing, including steep slopes
City Center	New tunnel with existing bridge retrofit for pedestrian and bicycle use	Eliminate	Substantial increase in vehicle-miles traveled Substantial excavation in steep slope on Washington side portal High cost High level of business displacement in Hood River
Existing	New fixed span bridge for all modes	Advance	Lowest impacts to transportation, environmental resources, and recreation Lowest cost
Existing	Retrofit of existing bridge for all modes	Eliminate	Identical low impacts as existing new fixed span, except it has higher capital costs and higher construction impacts.
East	New fixed span bridge with existing bridge retrofit for pedestrian and bicycle use	Eliminate	High impacts to fish from in-water work associated with two bridges High environmental impacts associated with Bingen Pond, nearby peregrine falcons and bald eagles, and wetlands on Oregon approach High visual impacts associate with two bridge Four goals exception to Oregon statewide planning goals Potential encroachment of Koberg State Park High cost (two bridges, new I-84 interchange, BNSF railway bypass)

Corridor	Alternative	Recommendation for Further Study	Reason
East	New fixed span bridge for all modes	Eliminate	High travel distances for pedestrians and bicyclists High environmental impacts associated with Bingen Pond, nearby peregrine falcons and bald eagles, and wetlands on Oregon approach Four goal exceptions to Oregon statewide planning goals Potential encroachment of Koberg State Park

No Action Alternative

The No Action or No Action alternative is discussed below under Alternatives Selected for Further Study. The No Action alternative is required under the National Environmental Policy Act (NEPA) to be carried through the EIS process.

Transportation System Management (TSM)

Short and mid-term improvements to the existing bridge system and approach roadways are included in the analysis of the No Action Alternative and are included in the build alternatives considered in the EIS. By itself, a TSM alternative does not address the safety and functional problems with the existing bridge.

Mass Transit

Provision of mass transit would not address the safety and functional problems with the existing bridge. Columbia Area Transit provides transit services in Hood River. Limited bus service is available in Klickitat County. Bus transit was considered in the Tier I facility type screening and was not considered a viable alternative on its own (see Table 2-1).

Alternatives Considered but Rejected

Tier I Screening

West Corridor. The Tier I screening resulted in the elimination of the West corridor because of relative higher impacts associated with historic resources, including the Columbia Gorge Hotel and the Historic Columbia River Highway, both on the National Register of Historic Places. The West corridor was eliminated also because of conflicts with recreational use at the Spring Creek Hatchery site, which is used by sailboarders. It also rated poorly because of substantially out-of-direction travel to downtown Hood River.

Existing High Level Corridor. The Tier I screening also eliminated the Existing high level corridor because it would have relatively high environmental impacts (especially visual impacts) and rated poorly in terms of transportation connections. Although connections from upper parts of White Salmon would be convenient to a high level bridge, connections for truck traffic, automobile traffic, and bike/pedestrian traffic from lower parts of White Salmon and Bingen would be poor. White Salmon areas near the approach would experience greater congestion and noise.

East B Corridor. The screening also eliminated the East B Corridor because of impacts to environmental resources, including wetlands adjacent to the Oregon touchdown location and sensitive wildlife species, such as peregrine falcon and their nesting habitat on cliffs near the Oregon touchdown location.

Tier II Screening

The first screening in Tier II resulted in advancing six out of 17 build alternatives to a second screening.

The results of the second Tier II screening process and reasons for elimination of the remaining Tier II alternatives are shown in Table 2-2.

Alternatives Selected for Further Study

Four alternatives were selected for evaluation in the DEIS:

- No Action Alternative
- Alternative EC-1: West Connection to Dock Grade
- Alternative EC-2: West Alignment
- Alternative EC-3: East Alignment

No Action Alternative

The No Action Alternative (No Build 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.

This alternative would assume that the bridge is closed in the future. Under the Port of Hood River's current maintenance and capital improvements program, the bridge may continue to operate for approximately 30 years. After this time, it is assumed that the bridge

surpasses its operational life and is closed to all cross-river vehicular traffic.

Within the next five years, several short-term improvements are planned or recommended. These improvements are considered to be part of the No Action Alternative.

Planned and recommended short-term improvements to the existing bridge include:

- Replace existing steel grating with new steel grating 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

A bridge replacement fund would also be established through increased tolls to support funding of the project. This fund is included as a “short-term improvement” because the project team recommends its implementation within the next five years.

Common Elements for All Build Alternatives

Each of the build alternatives (Alternatives EC-1, EC-2 and EC-3) involves constructing a new, fixed-span bridge for all transportation modes in the Existing Corridor. These alternatives also include demolishing the existing Hood River Bridge. Ownership of the new bridge would likely be joint ownership by both ODOT and WSDOT. The construction cost is expected to be approximately \$130 million. Right of way acquisition and environmental mitigation are not included in this estimated cost.

All of the build alternatives tie into the existing bridge approach road on the south end of the corridor at a point between the tollbooth and the four-way stop at Marina Way. All of the alternatives would include signalization or a roundabout at the I-84 eastbound off ramp intersection with the bridge access road, as well as signalization or a roundabout at the westbound I-84 off ramp to the bridge access road. It is likely that the four-way stop serving as local access to the retail and marina area immediately north of the I-84 westbound ramp will be incorporated into the roundabout with the westbound ramp.

The connections to SR-14 on the north end of the corridor vary by alternative (Figure 2-3).

Alternatives EC-1, EC-2 and EC-3 share common design criteria and short-term and mid-term improvements. Unique elements of each alternative are described in later sections.

Design Criteria

All of the build alternatives will meet the following design criteria:

- 56-foot roadway width with future expansion to a 66-foot width
- 50 mph design speed
- 35 mph posted speed
- 80-foot vertical clearance at the navigation channel
- 300-foot minimum horizontal clearance at the navigation channel

Three bridge types that conceptually meet the criteria listed above for each build alternative are being considered (Figure 2-3):

- Girder segmental with 300-foot typical span except over the navigational channel, which will 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 2-4). 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.

Short-Term Improvements

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

Mid-Term Improvements

The build alternatives would also include mid-term improvements that would be implemented over the next 6 to 10 years if a long-term improvement alternative is not selected or 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 establishing an automated toll collection system
- Signalize SR-14 at the Hood River Bridge approach road

Alternative EC-1: West Connection to Dock Grade

Alternative EC-1 would tie into the existing bridge approach road on the south end of the corridor at a point between the existing tollbooth and the four-way stop at Marina Way.

The southern approach of Alternative EC-1 would be directly adjacent to the west side of the existing bridge until midway across the river, where it would shift west to connect to Dock Grade on the Washington side. The SR-14 intersection at Dock Grade would be signalized and widened to accommodate turn lanes. The grade of SR-14 would need to be raised approximately six feet, and Dock Grade would need to be realigned at the intersection for safety reasons. Dock Grade would also need to be improved from the intersection to the top of the hill. The length of the bridge would be approximately 4,510 feet. Figure 2-5 illustrates the south end of Alternative EC-1 and Figure 2-6 illustrates the north end.

This alternative also would include all of the elements previously described that are common to all build alternatives.

Alternative EC-2: West Alignment

The south end of Alternative EC-2 would tie into the existing bridge approach similar to Alternative EC-1. Alternative EC-2 would be directly adjacent to the west side of the existing bridge for the entire length of the crossing. The SR-14 intersection would be signalized and widened to accommodate turn lanes. Substantial grade changes to SR-14 would not be required. The length of the bridge would be approximately 4,595 feet. Figure 2-5 illustrates the south end of Alternative EC-2 and Figure 2-7 illustrates the north end.

This alternative also would include all of the elements previously described that are common to all build alternatives.

Alternative EC-3: East Alignment

Alternative EC-3 would tie into the existing bridge approach like the other build alternatives. In contrast, Alternative EC-3 would be directly adjacent to the east side of the existing bridge. A slight bow to the east would occur over the navigation channel, and then the alternative would connect to SR-14 directly adjacent to the existing bridge. The SR-14 intersection would be signalized and widened to accommodate turn lanes. The length of the bridge would be approximately 4,630 feet. Figure 2-5 illustrates the south end of Alternative EC-3 and Figure 2-8 illustrates the north end.

This alternative also would include all of the elements previously described that are common to all build alternatives.

Preliminary 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 project public hearings, 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.

Construction Activities for Replacement Bridge Alternatives

All replacement bridge alternatives would involve constructing a new bridge while traffic continues to use the existing bridge. Once the new bridge is able to support cross-river traffic, the existing bridge would be demolished.

A range of construction, substructure and superstructure options may be used on the proposed project. Two alternative types of pile systems are under consideration: driven steel piles and drilled shafts. Depending on the geotechnical conditions of the site, driven pile may not be feasible. However, both pile systems are considered at this time. Pier-footing schemes may include either water line foundations or cofferdam construction. Both schemes would require the use of barge-mounted equipment.

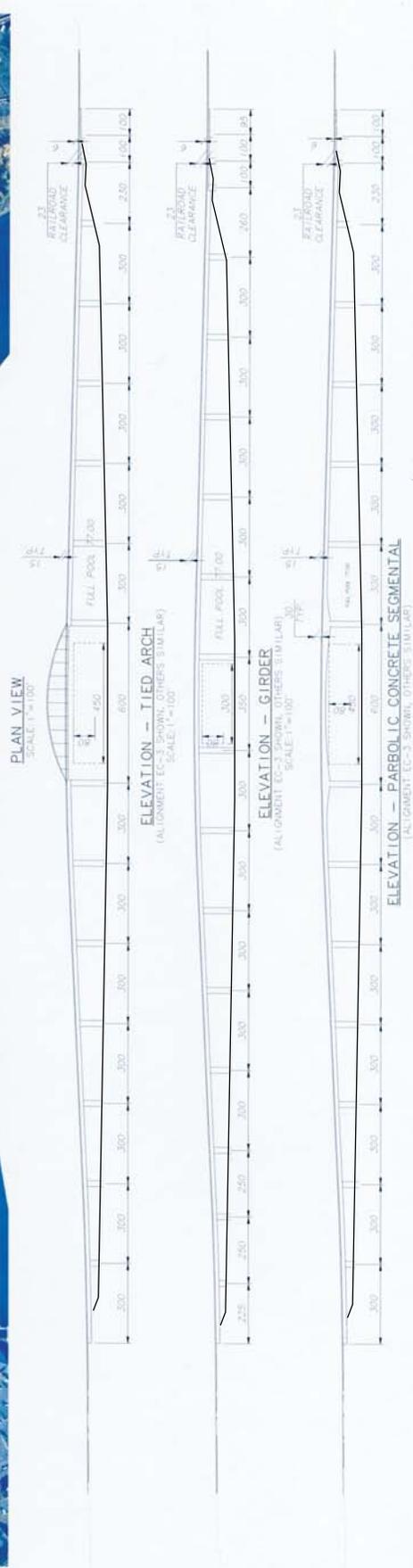
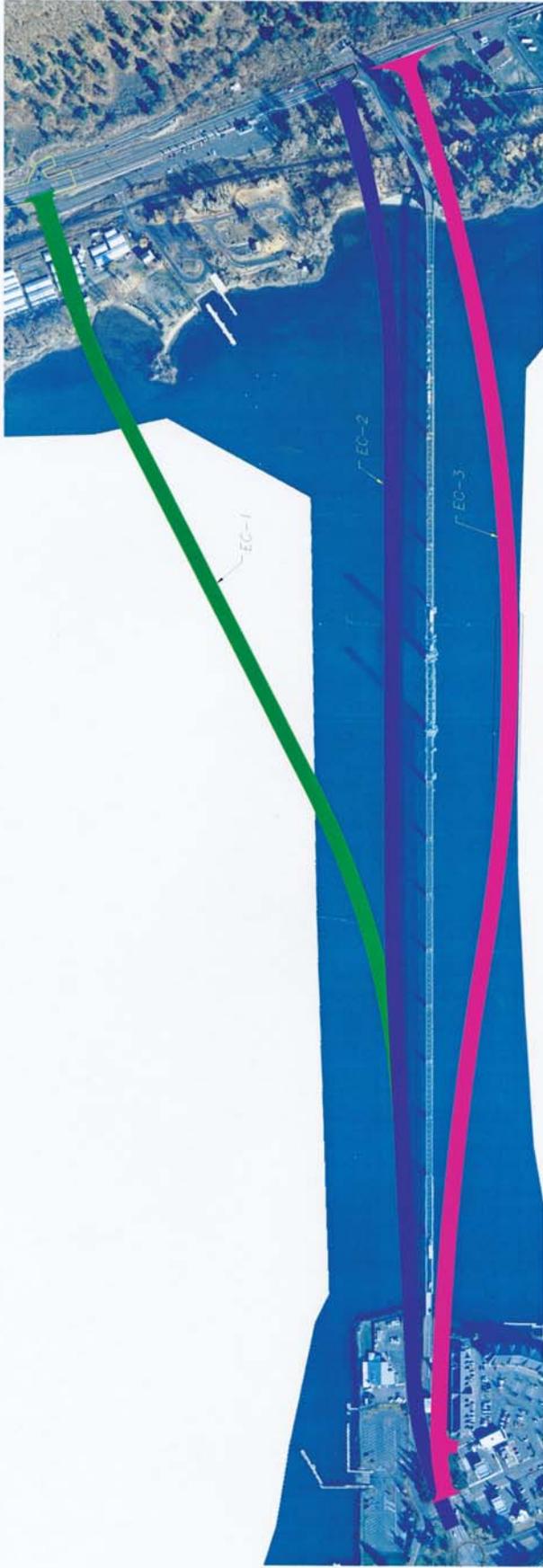
The superstructure would either be concrete or steel. Concrete superstructures would be cast-in-place, pre-cast, or a combination of the two methods. Steel superstructures would be fabricated with steel plate or steel box girders. A third steel superstructure could include a steel tied arch for the main navigation span. This steel tied arch can be used in combination with either concrete or steel girders. A more detailed description and example photographs that demonstrate these construction activities are provided in the *Bridge Construction Assumptions* (Southwest Washington Regional Transportation Council et al., 2003). See project web site (<http://www.rtc.wa.gov/studies/SR35>).

The range of construction, and substructure and superstructure options are based on conceptual-level design and knowledge of the environment. and They are not presumed to be all-inclusive. This range was developed based on the type of bridges under consideration, typical construction methods for the region, and available information. As the design is advanced, these options will be further developed.

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.

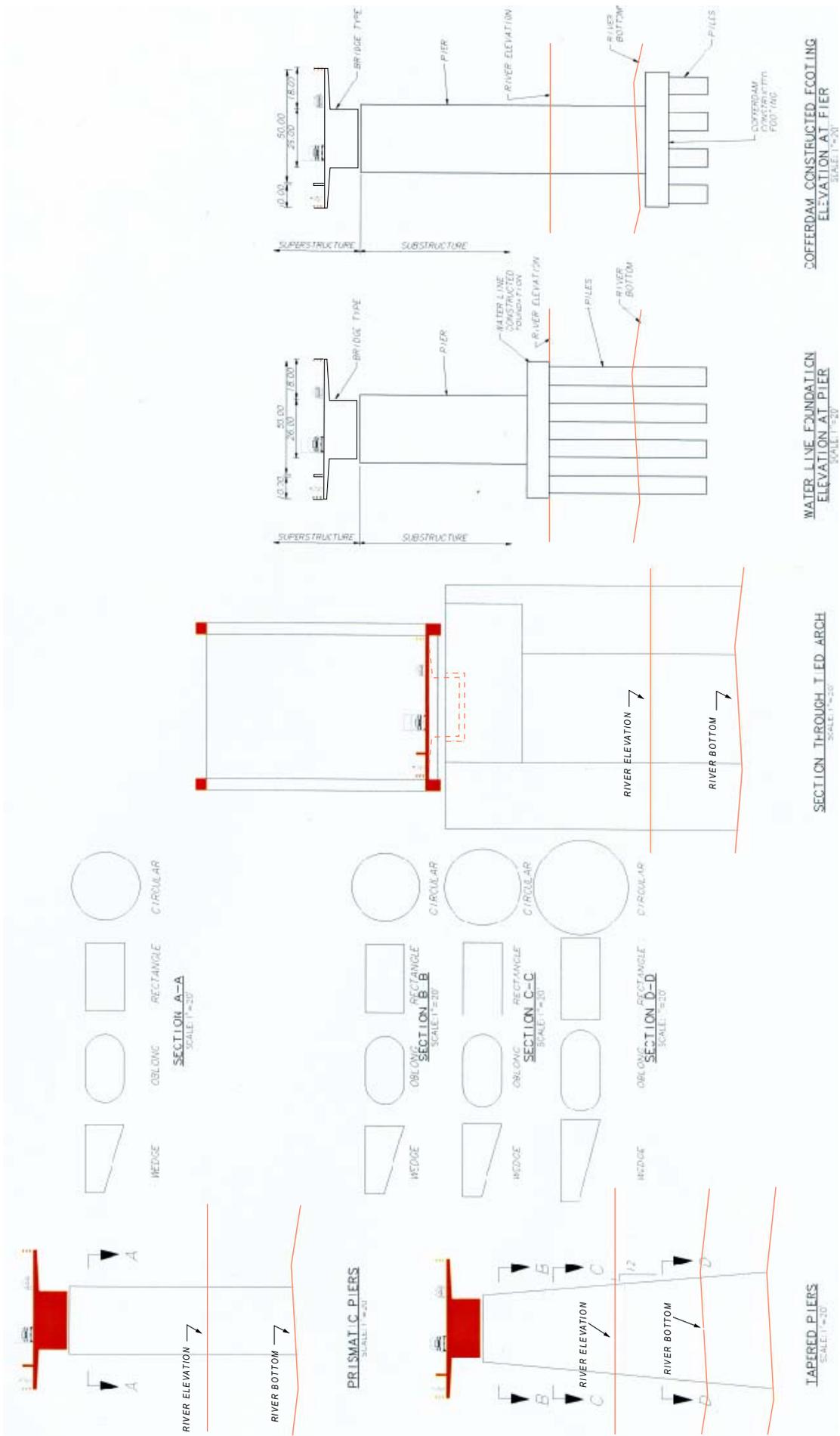
A representative from the Bureau of Indian Affairs (BIA) attended two or more of the coordination meetings with the Resource and Regulatory Committee.



Plan and Elevation Views

Figure 2-3

Alignments and Conceptual Bridge Types Considered for the Build Alternatives



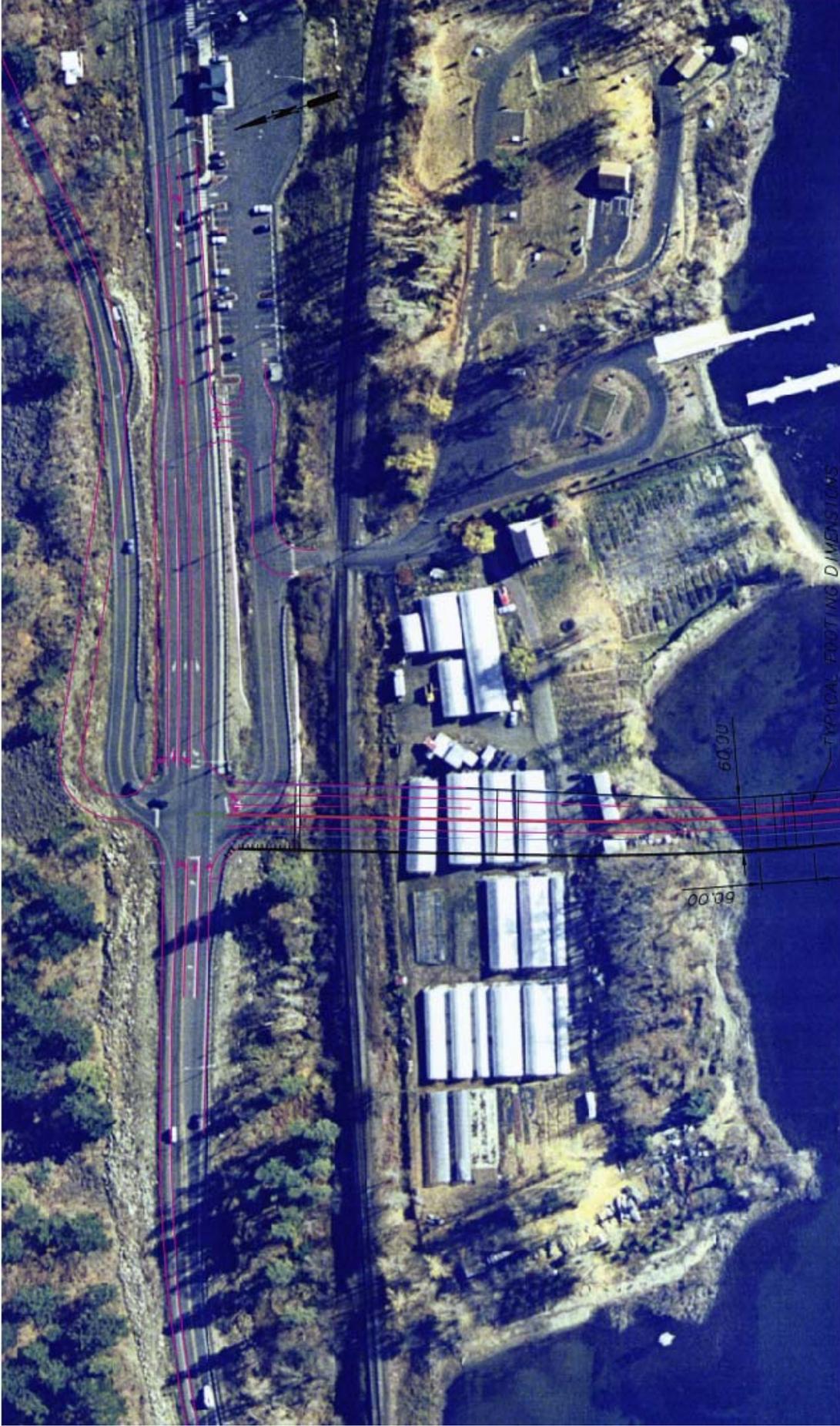
Details
 Figure 2-4
 Conceptual Superstructure and Substructure Elements for the Build Alternatives



South End

Figure 2-5

South End of All Build Alternatives



Plan EC-1 North End

Figure 2-6

North End of Alternative EC-1; West Connection to Dock Grade Road



Plan EC-2 North End

Figure 2-7

North End of Alternative EC-2: West Alignment



Plan EC-3 North End
Figure 2-8
North End of Alternative EC-3: East Alignment

Chapter 3

DEIS

SR-35 - Columbia River Crossing

Chapter 3 – Affected Environment

This section provides a description of the existing social, economic, and environmental setting of the area affected by the project alternatives. The environmental descriptions apply principally to the project area common to all of the alternatives. In some cases, additional descriptions for specific alternatives are included in Chapter 4.

Land Use

The project area contains a variety of existing land uses consisting primarily of commercial and recreational uses. The south shore, or Hood River side, has a higher concentration of development within the immediate vicinity of the bridge than the north shore, or White Salmon side. Figure 3-1 shows the existing land uses on the Hood River side and Figure 3-2 shows the existing land uses on the White Salmon side.

Zoning Designations

The project area is within the planning jurisdictions of the City of Hood River and the City of White Salmon. The City of Hood River Title 17 Zoning Ordinance, the City of White Salmon Title 17 Zoning Ordinance and related city zoning maps were analyzed to determine the zoning of the project area.

The existing Hood River Bridge and the proposed Alternatives EC-1, EC-2 and EC-3 are located within two zoning designations – General Commercial (C-2) on the Hood River side and Riverfront District (RD) on the White Salmon side. The two zones allow similar types of land uses, some outright and some subject to site plan and/or conditional use reviews. The following is a brief description of the two zones:

- General Commercial (C-2) – There are three types of uses allowed within the C-2 zone: (1) Permitted Uses subject to site plan review; (2) Permitted Uses not subject to site plan review; and (3) Conditional Uses.
- Riverfront District (RD) – The purpose of the RD zone is to allow planned development, such as recreational, commercial, light industrial, and limited residential uses. There are two types of uses allowed within the RD zone: (1) Principal Uses subject to site plan review; and (2) Conditional Uses subject to site plan review.

Applicable Plans and Policies

In addition to the zoning ordinance of each city, a number of different plans and policies provide additional guidance for land uses in the project area.

Columbia River Gorge Commission – “Management Plan for the Columbia River Gorge National Scenic Area” (CRGNSA)

In 1986 the United States Congress passed the CRGNSA Act. To achieve the purpose of the CRGNSA Act, Congress called for the preparation of the Management Plan. The Columbia River Gorge Commission adopted the Management Plan on October 15, 1991. The Management Plan received concurrence from the U.S. Secretary of Agriculture on February 13, 1992 and it was printed in September 1992.

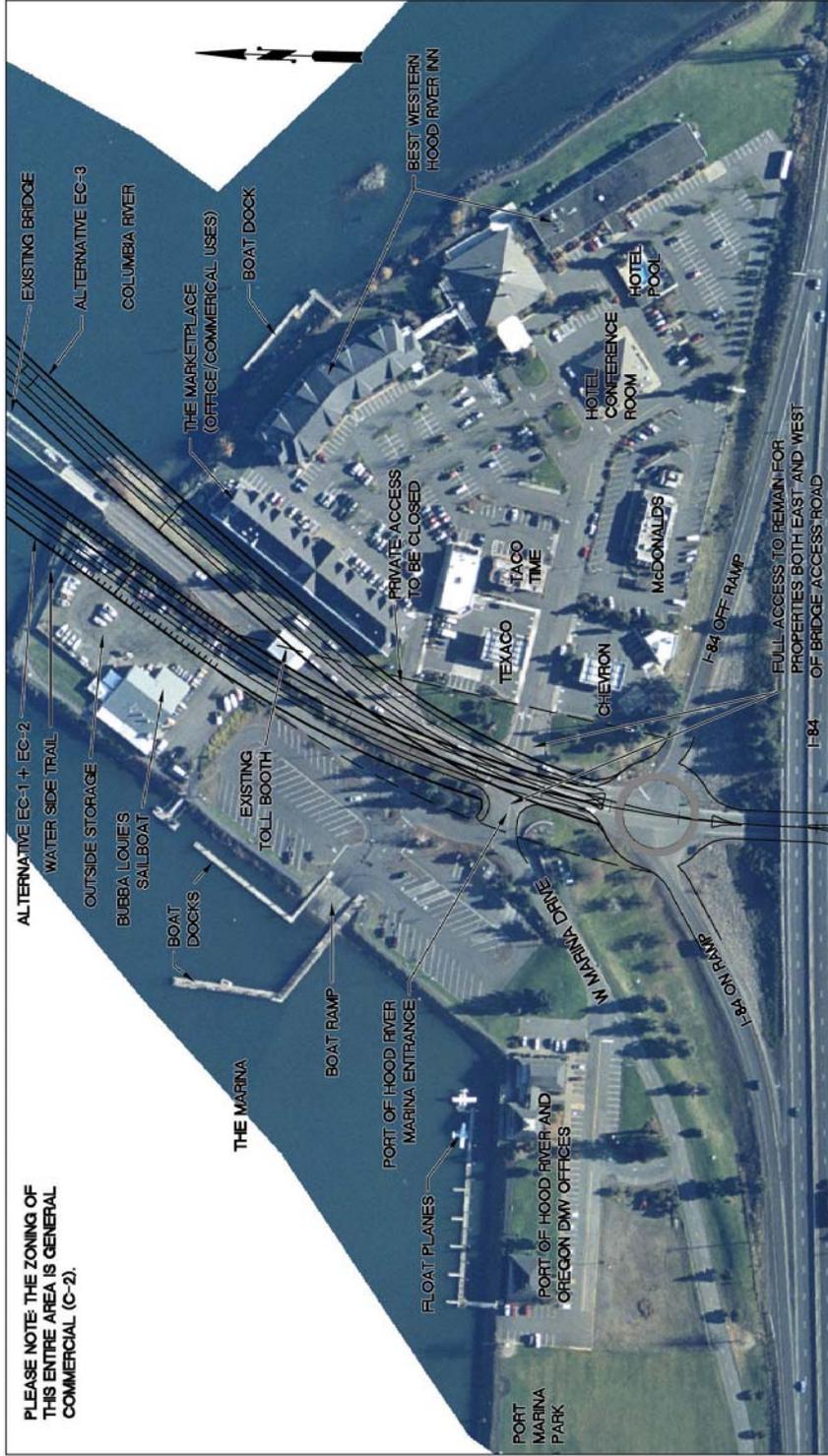
The Scenic Area is divided into three land categories: Urban Areas (28,511 acres), the Special Management Area (SMA; 115,100 acres), and the General Management Area (GMA; 149,004 acres). The Management Plan encourages future growth and economic development to occur in the Urban Areas. The SMA lands are concentrated in the western half of the Scenic Area and are managed more stringently than the GMA lands. The Columbia River is within the GMA, but the north and south approaches to all three of the proposed bridge alternatives would be located within the White Salmon and Hood River Urban Areas. The CRGNSA surrounding the White Salmon/Bingen and Hood River Urban Areas is shown in Figure 3-3.

Project Consistency

The following elements of the proposed action reinforce efforts to design and construct a new bridge that would be compatible with the resource goals and objectives of the CRGNSA, while serving the transportation needs of Hood River, White Salmon and Bingen:

- Proposing build alternatives that meet the purpose and need for the project
- Locating the new bridge in an existing bridge corridor
- Keeping the bridge approaches in nearly the same locations as the existing approaches to minimize the need for new grading cuts
- Using a wide spacing between piers and a ribbon-like thin concrete or steel profile to achieve a sense of structural transparency and to minimize the break in the skyline from Key Viewing Areas

All three of the bridge alternatives would have the north and south approaches located within the Scenic Area category of Urban Areas; improvements in these areas are exempt from the Management Plan. The portion of the new bridge located over and in the Columbia River is located in the GMA and is not exempt from Management Plan. However, the Management Plan contains no land use provisions in Part 1 of the Management Plan for uses on the Columbia River (Columbia River Gorge Commission, 2003).



Existing Land Uses on the South Side
 Figure 3-1
 Existing Land Uses on the Hood River Side

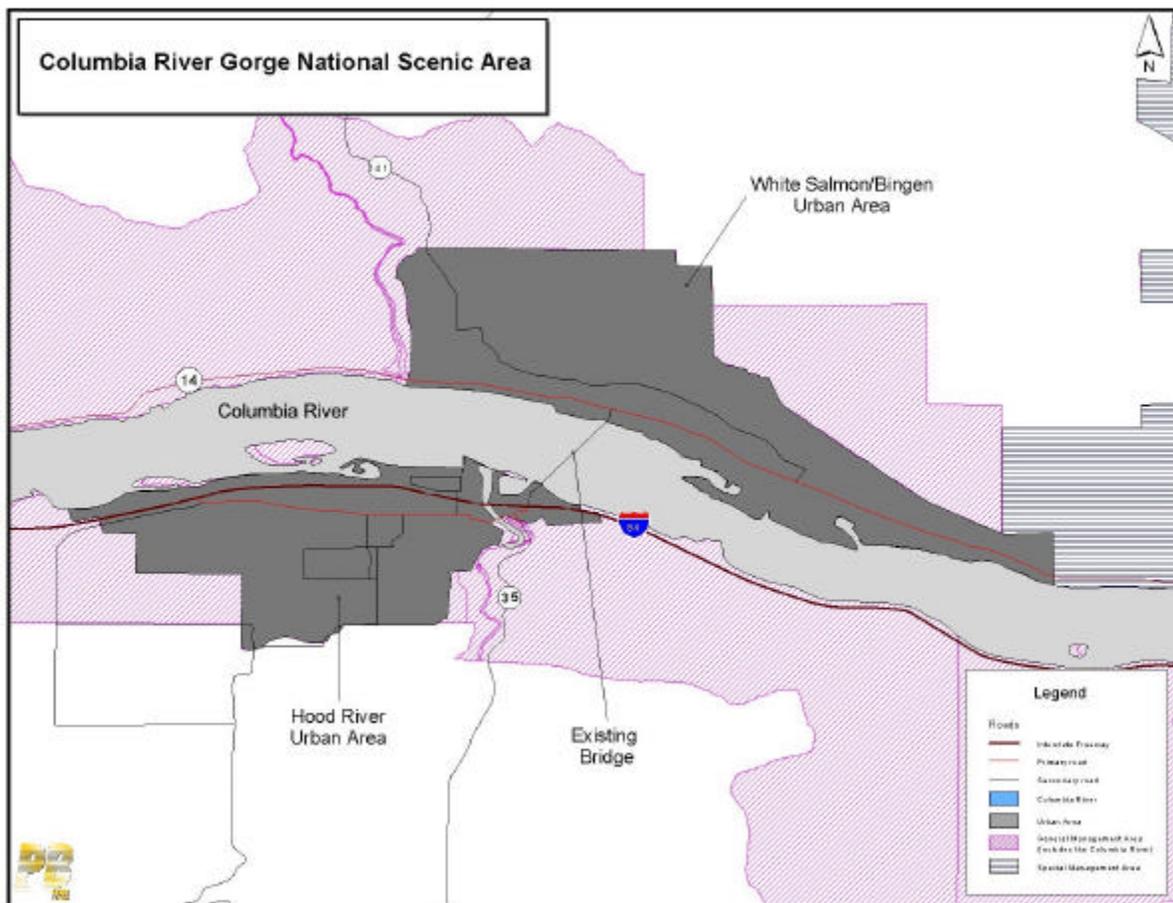


PLEASE NOTE: THE ZONING OF THIS ENTIRE AREA IS RIVERFRONT DISTRICT.

Existing Land Uses on the North Side
 Figure 3-2
 Existing Land Uses on the White Salmon Side

Columbia River Gorge National Scenic Area Vicinity Map

Figure 3-3



Resource provisions in the Management Plan were not developed with the intent of being applied to a new bridge over the Columbia River. (Columbia River Gorge Commission, 2003). Since the current Management Plan provisions do not adequately and clearly address uses in the Columbia River, a determination of whether or not 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 efforts 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. This consistency issue would need to be resolved prior to construction of any build alternative. Impact discussions in Chapter 4 of this report are written under the assumption that this issue will be resolved.

Southwest Washington Regional Transportation Council – “Klickitat County Regional Transportation Plan”

Adopted by the Southwest Washington Regional Transportation Council (RTC) in May 2003, the Regional Transportation Plan (RTP) was developed to meet the transportation issues facing Klickitat County and the region. The RTP identifies regional transportation system needs and outlines transportation plans and improvements necessary to maintain adequate mobility within Klickitat County and throughout the region. The goals, objectives and policies of the RTP will guide the various jurisdictions and agencies involved in the planning and programming of transportation projects.

A number of transportation issues are addressed in the RTP. One of the issues is accessibility across the Columbia River. The RTP recognizes that all bridges are important to the movement of people and goods within the region. Of great importance are those bridges that cross the Columbia River. It also states that, “SR-35 will provide a future link across the Columbia River to Oregon in the Bingen/White Salmon area.”

Project Consistency

The proposed Build Alternatives would construct a new bridge across the Columbia River connecting Hood River in Oregon to Bingen and White Salmon in Washington. This is consistent with the RTP, which states that SR-35 will provide a future link across the Columbia River to Oregon in the Bingen/White Salmon area. In addition, the RTP ranks the SR-35 bridge design as the number one Klickitat County transportation improvement. Ranked projects were prioritized based on a regional prioritization process that considered safety, economic development, congestion, connectivity, support and cost/funding. This list of projects, with the SR-35 bridge ranked number one, are projects for which a regional need has been identified and for which there is strong regional commitment. As a result the Build Alternatives would be consistent with the Klickitat County Regional Transportation Plan. The

No Action Alternative would be inconsistent with the RTP since it would not meet the goals, objectives, and policies of the RTP and would not meet the identified transportation needs of the region.

City of Hood River - "Transportation System Plan"

Adopted in June 1999 and amended in October 2001, the City of Hood River Transportation System Plan (TSP) guides the management of existing transportation facilities and the design and implementation of future transportation projects through the year 2021. As the transportation element of the City's Comprehensive Plan, the TSP identifies the same transportation goals and policies as the Comprehensive Plan. The TSP also sets forth future transportation improvements to the pedestrian system, bicycle system, landscape and lighting system, transit system, and the motor vehicle system. A number of short-range, intermediate-range, and long-range project recommendations are identified for each of the systems.

Project Consistency

Short-range and intermediate-range improvements to the Hood River Bridge are included in the list of recommended motor vehicle system projects to occur within the next 20 years. The new bridge would correct inadequacies in the existing bridge such as system linkage, modal interrelationships, safety and roadway and bridge standards. It would include bicycle/pedestrian facilities, enhancing the connection of the bridge to the Port of Hood River Marina and allow for planned future connections to downtown Hood River. By correcting the existing bridge inadequacies the new bridge would satisfy, at least in part, all seven of the transportation goals outlined in the TSP.

Klickitat County - "Shoreline Master Plan Update"

The Columbia River is a shoreline of statewide significance. The City of White Salmon has adopted the Klickitat County Shoreline Master Plan Update as the Shoreline Master Plan for the city. Any proposed development in a designated shoreline environment within the City of White Salmon would be reviewed by the City, but in accordance with the regulations of the Klickitat County Shoreline Master Plan. The Plan is consistent with the Washington State Shoreline Management Act and was developed locally by the Klickitat County Shoreline Advisory Committee. It was adopted on August 7, 1998 and amended April 9, 2001.

Two goals of the Klickitat County Shoreline Master Plan Update are protecting the natural environments of all Klickitat County rivers and providing management guidelines for the Columbia River shorelines that are compatible with the goals of the CRGNSA.

Eight land use elements form the foundation of the Shoreline Master Plan. Each element has specific goals, objectives, and policies that guide proposed development in shoreline areas. The Circulation

Element deals with the location and extent of transportation routes and other related public facilities in relation to shorelines.

Five shoreline environmental designations, each with a different environmental purpose and varying objectives, provide a basis for applying the management criteria of the Master Plan. A portion of the new bridge would be located within the Conservancy Environment¹. The purpose of the Conservancy Environment is to protect, conserve and manage existing natural resources and to provide recreational opportunities. New bridges in the Conservancy Environment would be a Conditional Use and would need to meet a number of policies and regulations.

Project Consistency

According to the Shoreline Master Plan, new bridges would be allowed as conditional uses in the Conservancy Environment. The proposed project would meet any applicable policies and regulations and would include mitigation measures intended to prevent adverse impacts to the river and shoreline during construction and operation of the bridge.

City of White Salmon – “Comprehensive Plan”

The White Salmon City Council initiated the development of the White Salmon Comprehensive Plan in the summer of 1990, with adoption in April 1991. The Comprehensive Plan guides current and future development of the city and its urban area by providing goals, policies and implementing measures on a variety of factors, including natural resources and hazards, historic sites and structures, environmental quality, parks and recreation, economics, transportation, public facilities, housing, and land use.

The transportation element is regarded as one of the most important elements of the Comprehensive Plan. This section includes two goals and a number of policies and implementing measures specific to transportation.

The land use element of the Comprehensive Plan recognizes the area between SR-14 and the Columbia River as a unique area capable of supporting planned tourism, commercial and light industrial development. The Riverfront Planned District (RPD), a new and specialized land use designation, was created to enhance the entrance into White Salmon.

¹ According to the Klickitat County Shoreline Map, the portion of the new bridge that is within the Conservancy Environment is over the Columbia River, not at the shore. The new bridge would exit this Conservancy Environment before reaching the shoreline in White Salmon. The Klickitat County Shoreline Master Plan does not designate a shoreline environment within the city limits of White Salmon. However, the City of White Salmon has indicated they have adopted the County Shoreline Master Plan in whole but have not designated a shoreline environment within the city limits, and they defer to the County Plan. Further investigation into this matter may be needed.

Project Consistency

The proposed project would link to the existing transportation network in accordance with stated goals and policies and would provide a safe and adequate bicycle/pedestrian route across the new structure. A new bridge would not preclude development of planned tourism, commercial or light industrial development in the RPD. Alternative EC-1 would create a new intersection with SR-14 and Dock Grade. A new intersection at this location is discussed in the Comprehensive Plan as one of the possible long-term improvements to the transportation network in White Salmon.

City of Hood River – “Comprehensive Plan”

The goal of the Hood River Comprehensive Plan is to protect and enhance the public health, safety and welfare of the Hood River citizens. Adopted in May 1983, the Comprehensive Plan was developed to govern the land use decisions within Hood River for a 20-year period through a series of 14 goals and associated policies, strategies and land use designations and standards; Goal 2 is Land Use Planning and Goal 12 is Transportation.

Project Consistency

The new bridge would rectify current and future transportation inadequacies associated with the existing Hood River Bridge. The current bridge is inadequate and deficient in regards to such things as system linkage, social demands, modal interrelationships, safety and roadway and bridge standards. The new bridge would correct these inadequacies, satisfying, at least in part, all seven of the transportation goals outlined in the Hood River Comprehensive Plan. The proposed improvements would also be compatible with the intent of the guidelines identified in the land use goal.

Hood River Valley Parks and Recreation District/City of Hood River – “Parks and Recreation Capital Facilities Master Plan”

The City of Hood River and the Hood River Valley Parks and Recreation District jointly developed the Parks and Recreation Capital Facilities Master Plan. As of November 6, 1998, the Master Plan focused on the parks and recreation needs of residents within the Hood River Urban Growth Boundary (UGB) and those visitor-related needs that impacted residents. The planning period was set to be twenty years, 1998 to 2017.

The existing park and recreation facilities nearest to the site of the proposed bridge are the Port of Hood River Marina and Event Site. Both of these existing facilities are west of the south bridge approach.

No neighborhood/school parks and mini-parks or community parks are proposed within the project area. An on-street/sidewalk trail link at the very south end of the project area, passing underneath I-84 along the

bridge approach road and then heading west along W Marina Drive, is proposed in the plan.

Project Consistency

The location of any of the three bridge alternatives would not preclude the development of the planned park and recreation improvements identified in the Master Plan. In addition, the preliminary designs of the proposed project would include bicycle/pedestrian facilities along the western side of the new bridge and continuing south until reaching W Marina Drive. These facilities would help foster the linear recreation connection in this area, as identified in the Master Plan.

Port of Hood River - "Strategic Plan"

The Port of Hood River Strategic Plan is Part I of the Port's Mission and Policies Manual. The Strategic Plan addresses three main concerns: (1) Financial Management, (2) Asset Management, and (3) Economic Development.

The goal of the Asset Management component is to manage the Port's assets with a synergistic and integrated strategy and to maintain the Port's properties to a high standard. Two assets identified in the Strategic Plan are directly applicable to the proposed improvements, the Hood River Bridge and the Marina. The Bridge objective is to continue managing and operating the bridge as authorized under federal law and to continue the Bridge Modernization Program. The objective for the Marina is to complete Marina landscaping and development projects, which includes supporting the recreational and commercial aspect of tourism while increasing use by local residents.

Project Consistency

The proposed project would be consistent with the strategies and action items of the Strategic Plan. The new bridge would also support the recreational and commercial aspect of tourism at the Marina. The bicycle/pedestrian improvements and improved circulation improvements would be consistent with objective of the Marina.

The Strategic Plan also calls for the completion of Marina landscaping and development projects. The alignment of Alternatives EC-1 and EC-2 could temporarily delay any planned landscaping improvements in and around the areas of construction. As mitigation, once construction is complete the existing landscaping and site furnishings could be replaced and planned improvements could resume.

Port of Hood River - "Marina Master Plan"

The Marina Master Plan, dated January 14, 1998, was written to help guide the future development of the Marina. The Master Plan identified three overall goals. It also provides general guidelines for landscape development and site furnishings that act as design criteria established to guide future development.

The Master Plan divides the Marina into eight different Area Zones. The Hood River Bridge is within Area Zone 8 Commercial Area. Area Zone 8 includes plans for new stairs, an asphalt walkway, dock and pile supports, benches, bollards, and landscaping.

Project Consistency

The proposed improvements could delay plans to improve Area Zone 8. The landscaping and site improvements for this area could resume once construction of the bridge were complete. In addition, as mitigation the existing landscaping and any site furnishings removed during construction would be replaced and restored to their original condition.

Port of Hood River – “River Walk Conceptual Landscape Plan”

The River Walk Conceptual Landscape Plan, dated April 2001, builds upon the Marina Master Plan by aiming to create a more attractive and usable Marina and its surrounding grounds. The Plan identified eight goals for the River Walk

Following the Master Plan, the River Walk Conceptual Landscape Plan divides the Marina site into nine different Sections and a Freeway Buffer Zone. Detailed improvements are specified for each Section. The Hood River Bridge abutment is in Section 1 and the bridge approach is in Section 2.

Project Consistency

The proposed project would not preclude the planned improvements of the River Walk Plan from being carried out. Some of the proposed project may need to be delayed, but once construction is complete plans associated with the River Walk Plan could continue. The proposed bicycle/pedestrian facilities planned on the west side of a new bridge would continue south to W Marina Drive, thereby enhancing trail connections to and from the Marina area. The new bridge could also improve the aesthetics and identity of the Port of Hood River and the city by serving as a new “gateway” into the city.

Klickitat County Port District Plans for Bingen Point

The Klickitat County Port District has a number of plans covering future development at Bingen Point, including the area around Bingen Lake and Bingen Marina. Located roughly two miles east of the existing bridge, this area is between the Columbia River and SR-14 just south of downtown Bingen.

- Bingen Point Business Park, Master Plan Phasing Maps
- Bingen Point Comprehensive Parks and Recreation Plan
- The Bingen Point Business Park Landscape Master Plan

- Draft Bingen Point Master Plan Conditions, Covenants, and Restrictions

The existing Hood River Bridge and the proposed alternatives are not located within the area regulated by the Klickitat County Port District plans.

Project Consistency

The Bingen Point Business Park Master Plan Phasing Maps do not indicate a planned Columbia River Bridge approach in the Bingen Point Business Park, nor do any of the above plans call for one. The proposed project would not preclude opportunities for development to occur in the Bingen Point Business Park as called for in the plans. In addition, the proposed project would not conflict with the goals and objectives of the Bingen Point Comprehensive Parks and Recreation Plan. A new bridge may improve access to these areas for people traveling from Hood River to the area, which would be consistent with the objective to improve access to the sail and swim beaches at the Bingen Point waterfront.

Native American Treaty Sites

Title IV of Public Law 100-581 (1987) directed the U.S. Army Corps of Engineers to establish Columbia River treaty fishing access sites (also referred to as treaty fishing access sites) for the Nez Perce Tribe, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation of Oregon, and Confederated Tribes and Bands of the Yakama Indian Nation. At least six sites are to be created on lands adjacent to the Bonneville Pool per this law.

A concentration of treaty fishing access sites in the vicinity of the proposed project provides a common gathering place for Native Americans who may reside in the local communities or travel from other places in the region. Three sites are currently in use within the study area and a fourth site is planned.

The treaty fishing access sites are owned and operated by the BIA and are fenced to allow access only to BIA staff and members of the abovementioned tribes.

Project Consistency

To ensure the project's consistency with the treaty fishing access sites, 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.

Transportation

Roadway System

The Hood River Bridge is one of nine bridges on the Columbia River along the Oregon/Washington border. Many of these bridges including the Hood River Bridge provide north/south highway connections between two major east/west highway systems – Interstate Highway 84 (I-84) and Washington State Route 14 (SR-14). In addition, the bridge is the northern terminus of Oregon State Highway 35 (OR-35), which provides north/south access between the Columbia River Gorge and Mt. Hood. The Hood River Bridge is one of three bridges located in the Columbia Gorge National Scenic Area (CGNSA); it acts as an important crossing point for recreational travel within the CGNSA.

The nearest available alternative river crossings are located 24 miles west of Hood River in Cascade Locks or 22 miles east of Hood River in The Dalles. The Dalles Bridge is the only one of these three bridges that has separate pedestrian and bicycle facilities. Much of the regional significance of the Hood River Bridge is derived from its connection between these two highway systems and between White Salmon/Bingen, Washington and Hood River, Oregon, as well as connecting the Ports of Hood River and Klickitat.

I-84, in Oregon, is the major east/west highway providing trucks and automobiles with access to the east from the valleys of western Oregon and Washington without the need for climbing the Cascade Mountains. I-84 is part of the Interstate Highway System and the National Highway System (NHS) and the State Highway Freight System. The Oregon Highway Plan adopted by the Oregon Highway Commission in 1999, sets out policy objectives that affect I-84 and its connecting roadways and bridges. Any proposed changes to the Hood River Bridge should be considered in light of the policies established by the Oregon Highway Plan.

SR-14 is a historic two-lane State Highway that provides the primary highway connections to the communities along the north shore of the Columbia River. SR-14 in Klickitat County begins at milepost (MP) 63.48 and is classified as R1-Rural principal arterial and changes to R3-Rural Collector at MP 101.44; it also is part of the National Highway System. SR-14 is the primary east/west highway on the Washington side and an important transportation corridor within the CGNSA. SR-14 is also a freight route and is classified as a T-3 Highway (300K to 5,000K tons of freight annually and 24 to 4,000 trucks daily) under Washington's Freight and Goods Transportation System. In the area of

the Hood River Bridge, SR-14 was recently improved to include turn lanes and shoulders.

Transit

Public transit service within Hood River County is coordinated by the Columbia Area Transit District (CAT). The district provides demand-responsive (dial-a-ride) service countywide. CAT's door-to-door service operates daily within Hood River. While the transit service is minimal, it does exist on both sides of the Columbia River. CAT has eight 20-passenger vans and one 30-passenger bus. It is planning to construct a multi-modal transit center on the Hood River waterfront, which could serve as a base for any transit-based operations over the bridge. At this time, CAT does not provide regular transit service across the Hood River Bridge.

Heavy Vehicles

The study area contains a variety of transportation modes for freight. In 1990, truck traffic accounted for eight percent of all vehicles using the bridge on a daily basis. A 1995 analysis used in the SR-14 Corridor Plan showed that the average annual daily traffic for trucks (AADT) on the bridge was over 500 trips.

Currently, the bridge has a weight restriction that prohibits heavier vehicles from using the bridge. In addition, the travel lanes on the bridge are very narrow. Each travel lane is 9 feet, 4 inches wide, which is not a sufficient width for a truck with a wide load to cross the bridge safely with oncoming traffic. For wide trucks to use the facility, the bridge must be temporarily closed and a pilot vehicle must guide the truck down the center of both lanes across the bridge.

Bicycle/Pedestrian

There are no bicycle or pedestrian facilities on the existing bridge. Pedestrians are prohibited and bicycles are discouraged. The expansion grates on the bridge impact bicycle and motorcycle tracking. WSDOT is building shoulders on SR-14 east from the bridge to Bingen as well as sidewalks that would accommodate bicycles and pedestrians. Both SR-14 and I-84 are bicycle touring routes.

Marine Transportation

Commercial traffic from Vancouver to The Dalles includes tugs and barges for commodity movements as well as cruise ships. Cargo shipments are generally downbound movements of agricultural products to Lower Columbia River deep draft ports for export and upbound movements of petroleum, fertilizers and chemicals for consumption in the communities to the east. Three to four tons of cargo move downstream for each cargo ton moved upstream.

Several barge lines, including Foss Maritime, Shaver Transportation, Bernert Barge Lines, Hickey Marine and Tidewater Barge Lines, operate tugs and barges on the Columbia-Snake system and pass through the Hood River Bridge. Barge lines typically use one tug to move multiple barges with the combination of vessels termed a barge configuration or tow. Columbia-Snake River barge configurations are somewhat restrained by the size of the dam locks on the system although a new lock at Bonneville Dam removed the largest system constraint in 1993. System locks are 86 feet wide and range between 650 feet and 675 feet in length. U.S. statistics for 1999 show that the average tow size through all the locks on the Columbia River is three barges (PB Marines and Ports 2003).

Cruise and tourist vessel traffic through Hood River includes sternwheelers and cruise ships and is more seasonal than barge traffic. During the fall and spring, small cruise ships from Alaska work the Columbia-Snake system with daily bridge crossings varying between one and three. In addition, two large sternwheelers, the *Queen of the West* and the *Columbia Queen*, travel the reach on a year-round basis, typically combining for four bridge crossings weekly.

While a great deal of barge traffic passes through the study area along the Columbia River, very little is generated or received in the study area. Neither the Port of Hood River nor the Port of Klickitat has loading and unloading facilities in the area. The same is true at the Port of Skamania and the Port of Cascade Locks to the west. The SDS lumber mill has a log-loading facility at Bingen, and further along in The Dalles there are two grain elevators and a wood chip loading facility.

Rail

Union Pacific (UP) owns and operates a railroad mainline on the southern side of the Columbia River. It provides connections to the west (Portland/Vancouver) and the east (Spokane and Boise).

On the north side, Burlington Northern Santa Fe (BNSF) owns and operates a mainline that parallels SR-14. Like UP, BNSF provides connections to the west and the east. At Bingen, the BNSF rail line has two industry tracks for SDS Lumber and one for Underwood Fruit, as well as two spur tracks that are primarily used by the railroad itself for car storage. Estimated traffic from these industries is about six cars per day, mostly heading east.

Amtrak operates the Empire Builder intercity passenger service along the railroad tracks on the north side of the Columbia River. Formerly, this service was daily but has been scaled back in recent years. It provides service between Portland/Vancouver, Boise, Denver, and Chicago. There is a passenger station in Bingen.

Amtrak formerly operated the Pioneer service along the UP railroad on the south side of the river. This service was discontinued in 1997-1998 along with other service cutbacks. There was formerly a passenger stop in Hood River.

A recreational short line railroad known as the Mount Hood Railroad operates excursion service out of Hood River, running south toward Mount Hood, to Parkdale. This service operates from April to December.

Air Travel

Although air travel within the Corridor is limited, it provides an essential form of transportation supporting business, agriculture, emergency services, and personal travel. There are four airports in Hood River County – Cascade Locks State Airport, Hood River County Airport, Handel Airport, and Green Acres Airpark.

Cascade Locks State Airport is located within the Cascade Locks city limits and is administered by the ODOT Aeronautics Division. It plays a supportive role to the state transportation system in terms of agricultural, recreational, and emergency uses. Hood River Airport is a general aviation airport located south of Hood River adjacent to Highway 281. It is owned and operated by the Port of Hood River and provides no regularly scheduled air service, being used primarily by small planes for agricultural, business, and personal uses. Handel Airport and Green Acres Airpark are small private airports located south of Hood River. In addition, the US Coast Guard has four seaplanes that operate out of the Port of Hood river boat basin on the Columbia River.

Major commercial air service is available approximately 50 miles west of Hood River at the Portland International Airport (PDX) in Portland. PDX is a full service airport, handling both passengers and cargo. The accessibility of Portland Airport and the wide range of services it offers limit the likelihood of significant expansions of the airports in Hood River County. There are also airports located in Troutdale and The Dalles that could be used by Hood River County residents.

Geology and Soils

Setting

Climate

The project is located in the transition zone between the wet western side of Oregon and Washington and the arid central and eastern side. The north side of the gorge has a dry microclimate due to the southern exposure of the steep gorge wall. The south side is wetter because the amount of sunlight is less on the north slopes. The area is characterized by partially vegetated thin, rocky soils with lots of exposed bedrock outcroppings and talus slopes.

Geology

The following discussions of the regional and local geology of the project area are taken from the baseline conditions report (Southwest Washington Regional Transportation Council 2001a) and from Walker and MacLeod (1991), Wells and Peck (1961), Walsh et al. (1987), Huntting et al. (1961), Alt and Hyndman (1984), and Waters (1973).

The base rocks underlying the stratigraphic column in the Columbia Gorge are part of the Ohanapecosh formation, composed of a mixture of old andesitic lava flows and the sedimentary debris eroded from them. The Eagle Creek formation overlies this formation and is composed of silts and sandstones derived from volcanic sources. These formations are exposed on the west end of the gorge, but covered by a combination of Miocene Columbia Plateau basalt flows and Pleistocene High Cascade basalt flows in the central and eastern end. The Ohanapecosh and Eagle Creek formations slope gently to the south and are almost impervious to water. Water percolates down through the overlying rocks and collects in the ancient soils on top of these formations, creating an unstable saturated layer where the overlying rocks are susceptible to mass movements to the south.

Massive basalt flows about 15 million years ago spilled into ancient Columbia River canyons multiple times, each time changing its course. Over time the river was pushed to the north into its current location. More recently, the Cascade Mountains uplifted and folded the basalt flows. The Columbia River cut through these flows as they uplifted. Erosion and lava flows from the Cascades filled parts of the ancient Columbia River Gorge, in some cases impounding the river for a time. During the last ice age (approximately 12- 16,000 years ago) repeated catastrophic flooding (Missoula Floods) originating from ice damming the Clark Fork River in Montana helped carve the steep-walled Columbia River Gorge through the layers of basalt and created enormous depositional features. Since the last of the Missoula Floods, erosion of the gorge walls and seasonal flooding of the Columbia River and tributary rivers have added unconsolidated sediments to the bottom of the gorge and re-worked some of the earlier flood deposits.

Soils

The soils on the south side of the project (south of the Columbia River) are composed of xerofluvents. According to the NRCS (2003), the project area lies within mapped soil unit 30A-Xerofluvents, nearly level. These soils formed in recently deposited alluvium from sandy and ashy outwash (in this case originating from the Hood River). These soils are generally well drained and permeable with only slight erosion hazard. The area around the south end of the existing bridge was a pear orchard from about 1919 until Bonneville Dam was constructed and the reservoir flooded the area, creating a swamp (Dames and Moore, 1965). In the 1950s, a dike was constructed around the area to retain sand pumped from the Columbia River as fill material. The soils on the north side of the project (where present) are silt loams. According to the

NRCS (Unpublished), the project area lies within mapped soil unit 49A-Kiakus silt loam, 2 to 5 percent slopes. These soils formed in loess and materials weathered from basalt and are found on benches and terraces (in this case an old Missoula Flood bar). These soils are moderately deep and well drained, although when wet they have a slow infiltration rate. Runoff potential is moderate.

Geologic Hazards

The geologic hazards within the project area fall into three major categories: erosional hazards, earthquake hazards, and volcanic hazards. Scott, et al. (1997 and 1995) and Beaulieu (1977) describe geologic hazards for Mt. Hood, Mt. Adams and parts of Hood River County.

Erosion

Erosional hazards are associated with normal erosion processes. The areas of greatest hazard from this type of process are associated with the steep slopes on the north side of the project area. Rocks and boulders falling from the steep basalt cliffs have built steep talus slopes at their bases. These slopes lie at the angle of repose and are susceptible to movement. Rockfall from the steeper cliffs above the slope is a low, but constant hazard.

Flooding may also cause erosion. However, because dams control much of the Columbia River system, serious flooding is very unlikely. In a major flood on the Hood River, some sedimentation near the south end of the bridge may occur.

Earthquakes

Part of the Hood River fault complex sits east of the project area. These faults are thought to be inactive over the past 1.6 million years (University of Oregon, 2003). No major earthquake activity has been associated with the project area or surrounding areas in recent history. Moderate earthquakes centered in the Willamette Valley and in areas to the east may periodically affect the project area. Periodic massive subduction zone earthquakes would affect most of the Pacific Northwest, including the project area. Within the project area, the hazards most likely to occur from earthquakes include damage to structures from liquefaction, ground motion amplification, and landslides. For more information on the risks of these hazards, see the SR-35 Columbia River Crossing Geology and Soils Technical Report (Parsons Brinckerhoff 2003).

Volcanoes

Two nearby volcanoes, Mt. Hood and Mt. Adams, may also pose a geologic hazard to the project area. A large eruption, landslide or debris flow on Mt. Hood could cause a lahar (a watery flow of volcanic rock

and mud) to rush down the Hood River valley and, depending on its size, cause catastrophic damage to the Hood River area. Scott, et al. (1997) indicate that a large lahar originating from Mt. Hood could inundate the south edge of the project area and create a large depositional delta. A large event could cause bank erosion and flooding on the north side of the project area and extensive sedimentation in the Columbia River. Eruptions, landslide or debris flows on Mt. Adams could cause a similar lahar to rush down the White Salmon River, approximately 1 mile downstream of the project area (Scott, et al., 1995). However, the project area is much less susceptible to damage from an event on Mt. Adams or surrounding areas than from an event on Mt. Hood, due to its distance from Mt. Adams and its location upstream of the mouth of the Hood River.

Waterways/Water Quality

Basins, Subbasins, and Project Boundaries

The existing Hood River Bridge crosses the main stem of the Columbia River at RM 191.4. Because the project is sited along the main channel, it is considered to be within the Columbia River Basin but is not contained within a particular subbasin. Washington resource inventory area (WRIA) 29 is adjacent to the Columbia River on the northern bank. WRIA 29 encompasses the watersheds feeding both the White Salmon River and the Wind River though these two rivers drain to the Columbia independently of one another. The Hood River Basin in Oregon is adjacent to the Columbia River on the southern bank.

All the alternatives for the proposed bridge replacement project lie within the riparian corridor of the Columbia River extending no further from the river than a few hundred feet on either side. The only exception to this is Alternative EC-1 that would include widening of Dock Grade, which extends up the northern wall of the river valley.

Hydrology

The Columbia River basin, upstream from Hood River, covers an area of approximately 237,000 square miles. Average annual flow at this point along the river is over 192,000 cubic feet per second (cfs) (USGS gage 17070105). The Hood River drains 339 square miles with average annual flows of 1,079 cfs (USGS gage 14120000). The White Salmon River drains 386 square miles with average annual flows of 1,122 cfs (USGS gage 14123500).

Climatic conditions produce high flows during the winter when precipitation is more frequent. Low flows occur in the summer as a response to the dry warmer weather typical of this season in the Pacific Northwest.

Water Quality

The Columbia River is the main drainage pathway for the project area. Both the White Salmon River and the Hood River enter the Columbia River downstream of the existing Hood River Bridge. Water from the project site under each of the alternatives would ultimately discharge to the Columbia River.

Water quality in and around the project area is generally good, although water quality in specific areas has been of concern. According to the Oregon DEQ and Washington State Department of Ecology (Ecology), the Columbia River in this area is listed as not meeting water quality standards under Section 303(d) of the Clean Water Act for several characteristics. The Columbia in this area is water quality limited for dissolved gases year-round and for temperature in the summer.

Social and Economic

The unique, world-renowned recreation opportunities in the project area create a strong social and economic interdependency for communities on both sides of the Columbia River. The embedded nature of recreation opportunities and economic dependence as well as other social and economic elements are further described in this section.

Community Cohesion

All of the proposed new bridge touchdown areas on both the Oregon and Washington shores are located in areas that facilitate transportation routes, especially cross-river connections (see Figures 3-1 and 3-2). No cohesive communities or linkages between residential areas and city centers are present in the study area.

The Hood River Bridge enables an interdependent, bi-state connection for the communities of White Salmon, Bingen and Hood River despite being located in two states. Residents routinely cross the bridge for work, shopping, recreation and other services. Hood River tends to offer more of these types of services due to its size; thus, a higher percentage of the routine cross-river trips tend to be generated by Washington residents (The Gilmore Research Group, 2001).

Columbia River Treaty Fishing Access Sites

Title IV of Public Law 100-581 (1987) directed the U.S. Army Corps of Engineers to establish Columbia River treaty fishing access sites (also referred to as treaty fishing access sites) for the Nez Perce Tribe, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation of Oregon, and Confederated Tribes and Bands of the Yakama Indian Nation. At least six sites are to be created on lands adjacent to the Bonneville Pool per this law.

A concentration of treaty fishing access sites in the vicinity of the proposed project provides a common gathering place for Native Americans who may reside in the local communities or travel from other places in the region. Three sites are currently in use within the study area and a fourth site is planned. The three sites in operation are located at:

- Stanley Rock along the Oregon shoreline, approximately 1 mile east of the Hood River Bridge
- West of the Hood River Bridge along the Washington shoreline, approximately 500 feet from the existing bridge
- White Salmon River confluence with the Columbia River along the Washington shoreline, approximately 1.7 miles west of the Hood River Bridge

The fourth site is proposed to be located approximately one-quarter mile east of the existing Hood River Bridge along the Washington shoreline. The location of this treaty fishing access site would be directly east of the parcel that currently houses the Bridge RV Park and Campground.

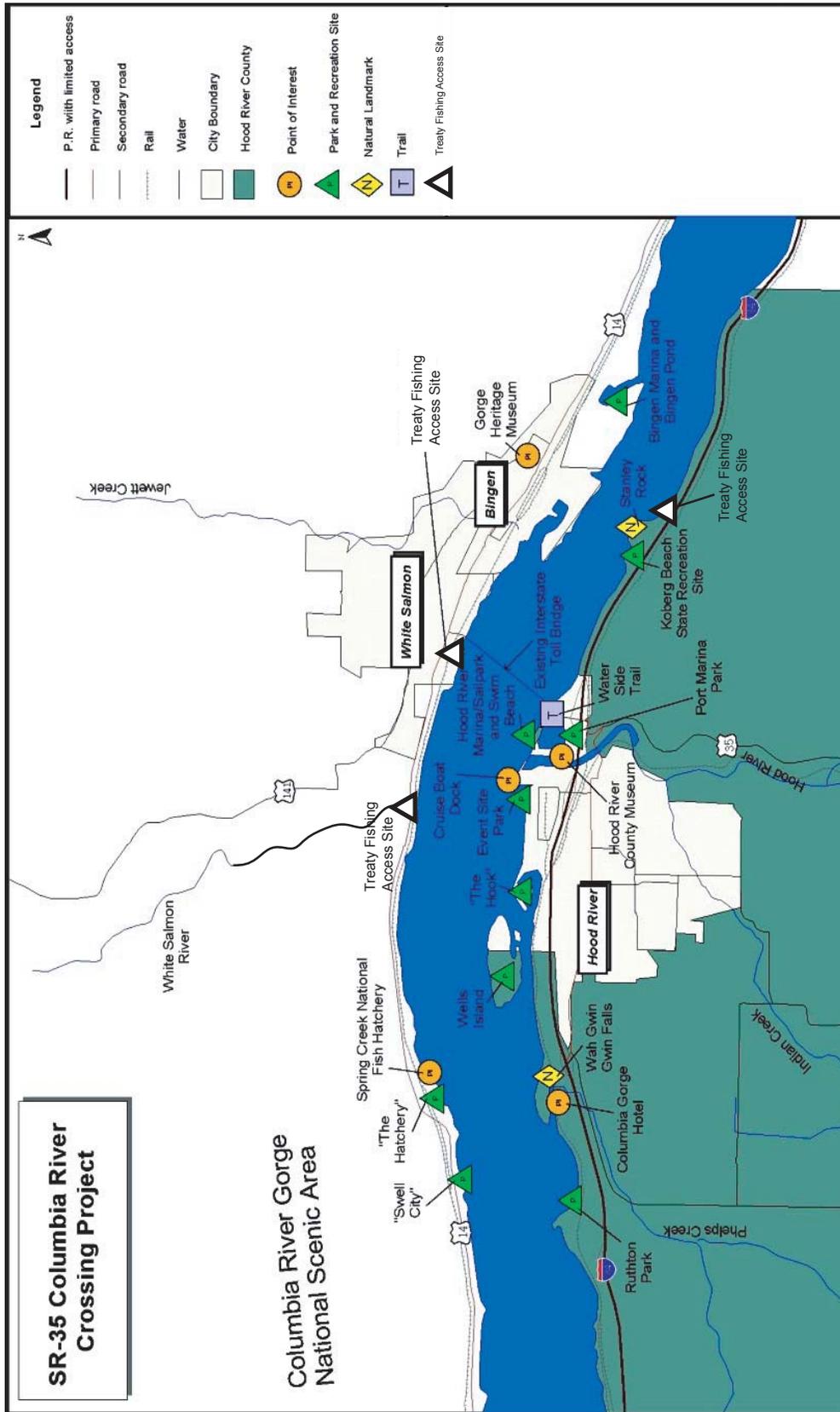
The treaty fishing access sites are owned and operated by the BIA and are fenced to allow access only to BIA staff and members of the abovementioned tribes. Improvements at these sites include all weather access roads, boat ramps, docks, camping and parking facilities, fish cleaning and curing facilities, sanitation, electrical and sewage facilities, and landscaping.

Recreation

Parks, Trails, Natural Landmarks, and Points of Interest

In general, the parks and recreation areas, recreation trails, natural landmarks, and points of interest in the study area are associated with the Columbia River. The majority of the sites are located along the Oregon shore. The dominant activities associated with these resources are river related, including boating, sailing, wind surfing, kiteboarding and fishing. The Columbia River Gorge, and Hood River area in particular, are world renowned for windsurfing. In 2000, kiteboarding was introduced to Hood River and has gained popularity quickly. Other recreation activities in the area include wildlife viewing, hiking and camping.

The locations of the parks and recreation areas, trails, natural landmarks, and points of interest along the Columbia River, and within the project study area, are shown in Figure 3-4. Additional city parks, recreation areas, recreation trails, natural landmarks, and points of interest are scattered throughout the City of Hood River, the City of White Salmon, and the areas surrounding the cities. These recreation sites are not represented on the figure because they are not located along the Columbia River or within the immediate project area. A list of recreation resources in the project area is provided below.



Parks and Recreation Areas
 Figure 3-4
 Trails, Natural Landmarks and Points of Interest

Sites within about one-half mile of the project area include:

- Waterside Trail
- Port Marina Park
- Hood River County Museum
- Cruise Boat Dock
- Fishing in the Bonneville Pool
- Pedestrian and Bicycle Facilities

The proposed project would not require direct or constructive use of lands associated with recreational resources; thus, section 4(f) or 6(f) evaluation would not be applicable. A temporary construction easement would be required for lands associated with the Waterside Trail. Activities in this easement would be of short duration during the construction of any build alternative. No change in ownership of the trail would occur and no long-term, adverse impacts would alter the activities, features or attributes of the trail. Therefore, a section 4(f) or 6(f) evaluation would not be applicable.

Regional and Community Population and Growth

The communities within the study area have experienced population growth over the last decade. Regional population growth on the Oregon side of the Hood River Bridge has been higher than regional populations on the Washington side. Population growth in Bingen (0.1 percent) has remained relatively unchanged whereas White Salmon (1.4 percent) has modestly increased and Hood River (2.3 percent) has increased at a higher rate than the State of Oregon (1.9 percent).

Racial composition for Hood River County and the City of Hood River is more diverse than the State of Oregon average. In Washington, Klickitat County appears to be less racially diverse than the state; however, the populations within Bingen and White Salmon indicate more racial diversity than the county and the state. People of Hispanic origin form approximately 20-25 percent of the population in Hood River County and the Cities of Hood River, Bingen and White Salmon. This is significantly higher than the average Oregon, Washington and Klickitat County population of this origin (7.5 to 8 percent).

The average size of households in the study area is similar to state averages. Hood River County indicates a slightly higher average (2.70 persons per housing unit) than Oregon (2.51 persons per housing unit). In contrast, average household size in Bingen (2.26 persons per housing unit) is lower than the average Washington household size (2.53 persons per housing unit).

Services

Social and Governmental

No educational facilities, religious institutions, social institutions (community centers, fraternal organizations, children's homes, etc.), medical facilities, and cemeteries are located within or adjacent to the proposed new bridge alignments.

The Hood River community is served by the Hood River County School District for K-12 education. Medical and dental clinics are present in the Hood River area as well as the Providence Hood River Memorial Hospital. Fire and police protection are also provided locally. The City of Hood River is the county seat of Hood River County, and hosts a county courthouse and administrative services. The City of Hood River is incorporated.

The White Salmon and Bingen communities as well as the outlying areas of Husum, Underwood, and Snowden are served by the White Salmon Valley School District for K-12 education. White Salmon hosts medical and dental clinics, the Skyline Hospital, and ambulance services. Fire and police protection are also provided locally. The Klickitat County seat is located in Goldendale, which is approximately 60 miles (driving distance) from White Salmon. Both Bingen and White Salmon are incorporated cities.

Utilities

Three utilities are attached to the Hood River Bridge as a means of making interstate connections. These utilities include: Sprint Telecommunications (conduit and cable), Northwest Natural Gas (natural gas pipeline) and Charter Communications Company (conduit and cable).

Environmental Justice

Executive Order 12898 requires federal agencies to determine whether agency actions would have a disproportionate adverse impact on minority and low-income populations. Title VI of the Civil Rights Act of 1964 requires that federal actions do not create an undue hardship on elderly, handicapped, or minority populations.

In general, Hood River County and the City of Hood River are more racially diverse, have higher proportions of persons of Hispanic origin, and have a higher percentage of households below the poverty level than the state of Oregon. Similarly, the cities of Bingen and White Salmon show higher proportions of minority populations compared to Klickitat County and the state of Washington. Further analysis was conducted to identify any concentrations of minority or low-income populations proximate to the proposed project.

Minority Populations

Analysis reveals that higher concentrations of minority populations are present in certain study area block groups. These block groups are not directly adjacent to the proposed project, and thus, would not be expected to be disproportionately affected by the project.

The percentage of Native Americans residing in Bingen, White Salmon and Hood River are similar to state and county averages. However, with the presence of three treaty fishing access sites within the study area, it is assumed that many Native Americans from areas outside of the study area travel to the Hood River/White Salmon/Bingen area to use the treaty fishing access sites. This population's presence would be expected to coincide with fishing seasons.

Low-Income Populations

The City of Bingen and two block groups in Oregon contain the highest proportion of low-income households in the study area. The percentage of households below the poverty level in these areas (19-21 percent) is almost three times the state averages (7-8 percent). Assuming that more Washington residents in the study area cross the bridge on a regular basis, the low-income households in Bingen could be vulnerable to future toll increases associated with bridge travel.

Elderly Populations

The proportion of elderly populations is relatively consistent throughout the project area. A slightly higher percentage of elderly persons live in White Salmon compared to neighboring Bingen.

General Economic Conditions

Agriculture, timber, lumber and recreation are the major sources of revenue and industry in Hood River County. There are more than 14,000 acres of commercial orchards growing pears, apples, cherries and peaches. Hood River County also has two ports and two boat basins, with one serving local barge traffic, a steel boat manufacturing firm and Mid-Columbia yachting interests. Windsurfing on the Columbia River is a popular sport and attracts windsurfers from all over the world.

Klickitat County's economic base is tied to agriculture, timber, and the Roosevelt waste dump. When compared with the rest of the state of Washington, the county has a much higher percentage of its work force in agriculture, manufacturing, and transportation and utilities.

Agricultural lands are suitable for orchards, vegetables, grasses, livestock and logging.

Trade

The Columbia River crossing at Hood River is key to the flow of goods, the flow of labor, and the flow of customers in the region. Interstate truck

transport dominates rail and river traffic in terms of transporting goods to and from the study area. Similarly, interstate labor flow within the region (and all person movement, for that matter) occurs almost exclusively by motor vehicle via the bridge crossing, as opposed to air, water, or rail.

Flow of Goods

Goods are transported through the project area by barge on the river, by railroad, and by truck. While a great deal of barge traffic passes through the study area along the Columbia River, very little is generated or received in the study area. The SDS lumber mill has a log-loading facility at Bingen.

A great deal of railroad traffic passes through the study area, but little is generated or received in the study area. At Bingen, the BNSF rail line has two industry tracks for SDS Lumber and one for Underwood Fruit, as well as two spur tracks that are primarily used by the railroad itself for car storage. Neither BNSF nor UPRR has a railroad yard in the project vicinity.

Ever since the Columbia River Highway was completed in 1915 as the first paved highway in the Northwest, the Hood River region has been a noteworthy milepost for east-west motor freight moving through the gorge. The completion of the Hood River Bridge in 1924 enhanced the connection and solidified the interaction of the local economies on both sides of the river. Today, trucks carry the bulk of the regional and interstate trade within and through the study area. Much of this truck traffic is interstate traffic that uses the existing Hood River Bridge.

Traffic counts for these vehicles peaked during the summer months of June through September, and were lowest in December through March, which is at least partly due to the seasonal nature of agricultural activity as well as truck traffic associated with services supporting tourism and recreation.

Businesses on the Washington side of the river generate a great deal of interstate traffic using the bridge because of the fast, efficient transport of I-84 located on the Oregon side of the river. Even if the destination of the goods is Washington or other points north, crossing over to I-84 in Oregon often saves time over using SR-14 on the Washington side.

There is also a significant amount of interstate truck traffic that does not use I-84, but links the Hood River economy with the western Klickitat County economy. Logging trucks link the wood-related industries on either side of the river, and fruit haulers cross over from the growers in the Hood River Valley to the facilities in Underwood just west of Bingen. Delivery trucks from a variety of companies are common. Concrete mixers, dump trucks, and chip trucks are also frequent participants in the interstate flow of goods across the river (Port of Hood River, 1999; Baker, 1999).

Flow of Labor

Over 300 workers from the Bingen and White Salmon worked outside their state of residence, presumably in Oregon, according to U.S. Census 2000 information. These workers amount to nearly one-quarter of the Washington-based employment in these cities. Additional workers in non-incorporated, nearby areas commute to Hood River as well. In contrast, approximately 125 workers (less than four percent) from Hood River worked outside their state of residence, presumably in Washington.

Flow of Customers

Residents of western Klickitat County often cross over to Hood River for shopping, dining, and entertainment, because the Hood River area offers a wider range of such options than do White Salmon and Bingen. For example, there is no currently operating movie theatre in the White Salmon/Bingen area. The Wal-Mart in Hood River is also a draw for Washington shoppers. The fact that Oregon has no sales tax, combined with a 7 percent sales tax in the Washington part of the study area and Washington's lower property taxes, supports this relationship of Washington residents shopping in Oregon.

The annual average daily traffic of 7,600 cars and two-axle trucks using the Hood River Bridge reflects in part this significant flow of customers. Moreover, the seasonal peaking to over 9,000 vehicles per day in the summer months is in part attributable to recreational travel, including that associated with windsurfing. Windsurfers staying in, residing in, or renting equipment in Hood River use the bridge to access launch sites on the Washington side, including Swell City, The Hatchery, Bingen Marina, and Doug's Beach.

Annual retail sales volume data and number of retail establishments by county and city support the idea that the City of Hood River is the economic center not only for the study area, but also for much of Klickitat, Skamania and Hood River Counties. Retail sales data for the City of Hood River is nearly three times that for all of Klickitat County, and on a per capita basis, is over three times that of Bingen and White Salmon combined.

Employment Trends

The largest industry sectors in terms of employment within Hood River County are education and health (19 percent), agriculture (14 percent, including forestry, fishing, hunting and mining), retail trade (12 percent) and entertainment and recreation (10 percent, including arts and accommodation and food services).

The strength of the entertainment and recreation sector is likely due to the relatively recent rise in recreational development and its contribution to economic activity. The Hood River area of the Columbia River Gorge has become a major windsurfing capital, and many other outdoor

recreation opportunities abound, creating an attraction for tourism. Retail trade's importance may also be explained by the lack of sales tax in Oregon, which effectively creates a 7 percent discount for nearby Washington residents, many of whom cross the river to shop in Hood River.

Although Klickitat County shares a similar distribution of employment in three of the four industry sectors, manufacturing plays a bigger role than in Hood River County. The entertainment and recreation sector (7 percent) is less prominent.

Entertainment and recreation provide one in seven jobs for the cities of Hood River and Bingen and one-tenth of the jobs in White Salmon. Manufacturing plays a larger role of jobs in Bingen, whereas agricultural jobs are found outside of the cities.

Personal Income and Earnings

In the City of Hood River, the proportion of household income that is derived from earnings (76.8 percent) is lower than the Hood River County and Oregon averages of about 81 percent. A higher proportion of city households depend on income from Social Security and public assistance with less reliance on retirement income.

In Bingen and White Salmon, as well as Klickitat County as a whole, the proportion of households deriving their incomes from earnings is less than the state average. As in Hood River, more city households depend on Social Security, Supplemental Social Security, and public assistance. Bingen median household incomes (\$24,375) are substantially lower than neighboring White Salmon (\$34,787) and Klickitat County (\$34,267), and are almost one-half the state median (\$45,776).

Unemployment rates in Klickitat County and Hood River County have historically been higher than, and sometimes twice as high as, the respective state average rates. Most recently, Klickitat County in particular has experienced considerably high rates with over 15 percent unemployment on average during 2001.

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). In addition, several other cultural resources were identified along the shorelines of the project area. These resources are further described below.

Hood River Bridge

The Hood River Bridge is a 0.9-mile-long steel interstate bridge that was privately built but has been owned by the Port of Hood River since 1950 (*Hood River News* 1998). The bridge is not currently listed as a historic bridge in either Oregon or Washington. During an Oregon bridge survey in the 1980s (Ozbun and Fagan 2002:2), the bridge was assigned to a reserve category. A reserve category has no legal standing, instead it means that the structure was not considered eligible for listing in the NRHP at that time, but did exhibit some historical and technological importance (Smith et al. 1989:267, 288).

Based on input from the Oregon Office of Archaeology and Historic Preservation (OAHP) and the Washington State Historic Preservation Office (SHPO) staff historic preservation specialists, the Hood River Bridge is likely to be considered eligible for listing in the NRHP under Criterion A, for its association with transportation history in both Oregon and Washington as one of five steel bridges constructed across the Columbia River during the 1920s, marking the beginning of a major bridge building era. It is also recommended for eligibility under Criterion C, as a representation of a Petit truss structural system, a standard truss form adapted for elongated bridges. The historic-period modifications to the bridge included the addition of a vertical lift mechanism and new approach spans. These changes are considered part of the structural significance of the bridge. The bridge is the second-oldest highway bridge across the Columbia River between Oregon and Washington (the Portland-Vancouver bridge is the oldest).

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. Further studies would be conducted as part of the Final EIS to verify this assumption.

The steel-truss toll bridge consists of a 262-ft through-truss Pennsylvania-Petit vertical-lift span and sixteen 208-ft long steel deck-truss secondary spans (Smith et al. 1989:288). The bridge has a vertical clearance of 72.3 feet, which is an adequate height to allow most tugs to pass under without lifting the span (Port of Hood River 2000). The bridge rests on original concrete piers and has an open-grate steel deck that was added in 1951.

The Hood River Bridge was originally called the Waucoma Interstate Bridge. The bridge was privately financed when built in 1924, but was sold to the Port of Hood River in 1950.

As originally built, the bridge was a fixed channel span bridge that was modified in 1938. A vertical lift mechanism was added in conjunction with the completion of Bonneville Dam downstream.

The Port of Hood River replaced timber trestles beneath the bridge approaches with two steel-girder spans and replaced the original wood deck with steel in the early 1950s. Other improvements to the bridge include a 1965-1967 replacement of railings and curbs with steel posts, the addition of mercury vapor lights, and a replacement of the tollbooth with a sheet-metal building. Several improvements and modifications

since that time have not altered the historical appearance of the bridge (*Hood River News 1998*; Port of Hood River 2000, 2003).

Archaeological and Historical Sites

Several known archaeological and historical sites have been identified in the shoreline in the vicinity of each of the build alternatives. These resources include the Union Pacific Railroad, the Burlington Northern Santa Fe Railway, the Evergreen Highway (SR-14), the Historic Columbia River Highway, and several archaeological and/or traditional sites used by Native Americans. Specific information on the latter sites is not disclosed in order to protect the integrity and values of these resources.

In addition, several potential sites may be below the water level of the current Bonneville Pool and are associated with an earlier shoreline level. Site locations typically are not reported, but they may include sites associated with Native American archaeology and habitation, as well as historic buildings and boat landings. Most of the sites are not well described in terms of their cultural resources value and require additional efforts to determine their condition, extent, and eligibility for the NRHP.

As part of the Final EIS, further studies would be conducted on the preferred alternative to determine whether any cultural resources in the project area are eligible for listing in the NRHP. If any resources are 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.

Vegetation and Wetlands

The project area comprises the Columbia River and areas landward that connect White Salmon and Bingen, Washington, to Hood River, Oregon.

The project is located in the transition zone between the wet western side of Oregon and Washington and the arid eastern side. A mixture of Douglas-fir, ponderosa pine, and shrubs exists along the southern side of the Columbia River Gorge near Hood River. The north side of the gorge near White Salmon is dominated by white oak, Douglas-fir, ponderosa pine, and shrubs. The greater southern exposure of plant communities on the north side of the gorge tends to favor drier site species, such as the white oaks.

Hillside seeps along portions of Dock Grade and ditches along the railroad tracks showed characteristics of wetlands. However, it is unlikely that the Corps of Engineers would consider these jurisdictional. No other wetlands likely to be considered jurisdictional by the Corps of Engineers were identified on the alternative alignments.

Fish and Wildlife

The 1,214-mile-long Columbia River drains 259,000 square miles of the northwestern United States and southern British Columbia, Canada, into the Pacific Ocean. The Columbia River originates in British Columbia, flows southwest through Washington State, and then flows west along the Washington/Oregon border to the Pacific Ocean.

Eleven hydroelectric dams on the Columbia River and four dams on the Snake River limit anadromous fish migration and affect resident fish habitat. These dams create impoundments that reduce flow rates, allow settling of sediments, and control water level elevations as compared to historical free-flowing conditions of the river.

The project is located on the Columbia River and links I-84 and SR-14 across the river. The project spans an impoundment on the Columbia River behind the Bonneville Dam, which is known as the Bonneville Pool. The average depth of the Bonneville Pool at the crossing is about 40 feet deep. The project would impact both the Oregon and Washington sides of the Columbia River and the Columbia River itself.

Fish habitat in the area potentially affected by the project is limited to the Bonneville Pool of the Columbia River. Resident and anadromous fish species use the pool and the principal tributaries, Hood River and the White Salmon River, for a variety of life functions, including spawning, feeding, rearing, and transportation. Anadromous salmon, steelhead, and sea-run cutthroat trout primarily use the river in the project area as a migratory route between upriver spawning areas and the Pacific Ocean. Lists and supporting information for resident and anadromous fish species are included in the Fish and Wildlife section of Chapter 4.

A variety of wildlife species use the Columbia River and adjacent riparian and hillside habitats. Sensitive wildlife species known to occur in the project area or for which suitable habitat is present include the western gray squirrel, California mountain kingsnake, bald eagle, peregrine falcon, Oregon spotted frog, and the yellow-billed cuckoo. A variety of other birds, such as gulls, use habitats along the river, and songbirds use riparian shrubs and trees.

The Migratory Bird Treaty Act is the domestic law that affirms, or implements, the United States' commitment to four international conventions (with Canada, Japan, Mexico, and Russia) for the protection of a shared migratory bird resource and decrees that all migratory birds and their parts (including eggs, nests, and feathers) are fully protected. Migratory birds that may be affected by the project include songbirds and waterfowl.

More information about the species in the project area is included in the Fish and Wildlife section of Chapter 4.

Air Quality

Air quality in the project study area is regulated by the U.S. Environmental Protection Agency (EPA), Ecology Central Regional Office, and Oregon Department of Environmental Quality (DEQ) Eastern Region. The project area is also near the Southwest Clean Air Agency (SWCAA). Under the Clean Air Act, U.S. EPA has established the National Ambient Air Quality Standards (NAAQS), which specify maximum concentrations for carbon monoxide (CO); particulate matter less than 10 micrometers in size (PM₁₀), ozone, sulfur dioxide, lead, and nitrogen dioxide. These pollutants are referred to as criteria pollutants. The project area is in attainment for all NAAQS.

The project area is located in the CRGNSA. The enacting legislation for national scenic areas includes protection of scenic, natural, cultural, and recreational resources. To preserve air quality in the Columbia River Gorge, Ecology and DEQ have established the Columbia River Gorge Air Quality Project, which is conducting a scientific study of air quality in the project study area and also developing an air quality strategy for the CRGNSA. The proposed project is consistent with the goal and mission given to Oregon and Washington and the Air Quality Committee to develop an air quality strategy that protects and enhances the scenic, natural, cultural and recreational resources of the Columbia River Gorge in a manner consistent with the first purpose of the Scenic Area Act.

Visual

For the purposes of the visual assessment, the project area was studied from four main viewing areas: (1) CRGNSA Key Viewing Sites, (2) Hood River, (3) White Salmon and (4) from the Hood River Bridge. Views of the project extend to numerous vantage points within five miles of the bridge, primarily east and west along the Columbia River. Viewers include local residents and employees, motorists, visitors, a number of different recreationalists and river users.

Visual resources, such as the Columbia River, Hood River, White Salmon River, and the surrounding bluffs, are the physical features that make up the visible landscape, including land, water, vegetation and man-made elements. They tend to be more conceptual, esoteric, and open to wider interpretation than other resources. Due to their dramatic composition or relatively undisturbed state, they can have outstanding or remarkable value to the general public.

CRGNSA Management Plan

Features of and consistency of the project with the CRGNSA Management Plan is presented under Land Use in Chapter 4.

The Management Plan recognizes Washington SR-14 and SR-141, I-84, Oregon Highway 35 (OR-35), and the Historic Columbia River

Highway as Scenic Travel Corridors and seeks to coordinate efforts with state and local agencies to meet a number of goals, objectives, policies and guidelines aimed at preserving their scenic value.

The scenic travel corridors program acknowledges the importance of these travelways to the Scenic Area. It provides measures to protect and enhance the scenic qualities of the landscapes within the foregrounds of these roads.

The Management Plan for the CRGNSA identified several “key viewing areas” throughout the Scenic Area. These key viewing areas are portions of important roads, parks or other vantage points within the Scenic Area from which the public views the Scenic Area landscapes. An assessment of the visual quality of the existing Hood River Bridge from eight of these key viewing areas was conducted.

Roadside Classifications

According to the WSDOT *Roadside Classification Plan* (1996), the roadside classification for SR-14 on the Washington side is rural and semi-urban. The rural landscape is characterized by intermixed built and natural or naturalized elements, with built elements beginning to encroach on the natural environment; human manipulations of the land are evident. A roadside classified as rural is characterized by natural-appearing landforms and vegetation. The semi-urban landscape is characterized by intermixed built and natural or naturalized elements, with built elements prevailing. A roadside classified as semi-urban is transitional in character.

ODOT does not classify the character along the highways on the Oregon side, nor do the cities of Hood River and White Salmon.

FHWA Criteria

The FHWA criteria on vividness, intactness, unity, and setting, used in determining potential visual impacts, were applied to existing views from specific locations along the project corridor.

Vividness is the memorability of the visual impression received from contrasting landscape elements as they combine to form a striking and distinctive visual pattern.

Intactness is the integrity of visual order in the natural and human-created landscape, and the extent to which the landscape is free from visual encroachment.

Unity is the degree to which the visual resources of the landscape join together to form a coherent, harmonious visual pattern. Unity refers to the compositional harmony or intercompatibility between landscape elements.

There are three terms that can be used to describe distance relationships: Foreground (0.0 to 0.5 mile) from viewer); Middleground (0.5 to 5.0 miles from viewer); and Background (>5.0 miles from viewer).

Foreground is that area which can be designated with clarity and simplicity not possible in the middleground and background because the viewer is a direct participant in the view. Middleground is where the parts of the landscape can be seen joining together, hills become a range or trees make a forest. Background is the area where distance effects are primarily explained by aerial perspective; surfaces of landforms lose detailed distinctions; and emphasis will be on outline or edge.

Visual Assessment of Existing Views

An assessment of the visual quality of the existing views to and from the Hood River Bridge was conducted from 15 viewing locations:

- 8 Key Viewing Areas
- 4 Hood River sites
- 2 White Salmon sites
- Existing Hood River Bridge

A summary of this assessment based on the FHWA criteria of vividness, intactness, unity, and setting is provided in Table 3-1.

Views from the CRGNSA Key Viewing Sites

The eight key viewing sites were:

- Historic Columbia River Highway
- Highway I-84
- Koberg Beach State Recreation Park
- Washington SR-14
- Cook-Underwood Road
- Columbia River
- Washington SR-141
- Oregon Highway 35

Views from Hood River

The existing Hood River Bridge is visible from a number of vantage points in and around downtown Hood River, as well as from the recreation sites along the south shore of the Columbia River. An assessment of the visual quality of the existing Hood River Bridge from four vantage points in Hood River was conducted. The four viewing sites were:

- Between downtown Hood River and the neighborhood to the south
- Waterside Trail near the existing south Hood River Bridge abutment
- Hood River Marina/Columbia Gorge Sailpark and swim beach
- Port of Hood River event site

Table 3-1 Summary of Visual Assessments Based on FHWA Criteria				
View From	Setting	Vividness	Intactness	Unity
CRGNSA Key Viewing Areas				
Historic Columbia River Highway	Middleground	Moderate	High to Moderate	High to Moderate
Highway I-84	Middleground	Moderate	High to Moderate	High to Moderate
Koberg State Beach Recreation Site	Middleground	Moderate	High to Moderate	High to Moderate
Washington SR-14	Middleground	High	High to Moderate	High to Moderate
Cook-Underwood Road	Middleground	High	High	High
Columbia River	Foreground or Middleground	High	High	High
Washington SR-141	Middleground	Low to Moderate	High to Moderate	High to Moderate
Oregon Highway 35	Middleground	Low	Low to Moderate	Low to Moderate
Hood River Views				
Between Downtown Hood River and Neighborhood to the South	Middleground	Moderate to High	High to Moderate	High to Moderate
Waterside Trail on South Shoreline	Foreground	Moderate to High	Moderate	Moderate
Hood River Marina/Columbia Gorge Sailpark and Swim Beach	Foreground or Middleground	Moderate to High	Moderate	Moderate
Event Site	Middleground	Moderate to High	Moderate	Moderate
White Salmon Views				
Dock Grade	Middleground	Moderate	High to Moderate	High to Moderate
Park and Ride	Middleground	Moderate to High	Moderate	Moderate
Hood River Bridge				
Existing Hood River Bridge	Foreground	Moderate to High	Moderate to High	Moderate to High

Views from White Salmon

The existing Hood River Bridge is predominately visible from the portion of White Salmon between the Columbia River and the steep cliff side on which Dock Grade is located. Other views of the bridge within White Salmon are along portions of Cook-Underwood Road and along Washington SR-141. No views of the bridge are visible from downtown White Salmon. An assessment of the visual quality of the existing Hood River Bridge from two vantage points in White Salmon was conducted.

- Dock Grade
- City of White Salmon park and ride

Views from the Hood River Bridge

Motorists' views from the existing Hood River Bridge are partially obscured by the bridge structure itself. While crossing the bridge the

foreground views are dominated by the bridge itself and the Columbia River below. Approaching the Washington shore the foreground view becomes SR-14, vegetation on both sides and the steep cliff leading up to White Salmon. Approaching the Oregon shore the foreground view becomes occupied with the commercial development around the bridge approach, the Port of Hood River recreation sites and the bridge's toll booth. Middleground views are of the cities of Hood River, White Salmon and Bingen and background views are of the surrounding mountains, the Columbia River Gorge, the Columbia River and the sky.

Hazardous Materials

No specific, known hazardous waste sites were identified in the project area from data sources reviewed for the project. Hazardous material concerns at the project area are related to historic and current site uses. Specifically, concerns include potential contaminants contained within the existing bridge; plant nursery buildings; BNSF Railroad Line along the Washington State side of the Columbia River; groundwater, sediment, and/or soil at pier locations; pole-mounted transformers located along Washington's SR-14 and one pad-mounted transformer located north of the Marketplace building on the Oregon side; Bubba Louie's Sailboat property; and the former Bingen and White Salmon docks located on submerged portions of the properties currently owned by the plant nursery and the Columbia River Treaty Fishing Access Site.

Hazardous materials of concern include lead-based paint used to paint the existing bridge and asbestos potentially used in bridge mechanical equipment associated with the lift mechanism and other buildings that may need to be removed. Other hazardous materials that may be associated with these sites include pesticides and fertilizers associated with the nursery site and chemically treated wood ties associated with the BNSF railroad corridor. Transformers, depending on their age, could contain PCBs, and uncontrolled spills or dumping of solvents, fuel, and oil could have occurred at several of the sites.

Chapter 4

DEIS

SR-35 - Columbia River Crossing

Chapter 4 – Environmental Consequences

This chapter examines the environmental consequences of the No Action Alternative and the three build alternatives – Alternatives EC-1, EC-2, and EC-3. Alternative EC-2 is the preliminary preferred alternative. Each topical section summarizes the studies and coordination undertaken in preparing the evaluation and may provide supplemental information about the affected environment where more detailed information would be helpful to understand the environmental impacts of the alternatives. Each section also includes a discussion of project impacts and mitigation.

The environmental consequences throughout most of the chapter address operational impacts, which are considered to be impacts that would occur after construction of the project. Such impacts are typically associated with ongoing operation and maintenance or from the continued presence of the bridge and approaches. Such impacts often may be considered long term.

Construction activity impacts are impacts that occur typically over a shorter time period during and shortly after construction. They are often considered to be temporary or short term. Impacts that would occur during the construction phase are discussed in a dedicated section of this chapter – Construction Activity Impacts. Mitigation to address construction-related impacts is also presented in that section of Chapter 4.

Several studies, analyses and technical memoranda were prepared for the Southwest Washington Regional Transportation Council (RTC), Washington State Department of Transportation (WSDOT), and Oregon Department of Transportation (ODOT) for the SR-35 Columbia River Crossing project. Technical reports upon which the technical analyses presented in this EIS are based are referenced in the Studies and Coordination section for each environmental topic in Chapter 4.

Additional documents that support the environmental evaluations presented in this EIS include:

- Baseline Conditions Report for the SR-35 Columbia River Crossing Feasibility Study. January 8, 2001. This report provides background information for each of the study disciplines. The report is considered an interim report used during Tier 1 to document the initial background information collected and considered in the early stages of the feasibility study.
- Tier I Report for the SR-35 Columbia River Crossing Feasibility Study. July 10, 2001. The Tier I report documents the first phase of the feasibility study. It contains a summary of the baseline conditions, a review of the environmental compliance process, and a corridor screening and evaluation summary.

- Tier II Report for the SR-35 Columbia River Crossing Feasibility Study. June 2002. The Tier II report documents the second phase of the study. It documents public involvement activities during Tier II, cost estimates for possible crossing facilities, financial feasibility results for a new crossing, environmental updates, agency coordination, and further screening of alternatives.
- SR-35 Columbia River Crossing Project Purpose and Need Statement. November 2002. The Purpose and Need Statement was prepared for review by various agencies through the agency coordination process. It is substantially contained in Chapter 1 of this EIS.
- Bridge Construction Assumptions for the SR-35 Columbia River Crossing Project. February 2003. The report was prepared to serve as a common basis for the project construction approach for evaluating environmental impacts.
- Project Description for the DEIS: A Technical Memorandum for the SR-35 Columbia River Crossing Project. February 2003. The project description provides an overview of the proposed project features. It was developed to provide a common basis for the evaluation of environmental impacts of the alternatives.

See Appendix C, SR-35 Columbia River Crossing Study Reports for reference citations to these documents. Each of these documents is available on-line at <http://www.rtc.wa.gov/studies/SR35>. They are also available for review at the office of the Southwest Washington Regional Transportation Council (RTC) in Vancouver, Washington and at the public library in Hood River, Oregon. Technical discipline reports are available also at the RTC and at the library in Hood River.

Land Use

Studies and Coordination

This analysis was conducted in coordination with the following agencies: Columbia River Gorge Commission; CRGNSA Forest Service; Hood River County; City of Hood River Planning Department; Hood River Valley Parks and Recreation; Port of Hood River; City of White Salmon; Klickitat County Planning Department; and the Klickitat County Port District.

Coordination between the project team and the Columbia River Gorge Commission will continue to resolve project consistency issues with regards to the CRGNSA Management Plan.

Land use information was also obtained through the review of existing documents, field visits, site photographs, and aerial photographs. Documents reviewed included the Management Plan for the CRGNSA as well as comprehensive plans, zoning ordinances, master plans,

transportation plans, and environmental documents of the City of Hood River and the City of White Salmon. The downtown plan for the City of Bingen was also reviewed.

The Land Use section of this EIS is based on *SR-35 Columbia River Crossing Land Use Technical Report* (Parsons Brinckerhoff 2003a).

Affected Environment

Hood River

The following land uses are on the east side of the south approach to the existing bridge: a two-story office/commercial building (the Marketplace, housing over 10 different offices and 1 restaurant/pub); two service stations (Chevron and Texaco); two fast food establishments (Taco Time and McDonalds); a hotel and restaurant (Best Western Hood River Inn and Riverside Grill); parking for the businesses; and recreation opportunities (such as fishing, a paved bicycle/pedestrian path passing underneath the bridge, and a boat dock).

On the west side of the south approach is a commercial/retail establishment with outdoor storage area (Bubba Louie's Sailboat and Mid-Columbia Marina), vehicle and boat trailer parking lot, boat ramp, public restrooms, and a paved bicycle/pedestrian path (connecting to the path on east side of the bridge). Slightly further west/southwest, across the Marina there are additional recreational and office land uses, all part of the Port's property. These uses include the Oregon Driver and Motor Vehicle Services (DMV), Hood River County Historical Museum, the Port of Hood River office, Port Marina Park, a number of small buildings housing windsurfing schools, windsurfing, kiteboarding and kayaking launch sites, boat docks, picnic and lawn areas, public restrooms, and paved parking areas.

White Salmon

Existing land uses near the north approach to the existing bridge are located on the strip of land between the Columbia River and SR-14. East of the approach is vacant land, followed by a Texaco service station/food mart, and the Bridge R.V. Park and Campground. West of the approach is vacant land, followed by a City of White Salmon-owned park and ride, a Columbia River treaty access fishing site, picnicking and boat launch area, and a commercial nursery and one residence. Burlington Northern Santa Fe (BNSF) railroad tracks run east/west through the area separating the commercial nursery and the Columbia River treaty access fishing site from SR-14 on the west side of the bridge and the Texaco and the R.V. campground from the Columbia River on the east side.

Impacts

Figures 4-1 and 4-2 show property parcels near the alignment alternatives for Oregon and Washington sides, respectively.

No Action Alternative

All of the alternatives include the short-term improvements that would also occur under the No Action Alternative within the next five years. It is anticipated that these short-term improvements would occur within existing rights-of-way and, thus, are not expected to result in direct impacts to existing land uses in the area.

The mid-term and long-term improvements proposed as part of the build alternatives are not proposed as part of the No Action Alternative.

Alternative EC-1

Impacts from short-term improvements would be identical to those described for the No Action Alternative.

All replacement bridge alternatives would include mid-term improvements such as adding signals at key locations, replacing the tollbooth with an automated toll collection system, restricting or closing turns at a private driveway onto the Hood River Bridge access road, and the possible construction of a roundabout. Access to private businesses on the east side of the Hood River Bridge access road in Oregon would be restricted to E. Marina Drive. Additional impacts from the mid-term improvements to existing land uses in the area are not anticipated.

On the Hood River side, the southern approach of a new fixed-span bridge would pass over the Port of Hood River property immediately west of the existing approach. This alignment would require a partial right-of-way acquisition of the Port of Hood River property on the west side and no right-of-way acquisitions on the east side.

Existing land uses that would be directly impacted by this alignment include portions of a parking lot, an access leading to the commercial/retail establishment housing Bubba Louie's Sailboat, the outdoor storage associated with this establishment, and the waterside trail that passes underneath the existing bridge. On the east side of the southern approach, the access located just north of E. Marina Drive leading to the Marketplace and the Best Western Hood River Inn parking area would be closed.

No businesses would be displaced on the Hood River side. However, a partial acquisition of the property on which the commercial/retail establishment housing Bubba Louie's Sailboat and the Mid-Columbia Marina would result in a reduction of the outside storage area for this establishment. Businesses on the east side would have one less access point leading to their sites, but people would still be able to reach the Marketplace and the Best Western Hood River Inn from E. Marina Drive.

On the White Salmon side, the northern approach would pass over private property and the BNSF Railroad tracks before connecting to SR-14 and Dock Grade. It is anticipated that approximately one full parcel acquisition and one partial acquisition would be required. Additional right-of-way would most likely be acquired to accommodate any associated improvements to Dock Grade.

The full acquisition would be of the commercial nursery parcel, resulting in the displacement of one business, the commercial nursery, and one residence located on the same parcel. The new bridge would only cross a portion of the nursery property. However, due to possible impacts to the nursery stock caused by a large bridge casting shadows, the entire nursery site would most likely be acquired.

The partial acquisition would be of the parcel with the park and ride access driveway on it, which would need to be relocated to the east. The new bridge alignment would connect to SR-14 at the point of the existing driveway. This new driveway may require the removal of a few existing parking spaces at the west end of the lot. The Columbia River treaty access fishing site would not be adversely affected.

Alternative EC-2

This alternative follows the same alignment and includes the same proposed improvements as Alternative EC-1 on the Hood River side. As a result, the operational impacts from Alternative EC-2 would be identical to those described for Alternative EC-1. The operational impacts from the short-term and mid-term improvements would also be identical to those described for Alternative EC-1.

The land use impacts on the White Salmon side from a new fixed-span bridge would differ compared to those associated with Alternative EC-1. The northern approach for this alternative would pass over heavily vegetated vacant parcels and the BNSF railroad tracks along the west side of the existing approach. It is anticipated that approximately one full parcel acquisition would be required. However, since these parcels are vacant no businesses would be displaced as a result of this alternative. No direct impacts to existing development along SR-14 would occur. The driveway to the park and ride would not be relocated. The Columbia River treaty access fishing site would not be directly affected.

Alternative EC-3

The operational impacts from the short-term improvements would be identical to those described for Alternative EC-1.

All replacement bridge alternatives would include mid-term improvements such as adding signals at key locations, replacing the tollbooth with an automated toll collection system, restricting or closing turns at a private driveway onto the Hood River Bridge access road, and the possible construction of a roundabout. Access to private businesses on the east side of the Hood River Bridge access road in Oregon would

be restricted to E. Marina Drive. Additional impacts from the mid-term improvements to existing land uses in the area are not anticipated.

On the Hood River side, the approach road for a new fixed-span bridge would pass over Port of Hood River property that contains the existing approach road. This alignment may also require a partial acquisition of the D.M. Stevenson Ranch parcel to the east. No existing land uses would be directly impacted and the southern approach would displace no businesses.

In the location of the proposed alternative is a bridge-related equipment shed and a landscaped area separating the existing approach from the commercial/retail establishments (the Marketplace) to the east. The closing of the driveway located just north of E. Marina Drive would impact access to the Marketplace and the Best Western Hood River Inn. Still, people would be able to reach these businesses via E. Marina Drive. No land uses would be permanently impacted on the west side of this alternative in Hood River.

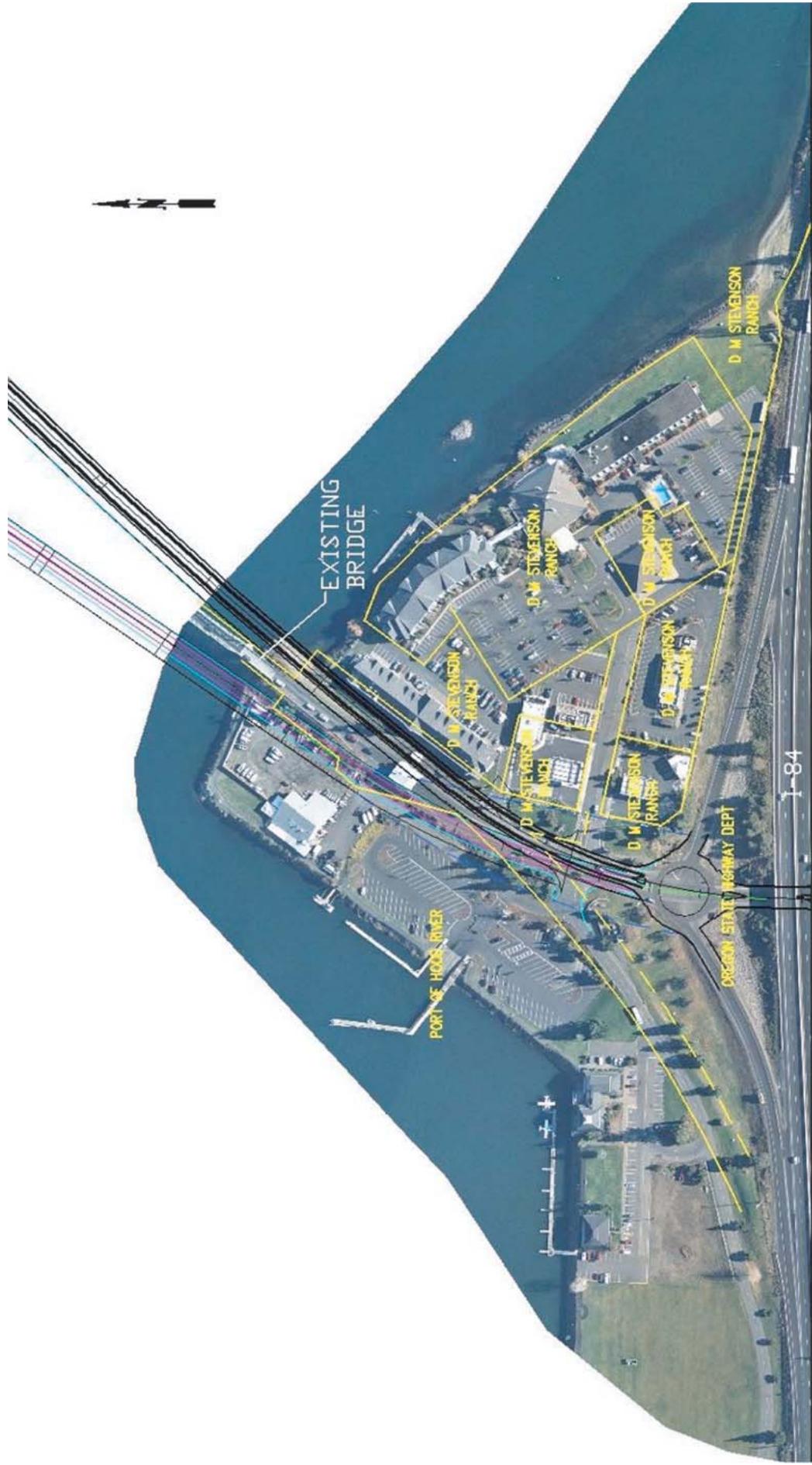
The land use impacts on the White Salmon side would be similar to those of Alternative EC-2. The northern approach for this alternative would pass over heavily vegetated vacant parcels and the BNSF railroad tracks along the east side of the existing approach. It is anticipated that approximately one full parcel acquisition would be required. However, since these parcels are vacant no businesses would be displaced as a result of this alternative. No direct impacts to existing development along SR-14 would occur. However, the bridge access road intersects SR-14 less than 300 feet from an existing convenience market driveway, which would result in a substandard access condition. This alternative would also not impact the current access points to existing development along SR-14.

Mitigation

Where appropriate and feasible, mitigation measures such as the following could be employed to partially or fully mitigate disturbances of operation:

- Landscaping and any site furnishings removed during construction of the south approach would be replaced and the landscaping restored to its original condition.
- The waterside trail passing underneath the bridge from the Port of Hood River Marina site would be reconstructed.
- The parking lot and access near the Port of Hood River Marina boat ramp and docks would be reconstructed.

Provisions as required under the Uniform Relocation and Real Property Policies Act of 1970, as amended, would be implemented for all business displacements and real property acquisitions. All property owners would be compensated at fair market value and



Property Parcels on the Oregon Side
Figure 4-1

relocation assistance would be provided in accordance with the Uniform Act.

Following the substantive requirements of the applicable federal, state and local land use and zoning regulations would ensure protection of land uses, resource lands, and critical areas.

Transportation

Studies and Coordination

The Transportation section of this EIS is based on SR-35 Columbia River Crossing Traffic Study (Parsons Brinckerhoff 2003b) and the SR-35 Columbia River Crossing Navigation Baseline Report (PB Ports and Marine 2003).

Meetings were held with staff of the U.S. Coast Guard and Columbia River Towboat Association to preparing information on navigational clearances.

Traffic information was obtained from ODOT and WSDOT.

Affected Environment

Traffic

In 1990, approximately 5,500 vehicles crossed the Hood River Bridge daily. The peak hour of travel was 4:00 PM to 5:00 PM with a volume of 515 vehicles. The directional split of traffic slightly favored southbound travel from 7:00AM to 8:00AM and northbound travel from 3:00 PM to 4:00 PM, but remained even throughout most of the day. Truck traffic accounted for eight percent of all vehicles using the bridge on a daily basis in 1990. A 1995 analysis used in the SR-14 Corridor Plan showed that the average annual daily traffic for trucks (AADT) on the bridge was over 500 trips.

A Hood River Bridge Origin and Destination Survey was conducted in Fall 2002 to determine traffic travel patterns and characteristics using the Hood River Bridge (Parsons Brinckerhoff 2003b). Using questionnaires, the survey determined that the typical Hood River Bridge user drives a passenger vehicle (92 percent), registered in Washington (58 percent), with more than one passenger in the vehicle (1.63 persons per vehicle). They travel from their home in White Salmon or Bingen, Washington (40 percent) to Hood River, Oregon (49 percent), for the purpose of shopping, eating, or other social activities (35 percent). They cross the bridge more than 11 times per week. There was an average of 6,918 vehicles per day during the three days surveyed. Traffic on the Hood River Bridge was estimated to increase by 35 percent during the summer months to approximately 7,500 vehicles per day based on past trends.

Of the vehicles that crossed the Hood River Bridge during the survey period, 94 percent were registered in Washington or Oregon and 8 percent were trucks, buses, RVs, or campers. The average occupancy rate for all vehicles crossing the bridge was 1.63 persons per vehicle.

Marine Traffic

Statistics indicate that there has been a decrease in the number of vessel trips through the reach in the 1990s. Cargo tonnage has increased, however, during the same period (PB Ports and Marine 2003).

Recreational traffic in the vicinity of the Hood River Bridge includes a wide variety of interests such as windsurfers, kite boarders, fishing, sailing, and recreational cruising. Most sailboats have masts extending 40 to 45 feet above the water's surface. However, larger sailboats and racing boats may have masts between 65 feet and 100 feet. These vessels currently require lifting of the bridge to traverse under the Hood River Bridge. Commercial and recreational vessel traffic is expected to remain stable in terms of vessel size and capacity (PB Ports and Marine 2003).

Impacts

Traffic

Annual traffic volumes on the Hood River Bridge were tabulated and analyzed from 1971 to 2000 to determine an average growth rate. By doing this, a growth factor was applied to forecast the future volumes for 2006 and 2025. Forecast volumes were updated to the Year 2025 and were based on a composite of the forecast Klickitat and Hood River County growth rates (1.3 percent/year) and the past 20-year Hood River Bridge traffic trends (3.9 percent/year). An average three percent annual bridge traffic growth rate resulted and was used for the evaluation, which resulted in a Year 2025 average daily traffic (ADT) crossing of 16,200 vehicles.

Using Year 2025 forecasts factored to a PM peak hour, the level-of-service (LOS) was calculated for three key intersections. A traffic simulation model (Synchro/SimTraffic) was used to examine the impacts of queuing on I-84 and intersections along the design alternatives. These include the Hood River Bridge at SR-14 on the Washington side and the SR-35 and I-84 westbound (WB) off-ramp and the SR-35 and I-84 eastbound (EB) off-ramp on the Oregon side. Table 4-1 shows the 2025 LOS and delay for each intersection under the various alternatives.

Table 4-1 2025 Alternative LOS and Delay⁺								
	No Build		EC-1		EC-2		EC-3	
	Avg. delay	LOS	Avg. delay	LOS	Avg. delay	LOS	Avg. delay	LOS
Hood River Bridge HRB/SR-14	47.2	A/F* (E overall)	20.6	C**	28.9	C	28.9	C
SR-35/I-84 WB off-ramp	118	B/F* (F overall)	v/c=0.71 roundabout		v/c=0.71 roundabout		V/c=0.71 roundabout	
SR-35/I-84 /EB off-ramp	781	A/F* (F overall)	v/c=0.82 roundabout		v/c=0.82 roundabout		V/c=0.82 roundabout	

* Unsignalized intersection – major left-turn LOS/minor left-turn LOS

**Signalized intersection of Bridge Crossing/Dock Grade with SR-14

v/c = volume-to-capacity ratio

+ Delay is measured in seconds per vehicle

No Action Alternative

Under the No Action Alternative, each of the intersections are unsignalized and operate at near failure or LOS F conditions overall. Both I-84 off-ramps experience large queues as they wait to get turn onto the Hood River Bridge.

Currently, the tollbooth is located on the approach at the south end of the bridge. Tolls are collected in both directions (two-way tolls). Queuing is a significant problem for the northbound direction as vehicles start to spillback into the intersection where retail shops and the marine center have access. During peak times, the queues even back up into the freeway ramp intersections and at times onto the I-84 mainline.

Alternatives EC-1, EC-2, and EC-3

Under the Build Alternatives, tolls would only be collected in the southbound direction. This would allow for queuing only on the bridge as opposed to spillback onto the freeway intersections. For EC-1, a new signalized intersection at SR-14 and Dock Grade is proposed. This would operate at LOS C. Under EC-2 and EC-3, the intersections would also be signalized, but the connection with SR-14 would be further east on either side of the existing bridge's connection. All three Build Alternatives would provide a significant improvement in level-of-service bringing the intersection to LOS C.

For the interchange off-ramp intersections, a direct correlation of volume/capacity (v/c) ratios to LOS cannot be provided without additional analysis. However, roundabout volume-to-capacity ratios over 0.85 are considered operationally to be over capacity, so a value of 0.82 means the intersection is approaching capacity for the I-84 EB off-ramp. The I-84 WB off-ramp analyzed as a roundabout has a v/c ratio of 0.71 which means that it is functioning better than the EB off-ramp roundabout. In general, roundabouts can be effective in reducing

crashes and delay where traffic volumes are roughly equal on all approaches.

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

Marine Traffic

No Action Alternative

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 is problematic when combined with these other conflicts.

Alternatives EC-1, EC-2, and EC-3

Marine transportation would be enhanced with any of the new build alternatives. Each design is proposed to provide for 450 feet of horizontal clearance. This takes into account stricter guidelines for navigation channels through bridges, as well as wind and current conditions. This new design would help alleviate some of the potential hazardous conditions that can occur under the given wind conditions. 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 lowered. The channel alignment should also allow tugs and barges to be aligned with the westerly winds that now hit vessels diagonally and cause control problems, especially for tows with empty barges.

Rail Traffic

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.

Other Modes

Air travel would not be affected by any of the Build Alternatives or the No Action Alternative.

Mitigation

The features of the proposed project would address transportation issues. No further mitigation is proposed for operations of the proposed

bridge. Construction-related mitigation is presented in the Construction Activities Impact section of Chapter 4.

Geology and Soils

Studies and Coordination

Previous environmental baseline reports prepared for the proposed project were used to provide the framework for the affected environment section of this report. Other documents obtained from state and federal agencies and from agency websites were also reviewed to determine the type and location of major geological and soil features within the project area. Additional documents showing geological hazards were reviewed. A field reconnaissance was conducted on November 26, 2002, to identify and further describe these features and to determine the likely impacts of project construction and operation.

The Geology and Soils section of this EIS is based on the *SR-35 Columbia River Crossing Geology and Soils Technical Report* (Parsons Brinckerhoff 2003c).

Affected Environment

The south side of the project area is composed of Columbia Plateau basalts that were scoured by the Missoula Floods. Alluvial deposits from the Hood River and more recent imported fill associated with human development are found in this area.

The north side of the project would be partially located on the downstream end of a large flood-deposited bar. Erosional deposits overlie the top of this bar, consisting of weathered basalt from the steep talus slope immediately to the north rather than stream deposited alluvium. SR-14 lies at the immediate bottom of this talus slope, and Dock Grade is cut into it.

On the south side of the existing bridge, subsurface borings encountered fill materials in some cases up to 18 feet deep consisting mostly of fine to medium grained sand (Dames and Moore 1965, and Shannon and Wilson 1988). Some areas of sand and gravel were found as well. Below the fill, native alluvial soils were encountered, varying from about 6 to 26 feet deep and consisting mostly of fine, silty sand. Where these materials are saturated with water, they are liquefiable.

Two subsurface boring studies have been conducted near the north end of the bridge (GeoEngineers 1996 and Fujitani Hilts 1999). Where present, soils exist as an alluvial cover consisting of silty fine- to medium-grained sand with some gravel. Several layers of gravel were found beneath this sand and above the basalt at some locations. In one boring under the north bridge approach approximately 12 feet of gravel was found. Several of the borings conducted in the river found sand overlying the basalt and one found gravel underneath the sand.

Impacts

Table 4-2 compares the risks from earthquakes, floods, and volcanoes associated with the No Action Alternative and build alternatives. This table also shows risks of soil erosion associated with the alternatives. The erosion risk is applicable to the construction phase of the project and is discussed under Construction Activities Impacts later in Chapter 4.

No Action Alternative

There would be no impacts to soils and geology from operation and maintenance of the existing bridge, bridge approaches, and roundabouts, which are included among the proposed short-term improvements. Stormwater would continue to runoff through the grating of the existing bridge directly into the Columbia River.

Under the No Action Alternative, risks to the existing Hood River Bridge from geologic hazards, such as earthquakes, floods, and volcanoes are considered to be low or none (Table 4-2). The proposed short-term improvements would not substantially increase this risk.

Alternative EC-1

Stormwater from the bridge would be treated in stormwater detention and treatment ponds on either side of the bridge. The locations of these systems are unknown at this time. However, the construction of these systems would expose soils and remove existing vegetation, leading to a temporary increase in erosion potential. When completed, the stormwater systems would reduce the potential for erosion and water quality impacts from stormwater flowing off the bridge and modified portions of SR-14 and Dock Grade.

On the north side, potential impacts would be related to bridge shading. The new bridge would prevent water and sunlight from reaching the soil beneath it, which in turn would limit the ability of most vegetation to grow there. Often, no vegetation is able to grow directly under bridges and soils are left exposed. These soils may remain dry for most of the year. However, during unusually heavy rainfall and/or wind, water can find its way under the bridge and cause severe erosion of the exposed soils. The exposed soils near the Columbia River could also be eroded by unusually high river flows or by wave action resulting from wind or barge traffic.

The additional infrastructure would be subject to a high risk of damage from liquefaction and ground motion amplification in this area if an earthquake of sufficient magnitude struck. Construction of the project may slightly increase this risk. Volcanic activity on Mt. Hood could trigger lahars that, if large enough, could cause damage to the bridge structure (moderate). Other earthquake effects such as seiches and fault ruptures have a low risk of affecting the project area.

Table 4-2 Potential for Risk of Damage to New and Existing Infrastructure and Existing Soil and Geologic Resources											
Hazard	Erosion				Earthquakes				Flooding	Volcanoes	Summary
	Disturbed Area (in relation to other options)	Stormwater Runoff	Rockfall/Slope Instability	Liquefaction	Ground Motion Amplification	Landslides	Other Effects				
No Action South Side	L	L	N	L	L	N	N	N	L	L	Potential for impacts is the same for all build alternatives
EC-1 South Side	M	M	N	H	H	N	L	L	M	M	
EC-2 South Side	M	M	N	H	H	N	L	L	M	M	
EC-3 South Side	M	M	N	H	H	N	L	L	M	M	
No Action Central Span	N	N	N	N	N	N	N	N	N	N	Potential for impacts is the same for all build alternatives
EC-1 Central Span	N	N	N	L-M	L-M	N	L	L	L-M	L-M	
EC-2 Central Span	N	N	N	L-M	L-M	N	L	L	L-M	L-M	
EC-3 Central Span	N	N	N	L-M	L-M	N	L	L	L-M	L-M	
No Action North Side	N	N	N	N	N	N	N	N	N	N	Potential for impacts is the highest for alternative EC-1 and the lowest for EC-2
EC-1 North Side	H	M	H	L	L	H	L	L	L	L	
EC-2 North Side	L	M	L	L	L	L	L	L	L	L	
EC-3 North Side	L-M	M	L	L	L	L	L	L	L	L	

N = None, L = Low, M = Moderate, H = High

Bridge piers and infrastructure in the Columbia River would be subject to flood risks (low risk), earthquake-induced liquefaction and ground motion amplification risks (low to moderate risk), and sedimentation or damage from lahars moving from Mt. Hood or Mt. Adams down the Hood or White Salmon Rivers (low-moderate risk). Due to the downstream location closest to both of these rivers, the risk of damage to the bridge from lahars is higher for Alternative EC-1 than it is for any of the other alternatives, although the overall risk is still low.

Geologic hazards on the north side of the river would be related to slope failure and possibly some minor liquefaction and ground motion amplification hazards during an earthquake. The addition of fill materials would slightly increase the ground motion amplification hazard. A smaller risk from volcanic activity exists on the north side of the river: however large events on Mt. Hood or Mt. Adams could cause sedimentation or damage to the bridge structure on the north side of the river.

Construction in this area could be a high impact to the stability of the slope. Special engineering solutions such as retaining walls or other anchoring devices to stabilize the toe of the slope would be necessary in this area. Also, the risk of damage to the road and/or vehicles from rockfall is high in this area. Moderate to strong earthquakes could cause the talus slope at Dock Grade and north of SR-14 to move or fail, causing great damage to Dock Grade, SR-14 and parts of the bridge approach and spans.

Alternative EC-2

Stormwater from the bridge would be treated in stormwater detention and treatment ponds on either side of the bridge. The locations of these systems are unknown at this time. However, the construction of these systems would expose soils and remove existing vegetation, leading to a temporary increase in erosion potential. When completed, the stormwater systems would reduce the potential for erosion and water quality impacts from stormwater flowing off the bridge.

On the north side, potential impacts would be related to bridge shading. The new bridge would prevent water and sunlight from reaching the soil beneath it, which in turn would limit the ability of most vegetation to grow there. Often, no vegetation is able to grow directly under bridges and soils are left exposed. These soils may remain dry for most of the year. However, during unusually heavy rainfall and/or wind, water can find its way under the bridge and cause severe erosion of the exposed soils. The exposed soils near the Columbia River could also be eroded by unusually high river flows or by wave action resulting from wind or barge traffic.

The additional infrastructure would be subject to a high risk of damage from liquefaction and ground motion amplification in this area if an earthquake of sufficient magnitude struck. Construction of the project may slightly increase this risk. Volcanic activity on Mt. Hood could trigger lahars that, if large enough, could cause damage to the bridge

structure (moderate). Other earthquake effects such as seiches and fault ruptures have a low risk of affecting the project area.

Bridge piers and infrastructure in the Columbia River would be subject to flood risks (low risk), earthquake-induced liquefaction and ground motion amplification risks (low to moderate risk), and sedimentation or damage from lahars moving from Mt. Hood or Mt. Adams down the Hood or White Salmon Rivers (low-moderate risk).

Geologic hazards on the north side of the river would be related to slope failure and possibly some minor liquefaction and ground motion amplification hazards during an earthquake. The addition of fill materials would slightly increase the ground motion amplification hazard. A smaller risk from volcanic activity exists on the north side of the river: however large events on Mt. Hood or Mt. Adams could cause sedimentation or damage to the bridge structure on the north side of the river.

Construction in this area could be a high impact to the stability of the slope. Special engineering solutions such as retaining walls or other anchoring devices to stabilize the toe of the slope would be necessary in this area. Also, the risk of damage to the road and/or vehicles from rockfall is high in this area. Moderate to strong earthquakes could cause the talus slope north of SR-14 to move or fail, causing great damage to SR-14 and parts of the bridge approach and spans.

Alternative EC-3

Impacts to soils and geology from Alternative EC-3 would be identical to impacts associated with Alternative EC-2.

Mitigation

Mitigation measures for operation and maintenance of the proposed project would take two forms: minimizing the effects of erosion on exposed soils and drainage patterns and constructing the project so as to resist and minimize the risk of foreseeable geologic events that may occur during the projected lifespan of the bridge. Because the design of the bridge is not final, specific design and construction details are not known at this time.

Erosion Control

Mitigation measures that would prevent the erosion of exposed soils would be implemented. Revegetation of all disturbed areas would occur to prevent long-term erosion problems. Stormwater treatment facilities would collect, treat and disperse stormwater runoff from the bridge so it will not create an erosion hazard.

Project Design

The project would be designed and constructed to withstand various geological events. All phases of bridge design and construction would follow seismic standards developed by WSDOT, ODOT, and FHWA. If Alternative EC-1 were chosen, the Dock Grade intersection with SR-14 would be designed and constructed to ensure that the steep talus slope immediately above it would be stabilized. Similarly, widening of Dock Grade under EC-1 would have to be designed to avoid slope destabilization.

Waterways/Water Quality

Studies and Coordination

Several studies, analyses, and technical memoranda were prepared for the RTC, WSDOT, and ODOT for the proposed project. These documents support the environmental evaluation and are listed at the beginning of Chapter 4.

The Waterways/Water Quality section of this EIS is based on the *SR-35 Columbia River Crossing Water Quality Technical Report (Entranco 2003a)*.

In addition to these technical reports, a field visit examined current site conditions, and web-based resources from governing agencies were also used:

- United States Geological Survey – provided information on flows applicable to the project area
- Oregon Department of Environmental Quality (ODEQ) – provided information related to the 303(d) listing of the Columbia River
- Washington Department of Ecology [Ecology] – provided information related to the 303(d) listing of the Columbia River

Affected Environment

The existing Hood River Bridge spans the river over the pool created by the Bonneville Dam. The dam controls the hydraulics of the river at this point by controlling the volume of water released downstream. The water surface elevation in the pool fluctuates in response to both the volume of water entering the pool from the river and the volume of water being released from the pool through the dam. The minimum operating pool elevation is 70 feet NGVD* and the maximum is 82.5 feet NGVD.

* National Geodetic Vertical Datum of 1929, also known as “mean sea level”

The small floodplain along the Columbia River near the existing Hood River Bridge is designated as Zone A (approximate). Water surface elevations for the Bonneville Dam Pool at 2, 10, 50, 100, and 500-year recurrence intervals are 81, 85, 88, 89 and 92 feet NGVD.

A floodway is not designated on the Columbia River near the existing Hood River Bridge; therefore, a “no-rise” certification will not be necessary. According to FEMA Region X, FEMA does not have specific guidelines in the Code of Federal Regulations limiting flood rise in floodplains designated as Zone A. FEMA does have an agreement with the Federal Highway Administration (FHWA) that any new structure within the floodplain must cause less than 1 foot of rise in the base flood elevation. As any new structure would have a limited (<1 foot) impact on the base flood elevation, significant changes to the stream flow regime are not anticipated; however, hydraulic modeling would be necessary to quantify the impacts associated with a new structure.

Impacts

The construction of a bridge with a paved surface will increase the effective impervious surface of this area by about six acres. The impact of increased impervious surface area in this location is negligible because the receiving water body is already hydrologically constrained by the Bonneville Dam. Any effects resulting from increased impervious area is counterbalanced by the water quality benefits gained. Runoff from the bridge will be collected and treated prior to discharge, which will prevent direct discharge of oil into the river, as is the current condition.

No Action Alternative

The current bridge has a grated deck that is open to the river below. This allows oil, heavy metals, and dirt from vehicles crossing the bridge to fall through the grating and directly into the river. Oil and dirt that accumulate on the grated bridge decking is also washed into the river by rainfall. Hazardous materials from an accidental spill could enter the river unconstrained. The deck replacement proposed as part of the short-term improvements would be with another grated deck that would also allow oil, heavy metals, dirt, and spilled hazardous materials to fall directly into the river.

Alternative EC-1

Rainwater from the bridge deck will be collected and treated prior to discharge into the river. Oil and sediment can be removed from runoff using an oil/water separator, which is common treatment technology. Settling ponds can remove most particulates. The new bridge will be an improvement over the existing bridge that has no treatment system for water quality.

Vehicle traffic on Dock Grade contributes oil, grease, heavy metals, and dirt to stormwater runoff. Widening this road will create a larger surface

area for these materials to collect as well as reducing the area that allows for infiltration. Proper mitigation can limit the severity of these impacts.

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.

Any increase in impervious surface area resulting from this project is unlikely to impact groundwater recharge. The project is confined to within a few hundred feet of the river's edge. Groundwater in this riparian area is mainly influenced by the river's surface water elevation, and recharge would come primarily from the river itself.

Alternative EC-2

Impacts would be the same as for EC-1, except that there would be no widening of Dock Grade and its associated impacts under this alternative.

Alternative EC-3

Impacts would be the same as for EC-1, except that there would be no widening of Dock Grade and its associated impacts under this alternative.

Mitigation

No Action Alternative

A stormwater treatment facility should be built to collect and treat runoff from the roundabouts, which is proposed as a short-term improvement, to mitigate for impervious surfaces area introduced by this improvement.

Alternative EC-1

Mitigation for road runoff from the new bridge and approaches will be part of the construction plans for the new bridge. Runoff will be routed to either end of the bridge and collected for water quality treatment and detention prior to discharge into the Columbia River.

The collection and treatment of runoff would also be applied to the widened section of Dock Grade. A stormwater pond, if located near the bottom of Dock Grade, would improve stormwater quality prior to discharge to the Columbia River.

Post-construction monitoring is recommended to ensure that storm water collection systems are functioning properly and that water quality standards are being met.

The design of the project allows for operational collection and water quality treatment of runoff from the bridge and approaches prior to discharge of stormwater to the Columbia River. The use of a closed drainage system on the bridge allows for the collection and treatment of stormwater, as well as accidentally spilled fuels or other hazardous materials, over the life of the bridge. Should changes in the applicable regulations require higher levels of treatment, the system would offer the flexibility for upgrading the level of treatment.

Alternative EC-2

Operational mitigation would be the same as for EC-1, although there will be no widening of Dock Grade and its associated mitigation under this alternative.

Alternative EC-3

Operational mitigation would be the same as for EC-1, although there will be no widening of Dock Grade and its associated mitigation under this alternative.

Social and Economic

Studies and Coordination

To prepare the social and economic analysis, a number of reports and studies were reviewed, field investigations conducted, and issues discussed with government officials. The overall framework of the analysis was prepared using the FHWA Environmental Guidebook; FHWA Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*; National Cooperative Highway Research Report-122, *Summary and Evaluation of Economic Consequences of Highway Improvements*; and WSDOT *Environmental Procedures Manual*.

Population characteristics and growth trends were determined through the review of U.S. Census data, state and local demographic trend data, and review of aerial photographs. Field reconnaissance was used to confirm community characteristics. This effort recorded the general size and types of retail commercial development located in and near the project study area. And, the Port of Hood River was contacted regarding utilities that are located on the Hood River Bridge.

The analysis for the recreational component of this technical report was conducted through a review of existing recreation documents, site photographs, and aerial photographs. Field visits were conducted to verify information and several Internet web sites provided valuable

information on the individual recreation areas, including the numerous windsurfing launch sites. The Port of Hood River and Hood River Valley Parks and Recreation were also contacted for clarification and guidance on recreation issues and sites.

State and local government records were obtained from local government web pages to gather information on property tax rates, assessments, and potential impacts on property values and local government tax revenues.

Economic data were collected from a variety of federal, state, and local sources, including the U.S. Bureau of the Census; U.S. Bureau of Economic Analysis; Washington State Offices of Financial Management and Trade and Economic Development; Washington State Department of Revenue; Washington State Employment Security Department, Labor Market and Economic Analysis Branch; Oregon Employment Department, Labor Market Information System; and Columbia Gorge Economic Development Association.

The Social and Economic section of this EIS is based on the *SR-35 Columbia River Crossing Social and Economic Technical Report* (Parsons Brinckerhoff 2003d).

Impacts

No Action Alternative

No adverse effects on social and economic elements would occur from implementing the short-term improvements. However, adverse impacts would occur under the No Action Alternative, most of which are due to closing the Hood River Bridge. Impacts to social and economic elements from closing the existing bridge are considered to be secondary impacts (attributable to the No Action Alternative, but occurring later in time). As such, see Chapter 5, Secondary and Cumulative Impacts, for discussions of the secondary impacts to social and economic elements if the existing bridge is closed in approximately 30 years.

Community and Population

Historical trends in population or community growth would be expected to continue under this alternative until the Hood River Bridge reached the end of its serviceable life. At that time, in approximately 30 years, it is assumed that the bridge would be closed to all cross-river vehicular traffic.

Recreation

No direct physical impacts would occur to the recreation sites in the area during the continued operation and maintenance of the existing Hood River Bridge. However, access to the sites would be impacted over the long-term if the bridge is closed in approximately 30 years. Under this alternative no provisions are made for bicycle/pedestrian

river crossings. Without a new bridge, a bicycle/pedestrian cross-river connection would remain prohibited between White Salmon/Bingen and Hood River.

Utilities, Services and Pedestrian and Bicycle Facilities

Utility services, specifically those located on the bridge, would likely be uninterrupted under this alternative. The exception is if the bridge would need to be demolished or removed after the end of its service life, assumed to be approximately 30 years.

While the existing bridge remains in operation for the next approximately 30 years, service travel times, access, and areas would not be expected to change. Pedestrian and bicycle facilities would not be affected during the continued operation of the bridge or after the bridge was closed because these modes of travel are currently prohibited on the bridge.

Economic Elements

Historical trends in economic growth and development would be expected to continue under this alternative until the Hood River Bridge reached the end of its serviceable life. If closed in approximately 30 years, businesses and jobs that depend on cross-river traffic would be adversely affected.

Displacements

No displacements or relocations would occur under this alternative.

Environmental Justice and Title VI

No disproportionate adverse impacts to minority, low-income and elderly populations would occur under the No Action Alternative.

Alternative EC-1

No adverse effects on social and economic elements would occur from implementing the short-term and mid-term improvements. Impacts associated with the operation and maintenance of a new bridge are described in the following sections.

Community and Population

Historical trends in population or community growth would be expected to continue under this alternative. Community cohesion would not be affected since the alignment on the Oregon shore is on the fringe of retail commercial and port facilities. On the Washington shore, the alignment would connect with Dock Grade, which would enable travelers to reach White Salmon in a shorter distance.

Native Americans, using the treaty fishing access site just east of this alignment, would experience relatively few or no changes from the current operation of the Hood River Bridge.

The cost of bridge tolls, however, would increase over time. The burden of this toll on travelers would be particularly adverse for low-income individuals and households who would regularly need to cross the bridge.

Recreation

Since the new bridge would be located within the existing corridor, the direct operational impacts to recreation sites would be minimal. The sites east and west of the Marina on the Oregon side would experience no direct physical impacts. Access to most sites would not change.

The recreation sites at the Port of Hood River Marina would benefit from the proposed access improvements associated with the bridge's south approach. This alternative would provide a bicycle/pedestrian cross-river connection between White Salmon/Bingen and the Port of Hood River Marina. It would also allow for the connection of this facility to planned bicycle connections into downtown Hood River. The waterside trail at the Marina would be the only recreation amenity to experience a direct operational impact. This impact could be mitigated if the trail connection underneath the bridge were re-established after construction and demolition were complete.

Water-based recreation activities, such as windsurfing, kiteboarding and fishing, would continue in and around the areas on either side of bridge.

Utilities, Services and Pedestrian and Bicycle Facilities

Utilities and services would not be affected after construction was completed. Pedestrian and bicycle facilities would be provided by the new bridge, allowing a cross-river connection for these modes.

Economic Elements

Most economic elements would not be adversely affected under this alternative. Business activities that rely on cross-river commuting, consumer travel, and shipment of goods would remain unchanged from the current conditions or would improve. The new bridge would meet all design standards, which includes eliminating height, width, and weight limits that currently constrain some shipments of goods.

Property values, except those properties that are acquired for the project, would be expected to follow local historical trends. Since most of the adjacent parcels are zoned commercial, any change in property value would be expected to increase rather than decrease as a result of an improved transportation facility nearby. Similarly, property tax revenues would not be adversely affected. However, property tax revenues would no longer be generated from any parcels acquired for right-of-way.

Displacements

No businesses would be displaced on the Oregon side. The commercial/retail establishment housing Bubba Louie's Sailboat and the

Mid-Columbia Marina on the Port of Hood River property would not be displaced but the outside storage area would be reduced. Businesses on the east side would have one less driveway, but people would still be able to reach the Marketplace and the Best Western Hood River Inn from E. Marina Drive.

On the Washington side, the northern approach would pass over private property and the BNSF Railroad tracks before connecting to SR-14 and Dock Grade. It is anticipated that approximately one full parcel acquisition and one partial acquisition (excluding the railroad right-of-way) would be required. One parcel contains a commercial nursery and one residence; the other parcel includes the driveway access to the park and ride lot. The new bridge would only cross a portion of the nursery property. However, the entire nursery site would most likely be acquired due to possible impacts by a large structure casting shadows on the nursery stock. Additional right-of-way would most likely be acquired to accommodate any associated improvements to Dock Grade.

Another direct impact would be to the location of the driveway on SR-14 into the park-and-ride lot, the nursery property and the treaty fishing access site. The new bridge alignment would connect to SR-14 at the point of the existing driveway. As a result, the driveway would need to be relocated to the east. This new driveway may require the removal of a few existing parking spaces at the west end of the lot.

The permanent residential and business displacements and property acquisitions would not disproportionately affect low-income or minority populations.

Environmental Justice and Title VI

No disproportionate adverse impacts to minority and elderly populations would occur as a result of Alternative EC-1. Increased tolls, however, may be a financial burden on low-income populations, particularly those households that regularly need to cross the bridge.

Alternative EC-2

The impacts on recreation, utilities and services, economic elements, and environmental justice resulting from Alternative EC-2, including short-term and mid-term improvements, would be the same as those described for Alternative EC-1. A few differences of impacts on community and population and displacements are further described.

Community and Population

Alternative EC-2 would not connect directly to Dock Grade; thus, travelers heading to and from White Salmon would either drive west on SR-14 to Dock Grade or east on SR-14 to access White Salmon on SR-141. This access is similar to current access.

The treaty access fishing site that is approximately 500 feet from the existing Hood River Bridge would be within less than 200 feet of

Alternative EC-2. Native American users of this site would hear noise associated with traffic. This noise would increase by 1 to 4 dBA, but would not be expected to exceed FHWA NAC (see the section on Noise later in this chapter for more discussion on predicted noise levels).

Displacements

This alternative would require the same right-of-way needs on the Oregon side as Alternative EC-1.

The displacements on the Washington side would be less than those associated with Alternative EC-1. The northern approach for this alternative would pass over heavily vegetated vacant parcels and the BNSF railroad tracks along the west side of the existing approach. It is anticipated that approximately one full parcel acquisition, excluding the BNSF right-of-way, would be required. The parcel is vacant and no businesses or residences would be displaced as a result of this alternative. The driveway to the park and ride would not require relocation.

The permanent property acquisitions would not disproportionately affect low-income or minority populations.

Alternative EC-3

The impacts on recreation, utilities and services, economic elements, and environmental justice resulting from Alternative EC-2, including short-term and mid-term improvements, would be the same as those described for Alternative EC-1. A few differences of impacts on community and population and displacements are further described.

Community and Population

Alternative EC-3 would not connect directly to Dock Grade; thus, travelers heading to and from White Salmon would either drive west on SR-14 to Dock Grade or east on SR-14 to access White Salmon on SR-141. This access is similar to current access.

The proposed treaty access fishing site that is approximately one-quarter mile from the existing Hood River Bridge would be slightly closer to Alternative EC-3. Future users, predominantly Native American, of this site would hear noise associated with traffic.

Displacements

On the Oregon side, the new approach road would pass over Port of Hood River property that contains the existing approach road. This alignment may also require a partial right-of-way acquisition of private property to the east. No businesses would be displaced by the approach.

The driveway to the Marketplace and the Best Western Hood River Inn, which is located just north of E. Marina Drive, would be closed. People would be able to reach these businesses via E. Marina Drive.

The displacements on the Washington side would be less than those associated with Alternative EC-1 and similar to those of Alternative EC-2. The northern approach for this alternative would pass over heavily vegetated, vacant parcels and the BNSF railroad tracks along the east side of the existing approach. It is anticipated that approximately one full parcel acquisition, excluding the BNSF right-of-way, would be required. However, since the parcel is vacant, no businesses or residences would be displaced.

The permanent property acquisitions would not disproportionately affect low-income or minority populations.

Mitigation

Few adverse effects would potentially occur during the operation and maintenance of a new bridge; therefore, only a few mitigation measures are recommended.

Mitigation for Social Elements

The Waterside Trail, which passes underneath the bridge from the Port of Hood River Marina, would be reconstructed, if adversely affected during construction, and incorporated into the pedestrian and bicycle facilities on the new bridge.

Mitigation for Economic Elements

No adverse impacts would be expected; thus, no mitigation would be required.

Mitigation for Displacements

Provisions as required under the Uniform Relocation and Real Property Policies Act of 1970, as amended, would be implemented for all business and residential displacements and real property acquisitions. All property owners would be compensated at fair market value, and relocation assistance would be provided in accordance with the Uniform Act.

Cultural Resources

Studies and Coordination

A preliminary assessment of significance for the Hood River Bridge was conducted for the project (AINW 2003). Staffs of the Oregon State Historic Preservation Office (SHPO) and the Washington State Office of Archaeology and Historic Preservation (OAHP) were informally consulted about the status of the bridge. No determination of eligibility has been made at this time. 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. Further studies would be conducted as part of the Final EIS to verify this assumption.

The bridge likely retains enough integrity to be eligible for listing on the NRHP. A comparison with similar bridges in Oregon and Washington would be necessary for a complete evaluation (Curran, 2003). A Section 106 Documentation Form that describes the historical significance of the bridge would be needed for SHPO review and concurrence. The Washington OAHP representative held the same opinion regarding NRHP eligibility (Houser, 2003). If the bridge is found to be eligible, the Programmatic Agreement between the FHWA, WSDOT, and Washington OAHP regarding implementation of the federal aid highway program in Washington State would be followed.

The Oregon SHPO offered to act as lead state agency in the Section 106 coordination and assessment process, but suggests that Washington be copied on correspondence and included as a signatory of any memorandum of agreement that is developed to specify appropriate mitigation measures (Christine Curran, Preservation Specialist, Oregon, SHPO, Personal communication, January 14, 2003). The representative of the Washington OAHP agreed.

Information on previously potential and known cultural sites was obtained from the Oregon SHPO and Washington OAHP during the project review (AINW 2000). In addition, project staff conducted a reconnaissance of the project alternatives reviewed during the screening of alternatives (AINW 2002).

Letters were sent by ODOT and WSDOT 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 to explain the project and request information that might be helpful in addressing project impacts on cultural sites.

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

Impacts

No impacts to historical and archaeological sites are anticipated during operation of the proposed project. Impacts to the existing Hood River Bridge, which is likely considered eligible for the NRHP, and archaeological sites known to occur on the Washington shoreline are discussed in Construction Activities, Chapter 4.

Mitigation

No mitigation is proposed for the operational phase of the project.

Energy

Studies and Coordination

Energy is consumed during the construction and operation of transportation projects. Energy consumption rates can be differentiated by comparing changes in traffic operations, as measured by vehicle miles traveled (VMT), and changes in traffic speed for the various alternatives. Operational energy consumption analysis within the project study area is based on the operational traffic impact analyses prepared for this document. This value is approximate for each alternative and neglects several factors, such as energy consumption of queued vehicles at the tollbooths; however, it provides a good basis for comparison among the alternatives.

The Energy section of this EIS is based on the *SR-35 Columbia River Crossing: Energy Analysis Technical Memorandum* (Parsons Brinckerhoff 2003e).

Impacts

Each of the build alternatives would improve the energy consumption of traffic using the Columbia River crossing. Traffic is predicted to increase by the year 2025, independent of construction of this project. Energy consumption resulting from daily vehicle operations in the study area was computed for the No Action and three build alternatives for 2025 assuming 16,200 vehicle crossings per day. 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 (Table 4-3).

Table 4-3 Operational Energy Consumption from Bridge Crossings						
Alternative	Daily VMT	Avg. Speed (mph)	Fuel Consumpt. (gpm)	Gasoline Consumpt. Liters (gal)	Energy Consumpt. giga Joules (million BTUs)	Change in energy consumpt. relative to No Action
No Action	13,600	25	.050	2,570 (680)	93 (88)	N/A
EC-1: West Connection to Dock Grade	13,800	35	.044	2,270 (600)	82 (78)	-11%
EC-2: West Alignment	14,100	35	.044	2,350 (620)	85 (81)	-8%
EC-3: East Alignment	14,200	35	.044	2,350 (620)	85 (81)	-8%
VMT = Vehicle miles traveled GPM = Gallons per mile BTU = British Thermal Units						

Mitigation

Because no substantial impacts relative to No Action are expected under any of the build alternatives, no mitigation would be required. Any transportation control measures to reduce traffic volumes and congestion would also decrease energy consumption.

Vegetation and Wetlands

Studies and Coordination

Existing databases maintained by resource agencies were searched for the presence of known rare, threatened, or endangered plants and priority habitats. The databases from the following agencies were accessed: Oregon Natural Heritage Program (ONHP), Washington Department of Fish and Wildlife (WDFW), Washington Department of Natural Resources (WDNR), and U.S. Department of Fish and Wildlife (USFWS).

Existing documentation, data, and mapping were examined to determine the potential presence of wetland resources within the respective proposed alternative alignments. The information reviewed included: National Wetland Inventory (NWI) mapping; previously prepared environmental assessments; wetland delineations; local jurisdiction environmental compliance documentation; and USGS Soil Survey mapping. A field review was conducted to verify the accuracy of the information gathered and to identify potential wetland areas not identified by these existing resources.

On a January 6, 2003 site visit, a biology team examined the existing wildlife habitat and vegetation in the project corridor. The examination included the area 200 feet on either side of the existing bridge and approach on the south end in Hood River, Oregon, the area 300 feet east and west of the existing bridge and approach on the north end in White Salmon, Washington, and a 200-foot-wide corridor from the river's edge to the intersection of SR-14 and Dock Grade.

Plant species were identified using the *Flora of the Pacific Northwest* (Hitchcock and Cronquist 1973) and *Plants of the Pacific Northwest Coast* (Pojar and MacKinnon 1994). Plants were categorized as to the estimated probability of occurring in wetland and non-wetland environments based on the *National List of Plant Species That Occur in Wetlands* (Reed 1993).

The Vegetation and Wetland section of this EIS is based on the *SR-35 Columbia River Crossing Vegetation and Wetland Technical Report* (Entranco 2003b).

Affected Environment

Vegetation

South End of the Corridor

The north and south sides of the project corridor present different vegetative characteristics. The south side is highly developed urban area. Vegetation is sparse and consists of a mix of native and ornamental species. A public boat launch and parking area, retail and office buildings, and the interchange with I-84 and OR-35 occupy the area. The riverbank is heavily armored with riprap. The vegetation dominating the bank consists of Himalayan blackberry (*Rubus discolor*), various lawn grasses, and a few landscaping plants. A boat retail and storage area occupies the bank west of the bridge. A few Douglas-fir (*Pseudotsuga menziesii*), shore pine (*Pinus contorta*), juniper bushes (*Juniperus* spp.), and landscape trees line the bridge approach on the west of the bridge. A lawn with one Douglas-fir dominates the east side of the bridge approach.

A search of the Oregon State Natural Heritage Program database identified Columbia Gorge daisy (*Erigeron oregana*), white meconella (*Meconella oregana*), Barrett's penstemon (*Penstemon barrettiae*), and Howell's bentgrass (*Agrostis howellii*), all as federally listed "species of concern" and state-listed "candidate" species (C. Alton 2003).

Columbia Gorge daisy, which can be found on steep cliffs, is endemic to the Columbia River Gorge area. Known populations of Columbia Gorge daisy have been documented by the Oregon Parks and Recreation Department (OPRD) in Shepperd's Dell State Park, 8 miles west of the project area (OPRD, 1994). The Columbia Gorge daisy is typically found in association with overhanging basalt cliffs. Suitable habitat does not appear to occur at any of the alternative locations. No further surveys appear to be needed.

Howell's bentgrass is a perennial grass found on damp, vertical cliffs and talus slopes in the Columbia River Gorge (NatureServe 2003). Suitable habitat does not appear to occur at any of the alternative locations.

According to *The Field Guide to Washington's Rare Plants* (WDNR 2000), white meconella occurs in open grassland, sometimes within a mosaic of forest/grassland on gradual to almost 100 percent slopes. Tree species present include Douglas-fir, ponderosa pine and Oregon white oak. Areas are wet to moist in spring but dry out by early summer. Elevation is 100 to 450 feet. Fire probably played a role historically in maintenance of the habitat both in terms of reducing tree and shrub invasion of habitat and of reducing competing grasses and forbs.

There are no known observations of the white meconella within the project area, and observations at the site do not suggest that suitable habitat is present. A population of white meconella is mapped near Stanley Rock approximately 2 miles east of the project area (OPRD, 1994).

According to *The Field Guide to Washington's Rare Plants* (WDNR 2000), Barrett's penstemon (or beardtongue) is endemic to the Columbia River Gorge in Klickitat County in Washington and Hood River, Multnomah and Wasco counties in Oregon. In Washington, it generally grows in crevices along basalt cliff faces, on ledges of rock outcrops, on open talus and occasionally along well-drained roadsides. It occurs mostly at lower elevations, but its range is up to 3,200 feet. It generally occurs on rocky substrates of basaltic origin, with little soil development. Soils are composed of wind blown material and organic matter and provide good drainage. Douglas-fir and ponderosa pine are the dominant trees within its range.

Based on site observations, there is no potentially suitable habitat for Barrett's penstemon in the southern bridge touchdown area.

North End of Corridor

A bank rising from the riverbank to an elevation of approximately 600 feet characterizes the north side of the project corridor (White Salmon, Washington). A mixed canopy forest of Oregon white oak (*Quercus garryana*), black cottonwood (*Populus balsamifera*), ponderosa pine (*Pinus ponderosa*), and Douglas-fir dominate. Oregon grape (*Mahonia nervosa*) and patches of Himalayan blackberry dominate the understory. This forest extends approximately 1,000 feet from the bank of the Columbia River to the top of the bank.

Immediately east of the existing bridge is a notably large Oregon white oak. The tree measured 58.8 inches at diameter breast height (dbh). Citizens have referred to the tree as a "heritage tree", although the City of White Salmon has no regulations establishing a "heritage tree" program (Walker 2003).

SR-14 parallels the riverbank and intersects the existing Hood River Bridge crossing. Some developed areas punctuate the forest canopy: a visitor's center, park and tribal fishing access area, and a private

nursery are located west of the bridge. A gas station and trailer park lie east of the bridge. BNSF Railway tracks run parallel along the Columbia River through the project area.

A search of the WDNR database revealed no record of rare plants in the project vicinity (S. Moody 2003). The Washington Department of Fish and Wildlife (WDFW) identified two priority habitats within 0.5 mile of the project (Guggenmos 2003). Approximately 1.5 miles of basalt cliffs are mapped along the hillside northwest of the project.

Oregon white oak woodlands are mapped along the north shore of the Columbia River and north upslope of the bluffs along White Salmon and Bingen. A small stand of Oregon white oak woodland is mapped within the work area including the bridge. These Oregon white oak woodlands are defined by the WDNR as stands of pure oak or oak/conifer associations where the canopy coverage of the oak component of the stand is 25 percent; or where total canopy coverage of the stand is less than 25 percent, but oak accounts for at least 50 percent of the canopy coverage present. The latter is often referred to as oak savanna. In non-urbanized areas west of the Cascades, priority oak habitat consists of stands 1.0 acre in size. East of the Cascades, priority oak habitat consists of stands 5 acres in size. In urban or urbanizing areas, single oaks or stands less than 1 acre may also be considered a priority when found to be particularly valuable to fish and wildlife.

The United States Fish and Wildlife Service identified one threatened plant species within Klickitat County (Miller, USFWS 2002). Ute ladies'-tresses (*Spiranthes diluvialis*), a federally listed threatened plant species, has been mapped within Klickitat County.

Ute ladies'-tresses occurs in broad low-elevation intermontane valley plains with wetland complexes. It is found in temporarily inundated wet meadows with relatively open canopies and segments of channels and swales with stable subsurface moisture. There are no known observations of Ute ladies'-tresses within the project area and observations at the site suggest that suitable habitat is not present.

Wetlands

Wetlands are areas where the presence of water, the cycling of nutrients, and the interaction of plants create unique ecosystems, making these areas very important features of a watershed.

On the north end of the project corridor, wetland vegetation was identified in the ditches along the existing railroad tracks in White Salmon and in isolated seeps along the Dock Grade hillside. The ditches supported cattail and floating emergents. The ditches contained approximately 6 to 8 inches of water on the day of the site visit. Sedges dominated the hillside seeps. The vegetation communities throughout the rest of the project area were characterized by upland species, including Oregon white oak, ponderosa pine Douglas-fir, Oregon grape, and Himalayan blackberry.

These ditches would not be considered regulated wetlands under the City of White Salmon critical areas ordinance because they are ditches constructed in nonwetland areas. Ditches constructed entirely in upland areas generally are not considered to be waters of the United States under the Clean Water Act. The U.S. Army Corps of Engineers would likely not consider these ditches to be regulated wetlands (65 FR 12823). The ditches appear to have been created during construction of the railroad along the Columbia River. The soils in the area are mapped as Kiakus, which is not listed on the Klickitat County Hydric Soils lists (USDA 2001).

Impacts

No Action Alternative

No new operational impacts to vegetation or regulated wetlands are anticipated from this alternative. Shading under the existing bridge would continue to affect vegetative growth and provide opportunity for more shade tolerant plant species to occupy the area.

Alternative EC-1

The new bridge deck will shade adjacent areas of vegetation for part of the day and will collect rainwater that would otherwise infiltrate or be intercepted by the vegetation. This 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-2

Impacts from shading and reduced soil moisture under shoreline areas of the bridge would be identical to those of Alternative EC-1.

Alternative EC-3

Impacts from shading and reduced soil moisture under shoreline areas of the bridge would be identical to those of Alternative EC-1.

Mitigation

No operational phase mitigation is proposed.

Fish and Wildlife

Studies and Coordination

The following agencies were contacted to obtain information on priority species presence in the project area: the Oregon Department of Fish and Wildlife, Washington State Department of Fish and Wildlife, U.S. Fish and Wildlife Service (USFWS), NOAA Fisheries, and the ONHP. Information on

anadromous fish species of concern was gathered from other sources, including the NOAA Fisheries web site.

Additional ESA coordination has been conducted with NOAA Fisheries and USFWS through the NEPA/SEPA/404 Merger process in Washington and the Oregon Collaborative Environmental and Transportation Agreement to Streamline (CETAS). Both processes include the two agencies as members. The project team made presentations at two meetings of both groups and provided project materials for review and comment, including the project purpose and need, criteria for alternatives selection, and technical reports related to fish and wildlife. In addition, a pre-BA meeting has held with both agencies to provide information about the project and to obtain early input on issues and concerns from the two agencies. Both agencies were provided an early review of the preliminary DEIS. Comments from NOAA Fisheries have been addressed in the preparation of this document.

The Fish and Wildlife section of this EIS is based on *SR-35 Columbia River Crossing Fish and Wildlife Elements Technical Report* (Entranco 2003c).

Affected Environment

The affected environment for each alternative is similar at the Oregon touchdown point and over the Columbia River. There are substantial differences among the alternatives in the affected environment on the Washington side. Because of the existing development on the Oregon side, little wildlife habitat is available. Potentially affected areas on the Washington shoreline are less development and provide more habitat for wildlife.

Species Presence

The resident species listed in Table 4-4 may be present within the project vicinity. Some of the resident fish, such as northern pikeminnow, are considered to be important predators of migrating salmonids.

Listed Fish Species

The Middle Columbia River in the vicinity of the project area is used by anadromous salmon, steelhead, and sea-run cutthroat trout primarily as a migratory route between spawning areas and the Pacific Ocean.

Based on a review of NMFS Evolutionarily significant Unit #7 (ESU) coverage maps and USFWS letters, the listed species shown in Table 4-5 are anticipated to be present in the reach of the river affected by the project. Currently, no critical habitat is designated for anadromous salmonids, including bull trout.

A brief synopsis of the listed species that are relevant to the proposed project is provided below.

Lower Columbia River Steelhead

LCR steelhead (*Oncorhynchus mykiss*) was listed as threatened under the ESA on March 19, 1998 (63 FR 13347) (NOAA Fisheries, 2003). Washington designates the LCR steelhead as a state candidate. Protected fish include all naturally spawned populations of steelhead (and their progeny) residing below naturally occurring and man-made impassable barriers. To date, NOAA Fisheries has listed only anadromous forms of the species. The Lower Columbia River ESU is composed of both winter-run and summer-run steelhead. The LCR river steelhead occupies tributaries to the Columbia River between the Cowlitz and Wind Rivers in Washington (inclusive), and the Willamette and Hood Rivers in Oregon (inclusive) (NOAA Fisheries, 2003).

Middle Columbia Steelhead

Middle Columbia River steelhead (*Oncorhynchus mykiss*) was listed as threatened under the ESA on March 25, 1999 (64 FR 14517) (NOAA Fisheries, 2003). The species is designated as a state candidate in Washington. The ESU includes all naturally spawned populations of steelhead in streams above the Wind River, Washington, and the Hood River, Oregon (exclusive), upstream to, and including, the Yakima River, Washington.

Lower Columbia/Southwest Washington Coho Salmon

The Columbia River Coho salmon (*Oncorhynchus kisutch*) is a candidate species for future listing as threatened or endangered. The State of Oregon lists the species as endangered. NMFS added the Lower Columbia River ESU Coho salmon to the Candidate Species list on July 14, 1997 (62 FR 37562) (listed as threatened under the ESA on March 25, 1999 (64 FR 14517)). The addition of Lower Columbia River Coho salmon to the list notifies the public that NMFS has concerns regarding the species and population that may warrant listing in the future. The ESU includes all naturally spawned populations of Coho salmon from Columbia River tributaries below the Klickitat River on the Washington side and below the Deschutes River on the Oregon side.

Lower Columbia River Chinook Salmon

LCR Chinook salmon (*Oncorhynchus tshawytscha*) were listed as threatened under the ESA on March 24, 1999 (64 FR 14308) (NOAA Fisheries, 2003). The species is designated as a state candidate in Washington. The Lower Columbia ESU includes all native populations from the mouth of the Columbia River to the crest of the Cascade Range. In the Columbia River, this ESU is bounded on the east by Celilo Falls, which may have historically presented a migrational barrier to Chinook salmon during certain times of the year. "Tule" fall Chinook salmon in the Wind and Little White Salmon rivers are included in this ESU, but not the introduced "upriver bright" fall-Chinook salmon populations in the Wind, White Salmon, and Klickitat rivers.

Table 4-4 Resident Fish Species Within Project Vicinity	
Common name (Scientific name)	
Northern pikeminnow (formerly Northern squawfish) (<i>Ptychocheilus oregonensis</i>)	
Channel catfish (<i>Ictalurus punctatus</i>)	
Smallmouth bass (<i>Micropterus dolomieu</i>)	
Walleye (<i>Stizostedion vitreum</i>)	
Pacific lamprey (<i>Lampetra tridentate</i>)	
American shad (<i>Alosa sapidissima</i>)	
Mountain whitefish (<i>Prosopium williamsoni</i>)	
Bullhead (<i>Amerius</i> spp.)	
Peamouth (<i>Mylocheilus caurinus</i>)	
Chiselmouth (<i>Acrocheilus alutaceus</i>)	
Common carp (<i>Cyprinus carpio</i>)	
Redside shiner (<i>Richardsonius balteatus</i>)	
Longnose dace (<i>Rhinichthys cataractae</i>)	
Largescale sucker (<i>Catostomus macrocheilus</i>)	
Bridgelip sucker (<i>Catostomus columbianus</i>)	
Threespine stickleback (<i>Gasterosteus aculeatus</i>)	
Sand roller (<i>Percopsis transmontana</i>)	
Bluegill (<i>Lepomis macrochirus</i>)	
Pumpkinseed (<i>Lepomis Gibbosus</i>)	
Crappie (<i>Pomoxis</i> spp.)	
Yellow perch (<i>Perca flavescens</i>)	
Prickly sculpin (<i>Cottus asper</i>)	
Source: NOAA Fisheries, 2002. Predation on Salmonids Relative to the Federal Columbia River Power System.	

The fall-run is predominant in the Lower Columbia River region (Myers et al., 1998). Fall-run fish in this region are often called “tules” and are distinguished by their dark skin color and advanced state of maturation upon entering freshwater. Tule fall-run Chinook salmon may have historically spawned in the Lower Columbia River ESU from the mouth of the Columbia River to the Klickitat River (RKm 290).

Species	Scientific name	Federal status	Oregon status	Washington status
Lower Columbia River (LCR) steelhead	<i>Oncorhynchus mykiss</i>	T		SC
Middle Columbia steelhead	<i>Oncorhynchus mykiss</i>	T		SC
LCR/Southwest Washington Coho Salmon	<i>Oncorhynchus kisutch</i>	T	SE	
LCR Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	T		SC
Upper Columbia River (UCR) spring Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	E		SC
UCR steelhead	<i>Oncorhynchus mykiss</i>	E		SC
Snake River Fall-run Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	T	ST	SC
Snake River Spring/Summer run Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	T	ST	SC
Snake River Basin steelhead	<i>Oncorhynchus mykiss</i>	T		SC
Snake River sockeye	<i>Oncorhynchus nerka</i>	E	SE	SC
Bull trout	<i>Salvelinus confluentus</i>	T		SC

E = endangered, T= threatened, C = candidate, ST = state threatened, SE = state endangered, SC = state candidate, SS = state sensitive

Upper Columbia River Spring-run Chinook Salmon

UCR Chinook salmon was listed as an endangered species on March 24, 1999 (64 FR 14308) (NOAA Fisheries, 2003). The species is designated as a state candidate in Washington. The ESU includes all naturally spawned populations of Chinook salmon in all river reaches accessible to Chinook in Columbia River tributaries upstream of Rock Island Dam and downstream of Chief Joseph Dam in Washington.

Upper Columbia River Steelhead

UCR steelhead was listed as an endangered species on August 18, 1997 (62 FR 43937) (NOAA Fisheries, 2003). The species is designated as a state candidate in Washington. The ESU includes all naturally spawned populations of steelhead (and their progeny) in

streams of the Columbia River Basin upstream from the Yakima River, Washington, to the United States – Canada border.

Snake River Fall-run Chinook Salmon

Snake River Fall-run Chinook salmon were listed as a threatened species on April 22, 1992 (57 FR 14653) (NOAA Fisheries, 2003). The species is designated as a state candidate in Washington and as threatened in Oregon. The ESU includes all natural populations of fall-run Chinook in the mainstem Snake River and selected subbasins.

Snake River Spring/Summer-run Chinook Salmon

Snake River Spring/Summer Chinook salmon were listed as a threatened species on April 22, 1992 (57 FR 14653) (NOAA Fisheries, 2003). The species is designated as a state candidate in Washington and as threatened in Oregon. The ESU includes all natural populations spring/summer run Chinook in the mainstem Snake River and selected subbasins.

Snake River Basin Steelhead

Snake River Basin steelhead were listed as threatened on August 18, 1997 (62 FR 43937) (NOAA Fisheries, 2003). The species is designated as a state candidate in Washington. The ESU includes all naturally spawned populations (and their progeny) in streams in the Snake River Basin of southeast Washington, northeast Oregon, and Idaho.

Snake River Sockeye

The Snake River sockeye salmon was listed as an endangered species on November 20, 1991. The ESU includes populations of sockeye salmon from the Snake River Basin, Idaho, including the Columbia River. Snake River Sockeye are listed as a species of concern in Washington (SC) and endangered in Oregon (SE).

The sockeye salmon is found along the Pacific coast from the Columbia River northward to the Yukon River in Alaska and westward to Japan. In the Columbia River Basin, sockeye salmon migrate to Osoyoos Lake in the Okanogan River Basin, Wenatchee Lake in the Wenatchee River Basin and Redfish Lake in Idaho. Today, Redfish Lake remains the only sockeye lake that is still accessible in the Snake River Basin.

Adult sockeye salmon enter the Columbia River from late May to the middle of August. The peak occurs at Bonneville Dam from late June to the first week of July. Sockeye smolts migrate out of Redfish Lake from late April through May after spending one or sometimes two years in Redfish Lake. Juveniles are typically found in the estuarine areas of the lower Columbia River during May and June. Juveniles are believed to be actively migrating through the estuary and have relatively short residence time.

Bull Trout

Bull trout (*Salvelinus confluentus*) were conterminously listed as threatened under the ESA on June 10, 1998 (64 FR 58909) (NOAA Fisheries, 2003). The species is designated as a state candidate in Washington. Bull trout are resident fishes that may occur near the project site on the Columbia River, including the White Salmon and Hood rivers.

Listed and Sensitive Wildlife Species

Listed and sensitive wildlife species that may be present in the project area include those species listed in Table 4-6.

Bald Eagle

In 1978, the bald eagle was federally listed as endangered throughout the lower 48 States, except in Michigan, Minnesota, Wisconsin, Washington, and Oregon, where it was designated as threatened (USACOE, 2003). In July 1995, the USFWS reclassified the bald eagle's status to threatened throughout the lower 48 states. Since that time, bald eagle populations have increased in number and expanded their range. The improvement is a direct result of recovery efforts including habitat protection and the banning of DDT and other persistent organochlorines.

Urban and recreational development, logging, mineral exploration and extraction, and other forms of human activities are adversely affecting the suitability of breeding, wintering, and foraging areas. However, in July 1999, the USFWS proposed to delist the bald eagle.

WDFW sensitive and species maps do not indicate the presence of wintering or nesting bald eagles within the project vicinity. The Oregon Natural Heritage Information Center indicates the presence of breeding bald eagle more than 2.5 miles to the east. The breeding site is far enough away that the project will have no effects on the bald eagles. Transient bald eagles may move through the area from time to time, but no long-term effects would be expected. It is possible that bald eagles could take up a nesting site in the vicinity of the bridge. If this happens, impacts to bald eagles would need to be reassessed.

Northern Spotted Owl

The northern spotted owl was listed as federally threatened in June 1990. The Northern Spotted Owl Recovery Team reported a total of about 3,602 known pairs of spotted owls in Washington, Oregon, and California, with 671 pairs in Washington (USDI, 1992b).

**Table 4-6
Status and Presence of Listed and Sensitive Wildlife Species in the Project Vicinity**

Species	Scientific name	Federal status	Oregon status	Washington status	Known occurrence in project area	Suitable habitat in project area
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	ST	ST		X
Northern spotted owl	<i>Strix occidentalis caurina</i>	T	ST	SE		
Oregon spotted frog	<i>Rana pretiosa</i>	C		SE		
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	C		SC		
Western Gray Squirrel	<i>Sciurus griseus</i>	FSC		ST	X	X
California Mountain Kingsnake	<i>Lampropeltis zonata</i>			SC	X	X
Peregrine Falcon	<i>Falco peregrinus</i>		SE	SS		X

E = endangered, T= threatened, C = candidate, FSC = federal species of concern, ST = state threatened, SE = state endangered, SC = state candidate, SS = state sensitive

Spotted owls nest, roost, and feed in a wide variety of habitat types and forest stand conditions throughout their distribution, with most observations in areas having a component of old-growth and mature forests. Owls in managed forests usually occupy areas with structural diversity and a high degree of canopy closure, containing large diameter or residual old trees, in stands more than 60 years old (USDI, 1992b). This habitat is absent from the project location.

Oregon Spotted Frog

The Oregon spotted frog is a candidate species under the ESA. This species has declined dramatically from its original distribution because of the filling and alteration of wetlands. The four known remaining populations are isolated and vulnerable to a wide variety of factors that may interfere with reproduction or survival. This species is highly aquatic and is rarely found away from water. Populations occur in large shallow wetland systems associated with a stream or stream network. This habitat is not present in the project area; therefore no impacts to the Oregon spotted frog are anticipated.

Yellow-billed Cuckoo

The western yellow-billed cuckoo was designated as a candidate species in the western U.S. distinct population segment. The yellow-billed cuckoo was formerly common within willow-dominated forests and wetlands in the Puget trough and the lower Columbia River. However, this species is considered to be currently not present in Washington

State (Smith et al. 1997). This habitat is not present in the project area. Therefore, no impacts to the yellow-billed cuckoo are anticipated.

Peregrine Falcon

In 1970, the American peregrine falcon was listed as endangered under the Endangered Species Conservation Act of 1969 (the law preceding the Endangered Species Act (ESA) of 1973), reflecting their critical biological status. On August 25, 1999, the peregrine falcon was delisted in the entire range. However, peregrine falcons are currently listed as endangered in Oregon and as sensitive in Washington.

Peregrine falcons live mostly along mountain ranges, river valleys, and along the barrier islands on the Atlantic and Gulf of Mexico coasts. Peregrines that nest south of Canada migrate lesser distances, and some do not migrate at all. Peregrine falcons generally reach breeding maturity at 2 years of age. The nest is a scrape or depression dug in gravel on a cliff ledge. Rarely, peregrines will nest in a tree cavity or an old stick nest. Some peregrines have readily accepted manmade structures as breeding sites. For example, skyscraper ledges, tall towers, and bridges serve as the urban equivalent of a cliff ledge. Peregrine falcons feed primarily on other birds, such as songbirds, shorebirds, ducks, and—in urban areas—starlings and pigeons.

Peregrine falcons are present within the Columbia River Gorge. Currently, no known nest sites are within the vicinity of the bridge. The nearest known locations used by peregrine falcons are east of Hood River on cliffs south of I-84. Foraging areas used by these birds may include Bingen Lake, which is located on the Washington side of the Columbia River across from Stanley Rock. It is possible that peregrine falcons could take up a nesting site in the vicinity of the bridge or on the existing or new bridge. If this happens, the appropriate agencies will be contacted and impacts will be reassessed.

Western Gray Squirrel

The western gray squirrel is listed in the state of Washington as threatened and by the USFWS as a species of concern. The western gray squirrel is a large native, bushy-tailed tree squirrel usually not seen in urban areas. The western gray squirrel occurs in oak woodlands and open coniferous forests in the lowlands of south Puget Sound and along the Columbia River; the species prefers white oak stands (Larrison 1976). The WDFW Habitat and species map indicates the presence of western gray squirrels in the project vicinity. These known locations are more than 0.5 mile from the project site and will not be affected. However, stands of Oregon white oak are present in the project corridor and the western gray squirrel may be present.

California Mountain Kingsnake

The California mountain kingsnake is a species of concern in Washington State. California mountain kingsnakes appear to favor moist habitats or oak and pine forests and chaparral. They are often

found under or within rotting logs but may also be found under rocks (Storm 1996). The WDFW Habitat and species map indicates the presence of California mountain kingsnakes in the project vicinity. These known locations are more than 0.5 mile from the project site and the project area will not be affected. However, stands of Oregon white oak are present in the project corridor and the California mountain kingsnake may be present.

Impacts

No Action Alternative

Roadway improvements may create additional impervious surface resulting in additional stormwater runoff. Stormwater from roads can cause turbidity and introduce contaminants to the river, which would harm fish. Upgraded roadways would include stormwater treatment designed to meet current stormwater standards.

The new approaches would include stormwater treatment to improve environmental conditions for fish. Currently no stormwater treatment is available on the approaches. However, the bridge deck would still be steel grating and contaminants from vehicles would still enter the river untreated, which may harm fish.

Alternative EC-1

The new concrete bridge deck would be designed to collect stormwater that would be discharged to the river. Stormwater from roads can cause turbidity and introduce contaminants to the river, which would harm fish. The project would be designed with stormwater facilities to treat water quality. Stormwater treatment would be an improvement over current conditions, since the existing bridge has no stormwater treatment.

Stream habitat may be changed long term. Predator species, such as northern pikeminnow, and introduced predators, such as largemouth bass, smallmouth bass, black crappie, white crappie, and walleye may use habitat created by in-water structures (NOAA, 2003). The northern pikeminnow is the dominant consumer of juvenile salmonids in the Columbia River system (NOAA, 2000). The new piers may create habitat for predatory fish that can consume large numbers of juvenile salmonids. Bridge pier design and placement are key factors that may influence predation. Bridge pier shape has a considerable effect on the amount of habitat created. Predatory fish may tend to persist in the eddy currents behind the pier or under the cover created by waterline foundations. A waterline foundation pier would consist of several piles supporting a concrete cap at the water surface creating many opportunities for predatory fish to take refuge. The cofferdam footer would have a pier that traverses the water column from the bottom to the surface. The amount of refuge habitat created by the pier would depend on its shape. An oblong shape would create the least amount of refuge followed by round and then the rectangular and wedge shapes.

Foundation placement is also critical to the amount of predation that occurs. Foundations placed close to shore may be a preferred habitat for northern pikeminnow. Shively et al. (1996) developed a biological criterion for siting smolt bypass systems so that northern pikeminnow predation would be minimized. The criterion recommends that a distance of greater than 250 feet from shore would help reduce predation by northern pikeminnows. Therefore spanning the nearshore environment would help reduce predation rates. If a foundation were constructed near shore, the cofferdam foundation would create fewer chances for ambush than the waterline foundation because the waterline foundation would likely encompass more area.

Once demolition of the old bridge is complete, habitat for predators should be about the same as what currently exists, so no long-term substantial increase in predation rates on salmonids would be expected and may be less if the nearshore environment is spanned.

Other possible operational impacts from the bridge that may affect fish and wildlife include noise, lighting, and shading. Noise would be reduced from current conditions since the new deck would be concrete and not steel grating. Lighting for the bridge would be focused on the bridge deck only, so that nighttime lighting of the surface of the river would be minimal. The new structure would be high enough so that shading under the bridge would not affect productivity in the river or along shorelines.

For species protected under the Migratory Bird Treaty Act, impacts include removal of nesting areas during demolition of the old bridge and disturbance and removal of nesting and feeding areas along the new alignment. The new bridge when completed will be available for nesting building by swallows and other songbirds. The old structure will be demolished and native vegetation will be replanted in its place along the shore, therefore offsetting habitat that is lost by removal of vegetation for the new bridge. Construction activities may temporarily displace waterfowl along the nearshore environment until completion of the project. All impacts will be temporary and no long-term decline in numbers is expected.

Alternative EC-2

Operational Impacts from EC-2 are expected to be the same as those for EC-1.

Alternative EC-3

Operational Impacts from EC-3 are expected to be the same as those for EC-1.

Mitigation

Provide direct bridge lighting toward the bridge deck to minimize nighttime illumination of the water surface.

Air Quality

Studies and Coordination

Air quality in the project area is regulated by the U.S. Environmental Protection Agency (EPA), Ecology Central Regional Office, and DEQ Eastern Region. The project area is also near the Southwest Clean Air Agency (SWCAA). Under the Clean Air Act, U.S. EPA has established the National Ambient Air Quality Standards (NAAQS), which specify maximum concentrations for CO, particulate matter less than 10 micrometers in size (PM₁₀), ozone, sulfur dioxide, lead, and nitrogen dioxide. These pollutants are referred to as criteria pollutants.

The Air Quality section of this EIS is based on the *SR-35 Columbia River Crossing Air Quality Technical Memorandum* (Parsons Brinckerhoff 2003f).

Impacts

The project area is in attainment for all NAAQS. Because the project area is in attainment for all criteria pollutants, and while the replacement bridge would increase traffic capacity by providing wider, safer traffic lanes, it is not expected to substantially change transportation demand or traffic patterns in the region. The project, therefore, would not substantially affect air quality during operation of the project.

Mitigation

No mitigation is proposed.

Visual

Studies and Coordination

The FHWA Visual Impact Assessment for Highway Projects, 1988, and the WSDOT Roadside Classification Plan, 1996, were used as guidance for this visual quality assessment of the potential visual impacts from the proposed project.

Visual quality was assessed through field visits, the use of photographs, and the review of proposed bridge drawings and diagrams. Both aerial and ground level photographs were used to evaluate existing views and determine potential impacts.

The Visual section of this EIS is based on the *SR-35 Columbia River Crossing Visual Technical Report* (Parsons Brinckerhoff 2003g).

Affected Environment

The proposed project is located within the Columbia River Gorge, an area designated as nationally important for its outstanding scenic beauty. The Columbia River Gorge, a sea level chasm cut through the Cascade Mountains, is home to dramatic and diverse landscapes of “unparalleled grandeur” (U.S. Department of Agriculture, 1992). Scenery in the Columbia River Gorge includes towering cliffs, steep waterfalls, dense forests, sweeping grasslands, rural towns, orchards and farms. The striking, distinctive characteristics of the Columbia River Gorge create strongly contrasting landscapes that leave vivid impressions on most viewers. The limited number of bridge crossings in the Columbia River Gorge tends to make each crossing unique and memorable in its own right.

Impacts

No Action Alternative

The existing bridge would continue to be operated and maintained for approximately 30 years. After which it would be closed to all vehicular traffic.

The short-term improvements, which are proposed as part of all the alternatives, would result in minimal impacts to the visual resources. After the bridge was closed to vehicular traffic, the views to motorists from the bridge would no longer be available. If the bridge were left in place after it is closed to vehicular traffic, views towards the bridge would not be expected to change. Demolition of the bridge after it is closed would alter the views to and from the area of the bridge.

Alternative EC-1

Due to the nature of the improvements, the visual impacts from the short- and mid-term improvements would be minimal.

All three bridge type options would alter the present views as a result of the following actions associated with a new fixed-span bridge:

- Changing the alignment of the bridge
- Increasing the height of the bridge deck over the shipping channel by an additional 40 feet¹
- Increasing the roadway deck from approximately 19 feet to 56 feet for the 20 year horizon²
- Increasing the opacity of the structure³

¹ This would be a “worst-case” scenario, using the girder segmental with 600-foot parabolic span design option.

² The 75-year horizon includes an expansion option of increasing the bridge roadway to 66 feet.

- Changing the bridge style, materials, color, and reflectivity
- Increasing activity on the bridge
- Creating a new intersection with SR-14 and Dock Grade

Removing mature trees and vegetation may be necessary, which would also alter existing views. From all viewer positions, the increased width and opacity of the new bridge would lead to larger and darker shadows cast by the structure. The color and reflectivity of the bridge would be determined during final design, and therefore, the extent of the impact due to these two features is uncertain at this time; still, a change in the color and reflectivity would alter existing views.

The new bridge would have the greatest impact on the visual resources from the inferior viewer position when the bridge is in the foreground. To viewers located on the Columbia River or the shores below the bridge, the new structure would appear much larger than the existing bridge due to its increased width and height. The design techniques aimed at gaining structural transparency through the use of thin concrete or steel profiles that are ribbon like, and the wide spacing between piers, would not have the same visually minimizing effects as they would from the normal or superior viewer positions.

From the normal viewer position, wider pier positions and the use of a ribbon like design would create the effect of a more visually transparent bridge. The width of the bridge would not have as dramatic of an effect as it would from the inferior or superior viewer positions.

The new bridge would have the least impact to views from a superior viewpoint when the bridge is in the middleground or foreground. From these viewpoints the new bridge would be visible but would not be the most prominent feature compared to the scale of the Columbia River Gorge and surrounding Cascade Mountains. Viewers would realize little change in the visual quality of the views with the new bridge compared to the existing bridge.

Alternative EC-1 would have a slightly higher impact due to its westerly alignment, requiring a new intersection with SR-14 and Dock Grade. This alignment would most likely include additional improvements along Dock Grade. These improvements could run the entire length of Dock Grade and may include excavation cuts into the hillside and removal of additional vegetation.

Overall, adverse impacts to visual resources could be minimized through the use of the selected designs that use a wider spacing between piers, thin concrete or steel profiles that are ribbon like, and colors that blend into the natural landscape. These design features, common to all three bridge type options, would help the bridge maintain the integrity of the surrounding environment. In addition, locating the

³ “Opacity” is used to describe how the new bridge would be impenetrable by light, as compared to the existing bridge that allows light to pass through its deck grating.

new bridge in roughly the same location as the existing bridge would also help to reduce the overall visual impacts.

Alternative EC-2

The operational impacts to visual resources as a result of Alternative EC-2 would be nearly the same as those described for Alternative EC-1. Differences in the impacts as a result of the Alternative EC-2 alignment on the Washington side as compared to Alternative EC-1 are discussed below.

Alternative EC-2 would intersect SR-14 slightly west of the existing intersection and not at Dock Grade. This alignment would require the removal of mature trees and vegetation, which would alter existing views. Some new vegetation would be replanted, but young trees would not offer the same amount of coverage that any displaced mature trees provide. Since Alternative EC-2 would intersect SR-14 at nearly the same location as the existing bridge, view impacts associated with the north approach would be less than those for Alternative EC-1.

Alternative EC-3

The operational impacts to visual resources as a result of Alternative EC-3 would be nearly the same as those described for Alternative EC-1. Differences in the impacts as a result of the Alternative EC-3 alignment as compared to Alternative EC-1 are discussed below.

Alternative EC-3 would intersect SR-14 slightly east of the existing intersection and not at Dock Grade. Like Alternative EC-2, this alignment would require the removal of mature trees and vegetation, which would alter existing views. Some new vegetation would be replanted, but young trees would not offer the same amount of coverage that any removed mature trees provide. Since Alternative EC-3 would intersect SR-14 at nearly the same location as the existing bridge, view impacts associated with the north approach would be less than those for Alternative EC-1.

Unlike Alternative EC-2, the design of Alternative EC-3 may include a slight bow in the alignment. This design feature is intended to emulate the natural bends of the Columbia River and of the towering walls of the Columbia River Gorge; an effect that helps increase the visual harmony of the bridge to the surrounding environment.

Mitigation

Where appropriate and feasible, mitigation measures such as the following could be employed to partially or fully mitigate disturbances of operation:

- Planting appropriate native vegetation around the bridge approaches would preserve and restore the natural environment and increase the bridges ability to blend in with the surrounding environment.

- Shielding roadway light fixtures would minimize glare and ambient spillover.
- Using colors and materials in the design of the bridge that are consistent with the character of the surrounding environment would help to ensure visual harmony with the surrounding resources.

Noise

Studies and Coordination

The noise study involved measuring existing sound levels and modeling noise levels for existing and future conditions. A comparison to impact criteria used by the FHWA was made to determine impacts.

The Noise section of this EIS is based on the *SR-35 Columbia River Crossing Noise Technical Report* (Parsons Brinckerhoff 2003h).

Noise Regulations and Impact Criteria

Applicable noise regulations and guidelines provide a basis for evaluating potential noise impacts. For federally funded highway projects, traffic noise impacts occur when predicted $L_{eq}(h)$ noise levels approach or exceed NAC as established by the FHWA, or substantially exceed existing noise levels (U.S. Department of Transportation, 1982, Noise Abatement Council). Although "substantially exceed" is not defined, WSDOT and ODOT consider an increase of 10 dBA or more to be a substantial increase.

The FHWA NAC criteria are noise standards that specify exterior $L_{eq}(h)$ noise levels for various land activity categories (Table 4-7). For receptors where serenity and quiet are of extraordinary significance, such as historical memorials or outdoor amphitheaters, the noise criterion is 57 dBA. For residences, parks, schools, churches, and similar areas, the noise criterion is 67 dBA. For other developed lands, the noise criterion is 72 dBA. WSDOT considers a noise impact to occur if predicted $L_{eq}(h)$ noise levels approach within 1 dBA of the NAC in Table 4-7. Thus, if a noise level were 66 dBA or higher, it would approach or exceed the FHWA noise abatement criterion of 67 dBA for residences. ODOT considers a noise impact to occur if predicted $L_{eq}(h)$ noise levels approach within 2 dBA of the NAC in Table 4-7. Thus, if a noise level were 65 dBA or higher, it would approach or exceed the FHWA noise abatement criterion of 67 dBA for residences.

Ecology limits noise levels at property lines of neighboring properties (WAC Chapter 173-40). The maximum permissible noise levels depend on the land uses of both the source noise and receiving property. Ecology's allowable noise ranges at residential property lines is 52 to 60 dBA, depending on the source noise. These allowable levels are reduced by 10 dBA between 10 p.m. and 7 a.m. on weekdays and between 10 p.m. and 9 a.m. on Saturdays and Sundays. Sounds from

motor vehicles on public roads are exempt from Ecology property line regulations, although the FHWA noise criteria still apply.

Table 4-7 FHWA Noise Abatement Criteria		
Activity Category	L_{eq} (h) (dBA)	Description of Activity Category
A	57 (exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	-	Undeveloped lands.
E	52 (interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.
Source: U.S. Department of Transportation, 1982.		

In Washington, construction noise is exempt from property line standards during daytime hours. During nighttime hours (10 p.m. and 7 a.m.), construction noise must meet Ecology property line regulations. Noise levels in Table 4-7 apply to construction equipment only at rural and residential receiving properties between 10 p.m. and 7 a.m. for the Washington side.

In Oregon, local ordinances may restrict nighttime construction noise levels. In these cases construction noise impact studies may be required to estimate construction noise levels and recommend mitigation measures to reduce construction noise. In some cases these studies would be used to obtain permits or variances for nighttime construction noise levels (ODOT 1996).

Hood River limits noise levels at or within the boundary of noise-sensitive properties (Hood River Noise Ord. Chapter 8.09). Sounds regulated by federal law, sounds when performed under permit, sounds from construction during the hours of 7 a.m. to 10 p.m. and sounds caused by regular vehicular traffic upon premises open to the public are exempt. Noise levels between the hours of 10 p.m. to 7 a.m. may not exceed 50 dBA and between the hours of 7 a.m. to 10 p.m. noise levels may not exceed 60 dBA. Also, noise levels that are plainly audible from a distance of 100 feet from the source are prohibited between the hours of 7 a.m. to 10 p.m. Construction, excavation, or demolition is not

permitted prior to 7 a.m. and after 7 p.m. unless a permit is issued by the council or its designee.

Oregon's DEQ regulates noise from airports and commercial sites. The commercial regulations apply to stationary sources such as a permanent rock crusher. DEQ also regulates maximum allowable noise levels for new motor vehicles and in used vehicles to be sold in Oregon.

Affected Environment

Existing Noise Levels

Noise levels were field measured at 9 locations representing 50 hotel rooms, 35 RV park spaces, 10 residences, 12 businesses, and 2 recreational areas (Figure 4-3). Table 4-8 represents existing sound measurements and modeled exterior traffic Leq(h) noise levels.

Traffic noise levels over the course of the day are highest when both traffic volumes and speeds are high. This generally occurs around the peak hour; however, congestion during the peak hour may lower traffic speeds resulting in lower noise levels. Freeflow traffic conditions were modeled to predict worst-case noise levels.

Traffic noise from SR-14 and I-84, including the hum generated by vehicles crossing the grated deck of the existing Hood River Bridge, was the dominant noise source in the project area, with minor contributions from aircraft and trains from both Washington and Oregon shores. The current grated bridge deck results in more noise than a solid bridge deck would generate. The additional noise associated with the grated deck is tonal in nature (it is made up of sounds within a narrow frequency band). The tonality of the sound makes it more distinctive and noticeable above other background sounds for a greater distance than if it were broad-spectrum noise. The grated bridge deck increases the total sound level by between 2 and 4 dBA within 500 feet of the bridge. At greater distances the sound level increase is less; however, the tonality of the sound makes it noticeable for more than a mile under some conditions.

Impacts

Environmental noise at high intensities directly affects human health by causing the disease of hearing loss. Although scientific evidence currently is not conclusive, noise is suspected of causing or aggravating other diseases. Environmental noise indirectly affects human welfare by interfering with sleep, thought, and conversation. The FHWA NAC are based on speech interference, which is a well-documented impact that is relatively reproducible in human response studies.

The results of the noise analysis predicted that the proposed project would not cause noise levels that would exceed the FHWA NAC at the nine measured receptors under the No Action Alternative and the three Action Alternatives, EC-1, EC-2, and EC-3 (Table 4-9).

**Table 4-8
Existing Conditions: Measured and Modeled Noise Levels**

Measured Site		Date	Start Time	Measured Leq (dBA)	Modeled Peak Hour Leq (dBA)
1 OR	Port Marina Park wind surf launch area	November 26, 2003	9:42 A.M.	58	55
2 OR	Port Marina boat launch area	November 26, 2003	10:18 a.m.	58	58
3 OR	Marina near boat launch	November 26, 2003	10:46 a.m.	59	58
4 OR	Best Western Hood River Inn & The Market Place	November 26, 2003	11:12 a.m.	66	63
5 OR	Best Western Hood River Inn	November 26, 2003	11:41 a.m.	64	65
6 WA	Bridge RV Park & Campground	November 26, 2003	12:53 p.m.	60	60
7 WA	City of White Salmon Park & Ride	November 26, 2003	1:39 p.m.	66	63
8 WA	Residential	November 26, 2003	2:28 p.m.	57	57
9 WA	Entrance to treaty fishing access site and commercial nursery site	November 26, 2003	2:48 p.m.	64	56
1-2 OR*	Port Marina Park wind surf launch area	February 10, 2003	1:48 p.m.	61	N/A
4-2 OR*	Best Western Hood River Inn & The Market Place	February 10, 2003	1:14 p.m.	66	N/A

* Measurement sites were measured a second time for verification.

The short-term improvement of replacing the current steel grating with a quieter steel grating would provide a short-term decrease in traffic noise levels and the tonality of the noise generated by the bridge deck. As traffic volumes increase, the benefit of the new grated steel deck would decrease. The new steel-grated deck was estimated to provide a 2 to 4 dBA benefit for sites within 500 feet from the bridge. If the existing bridge is replaced with a new bridge, the grated steel deck will be eliminated as a noise source.

Mitigation

No mitigation is recommended for this project. Noise level increases because of this project were not predicted to approach or exceed the FHWA NAC.

Noise Measurement Locations

Figure 4-3

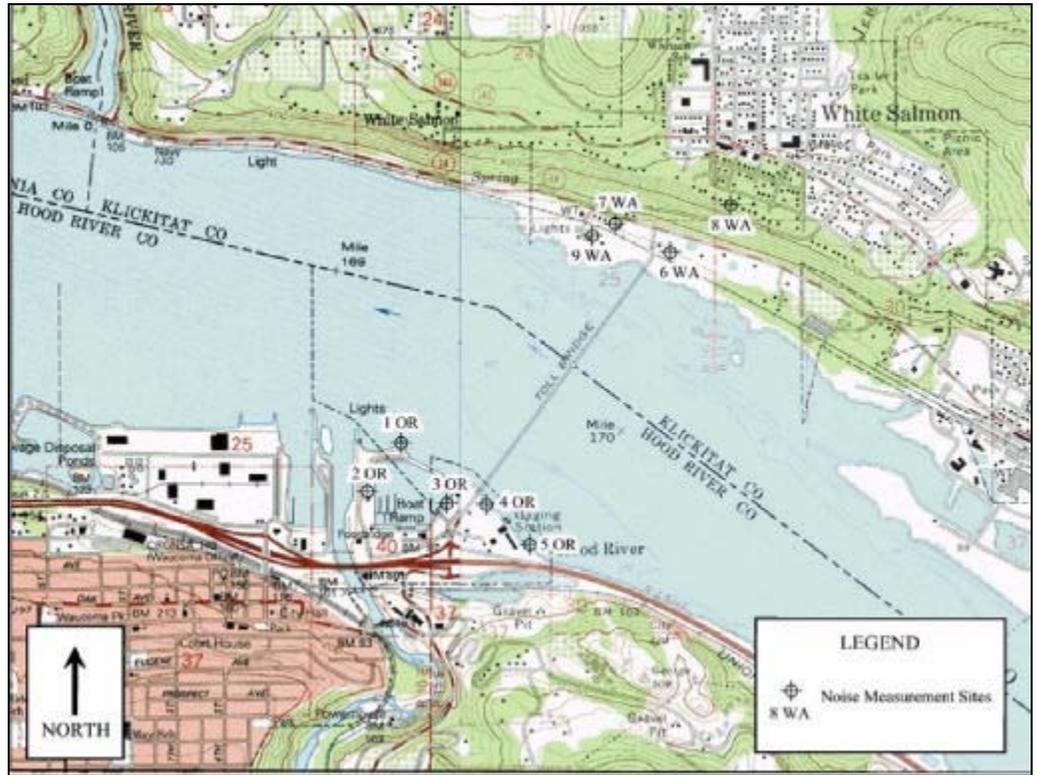


Table 4-9 Existing and Future Exterior Traffic Noise Levels									
Existing and Future Exterior Traffic Noise Levels (L_{eq} in dBA)					Future Noise Levels by Project Alternative Without and With Abatement ²				
Noise Receptor Number	Land Use Activity Category	Numbers by Activity ¹	Average Distance to Roadway (ft)	FHWA Noise Abatement Criteria	Modeled Existing Noise Level	2025 No Action	Alternative EC-1	Alternative EC-2	Alternative EC-3
1 OR	B	R	1,200	67	55	58	58/-	58/-	58/-
2 OR	B	R	1,600	67	58	62	62/-	62/-	62/-
3 OR	B	R	600	67	58	62	62/-	62/-	61/-
4 OR	B	1 HT (~25 rooms), 12 B	200	67	63	63	62/-	62/-	63/-
5 OR*	B	1 HT (~25 rooms)	1,100	67	65	69	69/-	69/-	69/-
6 WA	B	35 RV	420	67	60	60	59/-	59/-	60/-
7 WA	D	Park & Ride	780	-	63	65	65/-	65/-	65/-
8 WA	B	9 SF	1,500	67	57	60	61/-	60/-	60/-
9 WA	B	R, 1SF	1,080	67	56	58	60/-	58/-	57/-

* The primary noise source impacting Noise Receptor Number 5 is I-84.

1. SF= Single Family Residence, MF= Multiple Family Residence, HT= Hotel, B= Business, CH= Church, L= Library, H= Hospital, R= Recreation Area, RV= RV Park, 66/58: 66 = Noise Level Without Abatement, 58 = Noise Level With Abatement, - = Abatement Not Considered

2. **Bold** numbers approach or exceed the FHWA NAC. WSDOT considers an impact to occur if the predicted Leq(h) approaches within 1 dBA of the noise abatement criterion. ODOT considers an impact to occur if the predicted Leq(h) approaches within 2 dBA of the noise abatement criterion.

Hazardous Materials

Studies and Coordination

This study was completed by reviewing historic and current site conditions with regard to the possible use, generation, storage, release, or disposal of hazardous materials and petroleum products along the project area and adjacent properties. Tasks included the following

- Reviews of readily available geotechnical and environmental reports for the project area including information provided by the Washington Department of Ecology (Ecology) and the Oregon DEQ.
- Reviews of federal and state environmental databases for listings of known or suspected environmental problems along the project area and nearby properties.
- Historic information including historical topographic maps and aerial photographs to identify past development history and present conditions on and adjacent to the project area relative to the possible use, generation, storage, release, or disposal of hazardous materials.
- Interviews of property owners, state regulatory personnel, or others familiar with past and present uses of the project area and adjacent properties.
- Visual reconnaissance of the project area and adjacent properties to identify any visible signs of possible contamination and potential sources of contamination.

The Hazardous Materials section of this EIS is based on the *SR-35 Columbia River Crossing Hazardous Materials Technical Report* (Parsons Brinckerhoff 2003i).

Impacts

Hazardous material impacts to human health and the environment are not expected for the project alternatives; however, additional environmental information is needed to determine the presence of environmental contaminants within certain areas of the project. Operational impacts associated with hazardous materials are principally associated with accidental spills of hazardous materials transported over the bridge or from releases associated with vehicle accidents.

Bridge maintenance could involve the use of hazardous materials, such as paint or pigmented sealer, which could present risks to aquatic resources of the Columbia River.

Construction activities such as excavation, demolition, and accidental spills from construction equipment also present risks from hazardous

materials. Construction-related risks and mitigation are discussed under Construction Activity Impacts in this chapter.

No Action Alternative

No direct impacts related to hazardous materials are expected for the No Action Alternative.

Maintenance of the existing Hood River Bridge could require painting of steel trusses.

The open-grate deck of the existing bridge provides no protection against accidental spills of hazardous materials on the bridge. Hazardous materials spilled in this way would directly enter the Columbia River with unpredictable impacts on water quality, fish, and other aquatic resources.

Alternative EC-1, EC-2, and EC-3

No direct operational impacts related to hazardous materials are expected for any of the build alternatives.

Mitigation

No specific mitigation is proposed for routine operation of the proposed bridge.

The proposed closed drainage system is expected to adequately mitigate against 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 facilitating clean up.

Conducting bridge maintenance, such as painting, if required, using appropriate BMPs would reduce the potential for inadvertent spills and paint overspray into the Columbia River.

Construction Activity Impacts

The Construction Activity Impacts section of this EIS is based on the technical reports and technical memoranda referenced in the Studies and Coordination section of each environmental discipline in Chapter 4.

Land Use

Construction Impacts

No Action Alternative

All of the replacement bridge alternatives include the short-term improvements that would occur under the No Action Alternative within the next five years. These improvements (replace existing steel grating

with new steel grating; install roundabout or traffic signal at the I-84 eastbound ramps and OR-35/Hood River Bridge approach road; and convert the tollbooth to one-way southbound toll collection) may result in temporary traffic congestion and delays, reduced access, equipment noise, and air and dust emissions. The construction related impacts are expected to be temporary and short in duration. Once construction is complete these impacts would end.

Under this alternative, construction activities from mid-term and long-term improvements would not occur.

Alternative EC-1

During construction adjacent land uses as well as nearby land uses would most likely be affected to some degree by construction activities. Construction related impacts would be less in intensity as the distance between construction and a particular land use increased.

Construction impacts resulting from the short-term improvements would be to the same as those described for the No Action Alternative. Potential impacts associated with construction activities of the mid-term and new fixed-span bridge improvements may also include traffic congestion and delays, reduced access, equipment noise, and air and dust emissions. Some nearby sites may be used for construction storage and/or staging, which would limit the typical activities that may occur on the site. Moving equipment and materials from the nearby construction storage and staging areas may also temporarily affect land uses located between these sites and the construction area. The construction related impacts are expected to be temporary and short in duration. Once construction is complete these impacts would end.

Alternative EC-2

The construction related impacts resulting from Alternative EC-2 would be the same as those described for Alternative EC-1.

Alternative EC-3

The construction related impacts resulting from Alternative EC-3 would be the same as those described for Alternative EC-1.

Construction Mitigation

Where appropriate and feasible, mitigation measures such as the following could be followed to minimize disturbances during construction:

- Work closely with the various adjacent land and business owners to minimize conflicts and inconvenience from construction related activities.

- Provide property and business owners in the project area with public notice of potential access or utility disruptions as a result of construction activities.
- To the extent possible, mature trees and existing vegetation would be preserved to retain a visual screen between construction activities and surrounding areas.
- To the extent possible, project staging areas would be shielded from, or located outside, the view range of neighborhoods and high activity recreation sites.
- Construction hours could be limited, especially during evening hours to avoid visual disturbance related to vehicle and work light illumination, noise, dust, and glare.

Transportation

Traffic

Construction Impacts

No Action Alternative

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.

Alternatives EC-1, EC-2, and EC-3

As there is no formal transit service that runs over the Hood River Bridge, transit will not be hampered by construction. Bicycle and pedestrians are currently prohibited from using the existing bridge; so while some still choose to cross, there will not need to be a major rerouting of non-motorized modes. The only impacts to pedestrians and bicycles would occur on shore near construction activities. These impacts would primarily include minor detours. The Waterway Trail would be temporarily closed or rerouted in work areas.

The existing bridge would remain open during construction of the new bridge. Depending on the crossing location, length, and type of bridge, a construction period between three to five years should be expected from notice to proceed for the first site contractor, to opening of the new bridge, to removal of the existing bridge.

Overall business activities that rely on cross-river travel or transport of goods would experience minor delays and detours during construction. These disruptions would not be expected to contribute to a loss in productive business or a change in business or shopping patterns. 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 Alternative EC-1, a direct impact would be to the location of the driveway on SR-14 into the park and ride lot, the nursery property, and the tribal access fishing site. The new bridge alignment would connect to SR-14 at the point of the existing driveway. As a result, the driveway would need to be relocated to the east. This new driveway may require the removal of a few existing parking spaces at the west end of the lot.

Alternative EC-2 would not connect directly to Dock Grade, thus travelers heading to and from White Salmon would either drive west on SR-14 to Dock Grade or east on SR-14 to access White Salmon on SR-141. This access is similar to current access.

Construction Mitigation

Measures would be implemented to minimize construction impacts to traffic, business access, and recreational activities occurring in the vicinity. 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.
- If a new toll both were installed stopping only SB travelers, the queuing on I-84 would be eliminated. SB queuing would remain. Some temporary traffic delays may occur during the tollbooth reconfiguration.
- If roundabouts are constructed at the SR-35 and I-84 on-ramps, traffic may be affected by occasional road closures and local detours.
- Providing alternate access to the tribal access fishing site during construction would reduce impacts caused by construction of Alternative EC-1.
- Other mitigation includes implementing the provisions of the Uniform Relocation and Real Property Policies Act for any business or property that must be acquired.

Marine Traffic

Construction Impacts

Due to the construction zone, the narrowest part of the channel will be longer, which barges will have to navigate. While a great deal of barge traffic passes through the study area along the Columbia River, very little is generated or received in the study area, eliminating concern of a lot of vessels docking. Most will continue through the construction zone.

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.

Over the past seven years, two or three barges have reportedly scraped through the bridge opening, but not caused any significant damage. Passage through the construction zone could present problems where the narrow passage will be as much as five times longer.

Construction Mitigation

- Alert river users about changes in the channel during construction will help reduce navigational risks.
- Use appropriate warning signs, lights, and buoys to reduce navigational risks during construction. These will be coordinated with and approved by the US Coast Guard.

Rail Traffic

Construction Impacts

No major construction impacts on rail operations during construction are anticipated. Minor impacts are associated with work adjacent to an crossing of the railroad right-of-way. Construction equipment may need to cross the railroad tracks to construct piers. A temporary at-grade crossing may be needed. Trains passing through the construction zone could pose a risk to workers.

Construction Mitigation

Coordination with BNSF through the Railroad Permit process will ensure that design and construction requirements are met.

- Two flaggers will likely be required on-site to alert trains of work being done through the construction area.
- Alerting construction workers of trains moving through the work zone would reduce risks of accidents.

Freight Traffic

Construction Impacts

Few extremely heavy trucks now use this bridge (due to weight restriction), so there should only be a slight disruption in freight movement, if any at all during construction. If barge operators decided it would be easier to truck their goods than barge it, there may be localized problems in the urban areas. These could be alleviated or eliminated by trucking by night, or other mitigation efforts. No impact of traffic flow on SR-14 or I-84.

Construction Mitigation

No mitigation is proposed.

Geology and Soils

Construction Impacts

Table 4-2 in the Geology and Soils section of Chapter 4 compares the potential risks of erosion from construction of each of the four alternatives.

No Action Alternative

All of the replacement bridge alternatives include the short-term improvements that would occur under the No Action Alternative within the next five years. These improvements would include replacing the steel bridge deck grating, installing a roundabout or traffic signal at the I-84 eastbound ramps, and converting the tollbooth to one-way southbound toll collection. The bridge deck replacement would not require any earthwork. Construction of the roundabout or intersection would require limited amounts of earthwork. Both roundabouts or intersections would require the addition of fill materials, with the southern one requiring slightly more fill material. Construction in these areas would temporarily expose soils that could be eroded by stormwater. The soils in this area have only a slight erosion hazard, and the existing slopes are low to flat, therefore the impact to soils and geology from construction in this area is expected to be low.

Alternative EC-1

On the south side of the Columbia River, Alternative EC-1 would require the bridge approach be re-aligned slightly to the west (SW Washington Regional Transportation Council, 2003). This would require vegetation removal and grading on the site and placement of fill materials. Depending on the nature of the fill materials, the erosion hazard from stormwater runoff could be moderate, because the approach would be a sloped embankment.

On the north side of the Columbia River, the bridge would cross roughly parallel to the west of the existing bridge and require extensive modifications to the intersection of the new bridge, SR-14 and Dock Grade (SW Washington Regional Transportation Council, 2003).

The intersection and approaches along SR-14 would need to be brought up six feet; requiring large amounts of fill materials. A retaining wall would be added to the existing retaining wall on the south side of SR-14 and west side of the new bridge to create the northern bridge terminus and eliminate disturbance to the BNSF Railroad tracks. A new pier would be built south of the railroad. The addition of fill materials would expose soil surfaces that could be eroded by stormwater flows. The risk of erosion and sediment runoff depends on the nature of fill materials, but is not expected to be significant because the areas to be raised are

flat road surfaces. The pier site is an existing commercial greenhouse operation with a gravel surface. Disturbance to soils in this site would be minimal. Little vegetation exists within the proposed alignment, so vegetation removed by bridge construction shading should not change the existing conditions much.

Dock Grade would be realigned and pushed deeper into the hillside to reduce the extreme angle of turning that currently exists. This would require excavation and fill at the toe of a steep talus slope. The talus slopes are very unstable, and the risk of movement or failure of the slope increases considerably if the toe of the slope is cut.

Construction of the stormwater treatment systems would temporarily expose soils on either side of the bridge. These soils would be stabilized with vegetation or geotextile fabric to prevent erosion from stormwater.

Removal of the old bridge would expose soils on both sides of the river that would be at risk of erosion if left exposed.

Alternative EC-2

The alignment of Alternative EC-2 on the south side of the Columbia River would be the same as Alternative EC-1 (SW Washington Regional Transportation Council, 2003), therefore the impacts described would be the same.

On the north side of the river, Alternative EC-2 would lie west of and roughly parallel with the existing bridge (SW Washington Regional Transportation Council, 2003). A small embankment held up by retaining walls would be built north of the railroad tracks to provide the approach to the bridge. A set of piers would be built close to the edge of the Columbia River south of the railroad tracks. Some additional fill materials would be required to bring the approach to the proper grade. The major earthwork locations are flat, so the erosion potential is slight. However, a number of large cottonwoods and pine trees would be removed by bridge construction and could lead to an increase in potentially erosive surfaces. The bridge pier construction would also require tree removal around the work area, which is close to the Columbia River. The risk of soil erosion would be high in this area during construction. The impacts to soils from construction of the stormwater systems would be the same as that described for Alternative EC-1.

Removal of the old bridge would expose soils on both sides of the river that would be at risk of erosion if left exposed.

Alternative EC-3

On the south side of the Columbia River, Alternative EC-3 would differ from Alternative EC-1 and EC-2 in that it would require the bridge approach be re-aligned slightly to the east of the existing bridge, rather than the west. However, like those alternatives, this alignment would require vegetation removal and grading on the site, and placement of fill

materials. Depending on the nature of the fill materials, the erosion hazard from stormwater runoff could be high, because the approach would be a sloped embankment. In general the impacts would be the same as those described for Alternative EC-1 and EC-2.

On the north side of the river, Alternative EC-3 would lie just east of the existing bridge (SW Washington Regional Transportation Council, 2003). Impacts to this side of the river would be similar to those described for EC-2, although there would be slightly more land surface that could be disturbed, depending on the number of piers constructed on land.

The impacts to soils from construction of the stormwater systems would be the same as that described for Alternative EC-1.

Removal of the old bridge would expose soils on both sides of the river that would be at risk of erosion if left exposed

Construction Mitigation

Mitigation measures that would prevent the erosion of exposed soils would be implemented. Standard BMPs would be used in active construction zones to eliminate the off-site transport of sediment-laden stormwater.

Construction at Dock Grade could be a high impact to the stability of the slope. Special engineering solutions such as retaining walls or other anchoring devices to stabilize the toe of the slope would be necessary in this area.

Waterways/Water Quality

Construction Impacts

The greatest water quality concerns during bridge construction are from increased turbidity during installation of piers and potential hazardous spills from construction equipment over the open water. The differences between alternatives described for this project are primarily different alignments of the bridge. These differences in the bridge position are unlikely to present significantly different or unique water quality difficulties among the different alternatives. Water quality concerns will be primarily from construction of the new bridge (no matter where it sits), demolition of the old bridge, and operation of the completed bridge.

None of the impacts associated with this project are expected to exacerbate the water quality limitations that place this stretch of river on the 303(d) list and no substantial effects to DO or water temperature are anticipated.

The displaced volume of water during construction from cofferdams, barges, and new piers is insufficient to raise the surface of base flood elevations 1 foot or more. There are also no significant hydraulic effects anticipated from construction or demolition of the bridge.

No Action Alternative

With the No Action Alternative there would be no construction of a new bridge and no removal of the existing bridge. With no construction or demolition, no impacts are anticipated.

The No Action Alternative may still require replacement of the decking on the existing bridge and the installation of a roundabout or traffic signal at the I-84 eastbound ramps and OR-35/Hood River Bridge approach road. Replacement of the grated deck brings potential water quality concerns from fuel emissions from construction barges and other motorized equipment as well as accidental spills of oil, grease, and other construction-related fluids and materials. Installation of roundabouts would expose loose soils increasing the risk of erosion and the release of sediment-laden runoff.

Alternative EC-1

The greatest impact to water quality from the bridge construction would be from the installation of the bridge piles and footings. Bridge footings are constructed directly in the river by necessity. Different construction techniques are being considered that would have varying levels of impact on water quality. The two main choices in building the footings are a waterline footing or a cofferdam footing.

The waterline footings are constructed on piles that are set in place without a cofferdam. The piles can either be driven or drilled into the riverbed. If piles are driven, water quality is impacted where the pile meets the alluvial material of the river bottom. As the piles are driven in, sediment is disturbed and mixes into the water column around and downstream of the pile thereby increasing local turbidity. This effect is temporary and does not linger once the pile is in place. If the piles are drilled, a steel casing contains slurry materials during installation. Water contaminated with sediment and drilling slurry would be pumped from within the casing and treated or disposed of according to the applicable permits, including the Section 401 water quality certification and the NPDES permit. (Note that as of 2003, NPDES permits will begin to cover projects with disturbance areas as low as 1 to 4 acres.) Also with drilling, there is a risk of accidental spills from both pouring concrete and the use of drilling slurry. This risk is not present with driven piles.

Cofferdam footings have some water quality impact during the installation of the cofferdam itself. Local turbidity increases are generated during the placement of sheet piles and pipe piles. Turbidity increases are temporary and will diminish once the cofferdam is in place. After the cofferdam is erected and dewatered, the piles and footings are installed in a dry environment with no further water quality impacts other than possible fuel emissions from barges and other motorized equipment in the water. Removal of the cofferdam once construction is complete will again create a limited turbidity plume that is localized and temporary.

The number of piers needed to construct the bridge influences water quality because each pier contributes some water quality impact as described above. The number of piers that would be installed within the water line is similar between the three different bridge designs being considered (tied arch, girder, and parabolic concrete segmental). The girder type bridge may have several additional piers over the length of the bridge.

Concerns about pouring concrete over open water while constructing the bridge deck are reduced by using pre-cast concrete construction for the bridge superstructure. Some pouring is still required, however, for fixing the segments together and paving the road surface along the top of the bridge. Concrete spilled into open waters can impact local pH.

Demolition of the old bridge will have at least as great an impact on water quality as construction of the new bridge. Removing the old piers from the river will almost certainly disturb the bed sediments and create localized turbidity plumes. Two methods of removal are being considered; using cofferdams to remove the footings or using an underwater saw to cut the piles into sections for removal. Using cofferdams will have the same effects discussed above for construction of the footings. Cutting the piles would be done directly in the water and some turbidity and suspended solids would occur from the generation of concrete sawdust. Such effects will be temporary, only occurring during the cutting process. The existing piles would be cut only to the sediment surface, so little disturbance of the reservoir bottom is anticipated.

Additional water quality concerns during demolition of the existing bridge include possible materials entering the water during dismantling of the decking. Lead paint has been used on the existing bridge and could flake into chips and enter the river as the decking is removed. There is also a high probability that asbestos is present in the insulation of electronics used to operate the movable span. Care will need to be taken to properly collect and dispose of this material so that none of it is released into the river below. Although asbestos is not a water quality contaminant per se, studies have shown that it can affect the health of fish.

The widening of Dock Grade as part of this alternative presents additional water quality concerns. Erosion from exposed soils during construction can increase the amount of sediment, suspended solids, and turbidity entering the Columbia River. Dock Grade is steep, and cut material from the hill slope could expose considerable soil to precipitation.

Alternative EC-2

Impacts would be the same as for Alternative EC-1, except that there would be no widening of Dock Grade under this alternative. Alternative EC-2 would avoid disturbance of soils on steep slopes adjacent to Dock Grade and would have overall less water quality degradation potential than Alternative EC-1.

Alternative EC-3

Impacts would be the same as for Alternative EC-1, except that there would be no widening of Dock Grade under this alternative. Alternative EC-2 would avoid disturbance of soils on steep slopes adjacent to Dock Grade and would have overall less water quality degradation potential than Alternative EC-1.

Construction Mitigation

Each of the alternatives has aspects of construction that may cause erosion and sedimentation that could affect the Columbia River. A Temporary Erosion and Sediment Control (TESC) Plan should be prepared prior to the start of construction and adhered to throughout the process.

The measures discussed in this section to reduce water quality risk 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.

No Action Alternative

While replacing the existing bridge deck, emergency spill control equipment should be available on-site in the case of an accidental oil or fuel spill.

During construction of the roundabouts and any other areas disturbed by the project, all disturbed and exposed soil should be stabilized as soon as possible to prevent erosion. Action taken should comply with the TESC.

Alternative EC-1

Turbidity plumes resulting from the placement of piles or cofferdams are expected to be localized, temporary, and are not expected to require mitigation. A mixing zone for turbidity is authorized in WAC 173.20 IA-030 during and immediately after necessary in-water or shoreline construction activities that result in the disturbance of in-place sediments. Use of a turbidity mixing zone is intended for brief periods of time (such as a few hours or days) and is not an authorization to exceed the turbidity standard for the entire duration of the project. For waters above 100 cfs flow at the time of construction, the point of compliance is 300 feet downstream of project activities.

Uncured concrete or concrete wash water could have toxic effects on juvenile fish. If piles are poured within cofferdams or steel casings, the concrete should be allowed to cure a minimum of seven days before contact with water. If drilled piles are used, staging for treatment of the

contact water removed from within the steel casing should be set up in advance or alternate plans made for the disposal of this contact water. Temporary sedimentation ponds or tanks could be used to provide adequate treatment prior to discharge. A separate area is to be set aside. This area should have no possibility of draining to surface waters; its use is for the wash out of concrete delivery trucks, pumping equipment, and tools.

Equipment entering state waters (including barges, boats, cranes, etc.) should be maintained to prevent any visible sheen from petroleum products from appearing on the water's surface. No oil, fuel, or chemicals should discharge into the Columbia River. Fuel hoses, oil drums, oil or fuel transfer valves and fittings, etc. should be checked regularly for drips or leaks; they should be maintained to prevent spills. Concentrated waste or spilled chemicals should be removed from the site and disposed of at a facility approved by Ecology, DEQ, or the appropriate county health department.

Spills into the Columbia River, or onto land, with a potential to enter the water should be reported immediately. Emergency spill control equipment should be on-site at all times. If a spill occurs, containment and clean-up efforts should begin immediately and be completed as soon as possible, taking precedence over normal work. Paint and solvent spills should be considered as oil spills and thus prevented from entering the Columbia River. An SPCC plan should be prepared prior to the start of construction.

During the widening of Dock Grade, all erosion and stormwater control measures should either meet or exceed WSDOT's Highway Runoff Manual requirements and be used along with other required erosion management techniques established for road construction in the TESC. Some applicable minimum conditions for erosion and sediment control are as follows:

1. All exposed and unworked soil is to be stabilized by suitable and timely applications of BMPs.
2. All sediment control devices, including sediment ponds, perimeter silt fencing, and other sediment-trapping BMPs are to be installed before grading.
3. All temporary conveyance channels and pipe outlets are to be stabilized to prevent erosion.
4. All construction access routes that are subject to water or wind erosion must be stabilized.
5. All temporary and permanent erosion control BMPs must be maintained and repaired as needed to assure continued performance of their intended function.
6. All temporary BMPs and accumulated sediments are to be removed or stabilized immediately after final site stabilization.

All storm water discharges from the project site should comply with the state surface water quality standards (Chapter 173-201 WAC and OAR

340 division 41), sediment management standards (Chapter 173-204 WAC), and groundwater standards (Chapter 173-200 WAC and OAR 340 division 40).

The development and implementation of a construction monitoring plan would provide information, throughout the construction process, the effectiveness of mitigation measures. Monitoring should, at a minimum, consist of turbidity and suspended solids testing in outfall from storm water collection ponds, construction de-watering settling basins, and down river just beyond mixing zones. Routine inspections of all sediment control and erosion prevention measures should be included in regular monitoring.

Alternative EC-2

Mitigation is expected to be the same as for EC-1, except that there would be no widening of Dock Grade under this alternative.

Alternative EC-3

Mitigation is expected to be the same as for EC-1, except that there would be no widening of Dock Grade under this alternative.

Social and Economic

Construction Impacts

No Action Alternative

Under this alternative, the only construction activities that would occur would be those associated with the short-term improvements: replacing the steel grating, installing a roundabout or traffic signal at the I-84 eastbound ramps, and converting the tollbooth to one-way southbound toll collection. Impacts associated with these improvements would involve minor traffic disruptions, noise, vibration and dust.

Alternative EC-1

Short-term and mid-term improvements would involve minor traffic disruptions, noise, vibration, and dust during construction. These impacts would be expected to be temporary and short in duration. The impacts associated with construction activities to replace the bridge are described in the following sections.

Community and Population

Construction activities would not be expected to adversely affect community cohesion, population growth, and low-income and elderly populations because cross-river travel would remain open and most businesses on the shore areas would remain open. A few offices and services are located in The Market Place on the Oregon shore. Patrons of the businesses located in this building may experience minor detours in

travel as well as noise and dust related to nearby construction activities. However, most of the activities would be occurring on the opposite side of the bridge compared to the location of The Market Place.

Minority populations would be affected during construction. On the Washington shore, Native Americans using the existing tribal fishing access site may experience minor detours and delays to entering the site. 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. Noise, dust and vibration associated with construction activities would be experienced by Native American users of the fishing site. Construction occurring in and over the Columbia River may disrupt boat maneuvers and any fishing that occurs in close proximity to the tribal fishing access site. Future users of a proposed tribal fishing access site upriver may similarly be affected, if this site is developed and in operation prior to bridge construction.

Recreation

The recreation sites in the area may be affected by construction activities. Potential impacts associated with construction would include traffic congestion and delays, reduced access to some sites, air and dust emissions, temporary lighting, and equipment noise. Construction staging areas would be required on land and in the river. The locations of these staging areas may temporarily reduce the area available for recreation activities. In addition, construction equipment in the river may prohibit water recreation activities from occurring near construction activities and staging areas for safety reasons.

While all recreation sites may be impacted to some degree, the closer a site is to the construction area the more direct impact it would experience. Recreationists driving to the various sites may encounter temporary delays or access limitations, but once they reach the majority of the recreation sites they would be able to engage in their recreation activity as under nearly normal circumstances. Recreation activities on the water, such as windsurfing, kiteboarding and fishing, would have to pay extra attention to construction activities occurring in the river. In addition, special events often draw large number of recreation enthusiasts. If these types of special events occur near active construction activities, the enjoyment and experience derived from the event could be adversely affected. This would be a particular concern for special events at the Hood River Marina and Sailpark.

The location of the construction staging areas and river work could impact the capacity of recreational sites depending on their location. The waterside trail leading from the Marina, and passing underneath the existing bridge, would most likely be the only site needing to be closed during construction.

Utilities, Services and Pedestrian and Bicycle Facilities

Utilities that are connected to the Hood River Bridge could experience a disruption in service as the new utilities are brought on line and the old utilities (e.g., pipelines, cables) are being disconnected. Impacts to emergency services would be minor since police, fire and medical services are provided on both sides of the bridge and cross-river travel would be maintained. Slight delays could occur for any services needing to cross the bridge during construction.

The only impacts to pedestrians and bicycles would occur on shore near construction activities. These impacts would primarily include minor detours, noise, dust and vibration. Cross-river travel for these modes is prohibited on the Hood River Bridge, so no impacts would occur to travelers.

Economic Elements

Overall business activities that rely on cross-river travel or transport of goods would experience minor delays and detours during construction. These disruptions would not be expected to contribute to a loss in productive business or a change in business or shopping patterns. The jobs created as result of construction would likely be limited to expanding the workforce at retail and commercial businesses to support an influx in construction workers being present in the area. The actual construction workforce, with specific bridge building and demolition skills, would likely come from outside the local area. Potentially, some of the local labor force could be temporarily employed directly for construction work.

Tax revenues, such as sales tax in Washington, hotel and lodging excise taxes, and other government fees would temporarily increase from construction and construction worker expenditures.

Alternative EC-2

Short-term and mid-term improvements would involve minor traffic disruptions, noise, vibration, and dust during construction. These impacts would be expected to be temporary and short in duration. The impacts associated with construction activities to replace the bridge are described in the following sections.

Community and Population

Construction activities would not be expected to adversely affect community cohesion, population growth, and low-income and elderly populations because cross-river travel would remain open and most businesses on the shore areas would remain open. A few offices and services are located in The Market Place on the Oregon shore. Patrons of the businesses located in this building may experience minor detours in travel as well as noise and dust related to nearby construction activities. However, most of the activities would be occurring on the opposite side of the bridge compared to the location of The Market Place.

Minority populations would be affected during construction. On the Washington shore, Native Americans using the existing tribal fishing access site may experience minor detours and delays to entering the site. 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. Noise, dust and vibration associated with construction activities would be experienced by Native American users of the fishing site. The existing Columbia River treaty fishing access site (west of the bridge) on the Washington shore would experience higher levels of dust, noise and vibration due to its closer proximity to EC-2 than to EC-1. Construction occurring in and over the Columbia River may disrupt boat maneuvers and any fishing that occurs in close proximity to the tribal fishing access site. Future users of a proposed tribal fishing access site upriver may similarly be affected, if this site is developed and in operation prior to bridge construction.

Recreation

The recreation sites in the area may be affected by construction activities. Potential impacts associated with construction would include traffic congestion and delays, reduced access to some sites, air and dust emissions, temporary lighting, and equipment noise. Construction staging areas would be required on land and in the river. The locations of these staging areas may temporarily reduce the area available for recreation activities. In addition, construction equipment in the river may prohibit water recreation activities from occurring near construction activities and staging areas for safety reasons.

While all recreation sites may be impacted to some degree, the closer a site is to the construction area the more direct impact it would experience. Recreationists driving to the various sites may encounter temporary delays or access limitations, but once they reach the majority of the recreation sites they would be able to engage in their recreation activity as under nearly normal circumstances. Recreation activities on the water, such as windsurfing, kiteboarding and fishing, would have to pay extra attention to construction activities occurring in the river. In addition, special events often draw large number of recreation enthusiasts. If these types of special events occur near active construction activities, the enjoyment and experience derived from the event could be adversely affected. This would be a particular concern for special events at the Hood River Marina and Sailpark.

The location of the construction staging areas and river work could impact the capacity of recreational sites depending on their location. The waterside trail leading from the Marina, and passing underneath the existing bridge, would most likely be the only site needing to be closed during construction.

Utilities, Services and Pedestrian and Bicycle Facilities

Utilities that are connected to the Hood River Bridge could experience a disruption in service as the new utilities are brought on line and the old utilities (e.g., pipelines, cables) are being disconnected. Impacts to emergency services would be minor since police, fire and medical services are provided on both sides of the bridge and cross-river travel would be maintained. Slight delays could occur for any services needing to cross the bridge during construction.

The only impacts to pedestrians and bicycles would occur on shore near construction activities. These impacts would primarily include minor detours, noise, dust and vibration. Cross-river travel for these modes is prohibited on the Hood River Bridge, so no impacts would occur to travelers.

Economic Elements

Overall business activities that rely on cross-river travel or transport of goods would experience minor delays and detours during construction. These disruptions would not be expected to contribute to a loss in productive business or a change in business or shopping patterns. The jobs created as result of construction would likely be limited to expanding the workforce at retail and commercial businesses to support an influx in construction workers being present in the area. The actual construction workforce, with specific bridge building and demolition skills, would likely come from outside the local area. Potentially, some of the local labor force could be temporarily employed directly for construction work.

Tax revenues, such as sales tax in Washington, hotel and lodging excise taxes, and other government fees would temporarily increase from construction and construction worker expenditures.

Alternative EC-3

Short-term and mid-term improvements would involve minor traffic disruptions, noise, vibration, and dust during construction. These impacts would be expected to be temporary and short in duration. The impacts associated with construction activities to replace the bridge are described in the following sections.

Community and Population

Construction activities would not be expected to adversely affect community cohesion, population growth, and low-income and elderly populations because cross-river travel would remain open and most businesses on the shore areas would remain open. A few offices and services are located in The Market Place on the Oregon shore. Patrons of the businesses located in this building may experience minor detours in travel as well as noise and dust related to nearby construction activities.

Minority populations would be affected during construction, in particular Native American populations. 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. However, if a proposed treaty fishing access site were developed to the east of the Bridge RV Park and Campground on the Washington shore, users of this site would experience noise, dust and vibration.

Construction occurring in and over the Columbia River may disrupt boat maneuvers and any fishing that occurs in close proximity to the tribal fishing access site. Future users of a proposed tribal fishing access site upriver may similarly be affected, if this site is developed and in operation prior to bridge construction.

Recreation

The recreation sites in the area may be affected by construction activities. Potential impacts associated with construction would include traffic congestion and delays, reduced access to some sites, air and dust emissions, temporary lighting, and equipment noise. Construction staging areas would be required on land and in the river. The locations of these staging areas may temporarily reduce the area available for recreation activities. In addition, construction equipment in the river may prohibit water recreation activities from occurring near construction activities and staging areas for safety reasons.

While all recreation sites may be impacted to some degree, the closer a site is to the construction area the more direct impact it would experience. Recreationists driving to the various sites may encounter temporary delays or access limitations, but once they reach the majority of the recreation sites they would be able to engage in their recreation activity as under nearly normal circumstances. Recreation activities on the water, such as windsurfing, kiteboarding and fishing, would have to pay extra attention to construction activities occurring in the river. In addition, special events often draw large number of recreation enthusiasts. If these types of special events occur near active construction activities, the enjoyment and experience derived from the event could be adversely affected. This would be a particular concern for special events at the Hood River Marina and Sailpark. The impact to windsurfing and kiteboarding at the popular launch sites downriver would be lower for this alternative since it would be located along the east side of the existing bridge. Windsurfers and kiteboarders launching from those sites west of the bridge would have the same amount of river to surf on before reaching the existing bridge and the new bridge construction.

The location of the construction staging areas and river work could impact the capacity of recreational sites depending on their location. The waterside trail leading from the Marina, and passing underneath the existing bridge, would most likely be the only site needing to be closed during construction.

Utilities, Services and Pedestrian and Bicycle Facilities

Utilities that are connected to the Hood River Bridge could experience a disruption in service as the new utilities are brought on line and the old utilities (e.g., pipelines, cables) are being disconnected. Impacts to emergency services would be minor since police, fire and medical services are provided on both sides of the bridge and cross-river travel would be maintained. Slight delays could occur for any services needing to cross the bridge during construction.

The only impacts to pedestrians and bicycles would occur on shore near construction activities. These impacts would primarily include minor detours, noise, dust and vibration. Cross-river travel for these modes is prohibited on the Hood River Bridge, so no impacts would occur to travelers.

Economic Elements

Overall business activities that rely on cross-river travel or transport of goods would experience minor delays and detours during construction. These disruptions would not be expected to contribute to a loss in productive business or a change in business or shopping patterns. Businesses located near the EC-3 alignment may experience minor changes in access, noise, dust, and vibration. The Market Place in Hood River would be directly adjacent to construction activities. The gas station and RV park on the Washington shore would not be expected to experience any changes in access to their properties.

The jobs created as result of construction would likely be limited to expanding the workforce at retail and commercial businesses to support an influx in construction workers being present in the area. The actual construction workforce, with specific bridge building and demolition skills, would likely come from outside the local area. Potentially, some of the local labor force could be temporarily employed directly for construction work.

Tax revenues, such as sales tax in Washington, hotel and lodging excise taxes, and other government fees would temporarily increase from construction and construction worker expenditures.

Construction Mitigation

Where appropriate and feasible, the following mitigation measures are recommended to minimize disturbances during construction.

- Notices and schedules of planned construction and/or demolition activities, temporary road closures or detours, changes in access routes would be mailed or otherwise communicated to community

facilities, service providers, recreation outfitters, and businesses in the project area.

- Notices and schedules of construction activities occurring in or above the Columbia River would be provided to local windsurfing and kiteboarding outfitters and schools.
- Construction activities would be coordinated to minimize noise, dust, vibration and road detour disruptions to seasonal recreation events occurring near the construction and staging areas.
- Advance notice would be provided if utilities or services would be disrupted.
- Temporary changes in access to the Columbia River treaty access fishing sites would be coordinated with the BIA.
- Construction detours would be provided for pedestrians and bicyclists that use any trails or sidewalks near the construction activities.
- Notices and schedules would be prepared and distributed in English and Spanish.
- Notices and schedules of construction activities occurring in or above the Columbia River would be provided to the U.S. Coast Guard and marine users.
- Construction activities would be coordinated with local businesses and port authorities to minimize regular and seasonal business activities, changes in permanent or temporary jobs, and disruptions to access.
- Major utility shut-offs would be conducted outside of regular business hours.
- Dust, noise and vibration mitigation would be implemented to minimize disruptions to nearby sensitive receptors.

Cultural Resources

Construction Impacts

Demolition of the existing bridge would likely be considered an adverse impact under Section 106 of the National Historic Preservation Act, assuming that the existing Hood River Bridge is determined to be eligible for the NRHP.

Each of the alternatives may affect known cultural resources sites. The significance of most of these sites is undetermined at this stage and some may be submersed below the Bonneville Pool. Alternative EC-1

could affect a potentially historic boat landing and building structure at the foot of Dock Grade. The building, now a residence, at that location was reportedly a hotel. Alternative EC-2 also could affect a potentially historic boat landing and building location. Alternative EC-3 could affect a potentially eligible archaeological site.

Impacts to cultural resource sites discovered during construction may occur through excavation for bridge and retaining wall foundations. Similarly, pile driving or drilling could discover and affect cultural resources within the Columbia River/Bonneville Pool. The extent of cultural resources submerged underwater is unknown at this time.

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 OAHP, and affected tribes would have any opportunity to review. If any resources are 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 Mitigation

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

- Both the Oregon SHPO and Washington OAHP representatives offered suggestions for possible mitigation should the Hood River Bridge be determined eligible and its removal considered an adverse effect. The Oregon SHPO representative recommended photographic documentation and a historical narrative statement as possible mitigation measures. The Washington OAHP representative recommended similar Historic American Engineering Record (HAER) documentation. Neither state can determine a level of recordation until eligibility is recommended and the Oregon SHPO and the Washington OAHP have concurred. A likely mitigation plan would be Tier I Mitigation Documentation. This would entail a series of 4 x 6-inch black-and-white photographs showing elevation views and structural details; a historical narrative that describes the construction history, context, and historical significance of the bridge; and copies of any original plans, photographs, or drawings of the bridge. Documentation of the existing bridge would be completed according to terms of a Memorandum of Agreement (MOA) that would be developed among the Oregon SHPO, Washington OAHP, WSDOT, and ODOT.
- Mitigation also could include 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.

- Consult with affected Native American tribes on the limits of the Area of Potential Effect (APE).
- Conduct subsurface investigations during final design at excavation locations, including onshore pier locations, for the preferred alternative.
- Monitor excavations in shoreline areas using a cultural resources specialist. If previously unknown resources were encountered, the excavation should be stopped at that location until appropriate agency and tribal coordination has been conducted.
- Notify the appropriate state and federal agencies if unanticipated resources are encountered.

Energy

Energy would be consumed during construction of any of the build alternatives to manufacture materials, transport materials, and operate construction equipment. Energy consumption to complete a project is proportional to the cost or size of the project. Construction energy consumption for the bridge replacement would be approximately 1,780 Giga Joules (1,680 million BTUs). Differences between the alternatives would be small, and less than the magnitude of the uncertainty in the energy consumption estimate. These values are a very small fraction of the energy consumed annually for transportation in the States of Oregon and Washington, and would not put substantial additional demand on energy sources or fuel availability in the region. No mitigation is proposed.

Vegetation and Wetlands

Construction Impacts

No Action Alternative

All of the replacement bridge alternatives include the short-term improvements that would occur under the No Action Alternative within the next five years. No substantial impacts to vegetation and no impacts to wetlands would occur if this alternative were implemented.

Alternative EC-1

The alignment at the south end of EC-1 places the bridge approach overtop of the row of Douglas-fir, shore pine, juniper, and landscape trees west of the bridge. These trees provide very little habitat value. The bridge abutment and walls are estimated to cover a 21,000 square-foot (0.48 acre) area.

Alternative EC-1 aligns the bridge across an already developed parcel on the north shore of the Columbia River. Most of the native vegetation on the proposed bridge landing has been cleared and replaced with large greenhouses. A few Oregon white oak trees and a large Douglas-fir would be removed between SR-14 and the BNSF railroad tracks to

allow for the new bridge abutment. Approximately 12,800 square feet (0.29 acre) of area would be required for two land-based footings and the abutment and retaining walls. This area is within the 200-foot shoreline buffer of the Columbia River. The Columbia River is habitat for federally listed endangered, threatened, and candidate species.

An approximately 70-foot-wide work zone will be cleared temporarily to allow construction equipment to access the site. The soil in this access area will be compacted by the equipment driving over it. Compacting soil removes air pockets and water-holding spaces. Plants grow poorly in compacted soil, and these sites may take longer to revegetate if not tilled or loosened. These areas are considered temporary impacts and would occur along the length of the construction area. Soils in areas of the EC-1 alignment and associated temporary work areas already covered by nursery buildings, access roads, and parking are probably compacted. The area that will be cleared of vegetation is estimated to be 15,400 square feet (0.35 acre).

This alternative includes realigning the interchange of Dock Grade and SR-14. The alignment of the southwest end of Dock Grade will be moved further west into the side of the steep grade. A portion of the Oregon white oak, Ponderosa pine, and Douglas-fir forest along the hillside would be removed to build the new intersection. The net area of roadway improvements is 70,000 square feet (1.6 acres). Alternative EC-1 may result in Dock Grade being widened along a major portion, or its entire length, 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 build the wider road and any associated retaining walls. The area cleared and graded to build the road would be determined by the design. Anticipated impacts are estimated to be 80,000 square feet (1.8 acres). If no retaining walls are built, a larger portion of the hill may be graded to ensure slope stability. To calculate potential project impacts, the entire alignment would need to be inspected for hillside seep wetlands.

During the field visit, small, isolated, roadside, seep wetlands were detected at the base of Dock Grade. The wetlands seeping from the hillside were likely daylighted when the road was cut.

No impacts to regulated wetlands are anticipated from this alternative.

Alternative EC-2

The alignment at the south end of EC-2 places the bridge approach overtop of the row of Douglas-fir, shore pine, juniper, and landscape trees west of the bridge. These trees provide very little habitat value. The bridge abutment and walls would require 21,000 square feet (0.48 acre) of area.

The north end of alternative EC-2 is covered by relatively undisturbed mixed-canopy forest from the shore of the Columbia River to SR-14. A strip of the forest approximately 70 feet wide would need to be cleared of trees to construct the bridge deck.

The project will result in permanent and temporary impacts to the vegetative community. Some vegetation would be permanently removed where a land-based footing, bridge abutment, and retaining walls are built. The trees in a 17,600 square-foot (0.40 acre) area would be removed to construct Alternative EC-2. The understory in some of this area could remain undisturbed. The area in the pier and bridge abutment would be cleared and graded, permanently removing all vegetation in this area. Species in this area are Oregon white oak, Ponderosa pine, Douglas-fir, and Oregon grape.

An approximately 70-foot-wide work zone will be cleared temporarily to allow construction equipment to access the site. The soil in this access area will be compacted by the equipment driving over it. Compacting soil removes air pockets and water-holding spaces. Plants grow poorly in compacted soil, and these sites may take longer to revegetate if not tilled or loosened. These areas are considered temporary impacts and would occur along the length of the construction area. Approximately 13,900 square feet (0.32 acre) of vegetation would be removed. This area is within the 200-foot shoreline zone of the Columbia River.

The new bridge deck will shade adjacent areas of vegetation for part of the day and will collect rainwater that would otherwise infiltrate or be intercepted by the vegetation. This 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.

No impacts to regulated wetlands are anticipated from this alternative.

Alternative EC-3

The alignment at the south end of EC-3 parallels the existing bridge approach to the east. The Douglas-fir and lawn grasses would be removed to allow for construction of the new bridge approach. This area provides very little habitat value. The bridge abutment and walls would require 21,000 square feet (0.48 acre) of area.

The north end of alternative EC-3 is covered by relatively undisturbed mixed-canopy forest from the shore of the Columbia River to SR-14. A wooded strip approximately 70-feet wide would need to be cleared of trees to construct the bridge deck.

The project will result in permanent and temporary impacts to the vegetative community. Some vegetation will be permanently removed where two land-based footings, bridge abutment, and retaining walls are built. The trees in a 21,100 square-foot (0.48 acre) area would be removed to construct Alternative EC-3. The understory in some of this area could remain undisturbed. The area for the footings and bridge abutment would be cleared and graded, permanently removing all vegetation in this area. Species in this area are Oregon white oak, Ponderosa pine, Douglas-fir, and Oregon grape. The understory in some of this area could remain undisturbed. Species in this area are Oregon white oak, Ponderosa pine, Douglas-fir, and Oregon grape.

An approximately 70-foot-wide work zone will be cleared temporarily to allow construction equipment to access the site. The soil in this access area will be compacted by the equipment driving over it. Compacting soil removes air pockets and water-holding spaces. Plants grow poorly in compacted soil, and these sites may take longer to revegetate if not tilled or loosened. These are considered temporary impacts and would occur along the length of the construction area. Approximately 23,700 square feet (0.54 acre) of vegetation would be removed. This area is within the 200-foot shoreline buffer of the Columbia River. The Columbia River is habitat for federally listed endangered, threatened, and candidate species.

The alignment proposed under this alternative would run east of the existing bridge. This alignment may require removal of the large Oregon white oak, measuring 58.8 inches dbh. If the tree is not removed, it is possible that the root system or the tree may be damaged by equipment during construction of the new bridge. This damage may weaken or prove to be fatal to the tree at a later time.

No impacts to regulated wetlands are anticipated from this alternative.

**Table 4-10
Area of Impact by Alternative**

Alternative	No Action	EC-1	EC-2	EC-3
Permanent Impacts	None	183,800 square feet (4.22 acres)	38,600 square feet (0.886 acre)	42,100 square feet (0.966 acre)
Temporary Impacts	None	15,400 square feet (0.35 acre)	13,900 square feet (0.319 acre)	23,700 square feet (0.544 acre)
Total for Alternative	None	199,200 square feet (4.57 acres)	52,500 square feet (1.20 acres)	65,800 square feet (1.51 acres)

Construction Mitigation

Implementation of the following mitigation measures under each of the alternatives during the construction phase would 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 temporarily disturbed by construction activities with appropriate native species.
- Till or loosen soil compacted by construction equipment before replanting.

- Revegetate the existing bridge alignment following demolition.
- If Dock-Grade is to be widened, the amount of the hillside vegetation affected by the road cut from Alternative EC-1 could be reduced if retaining walls would be used.

Fish and Wildlife

Construction Impacts

Impacts to fish and wildlife would occur from construction of the new bridge and from demolition of the old structure. Upland impacts would involve habitat alteration caused by vegetation removal and soil disturbance and compaction. For in-water work, several construction techniques are being evaluated. Construction techniques for in-water work include two foundation options, waterline and cofferdam, and two pile-driving options, driven steel piles and drilled shaft. The pile-driving methods can be applied to either foundation type. Over-water construction includes pier construction and superstructure construction. Piers will be cast in place and the superstructure may be cast in place or precast girders. All of the replacement bridge alternatives include the short-term improvements that would occur under the No Action Alternative within the next five years. These improvements would include replacing the steel grating, installing a roundabout or traffic signal at the I-84 eastbound ramps, and converting the tollbooth to one-way southbound toll collection.

Impacts to birds regulated under the Migratory Bird Treaty may occur from construction activities with all alternatives. Common migratory birds that may be present in the area include waterfowl and passerines. Impacts to these birds likely include displacement and destruction of vegetation or nests that may be present on the existing bridge.

No Action Alternative

Under the No Action Alternative, the existing bridge would be left in place and continue to operate for the remainder of its serviceable life (assumed to be 30 years). Within the next five years several short-term projects are planned to improve the existing bridge. These projects include work landward of the Columbia River and over-water work. No in-water work is planned. The projects include the following:

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

All over-water work has the potential to harm fish. Possible impacts include construction debris and materials falling into the river and

possible spills from machinery. Contractors will be required to take necessary steps to avoid these impacts and minimize effects by retrieving debris and containing spills should they occur.

Work landward of the Columbia River includes some roadway improvements to the I-84 interchange and approaches to the Hood River Bridge on the Oregon side. No natural wildlife habitat would be affected in construction of the roundabouts. These would be located in areas already paved or landscaped as highway roadside. Impacts to fish may be caused by construction runoff that can degrade environmental conditions for fish. BMPs would be used during construction to minimize stormwater runoff. Impacts to sensitive wildlife species would not be expected from reconstruction of the bridge deck.

Alternative EC-1

In-water work would be completed from barges during fish windows when feasible. The barges would be anchored in place by spud piles. Anchoring of spud piles may cause turbidity that could harm fish. These effects would be temporary and limited to installation and removal.

Impacts to fish from the construction of the waterline foundation option may result from placement of spud piles and permanent piles to anchor the precast footing shells in place. A thin tremie pour is performed in the precast footing shells that then require dewatering. Impacts from dewatering can be avoided by pumping the water into tanks on barges and disposing of the water offsite. Proper disposal of the water is essential since it contains uncured concrete that can harm fish. Pile driving can also cause turbidity in the water column that may have negative effects on fish.

A second footing construction option includes cofferdams. This construction scheme involves placement of sheet piling around the perimeter of the excavation. A tremie pour is made to seal the bottom of the cofferdam, and the cofferdam is dewatered. Construction of the footing using driven piles or drilled shafts then takes place isolated from the river. Impacts from this method include potential for spills during dewatering, turbidity, physical harm, and acoustical concussions caused by placement of the sheet piles. Dewatering and placement of cofferdams may require fish salvage resulting in mortality of fish. An advantage to this method is that cofferdams can be placed during fish windows when feasible and construction can then take place in the dry cofferdam outside of the fish window. This method still requires use of barges for construction.

Driven steel piles may be used to support either foundation method. Driving steel piles can cause turbidity in the water and acoustical concussions that can harm fish. Turbidity impacts would be temporary. Acoustical impacts will also be temporary and should quickly attenuate limiting impacts to within the immediate vicinity of pile driving.

The other pile placement method involves drilled shafts. Using drilled shafts involves placement of steel cylinders on the bottom, at the location of the shafts, to act as a cofferdam. A concrete tremie is

poured in the bottom of the cofferdam to seal it. A smaller casing is then placed in the cofferdam that is vibrated through the seal and into the bottom substrate. An auger is used to remove spoils from within the casing. A steel cage is then placed within the casing and a concrete pour is made to form the shafts while the casing is dewatered. The casings are then removed or left in place once the concrete is cured. Possible impacts from this method include spills from drilling slurry, sediment removal and dewatering casings containing uncured concrete. These impacts may result in increased turbidity that can negatively impact fish. Proper disposal of the dewatering water is essential since the water will contain uncured concrete that can harm fish.

Over-water construction of the piers and superstructure could result in impacts to fish from spills and falling construction debris. Contractors would be required to take necessary steps to avoid these impacts and minimize effects by retrieving debris and containing spills, should they occur. Using the precast method to build the bridge superstructure would minimize the chances of uncured concrete entering the river since the forms will be cured off-site and shipped.

Impacts to fish from demolition of the existing bridge may result from construction debris falling into the river, lead-based paint and asbestos being released, and from removal of the existing piers. Efforts can be made to prevent debris from falling in the river to minimize impacts. Procedures for lead paint and asbestos abatement will be followed so that no paint or asbestos is released into the environment that could cause harm to fish or wildlife. Installation and dewatering of cofferdams would cause turbidity and acoustical concussions that can harm fish.

Alternative EC-1 would also require upgrading the intersection at Dock Grade. This would require excavation into the steep talus slope on the north side of the road and elevation of the existing intersection by 6 feet. This additional excavation is limited to Alternative EC-1; therefore, this alternative may have the most construction runoff potential to degrade environmental conditions for fish. Excavation of the talus slope may also remove habitat that is suitable for western gray squirrels and California mountain kingsnakes. However, since a road already exists, these impacts would be minimal.

Alternative EC-2

Impacts from Alternative EC-2 are essentially the same as EC-1, except that Alternative EC-2 would be about 85 feet longer and would not require excavation of the steep talus slope along Dock Grade. However, some clearing of oak stands may be necessary adjacent to the existing bridge. Clearing of the oak stands may remove habitat that is suitable for western gray squirrels and California mountain kingsnakes. These impacts may be offset long term by revegetating the area under the existing bridge after removal with appropriate native vegetation.

Alternative EC-3

Impacts from Alternative EC-3 are essentially the same as EC-1 and EC-2, except that Alternative EC-3 would be about 120 feet longer and would not require excavation of the steep talus slope along Dock Grade.

Construction Mitigation

Measures to mitigate impacts to fish and wildlife deal with ways to limit water quality degradation and habitat loss. Such measures are detailed under the Vegetation/Wetlands section and Waterways/Water Quality section.

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.

Mitigation measures that would be implemented under each of the alternatives to minimize impacts to fish and wildlife include:

- Complete in-water work during fish windows when feasible. Any extension of fish windows needed to conduct in-water work would need to receive prior approval from permitting agencies.
- Require proper construction BMPs and spill containment plans.
- Pump dewatering material and placement of spoils to barges for offsite disposal.
- Completely remove existing bridge.
- Limit demolition of the existing structure and clearing of vegetation to late summer, fall, and winter months outside of the usual nesting season for migratory birds, where feasible.
- Plant shoreline vegetation under the new and old bridge to increase habitat and refugia for out-migrating juvenile salmonids.
- Plant appropriate native vegetation after removal of the existing bridge to offset vegetation lost from the new bridge.

Air Quality

Construction Impacts

For all build alternatives, PM₁₀ emissions during project construction would be associated with demolition, land clearing, ground excavation,

cut-and-fill operations, and construction of the bridge. Construction emissions would be greatest during the earthwork phase because most emissions would be associated with the movement of soil on the site. In addition, NO_x and CO emissions are expected from internal combustion construction equipment.

Construction Mitigation

Incorporating into the project's construction specifications the mitigation measures outlined in the Associated General Contractor of Washington Guidelines could reduce construction impacts. Possible mitigation measures to control PM₁₀, deposition of particulate matter, and emissions of CO and NO_x during construction are listed below:

- Spraying exposed soil with water or other dust palliatives would reduce emissions of PM₁₀ and deposition of particulate matter.
- Covering all trucks transporting materials, wetting materials in trucks, or providing adequate freeboard (space from the top of the material to the top of the truck) would reduce PM₁₀ and deposition of particulates during transportation.
- Containing and properly disposing of any chromium and lead-based paints during removal of existing bridge would reduce the release of these elements into the environment.
- Providing wheel washers to remove particulate matter that vehicles would otherwise carry offsite would decrease deposition of particulate matter on area roadways.
- Removing particulate matter deposited on paved, public roads would reduce mud and resultant windblown dust on area roadways.
- Routing and scheduling construction trucks to reduce delays to traffic during peak travel times. This would reduce secondary air quality impacts caused by reduced traffic speeds while waiting for construction trucks.
- Placing quarry spall aprons where trucks enter public roads would reduce mud track-out.
- Graveling or paving haul roads to reduce particulate emissions.
- Requiring appropriate emission-control devices on all construction equipment powered by gasoline or diesel fuel would reduce CO and NO_x emissions in vehicular exhaust.
- Using relatively new, well-maintained equipment would reduce CO and NO_x emissions.
- Planting vegetative cover as soon as possible after grading would reduce windblown particulates in the area.

- Routing construction trucks away from residential areas would minimize annoyance from dust.
- Construction activities would be coordinated to minimize noise, dust, vibration, and road detour disruptions to seasonal recreation events occurring near the construction and staging areas.
- Dust, noise, and vibration mitigation would be implemented to minimize disruptions to retail activities and hotel guests.

Visual

Construction Impacts

No Action Alternative

All of the replacement bridge alternatives include the short-term improvements that would occur under the No Action Alternative within the next five years. Short-term improvements include replacing existing steel grating with new steel grating; installing a roundabout or traffic signal at the I-84 eastbound ramps and OR-35/Hood River Bridge approach road; and converting the tollbooth to one-way southbound toll collection. The impacts associated with the presence of construction equipment and workers, materials stockpiles, debris, and signage, all necessary during the short-term improvements, would be temporary and short in duration.

Under this alternative, construction activities from mid-term and long-term improvements would not occur.

Alternative EC-1

Most construction impacts to visual resources are expected to be temporary and short in duration. Construction impacts resulting from the short-term improvements would be the same as those described for the No Action Alternative. Temporary construction impacts from the mid-term and new fixed-span bridge improvements would be associated with the presence of construction equipment and workers, materials stockpiles, debris, signage, staging areas, construction barges, temporary work bridges and demolition activities. Additional lighting, which causes glare, may also be used during low light or when working at night.

The removal of existing vegetation and possible grading of the construction areas would also create a temporary visual impact. Restoring the temporary construction areas to their pre-construction condition, including preserving mature trees if possible and replanting native vegetation, could mitigate this impact.

Normal construction related activities such as an increased number and the movement of trucks and barges, equipment operations, and workers moving about in the area would be most noticeable to the view positions

closest to the construction activity. However, this activity would be visible to some degree from nearly all viewpoints.

Detours and lane shifts demand greater driver attention, and may distract the motorists around each bridge approach from views outside the construction areas. Also, the duration of views to motorists crossing the existing bridge during construction may decrease because people may be distracted and looking at the construction activities.

Alternative EC-2

Since the construction methods and techniques are not anticipated to vary between Alternative EC-1 and Alternative EC-2, the construction impacts to visual resources resulting from Alternative EC-2 would be the same as those described for Alternative EC-1.

Alternative EC-3

Since the construction methods and techniques are not anticipated to vary between Alternative EC-1 and Alternative EC-3, the construction impacts to visual resources resulting from Alternative EC-3 would be the same as those described for Alternative EC-1.

Construction Mitigation

Where appropriate and feasible, mitigation measures such as the following could be followed to minimize disturbances during construction:

- To the extent possible, mature trees and existing vegetation would be preserved to retain a visual screen between construction activities and surrounding areas.
- To the extent possible, project staging areas would be shielded from, or located outside the view range of high activity recreation sites.
- Construction hours would be limited, especially during evening hours to avoid visual disturbance related to vehicle and work light illumination.

Noise

Construction Impacts

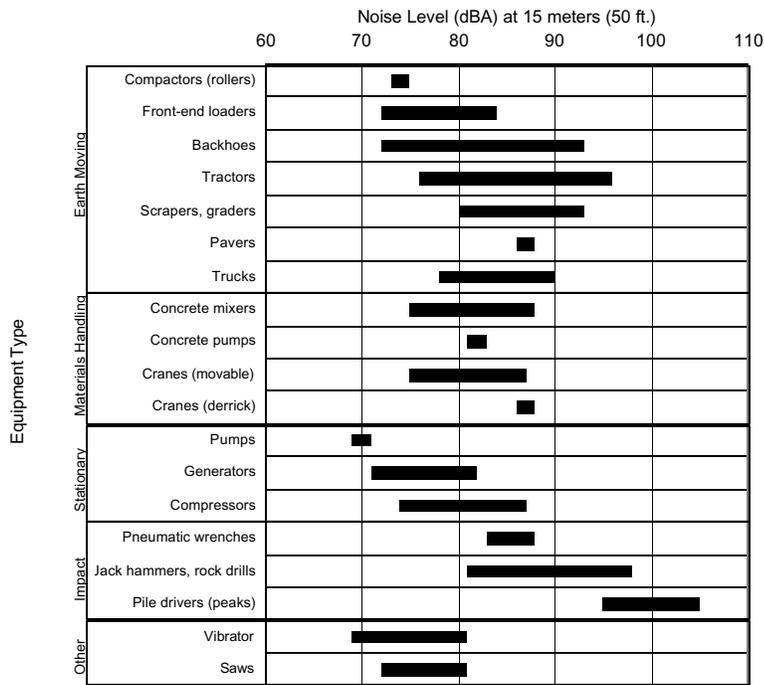
Construction activities would generate noise during the construction period. Construction usually would be carried out in several reasonably discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. Bridge construction would involve clearing, cut-and-fill activities, removing old roadways, and paving. For the SR-35 Columbia River Crossing project, the greatest amount of construction noise would be associated with the pile driving,

demolition and earthwork phase of the project near the shores. Also, construction noise would be associated with the construction of the proposed bridge approaches and traffic circles.

The most prevalent noise source at construction sites would be internal combustion engines. Engine-powered equipment includes earth-moving equipment, material-handling equipment, and stationary equipment. Mobile equipment operates in a cyclic fashion, while stationary equipment, such as generators and compressors, operates at sound levels fairly constant over time. Because trucks would be present during most phases and would not be confined to the project site, noise from trucks could affect more receptors. Other noise sources would include impact equipment and tools such as pile drivers. Impact tools could be pneumatically powered, hydraulic, or electric. Construction noise would be intermittent, occurring seasonally during an approximate two-year construction period. Construction noise levels would depend on the type, amount, and location of construction activities. The type of construction methods would establish the maximum noise levels of construction equipment used. The amount of construction activity would quantify how often construction noise would occur throughout the day. The location of construction equipment relative to adjacent properties would determine any effects of distance in reducing construction noise levels. Maximum noise levels of construction equipment under all build alternatives would be similar to typical maximum construction equipment noise levels presented in Figure 4-4.

As shown in Figure 4-4, maximum noise levels from construction equipment would range from 69 to 106 dBA at 50 feet (15 meters). Construction noise at residences farther away would decrease at a rate of 6 dBA per doubling of distance from the source. The number of occurrences of the L_{max} noise peaks would increase during construction, particularly during pile-driving activities. Because various pieces of equipment would be turned off, idling, or operating at less than full power at any time, and because construction machinery is typically used to complete short-term tasks at any given location, average Leq noise levels during the day would be less than maximum noise levels presented in Figure 4-4.

Construction noise is exempt from local property line regulations during daytime hours. Construction workers also would be subject to construction noise while working on the site. Construction noise levels could be reduced by the construction practices identified in the Mitigation Section.



Source: EPA, 1971 and WSDOT, 1991.

Construction Noise Levels

Figure 4-4

Construction Mitigation

Construction noise could be reduced by using enclosures or walls to surround noisy equipment, installing mufflers on engines, substituting quieter equipment or construction methods, minimizing time of operation, and locating equipment farther from sensitive receptors. To reduce construction noise at nearby receptors, the following mitigation measures could be incorporated into construction plans and contractor specifications:

- Limiting construction activities to between 7 a.m. and 10 p.m. would reduce construction noise levels during sensitive nighttime hours;
- Equipping construction equipment engines with adequate mufflers, intake silencers, and engine enclosures would reduce their noise by 5 to 10 dBA (U.S. EPA, 1971);
- Specifying the quietest equipment available would reduce noise by 5 to 10 dBA;
- Turning off construction equipment during prolonged periods of nonuse would eliminate noise from construction equipment during those periods;

- Requiring contractors to maintain all equipment and train their equipment operators would reduce noise levels and increase efficiency of operation;
- Locating stationary equipment away from receiving properties would decrease noise from that equipment in relation to the increased distance;
- Constructing temporary noise barriers or curtains around stationary equipment that must be located close to residences would decrease noise levels at nearby sensitive receptors.
- Construction activities would be coordinated to minimize noise, dust, vibration and road detour disruptions to seasonal recreation events occurring near the construction and staging areas.
- Dust, noise and vibration mitigation would be implemented to minimize disruptions to nearby sensitive receptors.

Hazardous Materials

Construction Impacts

Construction impacts are related to use and storage of hazardous materials, demolition of existing site structures, and potential areas of groundwater, sediment, and soil contamination. Mitigation of these potential impacts can be accomplished by proper management prior to and during construction, including assessment, removal, and remediation in accordance with applicable regulations if necessary.

No Action Alternative

The No Action Alternative would have potential environmental issues associated with asbestos and/or lead based paint located within the existing bridge (short term improvement impacts) and associated equipment shed that would be acquired and potentially demolished.

Alternative EC-1

Potential environmental issues associated with the existence of chemically treated wood used for railroad ties, undocumented spills resulting in soil and/or groundwater contamination, and/or undocumented buried hazardous or non-hazardous waste at or adjacent to the BNSF Railroad Line and the former Bingen and White Salmon docks (Washington side) pose a risk of encountering hazardous materials. Potentially undocumented contaminated areas could also be associated with historic industrial uses along the Columbia River.

This alternative also may encounter issues associated with asbestos and/or lead based paint located within the existing bridge (short term, mid term, and long term improvement impacts), tollbooth (mid term

improvement impacts), and approximately six agricultural nursery buildings that would be acquired and potentially demolished.

This alternative may also encounter potential contamination issues associated with the use of fertilizers, pesticides, and/or insecticides on the nursery property and issues associated with boat maintenance and repair activities at Bubba Louie's Sailboat property.

Potentially contained hazardous materials within pole-mounted transformers may be encountered along Washington State Route 14 where grade changes need to be made.

Alternative EC-2

Potential environmental issues associated with the existence of chemically treated wood used for railroad ties, undocumented spills resulting in soil and/or groundwater contamination, and/or undocumented buried hazardous or non-hazardous waste at or adjacent to the BNSF Railroad Line and the former Bingen and White Salmon docks (Washington side) pose a risk of encountering hazardous materials. Potentially undocumented contaminated areas could also be associated with historic industrial uses along the Columbia River.

This alternative also may encounter issues associated with asbestos and/or lead based paint located within the existing bridge (short term, mid term, and long term improvement impacts), tollbooth (mid term improvement impacts).

This alternative may also encounter potential contamination issues associated with boat maintenance and repair activities at Bubba Louie's Sailboat property.

Potentially contained hazardous materials within pole-mounted transformers may be encountered along Washington State Route 14 where grade changes need to be made.

Alternative EC-3

Potential environmental issues associated with the existence of chemically treated wood used for railroad ties, undocumented spills resulting in soil and/or groundwater contamination, and/or undocumented buried hazardous or non-hazardous waste at or adjacent to the BNSF Railroad Line and the former Bingen and White Salmon docks (Washington side) pose a risk of encountering hazardous materials. Potentially undocumented contaminated areas could also be associated with historic industrial uses along the Columbia River.

This alternative also may encounter issues associated with asbestos and/or lead based paint located within the existing bridge (short term, mid term, and long term improvement impacts), tollbooth (mid term improvement impacts).

Potentially contained hazardous materials within pole-mounted transformers may be encountered along Washington State Route 14 where grade changes need to be made.

Construction Mitigation

Implementation of the following measures would reduce the potential for unanticipated construction activity impacts associated with hazardous materials:

- Assess area surrounding railroad right of way and groundwater, soil, and sediment near proposed pier locations in the Columbia River.
- Arrange with utilities to assess, remove, and relocate any unidentified transformers.
- Conduct pre-demolition asbestos and lead surveys of the existing bridge, nursery buildings, and any other buildings that would be demolished.
- Complete Initial Site Assessments (ISA) at the plant nursery property and Bubba Louie's Sailboat property for areas of potential contamination (EC-1).
- Assess all areas of potential contamination and remediate, if needed.
- Prepare and implement a Spill Prevention, Control and Containment plan (SPCC) as discussed in the Waterways/Water Quality section.

Irreversible and Irretrievable Commitment of Resources

Replacement of the existing Hood River Bridge with a new SR-35 Columbia River Crossing will involve the commitment of natural, physical, human, and fiscal resources. In all of these categories, irreversible and irretrievable commitments of resources could occur. However, the importance of these actions would vary, depending on the scarcity of the resources and their ability to be reclaimed.

Construction of the proposed project would use approximately 1,780 Giga Joules (1,680 million BTUs). BTUs of energy resources, including gasoline and diesel fuels. These values are a very small fraction of the energy consumed annually for transportation in Oregon and Washington, and would not put substantial additional demand on energy sources or fuel availability in the region.

The proposed project would also use steel cement, aggregate, asphalt, and fill materials from local and regional sources. Quantities of these construction materials have not been determined at this time.

The proposed improvements would involve a long-term conversion of land resources on the Washington shoreline to provide for new transportation right-of-way. On EC-1, land currently used for residential and nursery uses would be converted to transportation use. On EC-2 and EC-3, currently undeveloped land would be converted to transportation use. Trees and shrubs would be eliminated at pier locations and productivity under the new bridge would be reduced. On

the Oregon shoreline, the new approaches would slightly shift the land used for transportation either to the west (EC-1 and EC-2) or east (EC-3). The existing approaches in Washington and Oregon may be converted to other uses, such as open space or wildlife habitat.

Land used in the construction of the proposed project would be considered an irreversible commitment while it is used for the transportation facility. Although these facilities conceivably could be converted to other land uses at some time in the future, there is no reason at present to believe that such a conversion would be necessary or desirable.

Additional efforts will have to be undertaken to deal with traffic circulation on local streets during construction. The local public service efforts expended during the construction phase of the project, including emergency service providers, would constitute an irreversible commitment of human and fiscal resources.

Construction of the project will require committing federal, state, and local funds that are not retrievable. However, commitment of these funds is based on the need to improve cross-river transportation.

The demolition of the existing Hood River Bridge will be an irretrievable loss of a historic structure, which is likely eligible for the NRHP. Appropriate HAER documentation is expected to offset this loss. A risk of irreversible and irretrievable loss of archaeological and historic information from presently unknown sites could occur during excavation of piers for the new bridge.

The proposed commitment of natural, physical, human, and fiscal resources is based on the belief that businesses, employees, and residents of the immediate area, the region, and the states would benefit from the improved quality of the transportation system. These benefits would consist of savings of time and convenience through improved accessibility. These benefits are anticipated to outweigh the commitment of resources.

Relationship of Short-Term Uses of the Environment and Long-Term Productivity

This section discusses the trade-offs of local short-term impacts and resources uses, and the maintenance and enhancement of long-term productivity.

Short-term effects of the proposed project would occur during construction, and would include temporary increases in soil erosion and water quality degradation, noise levels, particulate air pollution, and inconvenient traffic conditions. Following construction, these increased impact levels would diminish. Stormwater discharged to the Columbia would improve over the long-term in quality as a result of the proposed project. Improved water quality may promote a slightly increased local productivity in the Columbia River.

During construction, short-term impacts to soils and vegetation, which provide habitat for a variety of wildlife, would occur in upland staging areas and work areas. Restoration of these sites following construction would restore their long-term productivity.

Traffic congestion during construction will be replaced by long-term improvements in traffic operations at intersections between the new bridge and I-84 ramps.

Construction would create construction jobs and a subsequent increase in economic activity during construction with the project area.

Transportation improvement projects are based on planning efforts that consider the need for existing and future multi-modal transportation system requirements within the context of present and project land use. Growth is anticipated and planned for the project area, and the proposed project could provide a portion of the necessary transportation improvements to support that growth. Development efforts, planned and future, would benefit from improved transportation access provided by the proposed project.

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Chapter 5

DEIS

SR-35 - Columbia River Crossing

Chapter 5 – Secondary and Cumulative Impacts

This chapter address secondary and cumulative impacts. Generally, secondary impacts occur as a result of a proposed project action, but take place later in time than the initial action. Cumulative impacts occur as a result of the combined effects of several proposed project actions that may take place in the project area before, during or after the project timeframe.

Several projects have been identified and included in the cumulative evaluations. These are projects likely to occur or are considered to be reasonably foreseeable (Figure 5-1).

The projects include:

- New tribal fishing access site upstream of the Hood River Bridge on parcel directly east of RV park along the Washington shoreline
- SR-14 widening and sidewalk construction. Work extends from the Hood River Bridge intersection and downtown Bingen. The SR-14 improvements are under construction. Improvements include an improved intersection with the Hood River Bridge, a park and ride, a sidewalk on the south side of SR-14, repaving, restriping, and added signs.
- Development on the Port of Hood River Industrial Park/Expo site (area west of Hood River Bridge approach). Planned land uses include commercial, residential, and industrial, although specific estimates of square footage, numbers of units, or locations are currently unavailable.
- Port of Hood River Marina site. Improvements would be aesthetic in nature and may include landscaping, site furnishings (benches, tables, trash receptacles, drinking fountains, lighting, and signage). Affects the area immediately west of the Oregon side bridge approach.
- Steel deck replacement on Hood River Bridge. This project is included among the short-term improvements evaluated under the No Action Alternative and the build alternatives.
- SR-14 slope stabilization. WSDOT is planning a slope stabilization project along an 85-mile stretch of SR-14. Thirty-two spot improvements are anticipated. No improvements are planned at the build alternative approach locations.
- Development at Bingen waterfront (Port of Klickitat)
- Development in downtown Bingen. A development plan for the city of Bingen covers redevelopment of a three block by two block area

of downtown Bingen. The plan proposes East and West Gateways, roughly 300 new parking spaces, a new community center, one or two other new buildings, a few redevelopment sites, three plazas along the south side of SR-14, and a pedestrian link to the Bingen Marina. The plan also calls for rerouting of Dry Creek through Daubenspeck Park.

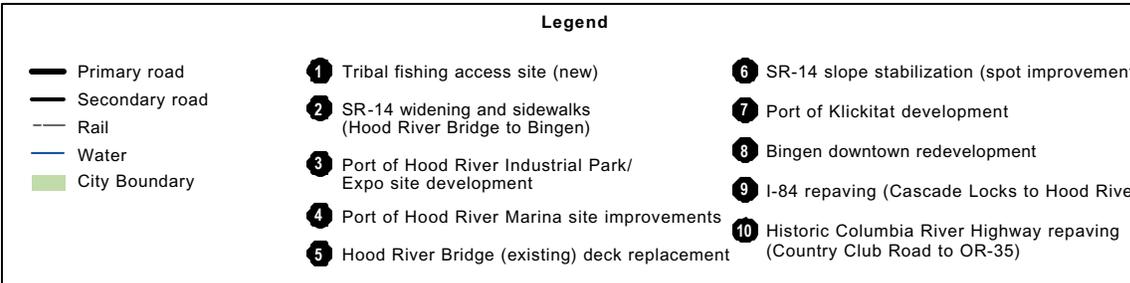
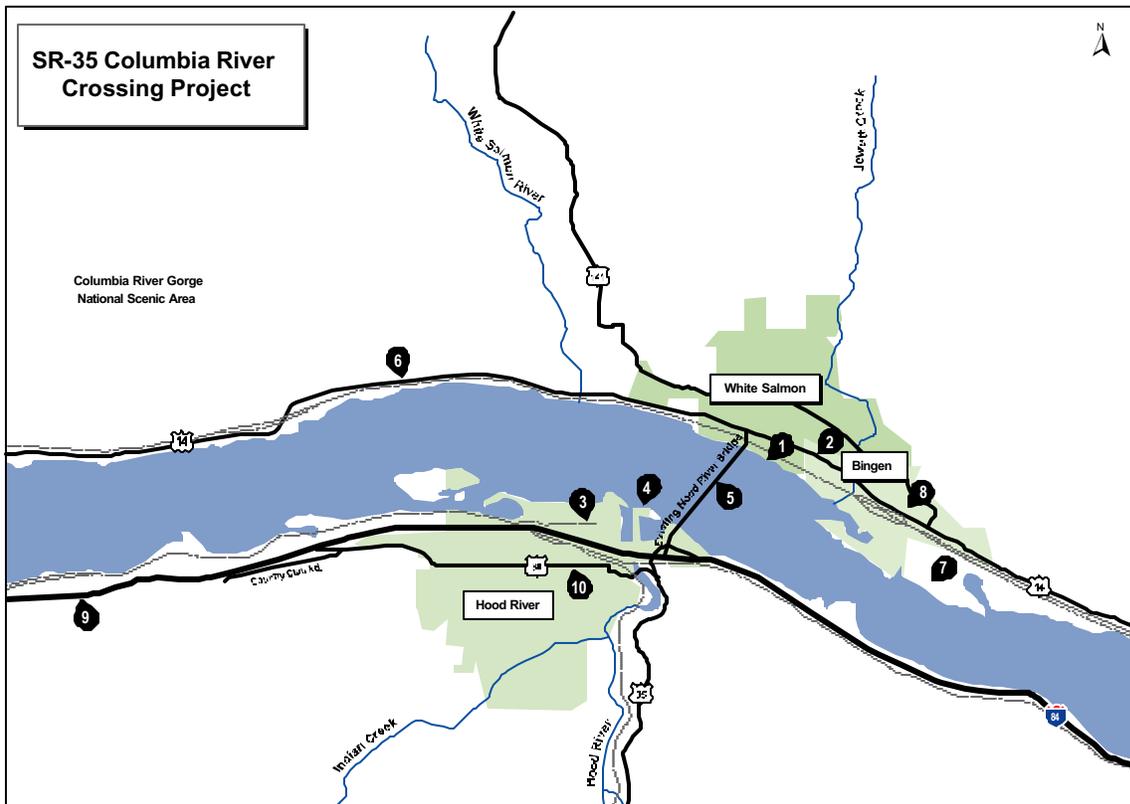
- I-84 repaving (Cascade Locks to Hood River) by ODOT.
- Historic Columbia River Highway repaving (Country Club Road to OR-35) by ODOT.

Land Use

Secondary Impacts

Future expansion from two travel lanes to three is possible, but is not expected to occur for over 20 years. Additional people would be able to cross the new bridge by walking or riding bicycles. An increase in the toll is also anticipated. The potential for the new bridge to induce growth is uncertain. It is, however, anticipated that future trends in population change and economic development would continue to follow historic trends of modest growth.

There are legitimate concerns for the new bridge's potential to influence local growth and development in Hood River and White Salmon/Bingen. Some reports on this general subject have indicated that new roadways can make areas so attractive as to promote higher levels of development nearby. There is current debate regarding the ability of roadways to cause, or induce, such growth in their proximity and academic research increasingly suggests that a connection between roadways and higher development levels does exist. It should be noted, however, that this subject remains under study, and a direct causal relationship between highway construction and higher development densities is not yet definitive. While the proposed bridge construction may have the potential to attract interest in development nearby, a number of factors influence growth however, and the city and county comprehensive plans and zoning ordinances and the CRGNSA Management Plan would be expected to determine the extent to which growth takes place in Hood River, White Salmon, Bingen and the surrounding areas.



Reasonably Foreseeable Projects
Figure 5-1

Cumulative Impacts

Several planned and proposed projects were considered in relation to potential cumulative impacts associated with the proposed project. A review of these projects found that planned and proposed improvements would acquire additional right of way with several business and residential displacements. Most of the new land use development in the vicinity of the bridge is expected to occur on the Port of Hood River Industrial Park/Expo site, at Bingen Point, and some in downtown Bingen. Access to existing land uses would be expected to remain in place or be slightly altered. The effects of the various activities on land use include:

- Treaty fishing access site. Development of the new site would require a new driveway and would use land adjacent to the Columbia River.
- SR-14 improvements. Requires 8 acres of additional right of way from 32 parcels – two businesses would lose outbuildings and five residents would be relocated.
- Port of Hood River Industrial/Expo site. A new mixed-use zone would allow for industrial, commercial, and residential development on the site.
- Port of Hood River Marina. Plans are to improve existing conditions.
- Development at Bingen Point (Port of Klickitat). Planned long range development in four phases would add 517,000 square feet of commercial, industrial and residential uses, 2,138 parking spaces and other amenities to the area around Bingen Lake and the marina.
- Development in downtown Bingen. Plans for new businesses, redevelopment of existing businesses, a new community center, 3 plazas, and approximately 300 new parking spaces would have the potential to impact some existing businesses and parcels
- Slope stabilization along SR-14. Unknown how much, if any, additional right of way would be required. No right of way acquisition expected in the project area.
- Repave I-84 (Cascade Locks to Hood River). No direct impact to land uses if no additional right of way is required.
- Repave Historic Columbia River Highway (Country Club Road to OR-35). No direct impact to land uses if no additional right of way is required.

Transportation

Secondary Impacts

No secondary impacts to transportation elements (vehicular traffic, marine traffic, rail traffic, freight traffic, and air traffic) have been identified.

Cumulative Impacts

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 for the proposed project, would cumulatively improve multi-modal transportation infrastructure throughout the area. These improvements could contribute to increased vehicular traffic. Future vehicular traffic forecasts, while not including the effects of the identified projects specifically, have included a representative growth rate for traffic to occur. The growth rate factor was based on historic trends in traffic growth and consideration of land use trends in the Hood River and Klickitat county areas.

Depending on the type of industrial development that occurs in the future at the Port of Hood River and the Port of Klickitat, increased marine traffic could result. The proposed bridge project would facilitate marine traffic to these port areas.

Geology and Soil

Secondary Impacts

No secondary impacts to soil and geology resources from any of the alternatives have been identified.

Cumulative Impacts

Impacts to soils and geology from this project could be cumulative with other projects taking place nearby. Known projects that are expected to occur within a similar time frame as the construction of the new bridge and demolition of the existing Hood River Bridge are noted here.

- Treaty fishing access site. This site is on the north bank of the Columbia River and would disturb soils and require some excavation and grading. The primary concern during construction is soil erosion from stormwater. With implementation of stormwater management controls, impacts to soils and geology should be minimal.

- SR-14 improvements. This project would disturb soils. Grading would be minimal because the area is already developed and relatively flat. With implementation of stormwater management controls, impacts to soils and geology should be minimal.
- Port of Hood River Industrial/Expo site. Construction adjacent to the Columbia River increases the likelihood that stormwater would cause erosion of the riverbanks or exposed soils. With implementation of stormwater management controls, impacts should be minimal.
- Port of Hood River Marina. Few of these improvements are expected to have impacts to soils or geology.
- SR-14 slope stabilization. Stabilization of slopes would require movement of considerable amounts of earth. These earth movements present potential erosion and sedimentation effects that would require mitigation during the construction process. The net result would be to reduce the geologic risks in the area. With implementation of stormwater management controls, impacts to soils should be minimal.
- Bingen waterfront improvements. Reconstruction of portions of the waterfront by the Port of Klickitat and the associated landscaping may contribute to erosion of exposed soils. With implementation of stormwater management controls, impacts should be minimal.
- Development in downtown Bingen. The construction of new buildings and walkways would have the potential for erosion and sedimentation during the construction process. The rerouting of Dry Creek would change local stream conditions and could lead to new areas of erosion and deposition. With proper design and construction the potential impacts from changes in stream flow can be minimized. With implementation of stormwater management controls, impacts should be minimal.

All of the projects described above, as well as the existing Hood River Bridge replacement, have erosion of disturbed soils as the primary geology and soils concern. Each of these projects alone would contribute only minor impacts, but taken together they represent a larger potential for erosion and contribution of sediments to the Columbia River and surrounding areas than any of the projects by themselves. These projects would not be constructed simultaneously, however. With the implementation of appropriate erosion and sediment control measures (BMPs), the individual effects of each project could be almost entirely eliminated and the overall cumulative effects would be greatly reduced.

Waterways/Water Quality

Secondary Impacts

No Action Alternative

No Secondary Impacts are anticipated from the No Action Alternative.

Alternative EC-1, EC-2, and EC-3

No secondary impacts resulting in land use change of the surrounding area have been identified. Accordingly, increases in impervious surfaces and associated increases in runoff and pollutant loads typically associated with development are not anticipated as a consequence of the proposed project.

If an increase in the number and/or size of ships resulted from improved navigational characteristics of the proposed new bridge, an increase in fuel emissions affecting water quality and the potential for spills of oil, grease, diesel fuel, and other petroleum-based pollutants could occur in the future. At this time, however, increased navigation past the bridge as a result of this project is not anticipated (PB Ports and Marine 2003).

Cumulative Impacts

Impacts to water quality from this project would be cumulative with other projects taking place nearby. Impacts from erosion and sedimentation are discussed in the previous section, Geology and Soils. Development in shoreline areas poses the risk of accidental spills of hazardous materials used in construction. Implementation of appropriate erosion and sediment control measures and spill containment and countermeasures would reduce the cumulative impacts of these projects on Columbia River water quality.

Social and Economic

Secondary Impacts

No Action Alternative

Community and Population

Assuming that the Hood River Bridge is closed in approximately 30 years, all services that residents seek on opposite sides of the river would require substantial detours. The nearest bridges would require a 40-mile one-way trip instead of a 1-mile trip. Populations and businesses on the Oregon side would still have connections to I-84; however, local Washington communities would need to travel 20 miles before being able to cross the Columbia River. Most economic linkages

between Hood River and White Salmon/Bingen would be severed. Some commuters, tourists, and consumers may be willing to travel 40 miles to go between these two urban areas; however it may be more realistic that Washington residents would pursue their work and shopping activities in Stevenson or The Dalles.

Native Americans, especially those traveling from Oregon to access tribal fishing access sites on the Washington shoreline, would need to cross the Columbia River at The Dalles or Cascade Locks. These detours may or may not have a substantial impact on their travel depending on where their trips originate. Once at the local tribal fishing access sites, they would not have easy vehicular access to cross the river.

Recreation

If the Hood River Bridge were closed, access from Oregon and Washington to the recreation sites on the opposite sides of the Columbia River would be restricted due to the bridge being closed to vehicular traffic. To access popular recreation sites on the Oregon and Washington shores, recreationalists from Hood River or White Salmon/Bingen would be required to cross the river in their vehicles using the Bridge of the Gods to the west or the bridge at The Dalles to the east. Recreationalists would still be able to reach all the sites, but the inconvenience of reaching them may deter people from using some sites. However, the lack of traffic on the existing bridge would cause roadway noise to cease. This lower ambient noise level would benefit outdoor recreationalists and event bystanders in the vicinity.

Utilities and Services

If the existing bridge were demolished after closure and a replacement bridge were not constructed, the current utilities attached to the bridge may need to be realigned to provide a cross-river construction. This type of realignment could entail a substantial burden on utilities to obtain necessary clearance for alternative cross-river connections.

After the bridge is closed, services would likely be contained to one side of the river. Due to jurisdictional boundaries, the containment of these services would not change current service delivery.

Economic Elements

Once the bridge is closed, businesses that depend on cross-river traffic would be adversely affected. The number of area jobs associated with these cross-river-dependent business activities would likely decrease.

Employees who commute cross-river would no longer be able to easily do so after the bridge is closed. The lack of a direct connection between Hood River and White Salmon/Bingen would require employees to travel an additional 40 miles one-way, move to the same side of the river where they work, or find new employment options.

In a worst-case scenario, White Salmon and Bingen could experience severe economic changes. These towns would lose direct connection to the only interstate in the area. As a result, tourists and recreationalists

coming to Hood River would not be able to cross over to Washington; freight would need to travel 20 miles east or west on SR-14 before it could access I-84; new business may be deterred to other areas with better interstate access; and White Salmon and Bingen could be bypassed altogether if regional traffic crosses the Columbia River at The Dalles or Cascade Locks bridges.

The loss of business activity and jobs would lead to fewer tax revenues. The most substantial losses being sales tax and business and occupation tax revenues in Washington and business income tax revenues in Oregon.

Alternatives EC-1, EC-2 and EC-3

There are legitimate concerns for the proposed new bridge's potential to influence local growth and development in Hood River and White Salmon/Bingen. Some reports on this general subject have indicated that new roadways can make areas so attractive as to promote higher levels of development nearby. There is current debate regarding the ability of roadways to cause, or induce, such growth in their proximity and academic research increasingly suggests that a connection between roadways and higher development levels does exist. It should be noted, however, that this subject remains under study, and a direct causal relationship between highway construction and higher development densities is not yet definitive. Therefore, although proposed highway construction may have the potential to attract interest in development nearby, the greatest limitation to increased density in the project area would remain tied to each city's comprehensive plan and zoning designations. City planning regulations are expected to determine future land use changes within, and adjacent to, the proposed bridge.

Future expansion from two travel lanes to three is possible, but is not expected to occur for at least 20 years. Therefore, the potential for the new bridge to induce growth is uncertain. It is, however, anticipated that future trends in population change and economic development would continue to follow historic trends of modest growth.

Cumulative Impacts

Social elements (population and community growth, recreation, utilities, services, pedestrian and bicycle facilities, and environmental justice) and economic elements (business activities, jobs, tax revenues, property value, and regional growth) are not expected to experience adverse cumulative effects from the proposed project and other projects within the area. Regional economies would actually be expected to grow as a result of the regional transportation improvements.

Incremental right of way acquisition may occur over time from multiple projects. Cumulative property acquisition is expected to involve relatively small parcels of land, adjacent to transportation corridors.

Slight decreases in property tax revenues would occur, but are not expected to be significant.

Cultural Resources

Secondary Impacts

No secondary impacts to cultural resources would be expected during the future operation of the bridge from any of the alternatives.

Cumulative Impacts

Cumulative impacts to cultural resources could result from construction activities 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.

Energy

Secondary Impacts

No secondary impacts would be expected during the future operation of the bridge from any of the alternatives.

Cumulative Impacts

Over the long-term, the additional available capacity that would be available as a result of construction of any of the build alternatives could result in additional development in the area. Such development would require energy for construction and during operation.

Cumulatively, transportation within the United States consumes approximately 24,000 Tera BTUs of petroleum per year, which results in a reduction in energy reserves. Energy consumed in the study area contributes to this figure; however, construction of the project would have only a negligible effect on total energy consumption.

Vegetation and Wetland

Secondary Impacts

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

Cumulative Impacts

Several of the projects identified for cumulative analysis would result in vegetation removal near the Columbia River or in relatively steep hillside slopes along SR-14:

- Tribal fishing access site. This project would clear trees and shrubs along the Columbia River.
- SR-14 improvements. The SR-14 improvements would clear 17 acres of trees, grass and bush and impact 0.42 acre of wetlands.
- SR-14 slope stabilization. Resloping some areas, installing fences to contain rockfall, installing protective walls, or realigning the roadway in some areas are actions possible under the proposal. Vegetation could be cleared where construction occurs, including roadway realignment or wall construction. Sensitive plants, such as the Columbia gorge daisy, Howell's bentgrass, and Barrett's penstemon, could be affected at specific sites. These species are endemic to the Columbia River Gorge and may be found on steep cliffs, rock outcrops, or talus slopes.

Effects on shoreline vegetation from other anticipated development in shoreline areas would likely be minimal because of the existing development and the existing disturbed nature of the vegetation communities in those areas.

Replanting native vegetation in areas disturbed by construction along the Columbia River would help offset impacts.

Fish and Wildlife

Secondary Impacts

No Action Alternative

No secondary impacts are anticipated from the No Action Alternative.

Alternatives EC-1, EC-2, and EC-3

The project may cause a slight temporary reduction in aquatic productivity due to turbidity and shading from barges used during construction. These effects would not cause a measurable reduction in predator/prey interaction and would recover soon after construction.

Cumulative Impacts

Impacts to fish may be caused by construction runoff that can degrade environmental conditions for fish. Erosion and sedimentation issues associated with the projects identified for cumulative analysis are presented under Geology and Soils in this chapter. BMPs would be used during construction to minimize stormwater runoff and to reduce

the potential for contaminants entering the Columbia River in stormwater.

New impervious surfaces from roads, parking lots and sidewalks can cause turbidity and introduce contaminants, such as oil, grease, and heavy metals, to the river that may harm fish. Projects designed to current stormwater specifications would reduce stormwater impacts to fish.

In-water work has the potential to harm fish. Anticipated projects, such as the new tribal fishing access site and Bingen waterfront improvements, may require in-water work. Such activities require permits that would require minimization of impacts through timing of construction work and using methods that isolate work from flowing water, when feasible.

Air Quality

Secondary Impacts

No secondary impacts to air quality have been identified.

Cumulative Impacts

Planned growth and development in the Hood River/White Salmon/Bingen area, as exemplified by the projects identified for cumulative analysis, will cumulatively increase traffic and associated vehicular emissions, as well as emissions from businesses, homes, and industrial sites.

Depending on the timing of construction of the various projects identified in the area, construction emissions such as vehicular exhaust and dust could increase in the area.

Visual

Secondary Impacts

No Action Alternative

No secondary impacts to visual resources are anticipated from the No Action Alternative.

Alternatives EC-1, EC-2, and EC-3

There are legitimate concerns for the new bridge's potential to influence local growth and development. This could affect the visual quality of the surrounding area over time. Despite this potential, federal, state and local planning regulations are expected to determine future land use changes within, and adjacent to, the proposed bridge. These same

plans and policies could also be used to maintain the visual quality of the areas within Hood River, White Salmon and Bingen and protect the views to and from the surrounding National Scenic Area.

Cumulative Impacts

Several planned and proposed projects were considered in relation to potential cumulative impacts associated with the proposed project. A review of these projects 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. The relative effects of the various projects on visual resources include:

- Treaty fishing access site. Would increase the amount of visible activity on the north shore but is not expected to have a large impact.
- Port of Hood River Industrial/Expo site. New industrial, commercial and residential development would be within the urban area of Hood River, but would increase the amount of visible activity in the area.
- Port of Hood River Marina. Plans to improve existing conditions through landscaping treatments and the use of other amenities could increase the visual appeal of this area.
- Development at Bingen Point (Port of Klickitat). Planned long-range development in four phases adding 517,000 square feet of building area and 2,138 parking spaces would increase visual activity of this area by attracting an increased number of users to the area.
- Development in downtown Bingen. New development would be in the urban area of downtown of Bingen having minimal effect on the overall viewing resources of the area.
- SR-14 slope stabilization. Slope stabilization efforts could have a high impact on the visual quality of the area.

Noise

Secondary Impacts

No secondary impacts resulting from noise would be anticipated for any of the alternatives.

Cumulative Impacts

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 for the

proposed project, 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.

Hazardous Materials

Secondary Impacts

No secondary impacts related to hazardous materials have been identified for the No Action Alternative or any of the build alternatives. An emergency response plan should be available in the event of a reported release of hazardous materials during operation. Assessment and cleanup of a spill should be conducted in accordance with the appropriate emergency response plan.

Cumulative Impacts

If the Hood River Bridge closes to vehicular traffic in the future (No Action Alternative), the long-term cumulative impact of such a closure together with the other transportation improvement projects in the area may represent an increase in the risk of accidental hazardous materials spills as a result of increased traffic volumes along alternative routes.

Added development from projects identified for cumulative analysis may result in additional potential contaminants in the project area through industrial use and increased impervious surfaces. Contaminants from industrial operations or vehicles traveling on roads or in parking areas could result in increased contaminants being carried into the Columbia River with stormwater runoff or from accidental spills.

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Chapter 6

DEIS

SR-35 - Columbia River Crossing

Chapter 6 – Section 4(f) Evaluation

Section 4(f) of the U.S. Department of Transportation Act of 1966 (49 USC 303) declares:

It is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.

In addition, Section 4(f) specifies:

The Secretary [of Transportation] may approve a transportation program or project...requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state or local significance, or land of a historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuges, or site) only if –

- (1) There is no prudent and feasible alternative to using that land; and
- (2) The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

The U.S. Department of Transportation is also required to cooperate and consult with the U.S. Departments of Interior, Housing and Urban Development, and Agriculture, and with the states, in developing transportation plans and programs which use lands protected by Section 4(f).

The construction of a new bridge across the Columbia River between Hood River, Oregon and White Salmon, Washington would affect the existing Hood River Bridge, a historic structure that is likely eligible for listing on the National Register of Historic Places. Therefore, Section 4(f) requirements apply.

Proposed Project

The proposed project would construct a new fixed-span bridge across the Columbia River. The northern end of a new bridge would touch down on the southwestern edge of White Salmon in Klickitat County. The southern end would touch down in Hood River in Hood River County.

The purpose of this 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. The bridge is inadequate and deficient in terms of capacity, system linkage, transportation demand, legislative

directives, social demands and economic development, modal interrelationships, safety, and roadway and bridge standards.

Please refer to Chapter 1 for the detailed project description and need for the project.

Programmatic Section 4(f) Evaluation

In certain situations, the Federal Highway Administration (FHWA) may have the option of pursuing a programmatic Section 4(f) evaluation rather than an individual evaluation. If a project meets the conditions of a programmatic evaluation, it will satisfy the requirements of Section 4(f). It is just as difficult to justify using a 4(f) resource with the programmatic evaluation as it is with an individual evaluation; the benefit of undergoing a programmatic evaluation is that it streamlines the amount of interagency coordination that is required.

There are four nationwide programmatic Section 4(f) evaluations, one of which covers projects that use historic bridges (FHWA Section 4(f) Policy Paper, September 24, 1987, Revised June 7, 1989). According to the FHWA:

For the purpose of this programmatic Section 4(f) evaluation, a proposed action will “use” a bridge that is on or eligible for inclusion on the National Register of Historic Places when the action will impair the historic integrity of the bridge either by rehabilitation or demolition.

Furthermore:

If a project includes the demolition of a historic bridge, the following alternatives must have been considered and found not feasible and prudent: 1) Do nothing; 2) Build on new location without using the historic bridge; and 3) Rehabilitation without affecting the historic integrity of the bridge.

The proposed project would “use” the existing bridge since it would be demolished after the new bridge was constructed. Therefore, each of the following findings must be supported by the circumstances, studies, and consultations on the project in order for the programmatic Section 4(f) evaluation to be applied to be applied.

1. Do Nothing – The do nothing alternative has been studied. The do nothing alternative ignores the basic transportation need. For the following reasons this alternative is not feasible and prudent: a) maintenance, and b) safety.

Doing nothing would not rectify current and future transportation, structural, and navigation inadequacies and deficiencies associated with the existing bridge. The existing bridge and bridge roadway are functionally obsolete or deficient in terms of narrow travel lanes; lack of pedestrian and bicycle facilities; low load carrying capacity; audible noise associated with the bridge deck; and vulnerability to a seismic event. In addition, the horizontal clearance for navigation under the

current bridge is substandard. The navigation channel under the bridge has a horizontal clearance of 246 feet, which is less than the Congressionally authorized 300-foot wide navigation channel (PB Ports and Marine 2003). Moreover, the current channel is not effectively aligned with westerly winds making it difficult for barges to pass through the opening during high winds.

2. Build on New Location Without Using the Old Bridge – Investigations have been conducted to construct a bridge on a new location or parallel to the old bridge (allowing for a one-way couplet), but, for one or more of the following reasons, this alternative is not feasible and prudent: a) terrain, b) adverse social, economic, or environmental effects, c) engineering and economy, and d) preservation of old bridge.

The one-way couplet alternative was considered but deemed unfeasible because of adverse social, economic, or environmental effects. Economic growth and development of the local communities is tied to adequate transportation infrastructure between White Salmon and Hood River. The narrow lanes and load limitations of the existing bridge restricts the flow of goods and does not accommodate larger vehicles. Local and regional economic growth and development would be enhanced by diversifying and expanding the use of this crossing rather than diverting prohibited traffic or dissatisfied users to other crossings outside the urban and recreation areas of White Salmon and Hood River.

After the construction of a new bridge was complete the existing bridge would be removed to avoid having two structures located in the Columbia River. Two structures in the river would increase the adverse effects on fish and habitat by increasing the shadows cast on to the river, would be visually intrusive in CRGNSA, would not alleviate the substandard horizontal clearance for navigation under the current bridge, would not correct the misaligned channel opening for barges, and would increase the number of piers for barges and recreationalists to avoid on the river.

3. Rehabilitation Without Affecting the Historic Integrity of the Bridge – Studies have been conducted of rehabilitation measures, but, for one or more of the following reasons, this alternative is not feasible and prudent: a) The bridge is so structurally deficient that it cannot be rehabilitated to meet minimum acceptable load requirements without affecting the historic integrity of the bridge, and b) The bridge is seriously deficient geometrically and cannot be widened to meet the minimum required capacity of the highway system on which it is located without affecting the historic integrity of the bridge.

In order for the existing bridge to meet the purpose and need for the project, rehabilitating the existing bridge at the current profile would require widening the roadway, adding sidewalks, enlarging and replacing the lift span and corresponding piers, strengthening the bridge

trusses, and retrofitting the bridge columns to handle the increased bridge weight and to meet seismic requirements. Such an extensive rehabilitation project would likely change the appearance and architecture of the bridge that are some of the unique characteristics of the bridge.

Rehabilitating the existing bridge on a new profile would also have the potential to adversely affect the historic integrity of the bridge. It would involve eliminating the lift span, constructing new piers at new locations and removing the old piers, adding a new wider roadway deck, adding sidewalks, removing the existing trusses to an off-site location to strip away the paint and strengthen them to accommodate for increased loads and seismic requirements, and constructing new trusses (similar to the old) to which the existing, but modified trusses would be attached to in order to obtain the necessary bridge width. Under this effort, the modified existing trusses would have been the only element of the existing bridge retained in the rehabilitation. Rehabilitating the existing bridge on a new profile would also have had the potential to affect the historic integrity of the bridge.

Description of the Section 4(f) Resource

Spanning the Columbia River between Hood River and White Salmon, the Hood River Bridge was originally called the Waucoma Interstate Bridge. The bridge was privately financed when it was built in 1924. It was then sold to the Port of Hood River in 1950. It is the second oldest highway bridge across the Columbia River between Oregon and Washington.

The 0.9 mi long steel-truss bridge consists of a 262 ft through-truss Pennsylvania-Petit vertical-lift span and sixteen 208 ft long steel deck-truss secondary spans. The bridge has a vertical clearance of Bonneville Dam downstream. The bridge typically opens once or twice a month for large cruise ships and stern-wheelers. During the 1938 bridge remodel, the deck spans were raised by raising the top of the concrete piers while several spans were added to the approaches and a tollbooth was built.

The Port of Hood River replaced timber trestles beneath the bridge approaches with two steel-girder spans and replaced the original wood deck with steel in the early 1950s. Other improvements to the bridge include a 1965-1967 replacement of railings and curbs with steel posts, the addition of mercury vapor lights, and a replacement of the tollbooth with a sheet metal building.

The Hood River Bridge is likely eligible for listing on the National Register of Historic Places for its association with transportation history in both Oregon and Washington as one of five steel bridges constructed across the Columbia River during the 1920s, marking the beginning of a major bridge building era. It is also likely eligible as a representation of a Petit truss structural system, a standard truss form adapted for elongated bridges. The historic-period modifications to the bridge

included the addition of a vertical lift mechanism and new approach spans. These changes are considered a part of the structural significance of the bridge.

Impacts on the Section 4(f) Resource

The proposed project would involve the construction of a new, fixed-span bridge for all transportation modes in the existing bridge corridor. Three build alternatives are considered: Alternatives EC-1 and EC-2 are directly west of the existing bridge alignment and Alternative EC-3 is directly east. Alternative EC-2 is the preliminary preferred alternative. As part of each build alternative, the existing Hood River Bridge would be demolished.

Avoidance Alternatives

According to the programmatic Section 4(f) evaluation on historic bridges, if a project includes the demolition of a historic bridge, the following alternatives must be considered and found to be not feasible and prudent: 1) Do nothing; 2) Build on new location without using the historic bridge; and 3) Rehabilitate without affecting the historic integrity of the bridge.

A number of alternatives for the proposed project were considered during the planning process and evaluated prior to the selection of the alternatives evaluated in the DEIS. This included other crossing corridors a mile up and down stream from the existing bridge crossing. These alternatives included retaining the bridge for pedestrian and bicycle travel in conjunction with a new tunnel or a new bridge; retaining the bridge for all modes of transportation while implementing intelligent transportation systems; and retrofitting the bridge. Each of these alternatives was evaluated to determine whether it met the purpose and need for the project. In each case, the alternative failed to meet these criteria due to issues related to: excessive costs, adverse impacts to visual or aesthetic resources, increased impacts to fish and habitat, substandard horizontal clearance for maritime vessels, and failure to meet the purpose and need for the project. Thus, these alternatives were eliminated from further consideration (see Chapter 2).

No feasible or prudent alternatives that avoided impacts to the Hood River Bridge met the screening criteria utilized during the planning process. There are no feasible or prudent build alternatives other than to demolish the existing bridge. The only exception is the No Action alternative, which is carried forward in the to EIS regardless of early alternatives screening processes during the planning phase.

Measures to Minimize Harm

Each of the build alternatives evaluated in the DEIS include building a new bridge near the existing Hood River Bridge and removing the

existing bridge. Although a final determination of eligibility has not been made, the bridge is assumed to be eligible for listing on the National Register of Historic Places. And therefore, its removal would likely be considered to be an adverse effect.

Assuming the bridge is eligible and that an adverse effect would occur, measures to minimize harm to this historic resource were contemplated by the Oregon State Historic Preservation Office (SHPO). The SHPO has suggested photographic documentation and a historical narrative statement may be possible mitigation measures. The Washington Office of Archaeology and Historic Preservation (OAHP) has recommended similar Historic American Engineering Record (HAER) documentation. Although, neither state can determine a level of recordation until eligibility is recommended and Oregon SHPO and Washington OAHP have concurred.

A possible mitigation plan would include a Tier I Mitigation Documentation including:

- A series of 4 x 6-inch black-and-white photographs showing elevation views and structural details
- A historical narrative that describes the construction history, context, and historical significance of the bridge
- Copies of any original plans, photographs, or drawings of the bridge

Other mitigation may include donating the bridge to public or private agencies. However, finding potential sources willing to accept the donation of a bridge of this size and length may prove difficult. Typically, smaller bridges are donated to, and accepted by agencies, such as parks departments, for use as bicycle and pedestrian crossings along trail networks.

Record of Coordination

Informal inquiries regarding the historical significance of the bridge were made with representatives of the Oregon SHPO and the Washington OAHP in January 2003. Agency representatives offered opinions regarding the bridge's NRHP eligibility. However, in order to concur with a determination of eligibility, the Oregon SHPO requires a Section 106 Documentation Form be submitted.

As part of the Section 106 documentation process and development of mitigation measures, the Oregon SHPO has recommended coordination with the Washington OAHP. The Oregon SHPO would act as lead state agency, with the Washington OAHP copied on all correspondence and included as a signatory of any memorandum of agreement that may be developed. The Washington OAHP has agreed to this arrangement and continued coordination of this process would proceed under this arrangement. Upon Oregon SHPO and Washington OAHP concurrence, mitigation measures would be developed.

In addition, the Oregon SHPO is a member of the Oregon Collaborative Environmental and Transportation Agreement for Streamlining (CETAS) Committee, which reviews and concurs on major project development milestones.

Summary

The Hood River Bridge is likely eligible for listing on the National Register of Historic Places. The bridge contains qualities that would contribute to its NRHP eligibility based on preliminary historic resource analysis.

Removal of the bridge would likely be considered an adverse effect. However, mitigation measures such as recordation and documentation could be used to preserve a record of the historically important physical characteristics of the bridge.

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Chapter 7

DEIS

SR-35 - Columbia River Crossing

Chapter 7 – Public Involvement and Agency Coordination

A variety of means have been used to involve the public in this project, including:

- Advisory committee meetings
- Public meetings
- Stakeholder interviews
- Project newsletters
- Community questionnaire
- Media releases
- Community group presentations
- Public opinion survey
- Youth activity (Bridge design contest)
- Web site

In general, citizens have been asked to do the following:

- Review, supplement and prioritize key study issues.
- Comment on the results of preliminary assessments of potential crossing corridors and facility types, including the criteria used to evaluate them
- Recommend additional methods for involving the public

Table 7-1 presents a comprehensive list of public and agency coordination activities conducted during the project. A summary of these activities follows.

Table 7-1 Public and Agency Coordination Activities	
Date	Activity
August 22, 2000	Media Release announcing start of Phase 2; August 22, 2000
September 2000	Project newsletter, volume 1
October 3, 2000	Media Release announcing October 12 open house
October 20, 2000	Resource and Regulatory Committee Meeting, October 12, 2000: Minutes
November 28, 2000	Stakeholder Interviews: Summary of Key Findings
October 19, 2000	Public Open House, October 12, 2000: Summary of Comments

Table 7-1 Public and Agency Coordination Activities	
Date	Activity
November 28, 2000	Combined Local Advisory/Steering Committee Meeting, October 26, 2000: Meeting Highlights
February 7, 2001	Media Release announcing February, 2001 advisory committee meetings
February 28, 2001	Public Scoping Public Notice paid advertisement for local newspapers
February 2001	Combined Local Advisory/Steering Committee Meeting, February 15, 2001: Meeting Highlights
February 2001	Project newsletter, volume 2
March 1, 2001	Media release announcing opening of public scoping period
April 3, 2001	Public Open House, March 8, 2001: Summary of Comments
April 2001	Media Release; April, 2001
March 28, 2001	Resource and Regulatory Committee Meeting, March 8, 2001: Minutes
May 16, 2001	Local Advisory Committee Meeting, May 3, 2001: Meeting Highlights
May 30, 2001	Steering Committee Meeting, May 17, 2001: Meeting Highlights
June 2001	Project newsletter, volume 3
July 26, 2001	Media release announcing narrowing of alternatives
September 6, 2001	Media release announcing September, 2001 advisory committee meetings
September 28, 2001	Media release announcing October 11, 2001 public open house
October 2001	Local Advisory Committee Meeting, September 13, 2001: Meeting Highlights
October 2001	Steering Committee Meeting, September 20, 2001: Meeting Highlights
October 15, 2001	Media release announcing public opinion survey
October 16, 2001	Public Open House, October 11, 2001: Summary of Comments
February 2002	Combined Local Advisory/Steering Committee/ community representatives SR-35 Design Workshop, January 28, 2002; workshop summary
February 18, 2002	Media release announcing February 28, 2002 public open house
February 2002	Project newsletter, volume 4
March 5, 2002	Resource and Regulatory Committee Meeting, March 5, 2002: Minutes
March 8, 2002	Public Open House, February 28, 2002: Summary of Comments
May 14, 2002	Media release announcing May 20, 2002 advisory committee meeting
May 2002	Combined Local Advisory/Steering Committee Meeting, May 2, 2002: Meeting Highlights
June 11, 2002	Media release announcing pending decision on Tier 3 of study
June 2002	Project newsletter, volume 5
November 20, 2000	Combined Local Advisory/Steering Committee Meeting, November 7, 2002: Meeting Highlights
February 13, 2003	Resource and Regulatory Committee Meeting and Field Visits, February 13, 2003: Minutes
March 24, 2003	Combined Local Advisory/Steering Committee Meeting, March 24, 2003: Meeting Highlights
May 2003	Project newsletter, volume 6
May 5, 2003	Media release announcing May 15, 2003 advisory committee meeting
May 15, 2003	Public Open House, May 15, 2002: Summary of Comments

Advisory Committee Meeting Process

Three committees are helping guide the study. They include:

- **Local Advisory Committee (LAC)** composed of local citizens representing business, environmental, ethnic and other civic groups or constituents. This group reviews and discusses technical work from the perspective of community leaders with a broad understanding of regional needs. This committee provides recommendations to the Steering Committee regarding the nature of SR-35 river crossing needs and a link to the Management Team. To date, this committee has assisted in identifying key study issues, reviewing preliminary corridors and the consultant and management teams' assessment of them, and recommending means for involving the public. Key comments and recommendations from the LAC have included a recommendation to broaden the initial corridor evaluation criteria to include local economic, recreational, environmental and other impacts, and concurrence with resulting recommendations for crossing corridors that should be studied further.
- **Steering Committee (SC)** composed of elected officials or high-level managers from participating agencies and senior agency staff, including DOT senior management staff, RTC representative, port commissioners or senior staff, county commissioners, mayors, and county engineers. This committee reviews information from the LAC, resolves issues where there is an impasse, provides liaison to their respective constituents, receives recommendations, and deliberates prior to making final recommendations to the Management Team. The SC also concurred with consulting team recommendations for crossing corridors that should be evaluated further in subsequent rounds of analysis.

In Tier III of the study, the LAC and SC were combined as the Advisory Committee for efficiencies of staff time and coordination between the two groups.

- **Resource Regulatory Committee (RRC)** composed of staff of state and federal resource and regulatory agencies with an interest and role in assessing the environmental impacts of the project. This group meets periodically to comment on and provide advice about how best to address technical and regulatory issues. Along with participants in the Oregon CETAS and Washington Merger process, it also acts as a forum for NEPA-related decision points and issues. Members of this committee have been helpful in identifying specific issues for evaluation, recommending a broader preliminary corridor assessment, and suggesting additional agencies and representatives that should be involved in the process.

Public Meetings

Public meetings have been conducted to inform and involve citizens in the project. A summary of comments and issues raised at the meetings are summarized in more detail below.

October 12, 2000

Approximately 40 people attended a public open house on October 12, 2000. Participants reviewed background information about the project and provided comments on issues related to the study, as well as those related to specific corridors identified for further study. Summary results of this meeting included:

- The majority of participants live in Washington while most work in Oregon.
- Top priority general study issues identified by participants include:
 - Location
 - Alternative transportation issues
 - Safety
 - Tolls
 - Current and future capacity
- Most frequently cited comments related to specific crossing alternatives include:
 - Traffic impacts
 - Tolls/ownership of bridge
 - Location
 - Safety
 - Environmental impacts such as noise, affects on the hatchery and wetlands
 - Proximity to adjacent communities
 - Physical constraints

March 8, 2001

Approximately 60 people attended a public scoping meeting/open House, March 8, 2001. This meeting was part of the NEPA scoping

process initiated in February 2001. Participants reviewed a preliminary assessment of corridors and types of facilities identified for further study, as well as the criteria used for the initial evaluation. Summary results of the meeting included:

- The majority of participants live in Washington (about 80 percent), while about 60 percent work in that state.
- Most participants agreed with comments expressed during previous public outreach activities, with the following exceptions:
 - Most disagreed with the statement that “the historic value of the existing bridge and impacts on nearby resources such as the Columbia Gorge Hotel and Historic Highway are important;” comments seem to indicate that some or most of the disagreement was with the historic value of the existing bridge, rather than adjacent historic resources.
 - Over half disagreed with this statement: “potential visual impacts, particularly of a possible high bridge alternative are important.”
- Almost all participants agreed with initial assessments of different types of facilities, with one exception. About 40 percent of those who commented did not agree on the priority (high) for further evaluation of “short term improvements to the bridge.”
- There was a wide range of comments about preliminary evaluation of corridors.
 - Just over half of the participants (who noted an opinion) agreed with the “low” rating for the West Corridor.
 - A slight majority agreed with the “high” rating for the City Center corridor.
 - Most agreed that the Existing Low corridor deserves a high rating.
 - Over half disagreed with the low rating for the Existing High corridor.
 - A majority disagreed with the “moderate” rating for the East A corridor.
 - All disagreed with the moderate rating for the East B corridor.

It is unclear whether those who disagree with the moderate ratings for the two East corridors would prefer a low or high rating.

October 11, 2001

About 40 people attended the October 11, 2001 open house to discuss the project. The open house was announced in news articles in the *Hood River News* and *White Salmon Enterprise*, as well as in press releases to local newspapers in The Dalles and Skamania County. Attendees participated in the following activities:

- Indicated where they live, work, and how often they use the existing bridge on a large worksheet
- Reviewed location and alignment concepts for crossing alternatives
- Reviewed and commented on an evaluation of crossing alternatives
- Listened to a presentation about the background and status of the study; made comments and asked questions afterwards
- Completed a questionnaire, identifying crossing alternatives that should be evaluated in more detail
- Viewed pictures of different types of bridges and tunnels constructed in other locations

Results included:

- Most participants live in Washington (over two-thirds); of those who completed the live/work/bridge use exercise, just over half work in Washington or in both states
- Most attendees use the bridge frequently; of those who completed the live/work/ bridge use exercise, over 80% use it more than once a week
- The following eight options, in order of number of “votes,” were the top choices recommended for further study:
 - Fixed span bridge for all modes at the Existing corridor
 - Fixed span bridge for all modes in the East A corridor
 - Fixed span bridge for all modes in the City Center corridor
 - Fixed span bridge for motor vehicles in the City Center corridor, with bikes and pedestrians using the existing bridge
 - Tunnel for motor vehicles in the City Center corridor, with bikes and pedestrians using the existing bridge
 - Tunnel for all modes in the existing corridor
 - Fixed span bridge for motor vehicles in the existing corridor, with bikes and pedestrians using the existing bridge
 - Retrofit of the existing bridge

February 28, 2002

About 40 people attended a public event on February 28, 2002, to discuss the project. The open house was announced in a newsletter distributed directly to about 500 people who have expressed an interest in the project and/or attended previous events. It also was announced in news articles in the *Hood River News* and *White Salmon Enterprise*, as well as in press releases to local newspapers in the Dalles and Skamania County. Notice of the meeting also was posted at the tollbooths on the existing bridge over the Columbia River between Hood River and Washington. Attendees participated in the following activities:

- Reviewed and commented on bridge design concepts for crossing alternatives under consideration
- Viewed an awards ceremony for participants in a youth bridge design contest. Young people between the ages of 5 and 18 received prizes donated by local businesses for winning entries in a contest sponsored by the *Hood River News*, *White Salmon Enterprise*, local cities and counties, and local businesses, including Da Kine, Discover Bicycles, Hood River Outfitters, the Hood River Department of Parks and Recreation, McDonalds, Pietro's Pizza and Walmart.
- Listened to a presentation about the project and participated in subsequent question and answer sessions.

Results included:

- Relatively few people made comments about specific elements of the alternative bridge designs. Most were concerned more with the location of the alternatives and related issues.
- Comments about crossing locations were related primarily to the East and City Center crossings. Several comments oppose the City Center location, while comments about the East corridor are mixed.
- The consultant team prepared a cable-stay bridge design concept to supplement those from the design workshop, for consideration. This alternative garnered the most comments which were split between highly favorable and strongly negative.
- Specific design features that received positive comments included the delta piers, haunched girders, open railings and arched span, with one person recommending a through-arch.

May 15, 2003

About 25 people attended a public event May 15, 2003 to discuss the project. The open house was announced in a newsletter distributed directly to about 500 people who have expressed an interest in the

project and/or attended previous events. It also was announced in news articles in the *Hood River News* and *White Salmon Enterprise*, as well as in press releases to local newspapers in the Dalles and Skamania County. Attendees participated in the following activities:

- Reviewed a preliminary evaluation of alternatives being evaluated as part of a DEIS.
- Reviewed a summary of the schedule and process for the DEIS.
- Listened to a presentation about the project, including a discussion of a proposed preliminary preferred alternative bridge crossing alignment, and participated in a subsequent question and answer session.
- Completed comment forms.

Results included:

- Most verbal and written comments were supportive of the preliminary preferred alternative bridge alignment recommended by the project team and advisory committee.
- Several people voiced concerns about the potential cost and process for demolishing the existing bridge if a new bridge is built.
- Other comments and questions focused on the schedule for design and construction of a new bridge and advantages and disadvantages of specific alternatives.
- Comments also were received on the financial impacts of tolls on Washington's businesses and commuters.

Stakeholder Interviews

Approximately 25 stakeholder interviews were conducted with a variety of community leaders and interest group representatives. Interviewees were asked to identify key issues, potential evaluation criteria and comments about specific preliminary crossing corridors. Summary results included the following.

Most frequently cited general issues identified by interviewees include:

- Safety problems with the existing bridge, related to narrow lanes and possible structural deficiencies.
- Economic impacts on local communities, port districts and the larger region.
- Freight movement for surrounding businesses.
- Transportation-related impacts on adjacent facilities.

- Historic and aesthetic impacts.
- Tolls should benefit bridge users and sunset when construction costs are paid.
- Social/local community needs are extremely important for people who use the bridge to get to work, shopping, entertainment, and other social activities.

Other issues cited once included impacts to adjacent landowners, the length and cost of the study, provision of transit service, effects on railroad and river traffic, and possible delays caused by construction of a new facility.

Interviewees made a variety of comments about alternative corridors.

- There were differing opinions about whether or not the existing location should be used for a new or improved crossing with some in favor and some not.
- Potential visual impacts of a high bridge were a significant concern.
- The east alternative could have impacts on Koberg State Park, Stanley Rock and the adjacent treaty fishing access site and railroad crossings.
- The west alternative could affect historic resources, including the Columbia Gorge Hotel and Historic Highway and may be the most inconvenient option for Washington residents.

Most interviewees frequently cited potential impacts of a new or improved facility including those on road traffic, river navigation, accessibility and mobility for local community residents and workers, and the collection and amount of tolls. Impacts on port districts, tourism revenues, emergency service provision, the Mt. Hood Railroad, land use, agriculture, pedestrian access, views and adjacent property also were cited. Interviewees thought the most important evaluation criteria were:

- Cost of the facility (entire cost, funding and costs per user).
- Effects on local communities.
- Scenic/aesthetic impacts.
- Economic impacts and benefits.
- Other criteria cited include safety, effects on natural resources, convenience, land use impacts, long-term usefulness, commercial vehicle use, alignment, property impacts and effects on businesses that may need to relocate.

Interviewees recommended several methods of informing and involving citizens in the study, including county newsletters, a web-based mailing list, community displays, contact with specific bridge users, and an open house conducted in Stevenson.

Project Newsletters

Regular newsletters are used to inform the public of project status and developments. The first newsletter was distributed as an insert in local newspapers. It described the background of the project, preliminary corridors identified for study, important issues and possible impacts associated with potential corridor crossings, and planned public involvement techniques and activities. The second newsletter described the results of a preliminary corridor and facility screening process, including evaluation criteria, results and recommendations, and upcoming public involvement activities. This newsletter was provided directly to approximately 350 people who have expressed an interest in the project and was made available through a variety of community meeting places, businesses and public buildings. A third newsletter described the results of an expanded initial corridor screening process and resulting Tier I recommendations. A fourth newsletter described alternatives recommended for further study, results of a public opinion survey about willingness to pay tolls and other financing mechanisms, and plans for a financial feasibility analysis. A fifth newsletter described results of evaluation of Tier II alternatives, a youth bridge design contest, and public involvement opportunities. A sixth newsletter described the status of the project, the DEIS process, alternatives evaluated in the DEIS, and upcoming public involvement activities.

Community Questionnaire

A community questionnaire was developed at the outset of the project to identify important issues and criteria for evaluating crossing corridors and alternatives. Questionnaires were included in the first project newsletter, which was distributed as an insert in local newspapers with a circulation of approximately 9,000 people. The questionnaire also was made available on the project web site and in a variety of community meeting places in Oregon and Washington. Summary results included:

- The majority (70 percent) of the respondents use the Hood River Bridge at least once a week.
- Respondents ranked safety, connection to adjacent highways, tolls, cost and financing, and economic impacts as the most important factors that should be considered in evaluating crossing alternatives.
- When asked about financing strategies, respondents said they would prefer for the bridge to be paid from existing resources such as grants (88 percent) and existing gas tax revenues (64 percent).

Approximately 47 percent considered toll revenue as a potential funding source. Local funding mechanisms received the least support.

- Respondents prefer to be kept informed of the study by direct mailings, media advertising, and public meetings.

Media Releases

Media notices to local newspapers and radio stations have been used to inform the public about the status of the project and invite them to attend in public and advisory committee meetings.

Community Group Presentations

Presentations have been made by project staff to the Klickitat County commissioners, White Salmon Rotary, Columbia River Gorge Windsurfing Association, Hood River Rotary, Columbia River Gorge Commission, and Skamania and Klickitat County Transportation Policy committees.

Additional Scoping Comments

A variety of comments were provided by the public via e-mail, mail and telephone during the scoping phase of the project. Comments addressed potential impacts on windsurfing; motorist, bicycle, and pedestrian safety crossing the existing Hood River Bridge and at the intersections of the approach road to the bridge; traffic congestion at the tollbooth and along the bridge access road; impacts on the local economy; impacts on the environment, including tribal fishing sites within the study area; and impacts of tolls on the local economy and financing of a new crossing. Other concerns cited were impacts of crossing corridors on the natural environment, park land, threatened or endangered species, land use (especially the Port of Hood River, downtown Bingen, and the Port of Klickitat), the CRGNSA, and specific local businesses or recreation areas.

Web Site

A web site has been developed and maintained for the project. Documents, such as technical reports, meeting minutes, and comment summaries of the NEPA scoping meeting/open house and other public meetings have been included on the web site and are available for review. Other documentation mentioned in Table 7-1 is also available in the administrative project record and is available at the offices of the Southwest Washington Regional Transportation Council. The web site can be found at <http://www.rtc.wa.gov/Studies/SR35>.

Tribal Coordination

Four Native American tribes may have an interest in the project: the Yakama Nation, the Confederated Tribes of the Warm Springs of Oregon, the Confederated Tribes of the Umatilla Indian Reservation, and the Nez Perce of Idaho. Several actions have been taken by the project team and FHWA to gain input and involve the tribes in decisions about the project, including sending project newsletters, initiating consultation, and coordinating through WSDOT and ODOT tribal liaisons. *FHWA sent letters to the tribes on December 19, 2001, to initiate tribal consultation.*

The project team has been working with the WSDOT Central Region's tribal liaison to share project information with and gather input from the Yakama Nation. Project Management Team members met on-site with the tribal liaison in March 2002, who then met in-person with the Southwest Region tribal coordinator. Tribal representatives from the Cultural Program and Fish and Wildlife Program conducted a field inspection visit in May 2002.

An ODOT liaison has made attempts to involve the Confederated Tribe of the Warm Springs, the Confederated Tribe of the Umatilla Indian Reservation, and the Nez Perce of Idaho.

Environmental Streamlining and Agency Coordination

Various activities have been undertaken to comply with NEPA (Table 7-2). A Notice of Intent to prepare an EIS for the project was published in the Federal Register and local newspapers on February 27, 2001. Agencies and the public had an opportunity to identify issues and concerns during a 30-day scoping period and at scoping meetings held during this period.

As a bi-state transportation project, the project invokes both the Washington NEPA/SEPA/404 Merger and the Oregon Collaborative Environmental and Transportation Agreement to Streamline (CETAS). Both processes are intended to streamline the environmental review process. Committees that comprise federal and state agencies are established to implement these processes. For the Washington NEPA/SEPA/404 Merger process, the Signatory Advisory Committee (SAC) includes representatives from FHWA, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and National Oceanic and Atmospheric Administration (NOAA) Fisheries, WSDOT, Washington State Department of Fish and Wildlife, and Washington State Department of Ecology. For the Oregon CETAS process, the committee includes the same federal agencies and ODOT, Oregon Department of Environmental Quality, Oregon Department of Fish and Wildlife, Oregon Department of Land Conservation and Development, Oregon Division of State Lands, and Oregon State Historic Preservation Office.

Concurrence from the SAC and CETAS agencies on the first two concurrence points was requested and obtained during Tier II. Copies of the Purpose and Need statement and Criteria for Alternatives Selection were provided to the agencies. Presentations have been made to both groups.

Concurrence on the DEIS alternatives has also been completed. Further coordination with the two groups has occurred as part of the EIS development and review. All agencies and the public will have an opportunity to review and comment on the DEIS. Substantive comments will be addressed in the Final EIS.

Table 7-2 NEPA Coordination Activities	
Date	Activity
February 27, 2001	Notice of Intent published in Federal Register
March 8, 2001	Resource/Regulatory Scoping Meeting
March 8, 2001	Public Open House Scoping Meeting
July – August 2001	Oregon CETAS and Washington SAC Concurrence on Purpose and Need Statement
December 2001 – April 2002	Oregon CETAS and Washington SAC Concurrence on Criteria for Selection of Alternatives
September 2002 – November 2002	Oregon CETAS and Washington SAC Concurrence on Alternatives to Evaluate in the EIS
March 2003 – May 2003	Environmental Technical Reports reviewed by RTC, ODOT, WSDOT, FHWA and Resource/Regulatory Agencies
July 2003 – November 2003	Preliminary DEIS reviewed by RTC, ODOT, WSDOT, FHWA, and Resource/Regulatory agencies
December 2003 – February 2004	Notice of Availability published in Federal Register DEIS circulated to public for 45 days Public Open House

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Appendices

DEIS

SR-35 - Columbia River Crossing

Appendix A - List of Preparers

Name	Organization	Education	Experience (years)	Area(s) of EIS Responsibility
Dale Robins	Southwest Washington Regional Transportation Council	M.S. and B.S. in Community and Regional Planning	15	Project Manger, Management Team
Faye Jenkins-Edwards	WSDOT, Southwest Region		28	Management Team
Michael Ray	ODOT, Region 1	MURP (Urban and Regional Planning), BS Geography	9	Management Team
T. Brent Baker	Parsons Brinckerhoff	M.A. Economics; B.A. Economics	16	Economic Impacts and Analysis; Financial Projections
Doug Corkran	Parsons Brinckerhoff	M.S. Environmental Planning; B.A. Biology	11	Soils and geology technical report
Angela Findley	Parsons Brinckerhoff	M.S. Forest Resources; B.A. Mathematics	11	Socioeconomics technical report; Oregon and Washington streamlining process; EIS document QA/QC
Peter Geiger	Parsons Brinckerhoff	M.Sc. Physics B.S. Physics	15	EIS Document QA/QC
Chuck Green, P.E.	Parsons Brinckerhoff	MSE (Civil), Certificate of Graduate Transportation Studies	22	Transportation, traffic, and consultant project manager
Jim Hencke	Parsons Brinckerhoff	B.S. Landscape Architecture	15	Visual resources technical report
Margaret W. (Peg) Johnson	Parsons Brinckerhoff	M.S. Economics B.A. English	25	Navigation Technical Report
Ginette Lalonde	Parsons Brinckerhoff	Bachelor of Applied Science in Civil Engineering	4	Air Quality technical report

Name	Organization	Education	Experience (years)	Area(s) of EIS Responsibility
Cynthia Lowe	Parsons Brinckerhoff	M.S. Civil Engineering; B.S. Ocean Engineering	8	Navigation
Scott Polzin	Parsons Brinckerhoff	B.S. Finance, MCRP (Master in Community and Regional Planning)	8	Land Use and Visual technical reports
Patrick Romero	Parsons Brinckerhoff	B.S. Environmental Science; M.S. Environmental Policy & Mgmt.	5	Hazardous materials technical report
Scott Smithline	Parsons Brinckerhoff	B.S. Environmental Science	5	Noise Technical Report
Lawrence Spurgeon	Parsons Brinckerhoff	MSE Environmental Engineering BS Industrial Engineering	10	Energy Air Quality and Noise Technical Review
Mike Traffalis, P.E.	Parsons Brinckerhoff	M.S.& B.S. Civil Engineering	15	Engineering Feasibility
Kristy Berg	Entranco	B.S. Biology	4	Vegetation and wetlands technical report
Karen Comings	Entranco	M.S. and B.S. in Civil and Environmental Engineering	5	Water quality technical report
Paul Korsmo	Entranco	M.S. Biology; B.A. Anthropology	23	EIS document preparation
Brad Thiele	Entranco	B.S. Biology	9	Fish and wildlife technical report
Arnold Cogan	Cogan Owens Cogan	BS in Civil Engineering, PE, Graduate studies in political science and planning	40	Public and Agency Involvement, including Committee Facilitation and Public Meetings
Matt Hastie	Cogan Owens Cogan	BS in Mechanical Engineering, MRP (Master in City and Regional Planning)	12 in planning; 3 in engineering	Public and Agency Involvement, including Committee Facilitation and Public Meetings, Informational Materials, Media Contacts

Appendix B – List of Agencies, Organizations, and Persons to Whom Copies of the EIS were Sent

Draft EIS Recipients

The following federal, state, and local agencies, tribes, organizations, and individuals have directly received copies of the Draft EIS.

Federal Agencies

National Oceanic and Atmospheric Administration Fisheries, Oregon
National Oceanic and Atmospheric Administration Fisheries, Washington
US Army Corps of Engineers, Portland District
US Army Corps of Engineers, Vancouver
US Bureau of Indian Affairs
US Coast Guard
US Department of the Interior
US Environmental Protection Agency, Portland
US Environmental Protection Agency, Seattle
US Forest Service
US Fish and Wildlife Service, Portland
US Fish and Wildlife Service, Spokane

Tribes

Confederated Tribes of the Umatilla Reservation
Confederated Tribes of Warm Springs
Nez Perce Tribe
Yakama Nation

State Agencies

Oregon Department of Environmental Quality
Oregon Department of Land Conservation and Development
Oregon Department of Water Resources
Oregon Division of State Lands
Oregon Department of Fish and Wildlife
Oregon Department of Parks and Recreation
Oregon State Historic Preservation Officer
Oregon Economic Development Department
Washington Department of Ecology
Washington Department of Fish and Wildlife
Washington Department of Natural Resources
Washington Office of Archaeology and Historic Preservation

Local Agencies

City of Hood River
Columbia River Gorge Commission
Hood River County Commissioners
Hood River County
Klickitat County Commissioners
Klickitat County Public Works

Mayor, City of Bingen
Mayor, City of White Salmon
Port of Hood River
Port of Klickitat Commissioners
Port of Skamania County
Skamania County Commissioners
Skamania County Public Works

Organizations

Columbia Gorge Audubon Society
Columbia River Tow Boat Association
Friends of Columbia River Gorge

Local Advisory and Steering Committee Members

Randy Anderson
Brian Carlson
Maria Dominguez
Cecil & Rose Anne Jaksha
Karl Kment
Tim Middaugh
Michael Morneault
Risa Wonsyld

Local Libraries

Hood River County Library
White Salmon Valley Community Library

Notice of Availability Recipients

The following federal, state, and local agencies, tribes, organizations, and individuals have been notified that the Draft EIS is available and instructions to access and review the document.

Elected Officials

Patty Murray, US Senator, Washington
Maria Cantwell, US Senator, Washington
Doc Hastings, US Representative, Washington
Brian Baird, US Representative, Washington
Ron Wyden, US Senator, Oregon
Gordon Smith, US Senator, Oregon
Greg Walden, US Representative, Oregon
Barbara Lisk, Washington State Representative
Bruce Chandler, Washington State Representative
Jim Honeyford, Washington State Senator
Patti Smith, Oregon Representative
Greg Smith, Oregon Representative
Ted Ferrioli, Oregon State Senator

Local Agencies

Commissioner, Skamania PUD #1
Resource Development, Klickitat Co.
Klickitat Co. Sr. Service
Mid-Columbia Economic Development District

Organizations/Businesses

AAA of Oregon
AAA of Washington
Bingen School Inn
Bridge RV Park
C & K Contracting Inc.
American West Steam Ship Company
Central Cascade Alliance BD Member
CGWA
CGWD
Columbia Gorge Windsurfing Association
Columbia Riverkeepers
DEA
DELMIA
Dir., HR Valley Res. Association
Discover Mortgage
Gorge Association, Inc.
Heidi's Gas & Deli
HiFly Windsurfing
HNTB Corporation
Hood River Chamber of Commerce
Hood River Growers & Shippers Association
Hood River Rotary Club
HRVRC
Hunsaker Oil Company
Klein & Associates
LUHR_JENSEN
Microsoft
Mt. Adams Chamber of Commerce
New Mexico Windsurfing Association
Oregon Trucking Association
Our Savior Lutheran Church
Owner Milestone Nursery
Columbia Gorge Windsurfing Association
Hood Tech Corporation
Hattenhauer Distributing Company
Riverside Farms
SDS Lumber
Skamania County Chamber of Commerce
The Logs Restaurant
Tidewater Barge Lines
Trainmaster, Burlington Northern
Underwood Fruit

Union Pacific
WA Trucking Association
Windermere/Glenn Taylor Real Estate
Windsurfing Hawaii
WindWriter Software, Inc.

Educational Organizations

College of the Gorge
Columbia High School
Education Service Dist. #112, Spec Ed Teacher
Education Service District #123
Marylhurst University
Whitson Elementary School
White Salmon Valley Schools

Media

Hood River News
Publisher, Skamania Co. Pioneer Newspaper
Q104 News The Dalles
Q104 Radio
The Enterprise

Citizens

Steve AcquaFresca
Maureen Milton
Alan Hickenbottom
Craig Albrecht
Brad Amer
David Anderson
Katy Archer
Frances Arnold
Pat Arnold
Thiller Bakke
John Banks
Stoner Bell
Susan Benedict
David Benton
Lars Bergstrom
Susan Bernhardt
Steven Berntsen
Joe Betzing
Jeff Bialer
Jennifer Bickford
Vickie Bigelon
Jeremy Bishop
Dave Bisset
Margaret Blankenship
Will Bloch
Anthony Boesen
Mark Bonanno

Vic & Mildred Boucher
Roy Brodehl
John Bronnan
Daniel Broschart
Kelly & Dave Brown
Debi Buchanan
Leisa Bulick
Betty Bullack
Joseph Burke
Burkhardt
David Burns
Brian Butler
Bonnie Calmettes
Jay Carroll
Tina Castanares
Robert Chamberlian
Kelly Chambers
Dan Charters
Roger Christal
Jay Clark
Todd Clay
Marc Cohn
Tad Connars
Carl Coolidge
Jeff Cooper
Sean Corcaran
Janet Corsale

John Crain
Jeff & Linda Creager
L.M. Crooks
Steve Curley
Norma Curtis
Juliana Cwzlin
Linda DeCarlo
John Deckert
Brian Dennis
Dave Denton
Jerry Ann Devlin
Dobrey
Mike Doke
John Dorsey
Barb Doscher
Mike Doye
Dyke & Tina Dye
Debbie Eaves
Robert Ehelebe
Patty Ellick
C Emmerson
Janet Essley
Tom Ewald
Jeanette Fentie
Michael Fick
Ken Fielding
Gary Fields
Carl Fies
Terrance Finstad, MD
Catherine Flick
K Folts
Roger Gadway
Addison Garlock
Debbie Garner
Robert Garwood
J Gehrman
Howard Getchell
Judy Gottschalk
Laura Green
Paul Grim
Alan Grinnell
Charles Grist
Grotte
Diana Grune
Jim Guthrie
Frank Haas
Jeff Haley
Hanson
John Hardham
CS & SR Harr
Dennis & JoAnn Harris

Wilton Hart
Sue Hartford
Chad Haugen
Heany
Joel Helmbigner
Nina Hendershot
Friederike Henderson
Don & Jean Hendrickson
Sharon Henricksen
Steve Higgins
George Hinderliter
Hinman
Nigel Hope
Hotchkiss
Woody Hoye
Jennifer Hull
Indermuehle
John Inglis
Jackson
Brad Jensen
Phil Jensen
Leslie Jitt
Maggie Johnson
Charlie Jones
Karen Joplin
Juanitas Fine Foods
Nancy Judy
Kate Karlson
Duane Karren
A Kasenga
Donna Kilber
Aaron Kilgore
Jim Klaas
James Klein
Marv & June Knudson
Matthew Koerner
Mike Kohicle
Jack Korri
Matt Kosmata
Patricia Kreiter
Christine Kreps
Lori Kreps
Dick Lamm
Vern Landgren
Ada & Larry Leonard
Dick Swart Lesley Lams
Craig Lester
Dale Lewis
Lichtenwald
Jenni Lott
Dana Love

Shannon Lucas
Sandi Lyons
Norberto Maahs
Ken Maddox
W Mansfield
Janet Warren Mark Schmidt
Chelsea Marr
Chris & Nancy Mason
Mary Peters Matt Swihart
David Maxwell
J.E. May
Richard McBee
John & Gail McCarthy
Brian McCavitt
Jeff McCaw
Sharon McCormack
Peter McDonald
Greg McGray
McKenzie
Camden & Dennis McMahn
Carl McNew
Meers
Sherry Meier
Peggy Menasco
Malhier Mescadal
Ward Miles
Jim Minick
Nancy Moller
Terri Moore
Warren Morgan
Jim Mudry
Bruce & Denise Muirhead
Dennis Mullen
Pat Murphy
Heidi & Lee Musgrave
Lori Nelson
Paul & Sally Newell
Linda & Ralph Niskanen
Nybroten
Ken Nylin
R Orolco
Nancy Paasch
Palmer
Chuck Parsons
Alan & Karen Patrick
Barry Paul
Norman Paul
William Paulsen
Dr. Helen Paulus
Eric Pelton
Debra Pennington-Davis

Jonh Holland Penny Paynter
Franklin Petersen
CC Pfister
Glenn Phillips
Jeffery Plummer
Aileen & Sam Pobanz
Dana Polson
Blair Posey
Ted Pravel
Mark Prussing
Beth & Bobby Puffin
Patrick Quigley
Rabledo
Gilbert Randall
Nancy Randall Arnold
Chantell Ray
Sally Reichmouth
Ronald Reynier
Dell Rhodes
Steve & Kim Rich
Shelley Richards
Terry Rogers
Cheramy Rovianek
Cindy Rovig
Bob Rueter
Penny Rutledge
Eric Sanders
Paul Sanstrum
Rebecca Schertenleib
Mike Schlangen
Michael Schock
Karl & Teresa Schuemann
Sonia Schuemann
Wade & Jody Seaborn
Robert Seemuth
Peter Shames
Philip Shaw
Melody Shellman
Brian Shepherd
Sherrells
C Shuster
Stan Smith
Elliot Solway
J. Springer
Curtis Stephenson
John Sterling
John Stockman
Kim Stolte
Bets Stover
John Strange
Meri Stratton

Mike Stroud
Bill Sullivan
Joe Sumoge
Pam Svendsen
Diane Swick
Dorothy Swyers
Darcy Tellock
Dave & Joy Temple
Barry Ternahan
Fred Thomas
Thomas
Suzanne Tibbott
Linda Toan
Celynn Van Deventor
Joe VanLeuven
Bart Vervloet

Bobbie Vieira
Jesus Villafana
Mary Ann Voegt
Marvin Wayne
Melinda Wellock
Jepson West
Elizabeth Whelan
William Whidden
Mark Williams
Rich Williams
Mark Wiltz
Julie Wyatt
Dale Young
Mark Zanmiller
Ann Zochler
Karmen Zorza

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Appendix C – References

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Appendix D – List of Acronyms

AASHTO	American Association of State Highway and Transportation Officials
BA	Biological Assessment
BIA	Bureau of Indian Affairs
BNSF	Burlington Northern Santa Fe
BMP	Best Management Practice
BTU	British Thermal Unit
CC&Rs	Conditions, Covenants, and Restrictions
CETAS	Collaborative Environmental and Transportation Agreement for Streamlining
CO	Carbon Monoxide
CRGNSA	Columbia River Gorge National Scenic Area
CZMA	Coastal Zone Management Act
DBA	A-Weighted Decibel
DEIS	Draft Environmental Impact Statement
DEQ	Department of Environmental Quality
DO	Dissolved Oxygen
Ecology	Washington State Department of Ecology
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FHWA	Federal Highway Administration
GMA	General Management Area
HAER	Historic American Engineering Record
HPA	Hydraulic Project Approval
ISA	Initial Site Assessments
LAC	Local Advisory Committee
Leq	Equivalent Sound Level
LOS	Level of Service
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NOAA	National Oceanic and Atmospheric Administration
NO _x	Oxides of Nitrogen
NPDES	National Pollutant Discharge Elimination System
NRCS	National Resources Conservation Services
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
OAR	Oregon Administrative Rules
OAHP	Office of Archaeology and Historic Preservation
ODEQ	Oregon Department of Environmental Quality
ODOT	Oregon Department of Transportation

ONHP	Oregon Natural Heritage Program
OPRD	Oregon Parks and Recreation Department
PM ₁₀	Particulate Matter [less than 10 micrometers in size]
RPD	Riverfront Planned District
RD	Riverfront District
RTC	Southwest Washington Regional Transportation Council
SC	Steering Committee
SMA	Special Management Area
SHPO	State Historic Preservation Officer
SPCC	Spill Control Containment and Countermeasures
SWCAA	Southwest Clean Air Agency
TEA-21	Transportation Equity Act for the 21 st Century
TESC	Temporary Erosion and Sediment Control
TSM	Transportation System Management
TSP	Transportation System Plan
USGS	United States Geological Service
UCR	Upper Columbia River
VMT	Vehicle miles traveled
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WSDOT	Washington State Department of Transportation
USFWS	U.S. Fish and Wildlife

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Yakama Indian Nation.....3-15, 3-23
Yellow-billed cuckoo3-35, 4-43

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