US 101 Elwha River Bridge Replacement
Environmental Assessment

Washington State Department of Transportation
Federal Highway Administration – Washington Division

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US 101 Elwha River Bridge Replacement

Clallam County, Washington

Environmental Assessment
Submitted pursuant to 42 U.S.C. 4332(2)(c)

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Acronyms

APE	Area of Potential Effect
BMP	Best Management Practice
CEQ	Council on Environmental Quality
DAHP	Department of Archeology and Historic Preservation
dbh	Diameter at breast height
DOI	Department of the Interior
EA	Environmental Assessment
EFH	Essential Fish Habitat
ESA	Endangered Species Act
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
HED	Highway Easement Deed
LEKT	Lower Elwha Klallam Tribe
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPS	National Park Service
NRHP	National Register of Historic Places
NSNSD	Natural Sounds and Night Skies Division
ONP	Olympic National Park
SR	State Route
T&E	Threatened and endangered species
USACE	U.S. Army Corps of Engineers
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation

Chapter 1: Background and Purpose and Need

1.1 Background

United States Highway 101 (US 101) is the main artery for travel between the eastern and western sides of the Olympic Peninsula. The highway extends from southern California to the Olympic Peninsula. The highway passes through Olympic National Park (ONP) along Lake Crescent and provides access to some of the more popular and heavily visited areas in the park and on the Olympic Peninsula. The alternate route between Port Angeles and Forks is State Routes (SR or SRs) 112 and 113. SR 112 between Port Angeles and the Makah Indian Reservation is designated as the Strait of Juan de Fuca Scenic Byway. Since US 101 is a through route, the road serves park visitors, commercial users, local commuter, and non-commuter traffic.

The existing US 101 Elwha River Bridge (MP 239.23 to 239.94) is a three-span concrete arch structure with two in-water piers. The current bridge has been undermined by changing river conditions and the original piers were not built into bedrock. The bridge is at risk, and is being monitored for structural failure. Authorized emergency scour repairs were made in October 2016 and July 2017.

1.2 Need and Purpose

1.2.1 Need

The over 90 year-old bridge is past the end of its original design service life. September of 2016, it was determined that the piers that support the existing bridge were being undermined due to changes in river conditions, and it was discovered that original piers were not built on a solid foundation of bedrock. Emergency stabilization of the piers occurred in October 2016 and July 2017, and ongoing bridge monitoring is being provided until long-term public safety needs can be ensured with a bridge replacement. Additionally, improving sight distance will increase overall safety performance of the intersection.

1.2.2 Purpose

The purpose of the project is to provide safe, long term access across the Elwha River on US 101, which provides the primary highway access for the communities and visitors on the Olympic Peninsula (Figure 1).

1.2.3 Cooperating Agencies and the Decision-Making Process

Washington State Department of Transportation (WSDOT) and the Federal Highway Administration (FHWA) are leading the project, and the National Park Service (NPS) is a cooperating agency. Maintenance of the US 101 Elwha River Bridge is the responsibility of WSDOT, but the NPS is responsible for managing the adjacent lands to the north and south of the bridge, which are designated by NPS as Elwha Project Lands. The NPS has jurisdiction over actions within the NPS boundary, and WSDOT has a prescriptive easement over this section of US 101 at the current Elwha River Bridge location. WSDOT, FHWA, and the NPS must consider the impacts of the bridge replacement project on the overall project area. If WSDOT and FHWA utilize Elwha Project Lands, a decision document with NPS as a signatory is needed. Once a decision document is completed, WSDOT and FHWA may apply for a Highway Easement Deed (HED) through the Department of the Interior (DOI) to construct on Elwha Project Lands.

Elwha Project Lands are properties owned by the National Park Service that are not intended or managed for public recreation.

This Environmental Assessment (EA), which evaluates impacts of the proposed project on natural, cultural and socioeconomic resources, and visitor use and experience and park operations, will be used to help the NPS Pacific West Regional Director, WSDOT, and FHWA, based on a recommendation from the Superintendent of Olympic National Park, make a decision about whether to approve development on Elwha Project Lands. The decision would be documented in the proposed Finding of No Significant Impact (FONSI) for this EA. Should the EA reveal significant impacts on park resources from the project, an Environmental Impact Statement and Record of Decision would be prepared.

Figure 1. Vicinity Map

Chapter 2: Alternatives

2.1 No Build Alternative

The US 101 Elwha River Bridge would remain open until monitoring determines it to be structurally unsound and not safe for the traveling public. WSDOT's current management strategy is to monitor bridge stability using remote sensing, visual structural inspections at a regular frequency, daily monitoring of river flows, and a rapid response plan to close the bridge and implement a temporary detour if needed. Should monitoring show movement beyond established thresholds, immediate bridge closure and implementation of a preplanned detour would occur. Further structural failure could possibly result in additional temporary bridge stabilization response measures. The scope and scale of these responsive measures cannot be fully envisioned in advance. Eventual controlled bridge removal would result in direct and cumulative effects as described under the Build Alternative throughout this document. Given that this bridge replacement proposal is being planned in response to emergent structural failure of the bridge, a traditional "No Build" scenario is not applicable. The current operational baseline is to manage and operate the structurally deficient bridge for as long as safely possible while planning and design efforts for an appropriate replacement proceed. No Build subsections in the resource impact section (Chapter 3) do not attempt to predict or describe impacts resulting from No Build activities such as a likely controlled bridge removal.

2.2 Build Alternative

The Build Alternative was chosen after a process that evaluated several alternatives. Alternatives considered but not selected are each briefly described in section 2.3. The Build Alternative involves the relocation and construction of the US 101 Elwha River Bridge over the Elwha River on NPS Elwha Project Lands, and realignment of US 101 at the turnoff for Olympic Hot Springs Road (Figure 2) to correct a curve with substandard geometrics and sight distance. WSDOT would build a new bridge on a new alignment just north of the existing bridge. The existing bridge would remain open to traffic during construction, assuming the current bridge remains structurally sound. Once construction

is completed, traffic would be shifted onto the new bridge and the old bridge would be removed. Construction is expected to take 2 years to complete.

Figure 2. Project Area Overview

Bridge Design

The existing bridge is a three-span concrete arch bridge. The bridge is founded on concrete abutments at each end, with two intermediate concrete solid wall piers founded on spread footings in the Elwha River channel. The replacement bridge would be a fixed-span concrete girder bridge founded on large diameter, cast-in-place concrete drilled shafts. The new bridge would be a three-span structure of approximately 300 feet total span length on a new highway alignment just downstream of the existing bridge (See Appendix F).

The bridge substructure would consist of four piers. Piers 1 and 4 are located at the west and east approach abutments, respectively, and Piers 2 and 3 are located within the Elwha River channel. The drilled shafts would be founded in bedrock and extend above the 100-year flood elevation. The bridge height over the normal high-water elevation would range from approximately 30 feet at Pier 1 to approximately 48 feet at Pier 4.

Site Preparation and Staging Areas

Land-based construction staging areas would be used for delivering and storing construction materials and equipment, contractor offices and storage trailers, and employee parking. The most suitable locations for these site preparation and staging areas are on the right bank of the Elwha River north of the existing bridge. A large gravel shoulder area along US 101 is also available. An existing gravel driveway into what was previously a resort area would likely serve as the primary construction access and as the staging area for most of the construction material. Construction staging areas could require grading or excavation to level the site and install drainage improvements, depending on site conditions. Drainage conveyance systems for the movement of stormwater from a collection point to an outfall may consist of drainage pipes and temporary stormwater facilities and may use gravity or pumps to move the stormwater.

Office trailers, placed on temporary foundations, would be connected to available utilities, including power and telephone as needed. Connecting to these utilities may

involve installing poles for power lines and excavating trenches for underground utility hookups. After construction is completed, the staging areas would be restored and the trailers would be disconnected from any utilities and removed.

Construction Staging and Access

Establishing access to the new bridge pier locations in the river channel would be the first element of work. Access would be gained by constructing temporary access pads in the river bed (Figure 3). These access pads would be constructed of large rock and be designed to withstand the entire range of river flows over the course of a typical year.

Pier and Superstructure Construction

After construction access has been established, pier construction for the new bridge would begin. Each bridge pier would be composed of two large-diameter drilled shafts. After the shaft excavation is completed, reinforcing steel and cast-in-place concrete would complete each pier foundation. Concrete bridge support columns would be constructed at Piers 2 and 3. Abutment Piers 1 and 4 would have cast-in-place concrete retaining walls around the north, south, and waterward sides of the shafts to complete the abutments. The bridge superstructure would be constructed on top of the support columns, typically with pier caps spanning across the top of the two columns to distribute the weight of the bridge. Precast girders would support a cast-in-place bridge deck.

Figure 3. Construction Access

Roadway Construction

The project would also involve the realignment of approximately 0.6 mile of US 101 roadway. This includes approximately 0.2 mile at the west approach and 0.4 mile at the east approach. The roadway improvements would include a new intersection with Olympic Hot Springs Road beginning about 400 feet east of its current location (See Figure 1). Roadway construction would involve excavation and embankment fill, temporary shoring, retaining wall construction, reconstruction of existing driveway accesses, and establishment of drainage features and stormwater treatment facilities.

Bridge Demolition

After traffic has been shifted to the new bridge, the existing bridge and remaining roadway sections would be demolished. Demolition would need to occur from above and below the bridge out into the Elwha River because of the configuration of the existing bridge. Overwater demolition would occur in two phases: the first phase involves demolishing arches 1 and 2 and Pier 6 from the left-bank side of the river; the second phase involves demolishing arch 3 and Pier 7 from the right-bank side of the river. A construction access pad is proposed in the river channel for each demolition phase. The demolition pads would provide for equipment access and a surface to drop and contain concrete debris for subsequent removal. Demolition access is depicted in Figure 4.

Figure 4. Demolition Access

For each demolition phase, a cofferdam, buttressed with riverbed material, would be constructed upstream of the existing bridge in the Elwha River channel, diverting river flow to isolate the work area. To accommodate streamflow while the diversion is in place, a channel would likely need to be excavated on the left bank side.

Once fish are removed from a work area, and it is dewatered, the demolition pad would be constructed behind the isolation dam, and demolition of the old bridge superstructure and foundations would begin. Fish removal would be done according to WSDOT Fish Exclusion Protocols and Standards (WSDOT 2017c). The process would be repeated for the remaining bridge portion. The demolition pad, isolation dam, and the construction access pad would be removed from the river following the bridge demolition and the river channel would be restored.

Roadway Demolition

The roadway approach sections on either side of the existing bridge abandoned by new highway alignment would be demolished. This work would likely consist of impact-breaking the roadway surface, then removing the asphalt and subgrade with heavy earth-moving machinery. Demolished roadway material would be hauled off site for disposal at an approved facility.

Restoration and Site Cleanup

The final elements of work consist of restoration of temporarily disturbed areas, site cleanup, and demobilization. Affected natural habitat and roadside vegetation would be revegetated with species similar to those removed. Restoration of disturbed areas would generally follow the standards contained in WSDOT's Standard Specifications (WSDOT 2021) for roadside restoration and WSDOT's Roadside Policy Manual (WSDOT 2015). This would generally include placing topsoil, compost, and soil amendments; planting specified native species; and adhering to weed control and plant establishment plans.

Stormwater Management

The new alignment and bridge configuration would result in an increase of impervious surface from 2.9 acres (existing) to 3.3 acres. WSDOT would construct water quality treatment facilities along new roadway segments in accordance with WSDOT's Highway Runoff Manual. Treatment options are expected to consist primarily of biofiltration BMPs such as vegetated filter strips, biofiltration swales, media filter drains, or bioswales.

Utilities

Utilities at the bridge include Clallam County Public Utilities District Power and Century Link Telecommunications. These utilities are suspended on an aerial crossing. As part of the Build Alternative, existing utilities will remain within the existing right of way by aerial spanning the river at or near the existing location.

2.3 Alternatives Considered but Dismissed

Additional alternatives addressing repair or replacement of the US 101 Elwha River Bridge were considered based on results of internal scoping by WSDOT and FHWA. These alternatives were not carried forward for detailed analysis because of high cost, high level of environmental impact, or because they would not meet the purpose or need. This section discusses those alternatives considered and why each was dismissed from further analysis. Public input on these alternatives is presented in Chapter 4.

2.3.1 New Bridge on Existing Alignment

This alternative involves only reconstruction of the US 101 Elwha River Bridge over the Elwha River in its current location. WSDOT would remove the Elwha River Bridge and build a new bridge at the same location. Existing traffic would be routed onto SRs 112/113 until construction completion. This alternative would take approximately 2 to 3 years to complete. It does not achieve the safety element of the purpose and need since it retains the dangerous horizontal alignment east of the bridge, and does not fix the safety issues at the intersection of US 101 and Olympic Hot Springs Road.

2.3.2 Replace U.S. Highway 101 with State Routes 112 and 113

Under this option, the Elwha River Bridge would be abandoned without plans to reopen or reconstruct the bridge. SR 112 and SR 113 would be improved to better accommodate the increased traffic volumes. Necessary detour upgrades would require 2 to 5 years to complete, with full upgrades of SR 112 and SR 113 to National Highway System standards requiring up to 10 years to complete. Permanent rerouting of US 101 traffic to SR 112 and SR 113 would require right-of-way permits, upgrades over multiple construction seasons, and intersection improvements. This alternative would lead to longer travel and emergency response times. The speed limit would need to be reduced due to the geometric design of the roads. The cost of eventual bridge removal would be approximately $1.2 million in addition to another approximately $95 million to bring SRs 112 and 113 up to National Highway System standards over 10 years. Utilities would require relocation. For all the above reasons, this alternative was not moved forward for further consideration.

2.3.3 Develop Alternate Highway West of State Road 112 Bridge

Under this alternative, WSDOT would construct a new two-lane highway on or near Eden Valley Road between US 101 and SR 112. The existing Elwha River Bridge would be used until the new route was complete, assuming the bridge remains structurally sound, after which the bridge would be removed and traffic would be routed onto the new highway. WSDOT would also upgrade existing US 101 and SR 112, including building new intersections, repaving, and adding safety features. This alternative would require the

purchase of a large amount of right-of-way. It would also extend emergency service response times and extend the commute between Forks and Port Angeles by 10-15 minutes. For these reasons, this alternative was not moved forward for further consideration.

2.3.4 Retrofit Existing Bridge

Under this alternative, WSDOT would retrofit the existing bridge and stabilize its foundation. Vehicles would continue to use the bridge, assuming the bridge remains structurally sound, with occasional single lane closures and detours onto SRs 112 and 113 until the project was complete. This alternative was dismissed as the existing bridge is over 90 years old and a new bridge would be required within 10-15 years. Future deck replacement within 5 years would cause significant traffic impacts, including a detour, during construction. Utilities would need to be relocated. This alternative does not improve the US 101 alignment or fix the safety issues at the intersection of US 101 and Olympic Hot Springs Road.

2.3.5 New Bridge on Parallel Alignment

Under this alternative, WSDOT would build a new bridge adjacent to the existing bridge rather than the Build Alternative's more northern alignment. The existing bridge would remain open to traffic during construction, assuming the bridge remains structurally sound. After construction was complete, traffic would be diverted onto the new bridge and the old bridge would be removed. Right-of-way permits would be required. This alternative would also require a permanent alignment shift onto the bridge making the curve at the end of the bridge sharper. Utilities would need to be relocated. For these reasons, this alternative was not moved forward.

Chapter 3: Affected Environment and Environmental Consequences

3.1 Introduction

Information in this section is derived from a comprehensive review of existing information pertaining to the project area. It includes information from the Olympic National Park General Management Plan (NPS 2008), the Elwha River Ecosystem Restoration/Final Environmental Impact Statement Elwha River Ecosystem Restoration (NPS 1996), various natural and cultural resources management plans, and other park planning documents. Information in this section has been gained from management, research, and analysis throughout the history of ONP. Methods used for the analysis are presented below and further explained under each impact topic.

Impact topics retained include geology and soils, vegetation, water resources, wetlands, fish, wildlife, threatened and endangered species, cultural resources, Section 4(f), visual resources, land use, transportation, public access, noise/soundscapes, environmental justice, greenhouse gases, and climate change. The impact topic of Section 6(f) of the Land and Water Conservation Fund Act must be considered for all U.S. Department of Transportation (USDOT) project. Section 6 (f) analysis is not included in this document because there are no Section 6(f) resources in the project area.

3.2 Methodology

The environmental consequences for each impact topic were defined based on the following information regarding context, type of impact, duration of impact, area of impact and the cumulative context. Unless otherwise stated in the resource section in *Environmental Consequences*, analysis is based on a q/ualitative assessment of impacts.

a. Context of Impact

The context is the setting within which impacts are analyzed – such as the project area or region, or for cultural resources – the area of potential effects (APE).

b. Type of Impact

The type of impact is a measure of whether the impact will improve or harm the resource and whether that harm occurs immediately or at some later point in time.

- **Beneficial:** Reduces or improves impact being discussed.
- **Adverse:** Increases or results in impact being discussed.
- **Direct:** Caused by and occurring at the same time and place as the action, including such impacts as animal and plant mortality, damage to cultural resources, etc.
- **Indirect:** Caused by the action, but occurring later in time at another place or to another resource, including changes in species composition, vegetation structure, range of wildlife, offsite erosion, or changes in general economic conditions tied to park activities.

c. Duration of Impact

Duration is a measure of the time period over which the effects of an impact persist. The duration of impacts evaluated in this EA may be one of the following:

- **Short-term:** Often quickly reversible and associated with a specific event, and lasting one to five years.
- **Long-term:** Reversible over a much longer period, or may occur continuously based on normal activity, or for more than five years.

Impact Analysis

Impacts on various resource topics are compared for each alternatives by describing qualitative or quantitative differences. Special Status Species and Cultural Resources impact determinations are formally determined under the Endangered Species Act (ESA) (Section 7) and the National Historic Preservation Act (NHPA) (Section 106), respectively. Section 4(f) of the Department of Transportation Act of 1966 requires that publically owned parks, recreation areas, wildlife and waterfowl refuges, or certain public or private historic sites be evaluated and avoided. In accordance with NPS *Management Policies 2006*, the analysis in this EA fulfills the responsibilities of the NPS under Section 106 of the NHPA.

3.3 Cumulative Impact Scenario

The Council on Environmental Quality (CEQ) describes a cumulative impact as follows (CEQ 2005):

> *A cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.*

Cumulative actions are evaluated in conjunction with the impacts of an alternative (including existing conditions) to determine if they have any additive effects on a particular resource. Because most of the cumulative projects are in the early planning stages, the evaluation of cumulative impacts was based on a general description of the project.

Past, Present, and Reasonably Foreseeable Future Actions in Olympic National Park and the Overall Project Area

Past Actions/Projects:

Elwha River Ecosystem and Fisheries Restoration/EIS *(Olympic National Park)*
The purpose of this project was to fully restore the Elwha River ecosystem and native anadromous fisheries through the removal of two hydroelectric dams and implementation of fisheries restoration and revegetation. Dam removal began in 2011, and the project was completed in 2014 with the removal of the Glines Canyon Dam (the Elwha Dam was removed in 2012). The Elwha River is free-flowing once again and access for migratory fish has been restored. The natural flow of sediment has also been reinstated and sand bars, estuary, and beaches at the river's mouth have been restored. While the ecosystem is recovering, the fluctuations in sediment and river channel migration have washed out portions of the floodplain and led to public and administrative access issues in the Elwha Valley.

WSDOT and FHWA Emergency Actions for the US 101 Elwha River Bridge

Emergency repairs completed in October 2016 and August 2017 were short-term responses to the conditions that necessitated the replacement of the existing bridge. In October 2016, WSDOT requested and received emergency authorization from NMFS, USFWS, WDFW, and the USACE to place 700 cubic yards of large rock around two bridge piers in the Elwha River. The objective of the work was to provide for the protection of the bridge against imminent catastrophic failure caused by the river undermining the piers. WSDOT determined that additional geotechnical investigation and scour protection was necessary. The results of hydraulic modeling and analysis indicate that at a velocity of 9 feet/second (equivalent to the 10-year storm event), the rock that was placed in October 2016 could move and additional scour could occur. Visual inspections confirmed that rock was displaced during high-flow events over the winter and that additional scour protection would be necessary to safeguard the bridge. Installation of the additional protection took place from August 28 to August 31, 2017.

Present Actions/Projects:

U.S. Highway 101 at Lake Crescent and East Beach Road Rehabilitation/EA *(Olympic National Park)*

This EA was finalized in August 2016 and implementation began in 2017. The purpose of this project is to rehabilitate 12.3 miles of US 101 adjacent to Lake Crescent and 4.0 miles of East Beach Road to address safety and long-term maintenance concerns. Rehabilitation actions include repair pavement deterioration and stabilize road shoulders, improve drainage, replace guardrail, conduct rockfall mitigation, improve Sledgehammer Point, construct Barnes Point transit stop, and modify turnouts along Lake Crescent. East Beach Road modifications have already been completed, and included new asphalt pavement surfacing, culvert improvement, replacement of nine culverts, and striping and signing. Actions applicable to both US 101 and East Beach Road include replace asphalt concrete paving, replace roadway signs, and conduct revegetation/restoration in disturbed areas. During the construction seasons, visitors and local commuter traffic experience regular 30-minute delays and have experienced longer delays.

Temporary Off-road Access for Geotechnical Investigation/EA *(WSDOT)*

Geotechnical investigation is required to inform the decision-making for the Olympic Hot Springs Road long-term planning project. Geotechnical investigations are being conducted off-road and within the road prism between the Madison Falls parking area and the Boulder Creek Trailhead parking area. There are approximately 22 off-road drilling sites and approximately 20 drilling sites within the roadway surface. The off-road investigations begin at about 800 feet north of the Sanders Creek temporary bridge and end at the Ranger Station. The road closure has impacted public use within the Elwha Valley due to no vehicle access to areas beyond the Madison Falls Trailhead and parking area. During drilling and monitoring activities, the road remains open to foot and bicycle traffic, as accessed via the Bypass Trail.

WSDOT Maintenance of US 101

WSDOT conducts routine maintenance activities on US 101. These activities include: repair pavement cracks and holes, restriping, ditch cleaning, sign repair or replacement, vegetation control, litter pickup, snow/ice management, and tasks associated with bridges, guardrails, and related structures, slide removal, repair of erosion damage, unplanned road closures, and removal of fallen trees. Construction activities include, but are not limited to, overlay, chip and seal, other resurfacing, reconstruction, and general rehabilitation.

Military, Commercial, and Private Overflights

Overflights of the project area by military, commercial, and private aircraft would occur for the duration of bridge construction activities. Most overflights are not low-level events, generally occurring between 10,000-35,000 feet above mean sea level. These flights may increase in number of aircraft and frequency of flights. Sound associated with overflights of new military aircraft may likely be louder in the future. Commercial overflights occur daily and at high levels (above 30,000 feet), where they could affect the acoustic environment over large distances but not at levels that would be highly disruptive to humans or wildlife. Private overflights occur less frequently and at the lower

range of the above-referenced elevations (closer to 10,000 feet), but generally have similar impacts as commercial flights. Military overflights occur less frequently than commercial flights, however, military jets are considerably louder than commercial jets and could thus be audible to visitors and wildlife over the project area.

Reasonably Foreseeable Future Actions:

DelHur Industries New Mining and Processing Area

The proposal would establish a 19.35 acre gravel pit on the northern portion of an approximately 30-acre parcel. The material will be extracted through the use of loaders, excavators, and trucks. The proposal would produce an estimated 750,000 cubic yards of material per year over a 10 to 20 year period, depending on demand. The project site is located about 700 feet north of US 101 and about 0.5 miles west of the Elwha River. This project is currently under environmental review.

Olympic Hot Springs Road Long-term Plan/EA *(Olympic National Park)*

The intent of this project is to improve the condition of the Olympic Hot Springs Road, enabling the roadway to be able to withstand periodic inundation, stabilizing the upper segment of roadway, and to reduce maintenance needs of the roadway while continuing to provide public access into the Elwha Valley. Rehabilitation activities typically include, but are not limited to: subsurface improvements, new pavement, fill slope stabilization, drainage improvements, guardrail improvements, ditch cleaning, and intersection improvements. Additionally, this project may relocate or armor approximately one mile of roadway that has been repeatedly damaged by floodwaters since the removal of the Glines Canyon Dam in 2014. During construction, the road would remain closed to vehicle use, but open to foot and bicycle traffic.

3.4 Affected Environment and Impact Analysis

3.4.1 Geology and Soils

The Elwha River Valley consists of a series of relatively narrow bedrock canyons and wide lower-gradient, flat alluvial sections. Surface deposits in the project area are dominated by glacial deposits and recent alluvium. The glacial sediments provide much

of the sediment transported by the Elwha River. Alpine glaciers, which extended at least as far as the southern end of Lake Aldwell (FERC 1993), carved out the wide bottom lands in weaker rock units, whereas canyons were formed in more resistant lithologies. The topography within the region was influenced by alpine glaciers flowing from the Olympic Mountains, and the Juan de Fuca lobe of the Vashon continental glacier, which covered the lower Elwha River (NPS 1996).

A sequence of alluvial, glacial, and non-glacial deposits comprises the unconsolidated hydrogeologic system in the lower Elwha River Basin, which includes the project area. The older glacial and non-glacial units were deposited first, covering the bedrock surface that slopes downward toward the north. The Elwha River Valley is cut into these deposits. Recently deposited alluvial sediment partially fills the valley floor. The width of the alluvium is restricted by relatively steep bedrock and glacial deposit bluffs (NPS 1996). There are no bedrock outcrops within the project area.

Soils in the vicinity are post-Pleistocene (less than 8,000 years old) and are developed either directly from glacial sediments, or on alluvium or colluvium derived primarily from glacial sediments. According to the Clallam Soil Survey (USDA 1979), Puget silt loam soil underlies the project area. This very deep, poorly drained soil is on low terraces and floodplains (slope of 0-3%). It has been artificially drained. Permeability is moderately slow. The available water capacity is high. The effective rooting depth is limited by a seasonal high water table that is at a depth of 4 to 6 feet from November through April. Runoff is medium, and the hazard of water erosion is slight. This soil is subject to occasional flooding for brief periods from December through March (USDA 1979).

Soil compaction has occurred in some parts of the project area due to human activity including the construction and maintenance of US 101. In these areas, runoff is moderate on poorly drained soils, and the capacity of the soil to support vegetation has been reduced.

Effects of the No Build Alternative on Soils

Under the No Build Alternative, the bridge would remain open until monitoring shows that it is no longer structurally sound. No efforts would be undertaken to fix, reconstruct, or remove the bridge. Therefore, the No Build Alternative would not have any direct adverse impacts on soils within the project area.

Cumulative effects of the No Build Alternative on Soils

Past, present, and reasonably foreseeable future actions, within and outside the project area would continue to contribute short- and long-term, adverse and beneficial impacts on soils. The regular maintenance of US 101 may have resulted in some soil disturbance and compaction and would continue to be minimal; a geotechnical investigation and potential rehabilitation or relocation of the Olympic Hot Springs Road would likely result in extensive soil disturbance and compaction in the foreseeable future within the Elwha Valley; and changing river conditions to more natural flows since dam removal have had beneficial impacts on soils and overall river ecology. There would be no additional impact to soils from the No Build Alternative and it would not add to the overall adverse cumulative effect on soils in the Elwha Valley.

Effects of the Build Alternative on Soils

Under the Build Alternative, the bridge would be reconstructed adjacent to its current location. Also, US 101 would be realigned at the turnoff for Olympic Hot Springs Road. The Build Alternative would have long-term direct, adverse impacts on soils due to new bridge construction, removal of the current bridge, and realignment of the turnoff onto Olympic Hot Springs Road. Construction ground-clearing activities would temporarily expose soils to erosive forces. Soil loss from erosion could affect surface water resources and associated habitat by adding suspended solids and increased turbidity into the Elwha River or Indian Creek at the confluence of the Elwha River. These impacts would be due to the removal and compaction of soils within both the WSDOT right-of-way, the riparian area, and on NPS Elwha Project Lands where the new bridge would be constructed.

Mitigation Measures

Consideration will be given to limiting earthwork operations to the drier times of the year when erosion potential is reduced. This can be accomplished by careful planning of construction staging and by the use of geometric covers. Potential for erosion during construction operations would be reduced by following the BMP's outlined in the Temporary Erosion and Sediment Control (TESC) Plan sections of WSDOT's Highway Runoff Manual and Environmental Manual.

Cumulative effects of the Build Alternative on Soils

The cumulative effects to soil resources are similar to those described in the No Build Alternative. Past, present, and reasonably foreseeable future actions have had and continue to have short- and long-term, adverse and beneficial effects on soils within the Elwha Valley. The proposed action would contribute a considerable increment to the overall long-term, adverse cumulative impact on soils.

Conclusion

No action would be taken under the No Build Alternative; therefore there would be no additional impacts on soils. This alternative would not contribute to the cumulative disturbance of soil resources when considered with other past, present, and reasonably foreseeable future actions. Implementation of the Build Alternative would result in direct, localized, long-term adverse impacts to soil resources. The Build Alternative would contribute a minor increment to the overall long-term, adverse, cumulative impacts on soils.

3.4.2 Vegetation

The project area is located within the western hemlock zone. This zone has the most extensive native vegetation type in western Washington and Oregon (Franklin and Dyrness 1988) and is characterized by a wet, mild, maritime climate with relatively dry summers. Throughout this zone, mature forest communities are characteristically dominated by western hemlock and Douglas-fir. Dominant understory species composition is shaped by different moisture regimes that reflect elevation, soil type, slope, and aspect, and ranges from scouring rush in wet areas, sword fern in transition zones, and Oregon grape in the driest sites.

Riparian vegetation in the project area is limited to the floodplain of the Elwha River and its tributaries. Composition and structure vary with the age of the floodplain surface; mature terraces may be dominated by large red alder or big-leaf maple; more recent surfaces have thick stands of younger alders and maples, sometimes mixed with Sitka willow, and the youngest surfaces have only herbaceous species such as riverbank lupine or annual grasses.

Exotic species are abundant because of the highly disturbed nature of the project area and its proximity to human developments. Scotch broom, Canada thistle, creeping buttercup, and reed canarygrass are the most widespread of the dozens of exotic species in the area. Threatened or endangered plants are not known to occur within the immediate vicinity of the project (WNHP 2017). *Whipplea modesta* (modesty) and *Montia diffusa* (spreading minor's lettuce), which are on the Washington State rare plant list, have been observed in the general area.

Effects of the No Build Alternative on Vegetation

Under the No Build Alternative, the bridge would remain open until monitoring shows that it is no longer structurally sound. No efforts would be undertaken to fix, reconstruct, or remove the bridge. Therefore, the No Build Alternative would not have any direct adverse impacts on vegetation within the project area.

Cumulative effects of the No Build Alternative on Vegetation

Past, present, and reasonably foreseeable future actions, within and outside the project area would continue to contribute short- and long-term, adverse and beneficial impacts on vegetation. The regular maintenance of US 101 may have resulted in some vegetation compaction or removal and would continue to be minimal; a geotechnical investigation and potential rehabilitation or relocation of the Olympic Hot Springs Road would likely result in extensive vegetation removal and compaction in the foreseeable future; and changing river conditions to more natural flows since dam removal have had beneficial impacts on vegetation and overall river ecology. There would be no additional impact to

vegetation from the No Build Alternative and it would not add to the overall adverse cumulative effect on vegetation in the Elwha Valley.

Effects of the Build Alternative on Vegetation

Under the Build Alternative, the bridge would be reconstructed north of its current location. Also, US 101 would be realigned at the turnoff for Olympic Hot Springs Road. The Build Alternative would have short- and long-term direct, adverse impacts on native vegetation due to new bridge construction, removal of the current bridge, and realignment of the turnoff onto Olympic Hot Springs Road. These impacts would be due to the removal of or damage to native vegetation within the WSDOT right-of-way, the riparian area, and on NPS Elwha Project Lands where the new bridge would be constructed.

The roughly nine acres of permanent vegetation impact have a species composition that is predominantly native. Tree survey data collected by WSDOT identify 461 trees within the clearing limits for the project. Of these, 199 are conifers between 4 and 30 inches diameter breast height (dbh), and 21 are trees (conifer or hardwood) greater than 30 inches dbh. Effected coniferous tree species include grand fir, western hemlock, Douglas-fir, and western red cedar. Effected deciduous tree species include big-leaf maple, red alder, and black cottonwood. Dominant understory species include salmonberry, salal, oceanspray, osoberry, black twinberry, Oregon-grape, twinberry, and swordfern. Herbaceous species include woodland strawberry, coltsfoot, waterleaf, yellow violet, yerba buena, inside-out-flower, and rosy twisted stalk.

Short-term effects would also occur outside of the construction footprint. These include areas designated to be temporarily affected by the staging of construction equipment, and areas within ten feet of cut and fill lines that are designated for clearing and grubbing.

Mitigation Measures

Temporary impact areas would be restored with native trees and shrubs appropriate for specific region and conditions of the site and per the WSDOT Roadside Manual and collaboration with the National Park Service. The vacated US 101 roadway would similarly be restored where project elements such as the realigned turnoff for the

Olympic Hot Springs Road or stormwater treatment facilities are not designated. A total of 5.14 acres of project area are designated for restoration with native vegetation as part of the Build Alternative.

Cumulative effects of the Build Alternative on Vegetation

The cumulative effects to vegetation are similar to those described in the No Build Alternative. Past, present, and reasonably foreseeable future actions within and outside the project area would continue to contribute short- and long-term, adverse and beneficial impacts on vegetation. The proposed action would contribute a considerable increment to the cumulative adverse effects from the removal of vegetation.

Conclusion

No action would be taken under the No Build Alternative; therefore there would be no additional impacts on vegetation. This alternative would not contribute to the cumulative disturbance of vegetation when considered with other past, present, and reasonably foreseeable future actions. Implementation of the Build Alternative would result in short- and long-term, localized, adverse effects on vegetation. The Build Alternative, in combination with the impacts of other past, present, and reasonably foreseeable future actions, would contribute a considerable increment to the short- and long-term, adverse cumulative effects on vegetation.

3.4.3 Water Resources

Water sources are typically subdivided into two types: surface water and groundwater. Surface water resources are essential to maintaining human health, fish, wildlife habitat, and vegetation. Groundwater resources serve as underground storage of freshwater that can be used for drinking, irrigation, recharge areas, and general water supply. Floodplains are related water resource areas where surface water inundates low-lying ground during a flood event. Groundwater and floodplain resources would not be effected by either project alternative and are not further discussed in this EA. A discussion of existing surface water resources and potential project effects on those resources follows.

The project is located in Water Resource Inventory Area (WRIA) 18 Elwha/Dungeness which drains north to the Strait of Juan de Fuca. The study area for surface water encompasses the immediate project vicinity as well as the downstream receiving water bodies in WRIA 18. The Elwha River is 45 miles long, has 100 miles of tributaries and streams, and drains 321 square miles of the Olympic Peninsula. Eighty-three percent of the drainage lies within ONP, comprising 20% of the total park area. The river and its tributaries are classified by the Washington Department of Ecology (Ecology) as Class AA waters, signifying "extraordinary" quality.

Overall, the Elwha River has relatively low concentrations of dissolved and suspended sediment loads, nutrients, and organics. Changes in natural water quality occur in the lower part of the watershed, mostly as a result of elevated water temperatures during the summer. Turbidity of the lower river is related to flood flows, logging, agricultural practices, and bank erosion. In addition to the Elwha River, Indian Creek is the other surface water resource in the immediate project vicinity, its confluence with the Elwha River is just northwest of the existing bridge. Indian Creek drains Lake Sutherland and flows through an area of second growth timber and intermittent farmland.

Effects of the No Build Alternative on Surface Water

Under the No Build Alternative, the bridge would remain open until monitoring shows that it is no longer structurally sound. No efforts would be undertaken to fix, reconstruct, or remove the bridge. Therefore, the No Build Alternative would not have any direct adverse impacts on surface water within the project area.

Cumulative effects of the No Build Alternative on Surface Water

Past, present, and reasonably foreseeable future actions, within and outside the project area would continue to contribute short- and long-term, adverse and beneficial impacts on surface water. The regular maintenance of, as well as regular commercial and private vehicle use on, US 101 may have resulted in some surface water contamination from stormwater runoff and motor vehicle pollutants and would continue to be minimal; potential rehabilitation or relocation of the Olympic Hot Springs Road may result in some sedimentation and contamination from stormwater runoff, and construction or passenger

vehicle pollutants in the foreseeable future; and changing river conditions to more natural flows since dam removal have had beneficial impacts on surface water quality, quantity, and overall river ecology. There would be no additional impact to surface water from the No Build Alternative and it would not add to the overall adverse cumulative effect on surface water within the Elwha Valley.

Effects of the Build Alternative on Surface Water

Short-term effects: Based on the preliminary hydraulic model results, there may be temporary erosion/scour of the Elwha riverbed and potential for temporary bed coarsening due to the modeled flows assessed during the construction phases. Potential substrate and sediment changes through the project site are dependent on many factors, but are largely a function of the flows which may occur during the timeframes for each construction phase. Such effects are natural processes that may occur at the same magnitude during a larger flow event under existing conditions.

Potential scour and/or deposition at the confluence of Indian Creek is also dependent on many factors. It is, however, largely a function of the flows which may occur during the timeframes for each construction phase. Nine different scenarios were modeled and presented in the project's preliminary hydraulic report. Analysis indicates that there should not be a significant increase in scour or deposition occurring at the Indian Creek-Elwha River confluence beyond existing conditions.

The greatest geographical extent of water quality effects in the Elwha River is conservatively estimated to be 2,400 feet downstream from the existing bridge. The geographical extent of water quality effects also includes the lower reaches of Indian Creek, downstream of the stormwater discharge point in that stream. Such areas would also be affected by riparian clearing for construction access. Construction ground-clearing activities would temporarily expose soils to erosive forces. Soil loss from erosion could affect surface water resources and associated fish habitat by adding suspended solids and increased turbidity into the Elwha River or Indian Creek.

Spills or leaks of hazardous materials could occur within the project limits where construction equipment is parked, used, fueled, or maintained; or where hazardous materials are stored. In addition, concrete leachate may be generated during roadway and bridge construction. If these substances enter the Elwha River, they may degrade water quality, resulting in negative impacts on aquatic resources, including fish and the species upon which they feed.

Long-term effects: The potential for lateral migration of the Elwha River was considered for the Build Alternative. WSDOT will monitor channel movement towards the southwest side of US 101, no scour countermeasure is anticipated for construction of the new US 101 bridge in this location. The east abutment is outside of the 100-year flood inundation limits and would be designed on bedrock. Lateral river migration to the east should not be a concern. If further analysis suggests potential for lateral river migration to the west, a properly designed scour countermeasure would be constructed to minimize any future need to address scour of the roadway.

Based on preliminary hydraulic modeling, the Build Alternative should not have notable effects on natural river processes. The bridge abutments are located outside the 100-year floodplain and the two in-water piers are located on the current channel boundaries where velocities are lower than the main channel. The in-water piers would be designed to account for total scour and therefore would not require any rock armoring now or in the future. The proposed bridge would be designed to allow for the Elwha River channel to adjust both laterally and vertically and allow the natural movement of water, sediment, and wood.

Mitigation Measures

Water quality effects would be limited by the use of Best Management Practices (BMPs) which would be outlined in the contract specifications for the project. The project would maintain compliance with state water regulations in WAC 173-201A and with ESA Section 7 consultation terms and conditions. Despite BMPs, in-water construction would generate suspended sediment and turbidity effects. WSDOT would request from Ecology a short-term modification to the prescriptive water quality standards for turbidity

pursuant to WAC 173-201A-410 to authorize a point of compliance 1,500 ft downstream of construction activities.

New pollutant generating impervious surface (PGIS) would be constructed as part of this project. This would be off-set to a large extent by the removal of area associated with the existing bridge and approaches. Before project completion, WSDOT would install water quality treatment facilities along new roadway segments and construct conveyance structures to carry stormwater to planned discharge points. Stormwater would sheetflow off the roadway into roadside swales, ditches, and strips, where runoff treatment methods would be installed. Cross culverts would be used where needed to convey water across the roadway. Stormwater treatment options are expected to consist primarily of biofiltration BMPs such as vegetated filter strips, biofiltration swales, media filter drains, or bioswales. Since stormwater treatment is not currently provided along this portion of US 101, the project would provide a long-term benefit to water quality through treatment of stormwater runoff.

Cumulative effects of the Build Alternative on Surface Water

The cumulative effects to surface water are similar to those described in the Build Alternative. Past, present, and reasonably foreseeable future actions within and outside the project area would continue to contribute short- and long-term, adverse and beneficial impacts on surface water. The proposed action would contribute a short-term increment to the cumulative adverse effects during construction activities due to water diversion that may affect natural and ecological processes, sedimentation from exposed soils, and the potential for spills or leaks from construction equipment. However, with the installment of a stormwater treatment system, the project would add to the long-term beneficial effects.

Conclusion

No action would be taken under the No Build Alternative; therefore there would be no additional impacts on water quality. This alternative would not contribute to the cumulative disturbance of surface water when considered with other past, present, and reasonably foreseeable future actions. Implementation of the Build Alternative would

result in short- and long-term, localized, adverse effects on surface water. The Build Alternative, in combination with the impacts of other past, present, and reasonably foreseeable future actions, would contribute incrementally to the short-term adverse and long-term beneficial cumulative effects on surface water. The project would provide a long-term benefit to water quality through treatment of stormwater runoff.

3.4.4 Wetlands

Wetlands are areas where water is present at or near the ground surface either all year or for varying periods of time during the year. Wetlands are important because they provide essential functions and also help protect human communities. Wetlands improve water quality in streams, rivers, and lakes by filtering pollutants, they protect neighboring areas by retaining flood waters, and they often recharge groundwater. Wetlands provide fish and wildlife habitat, and host a wider variety of plant and animal species than other land types.

Wetlands are categorized into four categories. Category 1 wetlands are the highest quality and Category 4 wetlands are the lowest quality.

Two Ecology Category II wetlands were identified in the project area. Both identified wetlands support a wide array of functions across the three broad categories of functions (Water Quality, Hydrologic, Habitat). Wetland A is a large riverine wetland west and south of the existing Elwha River Bridge. Hydrology (sources of water for these wetlands) is provided primarily by groundwater and overbank flooding. Wetland B is a small riverine wetland flanking both sides of a tributary to Indian Creek north and west of the US 101 Elwha River Bridge. Sources of water for Wetland B include primarily groundwater and overbank flooding from the stream. The locations of Wetlands A and B are shown in Figure 5.

Figure 5. Wetland Location Map

Effects of the No Build Alternative on Wetlands

The No Build Alternative would have no impacts on wetlands and wetland buffers since no actions are proposed under this alternative, work would not occur within wetlands or their buffers identified in the project area.

Cumulative effects of the No Build Alternative on Wetlands

Past, present, and reasonably foreseeable future actions, within and outside the project area would continue to contribute short- and long-term, adverse and beneficial impacts on wetlands. The regular maintenance of, as well as regular commercial and private vehicle use on, US 101 may have resulted in some wetland contamination from stormwater runoff and motor vehicle pollutants and would continue to be minimal; potential rehabilitation or relocation of the Olympic Hot Springs Road may result in some impacts on wetlands from sedimentation and contamination from stormwater runoff, and construction or passenger vehicle pollutants in the foreseeable future; and changing river conditions to more natural flows since dam removal have had beneficial impacts on wetlands and overall river ecology. There would be no additional impact to wetlands from the No Build Alternative and it would not add to the overall adverse cumulative effect on wetlands within the Elwha Valley.

Effects of the Build Alternative on Wetlands

Although direct impacts to Wetland A and B have been completely avoided, impacts to the buffers of each wetland remain. Permanent wetland buffer impacts to Wetland A and B are estimated to be 0.38 and 0.43 respectively.

Mitigation Measures:

The most substantial avoidance and minimization measure implemented was to locate the bridge alignment to the north of the existing bridge. Early conceptual design alternatives included bridge alignments to the south of the existing bridge. Southern alignments would have included substantial impacts to Wetland A or other wetlands further to the south. Wetland avoidance and minimization was a primary consideration involved in selecting an alignment alternative to the north. A proposed temporary construction access road near Wetland A was also situated north of Wetland A to avoid direct impacts. Direct impacts to Wetland B were avoided by merging the proposed highway alignment with existing US 101 to the east of Wetland B (Figure 5).

Cumulative effects of the Build Alternative on Wetlands

The cumulative effects to wetlands are similar to those described in the No Build Alternative. Past, present, and reasonably foreseeable future actions within and outside the project area would continue to contribute short- and long-term, adverse and beneficial impacts on wetlands. The proposed action would contribute a short-term increment to the cumulative adverse effects during construction activities due to water diversion that may affect natural and ecological processes in wetlands, sedimentation in wetlands from exposed soils, and the potential for spills or leaks from construction equipment. However, with the installment of a stormwater treatment system, the project would add to the long-term beneficial effects. These collective actions have resulted in wetland resources that are likely still fewer and more static compared to historic conditions. The project, which includes no direct impacts to wetlands and a total of 0.81 acre of impact to the buffers of Wetlands A and B, does not meaningfully contribute to cumulative effects on the overall resource. In combination with the impacts of other past, present, and reasonably foreseeable future actions, long-term adverse cumulative effects on wetlands would result from the impacts to the buffers of Wetland A and B.

Conclusion

No action would be taken under the No Build Alternative; therefore there would be no additional impacts on wetlands. This alternative would not contribute to the cumulative disturbance of wetlands when considered with other past, present, and reasonably foreseeable future actions. Implementation of the Build Alternative would result in indirect, long-term, localized, adverse effects on wetlands. There would be a long-term localized beneficial effect from the project with a greater distance and buffer between the new bridge and Wetland A. The Build Alternative, in combination with the impacts of other past, present, and reasonably foreseeable future actions, would contribute incrementally to the short- and long-term, adverse and beneficial cumulative effects on wetlands.

3.4.5 Fish

Ten stocks of anadromous salmon and trout are either now present in the Elwha River or were known to be present before the dams were built. They are winter and summer Puget Sound steelhead trout (*Oncorhynchus mykiss*); coho (*Oncorhynchus kisutch*); summer/fall

and spring Puget Sound Chinook (*Oncorhynchus tshawytscha*); pink (*Oncorhynchus gorbuscha*), chum (*Oncorhynchus keta*), and sockeye (*Oncorhynchus nerka*) salmon; cutthroat trout (*Oncorhynchus clarkia*); and native char (Dolly Varden (*Salvelinus malma*) and bull trout (*Salvelinus confluentus*). Pacific (*Lampetra tridentate*) and brook (*Lampetra richardsoni*) lamprey have also been documented in the Elwha River. In addition to these anadromous species, the Elwha River harbors many other species of non-migrating fish (e.g., sculpins, resident cutthroat). The Elwha River is currently the largest producer of steelhead and Chinook salmon on the Strait of Juan de Fuca and is second only to the Dungeness River for coho. Nearly all Chinook, coho, and steelhead are hatchery-produced.

Federally threatened fish species under the Endangered Species Act (ESA) include the Puget Sound Chinook, Puget Sound steelhead, eulachon, and bull trout. Also, Puget Sound Chinook, coho, and pink salmon are federally listed species under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). Impacts to these fish species, critical habitat, and essential fish habitat are analyzed in the Biological Assessment dated September 2017 and are addressed in the Threatened and Endangered Species section within this chapter.

This section focuses on coho, chum, and sockeye salmon; cutthroat trout; Pacific and brook lamprey; and other non-listed fish species. The one known Dolly Varden population in the Elwha watershed is located in Boulder Creek above an anadromous barrier, therefore Dolly Varden would not be affected by this project.

Effects of the No Build Alternative on Fish

Under the No Build Alternative, the bridge would remain open until monitoring shows it is no longer structurally sound. No efforts would be undertaken to fix, reconstruct, or remove the bridge. Therefore, the No Build Alternative would not have any direct adverse impacts on fish within the project area.

Cumulative effects of the No Build Alternative on Fish

Past, present, and reasonably foreseeable future actions, within and outside the project area would continue to contribute short- and long-term, adverse and beneficial impacts on fish and fish habitat. The regular maintenance of, as well as regular commercial and private vehicle use on, US 101 may have resulted in some contamination from stormwater runoff and motor vehicle pollutants and would continue to be minimal; potential rehabilitation or relocation of the Olympic Hot Springs Road may result in some impacts from sedimentation and contamination from stormwater runoff, and construction or passenger vehicle pollutants in the foreseeable future; and changing river conditions to more natural flows since dam removal have had beneficial impacts on fish, fish habitat, and overall river ecology. There would be no additional impacts to fish or fish habitat from the No Build Alternative and it would not add to the overall adverse cumulative effect on fish or fish habitat within the Elwha Valley.

Effects of the Build Alternative on Fish

Under the Build Alternative, the bridge would be reconstructed adjacent to its current location. Also, US 101 would be realigned at the turnoff for Olympic Hot Springs Road. The Build Alternative would have short-term direct, adverse impacts on fish and fish habitat during new bridge construction, the removal of the current bridge, and realignment of the turnoff onto Olympic Hot Springs Road. Fish may be disrupted and displaced due to noise generated from the use of heavy equipment, concrete saws, and other construction equipment; as well as from in-water work. Fish habitat may also be removed or damaged during construction of the new bridge, demolition of the current bridge, and through any sedimentation from the realignment of the highway and clearing for bridge development. Spills or leaks of hazardous materials could occur within the project limits where construction equipment is parked, used, fueled, or maintained; or where hazardous materials are stored. In addition, concrete leachate may be generated during roadway and bridge construction. If these substances enter the Elwha River, they may degrade water quality, resulting in adverse impacts on aquatic resources, including fish and the species upon which they feed.

Mitigation Measures:

The project Biological Assessment (Section 1.4) (WSDOT 2017a) prescribes numerous specific impact avoidance and minimization measures pertaining to fish species. These include species specific measures, general impact avoidance and minimization, BMP's to reduce the risk of delivering sediment to waterbodies, BMP's to reduce the risk of introducing pollutants to waterbodies, and BMP's for in-channel construction (e.g. restricting work to approved "in-water work windows"). Additionally, project activities will fully comply with the Hydraulic Project Approvals (HPAs) issued for the project by WDFW.

In addition, to mitigate for in-stream impacts the project will install engineered log jams to improve habitat for aquatic species and improve river dynamics by minimizing erosion and potential for unscheduled bridge maintenance . The location and configuration of this mitigation is being developed in coordination with the LEKT. A preliminary layout of engineered log jam arrays both upstream and downstream of the highway crossing has been identified (Figure 6) and will proceed to final design and permitting for inclusion in bridge construction. Water quality mitigation measures specified under the Water Resources section would also apply here with impact mitigating benefits to fish species.

Figure 6. Conceptual Engineered Log Jam Placement

Cumulative effects of the Build Alternative on Fish

The cumulative effects to fish and fish habitat are similar to those described in the No Build Alternative. Past, present, and reasonably foreseeable future actions within and outside the project area would continue to contribute short- and long-term, adverse and beneficial impacts on fish and fish habitat. The proposed action would contribute a short-term increment to the cumulative adverse effects during construction activities due to water diversion that may affect natural and ecological processes, sedimentation from exposed soils, and the potential for spills or leaks from construction equipment. However, with the installment of a stormwater treatment system, the project would add to the long-term beneficial effects. In combination with the impacts of other past, present, and

reasonably foreseeable future actions, there would be long-term adverse cumulative effects on fish and fish habitat.

Conclusion

No action would be taken under the No Build Alternative; therefore there would be no additional impacts on fish or fish habitat. This alternative would not contribute to the cumulative disturbance of fish or fish habitat when considered with other past, present, and reasonably foreseeable future actions. Implementation of the Build Alternative would result in short- and long-term, localized, adverse effects on fish and fish habitat. The Build Alternative, in combination with the impacts of other past, present, and reasonably foreseeable future actions, would contribute incrementally to the short- and long-term, adverse and beneficial cumulative effects on fish and fish habitat.

3.4.6 Wildlife and Wildlife Habitat

Large and small mammals have been observed or are known to occur in the project area. Mammal species include Columbian black-tailed deer (*Odocoileus hemionus columbianus*), Roosevelt elk (*Cervus canadensis roosevelti*), beaver (genus *Castor*), river otter (*Lontra Canadensis*), coyote (*Canis latrans*), bear (*Ursus americanus*), cougar (*Puma concolor*), weasels (genus *Mustela*), mink (*Neovison vison*), and several species of bats. Numerous bird species also use the area, including robins (*Turdus migratorius*), red-tailed hawks (*Buteo jamaicensis*), western flycatchers (*Empidonax difficilis/occidentalis*), ducks, great blue herons (*Ardea Herodias*), hooded mergansers (*Lophodytes cucullatus*), pileated woodpeckers (*Dryocopus pileatus*), gulls (genus *Larus*), cormorants, ruffed (*Bonasa umbellus*) and blue (genus *Dendragapus*) grouse, mountain chickadees (*Poecile gambeli*), great horned owls (*Bubo virginianus*), and western screech owls (*Megascops kennicottii*). Common reptiles in the project area include the northwestern garter snake (*Thamnophis ordinoides*), common garter snake (*Thamnophis sirtalis*), northern alligator lizard (*Elgaria coerulea*), roughskin newts (*Taricha granulosa*), and Pacific chorus frog (*Pseudacris regilla*).

Effects of the No Build Alternative on Wildlife and Wildlife Habitat

Under the No Build Alternative, no action would be taken, therefore, the No Build Alternative would not have any direct adverse or beneficial impacts on wildlife and wildlife habitat within the project area. However, there may be indirect, long-term, beneficial impacts to wildlife and wildlife habitat associated with the eventual closure of the bridge to include reduced noise, visual, and human disturbance in the project area. Traffic along this corridor would be reduced to passenger vehicles accessing the Elwha Valley on the Olympic Hot Springs Road, although the greater volume of traffic noise, to include logging trucks, would be shifted to SRs 112 and 113.

Cumulative effects of the No Build Alternative on Wildlife and Wildlife Habitat

Past, present, and reasonably foreseeable future actions, within and outside the project area would continue to contribute short- and long-term, adverse and beneficial impacts on wildlife and wildlife habitat. The regular maintenance of, as well as regular commercial and private vehicle use on, US 101 may have resulted in some disturbance to wildlife and would continue to be minimal; geotechnical investigation and potential rehabilitation or relocation of the Olympic Hot Springs Road may result in impacts to wildlife from noise and increased human presence during construction, and potential habitat loss or degradation in the foreseeable future; and changing river conditions to more natural flows since dam removal have had beneficial impacts on wildlife and wildlife habitat as well as overall ecosystem restoration. There would be no additional direct impacts to wildlife or wildlife habitat from the No Build Alternative, though this alternative may have indirect beneficial impacts to wildlife. The indirect beneficial impacts from the No Build Alternative may add a small increment to the beneficial cumulative effect on wildlife or wildlife habitat within the Elwha Valley.

Effects of the Build Alternative on Wildlife and Wildlife Habitat

Under the Build Alternative, the bridge would be reconstructed adjacent to its current location. Also, US 101 would be realigned at the turnoff for Olympic Hot Springs Road. The Build Alternative would have short-term direct, adverse impacts on wildlife and wildlife habitat during new bridge construction, the removal of the current bridge, and realignment of the turnoff onto Olympic Hot Springs Road. Wildlife may be disrupted and displaced due to noise generated from the use of heavy equipment, concrete saws,

jackhammers, and increased human presence and subsequent conversations occurring over traffic and construction noise. Onsite wildlife habitat would be removed or damaged during construction of the new bridge, demolition of the current bridge, and through the realignment of the highway. There may also be short-term, adverse impacts on wildlife along SRs 112 and 113 as traffic could be diverted to this route until construction is complete, if the current bridge does not remain structurally sound to support vehicle use while the new bridge is being developed.

Mitigation Measures:

Wildlife habitat effected by temporary construction impacts would be restored through native tree and shrub plantings as described in the Vegetation section of this chapter. Portions of the vacated roadway would be similarly restored. Noise abatement that would mitigate impacts to wildlife during project construction is described in the Noise section of this chapter.

Cumulative effects of the Build Alternative on Wildlife and Wildlife Habitat

Past, present, and reasonably foreseeable future actions within and outside the project area would continue to contribute short- and long-term, adverse and beneficial impacts on wildlife and wildlife habitat. The proposed action would contribute short- and long-term increments to the cumulative adverse effects during construction activities due to displacement and disturbance from noise generated from construction equipment and increased human presence or the potential shifting of heavy through-traffic noise to a new route, as well as from habitat damage or removal. Changing river conditions to more natural flows since dam removal have had beneficial impacts on wildlife and wildlife habitat as well as overall ecosystem restoration. In combination with the impacts of other past, present, and reasonably foreseeable future actions, there would be short- and long-term adverse cumulative effects on wildlife and wildlife habitat.

Conclusion

No action would be taken under the No Build Alternative; therefore there would be no additional direct impacts on wildlife or wildlife habitat. This alternative may contribute a

small, indirect increment to the beneficial cumulative effect on wildlife or wildlife habitat when considered with other past, present, and reasonably foreseeable future actions. Implementation of the Build Alternative would result in short- and long-term, localized, adverse effects on wildlife and wildlife habitat. The Build Alternative, in combination with the impacts of other past, present, and reasonably foreseeable future actions, would contribute a small increment to the short- and long-term, adverse cumulative effects on wildlife and wildlife habitat.

3.4.7 Threatened and Endangered Species

The Endangered Species Act (ESA), NPS *Management Policies 2006*, NEPA, and applicable regulations require the analysis of potential impacts on special-status species (federal or state endangered, threatened, candidate, or species of concern). Such analysis was completed in the project Biological Assessment (WSDOT 2017a). Additionally, according to section 4.4.2.3 of NPS *Management Policies 2006*, NPS must "manage critical habitat […] to maintain and enhance their value of the recovery of threatened and endangered species" (NPS 2006).

This analysis serves as the NEPA assessment of impacts on federally listed species (federal endangered, threatened, or candidate) that could be impacted by bridge construction actions. A biological assessment, as required by section 7 of the ESA, has been completed by WSDOT separate from the NEPA assessment.

The US Fish and Wildlife Service (USFWS) guidance for implementing section 7 consultation under the ESA (USFWS 2017) uses the following terminology to assess impacts on federally listed species:

> ***No Effect.*** This conclusion is reached if the proposed action and its interrelated and interdependent actions will not directly or indirectly affect listed species or destroy/adversely modify designated critical habitat. Formal section 7 consultation is not required when the *no effect* conclusion is reached.

May Affect, but Not Likely to Adversely Affect. This conclusion is appropriate when effects to the species or critical habitat are expected to be beneficial, discountable, or insignificant. Beneficial effects are contemporaneous positive effects without any adverse effects to the species or habitat. Insignificant effects relate to the size of the impact (and should never reach the scale where take occurs), while discountable effects are those that are extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur. If the project scientist making the determination and the project manager agree that the project "*is not likely to adversely affect*" listed species or critical habitat, the intra-service section 7 consultation process is completed.

May Affect, Likely to Adversely Affect. This conclusion is reached if any adverse effect to listed species or critical habitat may occur as a direct or indirect result of the proposed USFWS action or its interrelated or interdependent actions, and the effect is not discountable or insignificant. In the event the overall effect of the proposed action is beneficial to the listed species or critical habitat, but may also cause some adverse effect on individuals of the listed species or segments of the critical habitat, then the determination should be "*is likely to adversely affect*." Such a determination requires formal section 7 consultation.

A section 7 determination of effect summary is included at the end of the analysis for each alternative.

Under the Endangered Species Act, federally listed threatened and endangered species (T&E) and habitat that exist within or immediately adjacent to the project area include bull trout (*Salvelinus confluentus*), Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*), Puget Sound steelhead trout (*Oncorhynchus mykiss*), eulachon (*Thaleichthys pacificus*), northern spotted owl (*Strix occidentalis caurina*), marbled murrelet (*Brachyramphus marmoratus*), streaked horned lark (*Eremophila alpestris*

strigata), yellow-billed cuckoo (*Coccyzus americanus*), and Taylor's checkerspot butterfly (*Euphydryas editha taylori*). See Table 1.

There are no known threatened or endangered plants within the immediate vicinity of the project area (WNHP 2017).

Table 1. ESA-Listed Species and Critical Habitat

Species	Status	Federal Jurisdiction	Status of Critical Habitat
Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*)	Threatened	NMFS	Designated; none in action area
Puget Sound steelhead trout (*Oncorhynchus mykiss*)	Threatened	NMFS	Designated; present in action area
Eulachon (*Thaleichthys pacificus*)	Threatened	NMFS	Designated; none in action area
Bull trout (*Salvelinus confluentus*)	Threatened	USFWS	Designated; present in action area
Northern spotted owl (*Strix occidentalis caurina*)	Threatened	USFWS	Designated; present in action area
Marbled murrelet (*Brachyramphus marmoratus*)	Threatened	USFWS	Designated; present in action area
Streaked horned lark (*Eremophila alpestris strigata*)	Threatened	USFWS	Designated; none in action area
Yellow-billed cuckoo (*Coccyzus americanus*)	Threatened	USFWS	Designated; none in action area
Taylor's checkerspot butterfly (*Euphydryas editha taylori*)	Threatened	USFWS	Designated; present in action area

Effects of the No Build Alternative on Threatened and Endangered Species

Under the No Build Alternative, no action would be taken, therefore, the No Build Alternative would not have any direct adverse or beneficial impacts on T&E species or their habitat within the project area.

Cumulative effects of the No Build Alternative on Threatened and Endangered Species

Past, present, and reasonably foreseeable future actions, within and outside the project area would continue to contribute short- and long-term, adverse and beneficial impacts on threatened and endangered species and their habitat. The regular maintenance of, as well as regular commercial and private vehicle use on, US 101 may have resulted in some disturbance to T&E species and would continue to be minimal; potential geotechnical investigation and rehabilitation or relocation of the Olympic Hot Springs Road may result

in impacts to T&E species and habitat from noise and increased human presence during construction, and potential habitat loss or degradation in the foreseeable future; and changing river conditions to more natural flows since dam removal have had beneficial impacts on T&E species and habitat as well as overall ecosystem restoration. There would be no additional direct impacts to T&E species and habitat from the No Build Alternative. The indirect beneficial impacts from the No Build Alternative may add a small increment to the beneficial cumulative effect on T&E species and habitat within the Elwha Valley.

Section 7 Determination Summary

Based on the analysis, the ESA effects determination under the No Build Alternative is no effect on any of the ESA-listed species.

Effects of the Build Alternative on Threatened and Endangered Species

The project ***may affect, is likely to adversely affect*** Chinook salmon, steelhead trout, and bull trout due to the following actions.

- In-channel construction activities are likely to create locally elevated levels of turbidity during construction within 1,500 feet of in-water construction activities.
- The project would result in a new in-water pier configuration; however, the area of benthic displacement would be a net reduction of 1,199 square feet from the baseline condition.
- Temporary in-channel features may create localized increases in stream velocities resulting in localized scour or deposition of streambed materials during construction. The temporary construction access pads could remain in the river for over one year, creating a 160-foot wide channel available for upstream migration through which increased flow velocities would occur.
- Construction activities would be occurring in a reach with documented spawning, potentially temporarily reducing the overall amount of available spawning habitat for Chinook salmon and steelhead trout during construction.
- Dewatering activities would include fish isolation, removal, and handling activities and may affect Chinook salmon, steelhead trout, and bull trout.

- Removal of 2.9 acres of riparian vegetation may indirectly affect habitat functions for Chinook salmon, steelhead trout, and bull trout such as riparian shading of the stream corridors, contributions of invertebrates to the aquatic food chain, and streambank protection.
- Stormwater runoff from roadway surfaces would be discharged to the Elwha River, but would have lower loads and concentrations of pollutants as a result of the project due to increased water quality treatment. Annual copper loads would decrease by 31% for total copper and 19% for dissolved copper. Annual zinc loads would decrease by 33% for total zinc and 23% for dissolved zinc.
- Chinook and steelhead juvenile, and bull trout may be present during installation of cofferdams on the left and right bank for bridge demolition. These cofferdams would isolate a significant area and would require fish removal so that work can occur in the dry.
- Construction activity on and adjacent to gravel bars on the left and right bank may result in localized depressions, which can create ponding features that can pose a stranding risk for Chinook salmon, steelhead trout, and bull trout as river elevations decrease.
- Upstream movements of bull trout may be delayed during peak stream flows due to increase stream velocities during the period when cofferdams are installed for demolition of the existing bridge.

Additionally, while most of the following actions may also affect eulachon, the actions are ***not likely to adversely affect*** eulachon given that they are not expected to occur in the action area which is above the former Elwha Dam.

Critical Habitat

The project ***may affect, is likely to adversely affect*** steelhead and bull trout critical habitat for the following reasons:

- Steelhead and bull trout critical habitat includes the mainstem Elwha River, as well as Indian Creek and Little River that occur within the action area for the project.
- Steelhead freshwater spawning sites may be affected due to turbidity and scour during construction that may affect spawning habitat in the immediate vicinity of the project.

These areas may also be temporarily reduced by temporary construction access features, and potentially degraded by fine sediment deposition during in-water construction activities. Freshwater rearing sites may be affected due to increased in-stream turbidity during construction activities. Freshwater migration corridors may be affected due to increased in-stream velocities due to construction access pads and cofferdams installed to isolate demolition areas.

- Juvenile steelhead occurring within the action area may be temporarily displaced or may avoid freshwater rearing habitat near in-water construction.
- The migration of juvenile and adult steelhead may be altered due to the placement of temporary construction access features and increased flow velocities within the project area.
- In-water construction areas would result in alteration of steelhead critical habitat in the area.
- For bull trout, migratory habitat may be affected due to increased in-stream velocities due to construction access pads and cofferdams installed to isolate demolition areas. Also, in-water construction access features would result in alteration of complex river, stream, and reservoir systems and processes in the action area; alterations to water quality and quantity although long-term reductions in the rate of pollutant loading from stormwater are expected to occur; and migration habitat would be altered due to the placement of temporary construction access features and increased flow velocities within the project area.

These factors, when taken together, would likely result in temporary, but unavoidable effects, on one or more steelhead and bull trout primary constituent elements (PCEs).

There would be ***no effect*** on Chinook salmon and eulachon critical habitat as there is no critical habitat for either of these species within the construction limits.

<u>Northern Spotted Owl and Marbled Murrelet</u>

The project ***may affect, is not likely to adversely affect*** northern spotted owls and marbled murrelets for the following reasons:

- While the nearest active spotted owl nesting territory is more than 5 miles from the project site, spotted owls may forage in or disperse through forested habitats near the project site. However, there are no potentially suitable nest trees present within 195 feet of the project site, meaning the potential for adverse effects is discountable. Also, the project site is at a low-elevation (approximately 240 feet), valley-bottom location, whereas sites where spotted owls persist on the Olympic Peninsula are in steep terrain at relatively high elevations (above 2,900 feet, on average). Also, the most suitable nesting habitat on the Olympic Peninsula has been taken over by barred owls, and evidence from monitoring studies suggests that spotted owls are unlikely to recolonize areas of suitable habitat outside of active territories on the Olympic Peninsula. As such, the potential for adverse effects on nesting spotted owls is discountable.
- Marbled murrelets are not known or expected to nest within 328 feet of areas where heavy equipment would be operated. The nearest known nest site is approximately 4.2 miles south of the project site, and all locations where behaviors associated with nesting have been observed are more than 1 mile from the project site. No potentially suitable nest trees are present within 328 feet of areas where heavy equipment would be operated, meaning the potential for adverse effects on nesting murrelets is discountable. Results of surveys conducted in and near the project area indicate that marbled murrelets do not nest in the valley-bottom forest habitat in the project area.
- Forested habitats in the action area could provide suitable nesting/roosting habitat for spotted owls and marbled murrelets. Vegetation clearing for construction activities would remove approximately 3 acres of forest habitat. Also, project-related noise and human activities would cause a temporary increase in the level of disturbance to any spotted owls and marbled murrelets that may be present in the immediate construction area.
- No suitable nesting or roosting habitat for spotted owls would be removed by project activities, and no potentially suitable nest trees for marbled murrelets would be removed either, so project-related impacts on habitat would be insignificant.

Vegetation clearing in the project action area would occur along existing road corridors and would not fragment cover or create new travel corridors for avian predators into suitable nesting, roosting, or foraging habitat for spotted owls or marbled murrelets. For the same reasons, project-related vegetation clearing would not reduce the capacity for forest habitat at the project site to function as dispersal habitat. As such, project-related effects on nesting, roosting, foraging, or dispersal habitat would be insignificant. Any effects that may occur would be minimal in scope and transitory in duration and would have no measurable effect on the long-term survival of northern spotted owls and marbled murrelets.

Critical Habitat

The proposed project would have ***no effect*** on designated critical habitat for northern spotted owls and marbled murrelets. There is no designated critical habitat within or adjacent to (i.e., within 150 feet) the project footprint; therefore, project activities would not affect any of the PCEs of spotted owl or marbled murrelet critical habitat.

Taylor's Checkerspot Butterfly

The project ***may affect, is not likely to adversely affect*** Taylor's checkerspot butterflies for the following reasons:

- Extant populations of Taylor's checkerspot butterflies have been documented approximately 1 mile from the project site, and plant species that may be suitable as hosts for larvae or nectar sources for adults may be present within areas where ground-disturbing activities would occur. However, the project site lacks the features of suitable habitat for Taylor's checkerspot butterflies, so the potential for adverse effects is discountable. Also, no areas with high densities of larval host plants are present at the project site, further reducing the potential for adverse effects on this species.
- Adults are extremely unlikely to venture into the project area because dispersal of adults from occupied habitats occurs only as a random event, limited to few individuals, so the potential for adverse effects on adult butterflies is discountable, any project-related effects would be insignificant.

Critical Habitat

The proposed project would have ***no effect*** on designated critical habitat for Taylor's checkerspot butterflies. There is no designated critical habitat within or adjacent to (i.e., within 150 feet) the project footprint; therefore, project activities would not affect any of the PCEs of critical habitat for the species.

Cumulative effects of the Build Alternative on Threatened and Endangered Species

The cumulative effects to T&E species and habitat are similar to those described in the No Build Alternative. Past, present, and reasonably foreseeable future actions within and outside the project area would continue to contribute short- and long-term, adverse and beneficial impacts on T&E species and habitat. The proposed action would contribute short- and long-term increments to the cumulative adverse effects during construction activities due to displacement and disturbance from noise generated from construction equipment and increased human presence or the potential shifting of heavy through-traffic noise to a new route, as well as from habitat damage or removal. There would be long-term beneficial effects to T&E species from the decrease in pollutant loads entering the Elwha River from increased water quality treatment. In combination with the impacts of other past, present, and reasonably foreseeable future actions, there would be short- and long-term adverse cumulative effects on T&E species and habitat.

Conclusion

No action would be taken under the No Build Alternative; therefore there would be no additional direct impacts on T&E species and habitat. This alternative may contribute a small, indirect increment to the beneficial cumulative effect on T&E species and habitat when considered with other past, present, and reasonably foreseeable future actions. Implementation of the Build Alternative would result in short- and long-term, localized, adverse and effects on T&E species and habitat. There would be a long-term beneficial effect from improved water quality treatment. The Build Alternative, in combination with the impacts of other past, present, and reasonably foreseeable future actions, would contribute a small increment to the short- and long-term, adverse cumulative effects on T&E species and habitat.

Section 7 Determination Summary
The effects of the Build Alternative on T&E species are presented in Table 2.

Table 2. Effect determinations for Species and Designated Critical Habitat

Species	Status	Federal Jurisdiction	Effect Determination	Critical Habitat Effect Determination
Chinook salmon (Puget Sound ESU)	Threatened	NMFS	Likely to Adversely Affect	No Effect
Steelhead (Puget Sound DPS)	Threatened	NMFS	Likely to Adversely Affect	Likely to Adversely Affect
Eulachon (Southern DPS)	Threatened	NMFS	Not Likely to Adversely Affect	No Effect
Bull trout	Threatened	USFWS	Likely to Adversely Affect	Likely to Adversely Affect
Northern spotted owl	Threatened	USFWS	Not Likely to Adversely Affect	No Effect
Marbled murrelet	Threatened	USFWS	Not Likely to Adversely Affect	No Effect
Streaked horned lark	Threatened	USFWS	No Effect	No Effect
Yellow-billed cuckoo	Threatened	USFWS	No Effect	No Effect
Taylor's checkerspot butterfly	Threatened	USFWS	Not Likely to Adversely Affect	No Effect

ESU = Evolutionarily Significant Unit
DPS = Distinct Population Segment.

3.4.8 Cultural Resources

The US 101 Elwha River Bridge Replacement project is subject to approval by the Federal Highway Administration and as such it must comply with Section 106 of the National Historic Preservation Act, as amended, and the implementing regulations in 36 CFR Part 800. Section 106 requires federal agencies take into account the effects of federally funded or permitted projects on historic properties. A historic property is typically aged 50 years or older, and includes prehistoric or historic districts, sites, buildings, structures, objects, and properties of traditional religious and cultural importance that are listed or are eligible for listing on the National Register of Historic Places (NRHP) maintained by the Secretary of the Interior. If historic properties are identified within the APE (see explanation of APE in next paragraph), then potential adverse effects to the historic properties must be assessed, and a resolution of adverse effects recommended.

The procedures under Section 106 require identification of an Area of Potential Effects (APE), identification of any historic properties that may be located within the APE, and evaluation of a project's effects on historic properties. An APE is defined as a geographic

area within which a project may directly or indirectly cause alterations in the character or use of historic properties. The APE includes the planned horizontal and vertical direct impact areas, as well as a one-parcel buffer around the Project footprint on private lands, and a 200-foot buffer around the Project footprint on federal lands in order to account for indirect effects. The project APE is shown in Figure 7.

Figure 7. The Project Area of Potential Effect (APE)

The Elwha River Valley is rich in cultural resources that include buildings, structures, landscapes, traditional cultural properties, ethnographic resources, and archeological sites. The valley is the homeland of the Lower Elwha Klallam people, and the river remains at the heart of their ceremonial, cultural, and spiritual existence. Background research and shovel probe survey resulted in the identification of three archeological sites (45CA774, 45CA775, & 45CA727) within the APE. These sites offer substantial research potential to archaeological understanding of Olcott sites. Archaeological testing of these sites indicates that they contain robust artifact assemblages in high artifact-density areas.

Effects of the No Build Alternative on Cultural Resources

No action would be taken under this alternative, therefore there would be no direct or indirect impacts to cultural resources within the project area.

Cumulative effects of the No Build Alternative on Cultural Resources

Past, present, and reasonably foreseeable future actions, within and outside the project area would continue to contribute short- and long-term, adverse and beneficial impacts on cultural resources. The regular maintenance of US 101 may have resulted in some soil compaction or removal and would continue to be minimal; a geotechnical investigation and potential rehabilitation or relocation of the Olympic Hot Springs Road may result in impacts and compaction in the foreseeable future; and changing river conditions to more natural flows since dam removal have likely had impacts on cultural resources material. There would be no additional impact to cultural resources from the No Build Alternative and it would not add to the overall adverse cumulative effect on cultural resources in the Elwha Valley.

Effects of the Build Alternative on Cultural Resources

The Build Alternative (New Bridge on New Alignment) would result in adverse impacts to all three archeological sites (45CA774, 45CA775, & 45CA727) from construction activities. Impacts to 45CA774 primarily would involve fill 4,000 cubic yards of excavation of the existing roadway fill and 7,200 cubic yards of fill from establishing the new US 101 roadway alignment. Fill activities are proposed in order to achieve slope flattening and thus enhanced public safety along the US 101 transportation facility west of the proposed bridge. A bio swale for stormwater treatment is also proposed in the southeast corner of site 45CA774 resulting in 700 cubic yards of excavation.

Impacts to site 45CA775 would include 100 cubic yards of excavation and 1,900 cubic yards of fill from establishing the new US 101 roadway alignment. There would be 400 cubic yards of excavation and 700 cubic yards of fill resulting from re-establishing required public access north of the highway. There would be 2,000 cubic yards of excavation and 800 cubic yards of fill resulting from re-establishing a required public parking area. There would be 100 cubic yards of excavation and 1,500 cubic yards of fill resulting from the re-aligned Olympic Hot Springs Road.

Impacts to 45CA727 would include 1,900 cubic yards of fill resulting from river access installation to construct the bridge and remove existing structures.

Cumulative effects of the Build Alternative on Cultural Resources

The cumulative effects to cultural resources are similar to those described in the No Build Alternative. Past, present, and reasonably foreseeable future actions within and outside the project area would continue to contribute short- and long-term, adverse and potentially beneficial impacts on cultural resources. The proposed action would contribute in the short and long-term to cumulative effects on cultural resources. The contributing impacts result in the construction impacts described above, including the removal of sediment. In combination with the impacts of other past, present, and reasonably foreseeable future actions, there would be short- and long-term adverse cumulative effects on cultural resources.

Mitigation and Conclusion

No action would be taken under the No Build Alternative; therefore there would be no additional impacts on cultural resources. This alternative would not contribute to the cumulative disturbance of cultural resources when considered with other past, present, and reasonably foreseeable future actions. WSDOT is currently undergoing Section 106 consultation with the LEKT and Department of Archeology and Historic Preservation (DAHP) to address adverse effects from implementation of the Build Alternative and appropriate mitigation measures are documented in a Memorandum of Agreement (MOA) (Appendix G) . A record of tribal correspondence is included in Appendix E.

3.4.9 Acoustic Environment

The acoustic environment is a resource with intrinsic natural and cultural resources value. It is a critical component of wilderness character and plays an important role in wildlife communication, behavior, and other ecological processes. Results from surveys of the American public indicate that hearing the sounds of nature is an important reason for visiting national parks. Therefore, the value of acoustic environments and soundscapes is related to an array of park resources and has broad implications for park management. As described in the park's GMP, natural sounds characterize the park — the impossibly elaborate song of a winter wren, bugling bull elk declaring their dominance, the rhythm of waves over pebbles on a beach, the piercing whistle of an Olympic marmot, the crisp sound of wind through subalpine fir, the soft silence of falling snow, and the haunting flute-like call of a varied thrush. Even if the source is impossible to find, sounds inform visitors of what is around them (NPS 2008).

Some threats to the acoustic environment originate in areas adjacent to the park boundaries such as noise from logging or adjacent construction activities, National Park Service project related aircraft, and non-National Park Service aircraft such as military, commercial, and private sector aircraft (NPS 2008).

The project area is located within the heavily traveled corridor of US 101. This corridor is a through route, the road serves not only park visitors, but also commercial users (including heavy logging truck traffic), and local commuter and non-commuter traffic. There has not been a sounds study specifically for this project area. There has been a sounds study of the 12-mile section of US 101 within the NPS boundary along Lake Crescent. Some data from that study is relevant to this project site as the traffic that passes through the Lake Crescent section of the highway also passes through this project area. That study, conducted by the National Park Service's Natural Sounds and Night Skies Division (NSNSD) revealed that approximately 25% of the 4,000 vehicles per day is estimated to be attributed to heavy truck traffic, primarily from logging trucks (NPS 2015). Based on experience of the project team, standing in the project area observing bridge and landscape characteristics, when logging trucks passed, typically all conversation had to cease before, during, and after passage, so that the continued conversation could be heard. At the project site, some of the road noise is masked (and added to) by the river noise, creating a louder overall ambient acoustic environment with both natural and human-caused components.

According to the NSNSD snapshot, park transportation corridors, like the one surveyed in the US 101 at Lake Crescent study, have median ambient sound levels that are typically more than four orders of magnitude higher than the natural condition (NPS 2015). As with other roads studied, traffic along this corridor also follows a pattern. Traffic is generally heavier on this stretch of highway during the summer compared to winter and is heavier during the daytime compared to nighttime (NPS 2015). Weather patterns also influence the distribution of sound near the roadway, with wetter periods experiencing more sounds and louder decibel levels than dry periods due to rain, thunder, presence of wildlife, and other natural sounds.

Effects of the No Build Alternative on the Acoustic Environment

Under the No Build Alternative, the bridge would remain open until monitoring shows it is no longer structurally sound and unsafe for vehicle use. No efforts would be undertaken to fix, reconstruct, or remove the bridge. Therefore, the No Build Alternative

would not have any direct adverse or beneficial impacts on the acoustic environment within the project area. However, indirect, long-term, beneficial and adverse impacts associated with the eventual closure of the bridge include an improvement in the acoustic environment in the project area given that traffic along this corridor would be reduced to passenger vehicles accessing the Elwha Valley on the Olympic Hot Springs Road, although the greater volume of traffic noise, to include logging trucks, would be shifted to SRs 112 and 113.

Cumulative effects of the No Build Alternative on the Acoustic Environment

Past, present, and reasonably foreseeable future actions with the potential to impact the acoustic environment include US 101 rehabilitation at Lake Crescent, along with regular maintenance of US 101, a geotechnical investigation and potential rehabilitation or relocation of the Olympic Hot Springs Road, and former blasting and other activities that occurred during the removal of the Elwha and Glines Canyon Dams. Other actions in the area that currently impact or could impact the acoustic environment include military, commercial, and private overflights.

Overall, past, present, and reasonably foreseeable future actions would result in adverse impacts on acoustic resources. The No Build Alternative would add greater short-term beneficial effects due to reduced traffic noise once the bridge is deemed no longer safe for vehicle use. However, this would lead to long-term adverse effects due to the shift of traffic volume from US 101 to SRs 112 and 113. When the incremental impacts of the No Build Alternative are added to the impacts of other past, present, and reasonably foreseeable future actions, the overall cumulative impacts on the acoustic environment would be adverse. The effects of the No Build Alternative would slightly add to the overall cumulative impacts because, while traffic noise would be reduced within the project area by the eventual bridge closure and traffic reroute, the noise impacts from the heavy through-traffic would shift to the new route.

Effects of the Build Alternative on the Acoustic Environment

Under the Build Alternative, the bridge would be reconstructed adjacent to its current location. Also, US 101 would be realigned at the turnoff for Olympic Hot Springs Road.

The Build Alternative would have short-term direct, adverse impacts on the acoustic environment during new bridge construction, the removal of the current bridge, and realignment of the turnoff onto Olympic Hot Springs Road. These impacts would be due to the use of heavy equipment, concrete saws, jackhammers, and other noise-producing construction equipment, and increased human presence and subsequent conversations occurring over traffic and construction noise. There may also be short-term adverse impacts on the acoustic environment along SRs 112 and 113 as traffic may be diverted to this route until construction is complete, if the current bridge does not remain structurally sound and safe for vehicle use while the new bridge is being developed. Additional, WSDOT specific, impact analysis on the acoustic environment is as follows.

Short-term Effects (Construction Noise): Construction creates temporary noise. Construction is usually carried out in reasonably discrete steps, each with its own mix of equipment and noise characteristics. The most constant noise source at construction sites is usually engine noise. Mobile equipment generally operates intermittently or in cycles of operation, while stationary equipment, such as generators and compressors, generally operate at fairly constant sound levels. Trucks are present during most phases of construction and are not confined to the project site, so noise from trucks, including back-up alarms, may affect more receivers than other construction noise. Other common noise sources include impact equipment, which could be pneumatic, hydraulic, or electric powered.

Construction noise was not assessed quantitatively because the project is exempt from Department of Ecology property line noise level limits during daytime hours. The following sections discuss noise variances that would be required for nighttime work, typical construction equipment noise levels, and abatement measures.

If nighttime construction is required for this project, WSDOT would apply for variances or exemptions from local noise ordinances for the night work. Noise variances or exemptions require construction noise abatement measures that vary by jurisdiction. Construction noise can 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 away from noise sensitive receivers, e.g., homes.

To reduce construction noise at nearby receptors, the following abatement measures can 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
- Using haul vehicles with rubber bed-liners would reduce noise from loading trucks
- Equipping trucks with ambient backup alarms would reduce the noise for equipment backing
- Equipping construction equipment engines with adequate mufflers, intake silencers, and engine enclosures would reduce their noise by 5 to 10 dBA
- Constructing temporary noise barriers or curtains around stationary equipment that must be located close to residences would decrease noise levels at nearby sensitive receptors

Additional methods for reducing construction noise levels that may be incorporated by the project engineering office or required by a jurisdiction include the following:

- Specifying the quietest equipment available would reduce noise by 5 to 10 dBA
- Turning off construction equipment during prolonged periods of non-use 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 operations
- Locating stationary equipment away from receiving properties would decrease noise from that equipment in relation to the increased distance

Long-term Effects (Traffic Noise): For WSDOT projects that use FHWA funding, WSDOT is required to follow standard practices to evaluate noise impacts near proposed projects. Any applicable area predicted to have a future traffic noise level of 66 dBA or

greater qualifies as an impacted area. Research shows that above 66 dBA, a conversation between two people standing three feet apart and speaking in a normal voice is impaired.

Using the FHWA Traffic Noise Model (TNM) version 2.5, WSDOT employed a 'straight line model' to estimate whether the project would generate traffic noise impacts. The model indicates that traffic noise impacts were modeled out to a distance of 100 feet from the US 101 centerline of the roadway at the 66 dBA Noise Abatement Criteria (NAC) threshold. Noise impacts for the existing year stop at 101 feet from the centerline of the roadway. For the future design year noise impacts stop at 116 feet from the centerline of the roadway.

In the existing year there are no noise sensitive receivers, however in the design year there will be a trail that runs perpendicular to and under the new bridge, which would put it within the noise impact zone. However, because the bridge would be elevated 13 feet above the trail, it is assumed that there would be partial shielding of the traffic noise from the bridge resulting in at least a three decibel noise reduction to the trail. Therefore, no noise impacts are anticipated on the trail. Table 3 shows the predicted noise levels at the receiver location.

Table 3. Predicted Noise Levels (LAeq)

Receiver distance (feet)	Receiver Location	Noise Levels 2017 (dBA)	Noise Levels 2040 Without Wall (dBA)
100	Trail	**66**	**67**
150	Trail	62	63

Bold numbers indicate impacts

Cumulative effects of the Build Alternative on the Acoustic Environment

Past, present, and reasonably foreseeable future actions with the potential to impact the acoustic environment include US 101 rehabilitation at Lake Crescent, along with regular maintenance of US 101, a geotechnical investigation and potential rehabilitation or relocation of the Olympic Hot Springs Road, and former blasting and other activities that occurred during the removal of the Elwha and Glines Canyon Dams. Other actions in the

area that currently impact or could impact the acoustic environment include military, commercial, and private overflights.

Overall, past, present, and reasonably foreseeable future actions would result in adverse impacts on the acoustic environment. The Build Alternative would have short-term adverse effects because of noise produced during construction of the new bridge, removal of the current bridge, realignment of US 101 at the turn-off for Olympic Hot Springs Road, and the potential need to divert traffic to SRs 112 and 113 during construction if the current bridge does not remain structurally sound for vehicle use. When the incremental impacts of the Build Alternative are added to the impacts of other past, present, and reasonably foreseeable future actions, the overall cumulative impacts on the acoustic environment would be adverse. The effects of the Build Alternative would add to the overall cumulative impacts due to the noise that would be generated during bridge construction, removal of the current bridge, US 101 realignment, as well as to the potential traffic diversion shifting heavy through-traffic noise to a new route, creating greater noise impacts along that route.

Conclusion

Under the No Build Alternative, the bridge would eventually need to be closed which would divert traffic onto another through-route. This would have both adverse and beneficial impacts on the acoustic environment. Past, present, and reasonably foreseeable future actions such as US 101 rehabilitation at Lake Crescent, regular maintenance of US 101, a geotechnical investigation and potential rehabilitation or relocation of the Olympic Hot Springs Road, former blasting and other activities that occurred during the removal of the Elwha and Glines Canyon Dams, and overflights would contribute adverse cumulative impacts. Overall cumulative impacts on the acoustic environment under the No Build Alternative would be adverse. The effects of the No Build Alternative would add a short- and long-term, adverse increment to the overall cumulative impacts mainly due to the traffic diversion shifting the heavy through-traffic noise to a new route, creating greater noise impacts along that route.

Under the Build Alternative, a new bridge would be constructed, the current bridge would be removed, and US 101 would be realigned at the turn-off for Olympic Hot Springs Road. These actions would have short-term adverse impacts on the acoustic environment. Past, present, and reasonably foreseeable future actions such as US 101 rehabilitation at Lake Crescent, regular maintenance of US 101, a geotechnical investigation and potential rehabilitation or relocation of the Olympic Hot Springs Road, former blasting and other activities that occurred during the removal of the Elwha and Glines Canyon Dams, and overflights would contribute adverse cumulative impacts. Overall cumulative impacts on the acoustic environment under the Build Alternative would be adverse. The effects of the Build Alternative would add a short-term adverse increment to the overall cumulative impacts mainly due to noise created during construction of the new bridge, removal of the current bridge, road realignment, and the potential diversion of heavy through-traffic to SRs 112 and 113.

3.4.10 Social and Environmental Justice

Presidential Executive Order 12898 ((1994) provides that "each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minorities and low-income populations." USDOT and FHWA also have orders (FHWA 2012 and 2012a) that require consideration of human health and environmental effects related to projects that may have a disproportionately high and adverse effect on minority and low-income populations. Also required are procedures to provide "meaningful opportunities for public involvement" by members of these populations during project planning and development (FHWA 2012).

Potential social, economic, and environmental justice effects of projects often extend beyond their physical limits. A study area extending a half mile in all directions from the project includes school districts, neighborhoods, and rural areas along US 101 near the Elwha River Bridge. This study area includes areas that may have noise, visual, and

traffic effects. Relevant data from the U.S. Census and local school district are presented below.

Table 4 summarizes 2010 census data for the area within a half mile of each side of the centerline of the project. The data presented do not indicate that there are populations present that meet environmental justice criteria. The census data may not have captured the potentially affected communities for a variety of reasons. They may not have been living there at the time of census, they may not have received or completed the census questionnaire, or there may be other reasons they were not included.

Table 4. Minority and Elderly Populations within a half mile of the project area

Minority	Number of persons	Percentage
White	37	93
Hispanic or Latino (of any race)*	1	1
American Indian and Alaskan Native*	1	1
Black or African American*	0	0
Asian*	0	0
Native Hawaiian and Other Pacific Islander*	0	0
Population Reporting Two or More Races*	1	1
Overall % Minority*	2	8
Total population in the study area	40	100
Low Income**	1	11
Speaks English less than well**	0	0

*Source: the Environmental Justice Screen Census 2010 Summary Report (EPA 2018), collected within ½ mile of the study area

The closest elementary school is Dry Creek Elementary School. School demographic data is summarized in Table 5. "American Indian and Alaskan Native" comprises over 20% of the school enrollment. Free or reduced meals are provided to 67% of children at the school. These data suggest that protected environmental justice populations are present within a few miles of the project. The school itself is located about five miles to the north of the project with a service area that is large and mostly distant from the project. The school service area includes parts of Port Angeles, a population center which is located several miles to the northeast of project activities. There appear to be no population centers west of the Elwha River. This environmental justice analysis was conducted in accordance with ONP, WSDOT, and FHWA guidance and procedures.

Table 5. Dry Creek Elementary School Demographic Data

	Enrollment	Percentage %
White	209	56.5

Hispanic or Latino	21	5.7
American Indian and Alaskan Native	76	20.5
Black or African American	0	0
Asian	1	0.3
Native Hawaiian and Other Pacific Islander	0	0
Two or More Races	63	17
Free or Reduced – Price Meal Partition	257	67.6
Transitional Bilingual Education	3	0.8

Source: Washington State Office of Public Instruction Washington State Report Card website.

Effects of the No Build Alternative on Environmental Justice Populations

Under the No Build Alternative, the bridge would remain open until monitoring shows it is no longer structurally sound and is unsafe for vehicle traffic. No efforts would be undertaken to fix, reconstruct, or remove the bridge. No minority or low-income populations have been identified that would be adversely affected by the No Build Alternative.

Cumulative effects of the No Build Alternative on Environmental Justice Populations

Past, present, and reasonably foreseeable future actions with the potential to impact Environmental Justice populations include US 101 rehabilitation at Lake Crescent, along with regular maintenance of US 101, and a geotechnical investigation and potential rehabilitation or relocation of the Olympic Hot Springs Road. No minority or low-income populations have been identified that would be adversely affected by this or the above projects. The effects of the No Build Alternative would not contribute to cumulative effect on Environmental Justice populations.

Effects of the Build Alternative on Environmental Justice Populations

This project is located in a rural area with large land parcels and few residents. The alignment of the replacement bridge would be slightly downriver of the existing bridge and angled differently relative to the river, to allow reconfiguration of the curve in US 101 at the eastern approach to the bridge. The new alignment would require no relocations. To the west of the new bridge, the project alignment would tie back into the existing highway east of Lake Aldwell Road thus negating any direct impacts to residents that use that local road for highway access. During construction of the new bridge, traffic would continue to use the existing US 101 Elwha River Bridge for east and west movement along the highway. During construction of the US 101 Olympic Hot Springs

Road intersection, the intersection would be closed and detour provided. Trips between locations south on Olympic Hot Springs Road and Port Angeles would take about 6 minutes longer on a Little River Road / Black Diamond Road detour. No new capacity would be added to US 101 so traffic and air quality would not be affected. Vertical and horizontal shifts of the highway would be minor and do not require quantitative noise analysis. Noise impacts and visual impacts would be negligible. A more detailed discussion of noise, visual effects, and traffic is presented in this chapter under the respective heading for each of these disciplines.

Cumulative effects of the Build Alternative on Environmental Justice Populations

Past, present, and reasonably foreseeable future actions with the potential to impact Environmental Justice populations include US 101 rehabilitation at Lake Crescent, along with regular maintenance of US 101, and a geotechnical investigation and potential rehabilitation or relocation of the Olympic Hot Springs Road. No minority or low-income populations have been identified that would be adversely affected by this or the above projects. The effects of the No Build Alternative would not contribute to cumulative effects on Environmental Justice populations.

Conclusion

Past, present, and reasonably foreseeable future actions would not contribute to adverse cumulative impacts. No minority or low-income populations have been identified that would be adversely affected by this project under either alternative. Therefore, both alternatives have met the provisions of Executive Order 12898, as it is supported by Title VI of the Civil Rights Act.

3.4.11 Transportation

US 101 is the main artery for travel between the eastern and western sides of the Olympic Peninsula. The highway extends from southern California to the Olympic Peninsula. The highway passes through ONP along Lake Crescent and provides access to some of the more popular and heavily visited areas in the park and on the Olympic Peninsula. In 2010, the annual traffic count for this route was 465,000 vehicles, based on a counter located at the east end of Lake Crescent that captured westbound traffic. Peak traffic

reaching 70,000 per month occurs between June and September. Part of US 101 around the Olympic Peninsula (from Olympia to near Ilwaco -- Chinook) has been designated as part of the Pacific Coast National Scenic Byway by the FHWA, and the segment along the Lake Crescent shoreline is considered among the most scenic segments on the byway. Additionally, the alternate route between Port Angeles and Forks is State Routes (SR or SRs) 112 and 113. SR 112 between Port Angeles and the Makah Indian Reservation is designated as the Strait of Juan de Fuca Scenic Byway.

Since US 101 is a through route, the road serves not only park visitors, but also commercial users, and local commuter and non-commuter traffic. This route serves as the only access to the south side of Lake Crescent, including park-related facilities at either end. There is no feasible alternative route to access the facilities on the south side of Lake Crescent; however there is an alternate route (SRs 112 and 113) around the lake that has previously been used when the road has been closed.

Effects of the No Build Alternative on Transportation

Under the No Build Alternative, no replacement bridge would be constructed. If the river flows exceed 22,000 cfs or the tilt meter has a sustained reading of more than 4.5mm, WSDOT maintenance would close the bridge to traffic within a 15 minute time-period, establish flagging operations, and make several sequential emergency phone calls. Barriers to close off the bridge would be established, existing detour signing would be uncovered, and VMS board operation would be verified. For short-term or permanent bridge closure, drivers would be required to detour onto State Routes 112 and 113. Since the US 101 Elwha River Bridge is the most efficient link for all users of the highway system the detours would result in adverse transportation impacts to the public and surrounding communities. Detours would also adversely affect peninsula commerce including freight, timber, and special forest industry. This alternative would not achieve the need and purpose as described in Chapter 1 of this document.

Cumulative effects of the No Build Alternative on Transportation

Past, present, and reasonably foreseeable future actions with the potential to impact transportation include US 101 rehabilitation at Lake Crescent, along with regular

maintenance of US 101, and a geotechnical investigation and potential rehabilitation or relocation of the Olympic Hot Springs Road. Overall, past, present, and reasonably foreseeable future actions involve short-term adverse effects but long-term benefits on transportation. The No Build Alternative would add a short- and/or long-term adverse effect due to the potential for bridge closures. When the potential impacts of the No Build Alternative are added to the impacts of other past, present, and reasonably foreseeable future actions, the overall cumulative impacts on public use would be adverse. The effects of the No Build Alternative would greatly add to the overall transportation impacts on transportation because of the affects noted in the above section.

Effects of the Build Alternative on Transportation

During the first construction year, US 101 would continue utilizing the route over the existing Elwha River Bridge, thereby providing uninterrupted service to commerce and the public as construction of the new bridge progresses along a separate alignment. Any impacts to the public are expected to be minimal, with expectations of short-term (15 minutes or less) flagger controlled delays for delivery of equipment and materials.

Once the bridge superstructure (including barrier, rail, and approach slabs followed by paving of the new alignment) is complete, US 101 through traffic would be shifted onto the new alignment. Access to Olympic Hot Springs Road would be rerouted via the old existing bridge thereby allowing construction of the new US 101/Olympic Hot Springs Road intersection. Upon completion of the intersection, the existing bridge would permanently close. Bridge demolition work would begin coinciding with the approved in-water work window. The Build Alternative would have short-term, direct, adverse impacts on transportation during new bridge construction, and long-term beneficial affects due to increased safety, reliability, and expected longevity of the new transportation facility.

Beneficial effects of the Build Alternative include eliminating a dangerous curve in the highway east of the river crossing and establishing a new bridge with 12-foot lanes founded in bedrock, meeting current seismic requirements. Beneficial improvements for pedestrians and bicyclists would include 8-foot shoulders across the new bridge. Transit

users would have formal bus stops at each end of the bridge. Additional benefits would also include providing informal river access parking along the east bank of the Elwha River between Olympic Hot Springs Road and US 101, similar to existing conditions.

Cumulative effects of the Build Alternative on Transportation

Past, present, and reasonably foreseeable future actions with the potential to impact transportation include US 101 rehabilitation at Lake Crescent, along with regular maintenance of US 101, and a geotechnical investigation and potential rehabilitation or relocation of the Olympic Hot Springs Road. The Build Alternative would have short-term, direct, adverse effects on transportation during the construction phases, but long-term beneficial transportation effects due to the increased safety, reliability, and expected longevity of the new bridge.

Conclusion

The No Build Alternative would potentially have adverse impacts on transportation because bridge closures may need to be implemented. Past, present, and reasonably foreseeable future actions would include a mix of adverse and beneficial effects to transportation. The No Build Alternative would add greatly to a short- and/or long-term adverse increment to the overall cumulative transportation impacts due to the possibility of bridge closures. Under the Build Alternative, a new bridge would be constructed, the current bridge would be removed, and US 101 would be realigned at the turn-off for Olympic Hot Springs Road. These actions would have short-term adverse impacts but long-term benefits. The effects of the Build Alternative would add a slight short-term beneficial increment to the overall beneficial cumulative impacts due to the increased safety, reliability, and expected longevity of the new transportation facility.

3.4.12 Land Use

The current project occurs almost entirely within what are currently designated as the Elwha Project Lands, managed by the National Park Service. Also in the general vicinity of the project are sparse, privately owned residential properties. In October 1992, the Elwha River Ecosystem and Fisheries Restoration Act (the Act) (see Appendix A) was signed into law. The Act authorized the Secretary of the Interior to acquire the Elwha

Hydroelectric Project. The Elwha Project Lands, including the Elwha Resort (which was a lease on the private lands), were part of the Elwha Hydroelectric Project. The hydroelectric project was purchased by the NPS in March 2000 and the park inherited the Elwha Resort lease at that time. The NPS is the interim manager of the project lands until a long-term land manager is identified. The Elwha Project Lands have been impacted by commercial and visitor use.

The Elwha Resort was a former commercial site that was established in the 1920s. Resort facilities included a gas station, cabins, office, grocery store, café, shop, laundry/toilet, a mobile home, waterside barbeque shelter and boat launch, and a picnic area. The area was graveled and contained spaces for travel-trailers. The resort also provided a rafting service. The resort was used seasonally by vacationing families and sportsmen. In the off-season, the cabins were used as temporary rental units for transient and local citizens. There used to be an unimproved boat launch that was never managed by the NPS and there have always been unimproved fishermen trails along the shoreline, though the river has moved away from the old shoreline following the draining of Lake Aldwell. The resort closed in 2000. The "Elwha Resort Historic District" was determined eligible and nominated for listing on the National Register of Historic Places in 2001, however the main building (store and café) was burned down (suspected arson) later that same year. This area is now an unrestored commercial site with all facilities removed, including the campsites. The site has experienced public dumping as well as poaching of trees for firewood. Visitors and local residents still park there and access the river from this location. Additionally, Clallam County Public Utilities District (PUD) maintains a power line through the project area.

Effects of the No Build Alternative on Land Use

Under the No Build Alternative, the bridge would remain open until monitoring shows it is no longer structurally sound and is unsafe for vehicle traffic. No efforts would be undertaken to fix, reconstruct, or remove the bridge. Public access would continue to be allowed and there would be no changes to the use of the NPS Elwha Project Lands.

Therefore, the No Build Alternative would not have any direct adverse or beneficial impacts on land use within the project area.

Cumulative effects of the No Build Alternative on Land Use

Past, present, and reasonably foreseeable future actions with the potential to impact land use include a geotechnical investigation and potential rehabilitation or relocation of the Olympic Hot Springs Road. Overall, past, present, and reasonably foreseeable future actions would result in adverse impacts on land use. The No Build Alternative would not add any beneficial or adverse effects. When the impacts of the No Build Alternative are added to the impacts of other past, present, and reasonably foreseeable future actions, the overall cumulative impacts on public use would be adverse. The effects of the No Build Alternative would not add to the overall cumulative impacts on land use because no actions would be taken under this alternative that would affect land use.

Effects of the Build Alternative on Land Use

Under the Build Alternative, the bridge would be reconstructed adjacent to its current location. Also, US 101 would be realigned at the turnoff for Olympic Hot Springs Road. The Build Alternative would not have notable impacts on land use due to new bridge construction, the removal of the current bridge, and realignment of the turnoff onto Olympic Hot Springs Road. There would not be notable changes in land use within the project area. The NPS would still be the interim manager of these lands until a long-term land manager is identified. WSDOT would maintain a right-of-way under an HED provided by the NPS.

Cumulative effects of the Build Alternative on Land Use

Past, present, and reasonably foreseeable future actions with the potential to impact land use include a geotechnical investigation and potential rehabilitation or relocation of the Olympic Hot Springs Road. Overall, past, present, and reasonably foreseeable future actions would result in adverse impacts on land use. The Build Alternative would have long-term, direct, adverse effects on land use due to changes in current land use within the project area. When the impacts of the Build Alternative are added to the impacts of other past, present, and reasonably foreseeable future actions, the overall cumulative

impacts on land use would be adverse. The effects of the Build Alternative would add a slight increment to the overall adverse cumulative impacts on land use.

Conclusion

Under the No Build Alternative, no actions would occur that would have any effect on land use. Past, present, and reasonably foreseeable future actions such a geotechnical investigation and potential rehabilitation or relocation of the Olympic Hot Springs Road would contribute minimal adverse cumulative impacts. Overall cumulative impacts on land use under the No Build Alternative would be adverse. The effects of the No Build Alternative would not add any additional beneficial or adverse cumulative impacts. Under the Build Alternative, a new bridge would be constructed, the current bridge would be removed, and US 101 would be realigned at the turn-off for Olympic Hot Springs Road. These actions would have long-term adverse impacts on land use. Past, present, and reasonably foreseeable future actions such as a geotechnical investigation and potential rehabilitation or relocation of the Olympic Hot Springs Road would contribute adverse cumulative impacts to land use. Overall cumulative impacts on land use under the Build Alternative would be adverse. The effects of the Build Alternative would add a long-term adverse increment to the overall adverse cumulative impacts mainly due to changes in current land use within the project area.

3.4.13 Public Access

A study has not been conducted for the project area to determine the level and type of use that occurs here. Visitors and local residents access the Elwha River from this location. Vehicles pull off of US 101, park in the dirt and gravel space adjacent to the highway, and walk down to the river. There are currently no formalized or maintained facilities in this area including the parking area, trails, and boat launch. However, visitors and local residents use this area for walking alongside the river; and as a non-commercial kayak, tubing, or rafting put-in or take-out location. The Elwha River has been closed to all fishing since 2012 and will remain closed to fishing at least through July 2021.

Effects of the No Build Alternative on Public Access

Under the No Build Alternative, the bridge would remain open until monitoring shows it is no longer structurally sound and is unsafe for vehicle traffic. No efforts would be undertaken to fix, reconstruct, or remove the bridge. Public access would continue to be allowed. Therefore, the No Build Alternative would not have any direct adverse or beneficial impacts on public access within the project area. However, indirect, short- or long-term, adverse impacts on public access are associated with benign neglect of the bridge. Closures to public use on the river immediately underneath and adjacent to the bridge, due to unsafe passage under the bridge, may need to be implemented.

Cumulative effects of the No Build Alternative on Public Access

Past, present, and reasonably foreseeable future actions with the potential to impact public access include US 101 rehabilitation at Lake Crescent, along with regular maintenance of US 101, and a geotechnical investigation and potential rehabilitation or relocation of the Olympic Hot Springs Road. Overall, past, present, and reasonably foreseeable future actions would result in adverse impacts on public access to the Elwha Valley. The No Build Alternative would add a short- or long-term adverse effect due to the potential for closures to public use on the river immediately underneath and adjacent to the bridge. When the impacts of the No Build Alternative are added to the impacts of other past, present, and reasonably foreseeable future actions, the overall cumulative impacts on public use would be adverse. The effects of the No Build Alternative would slightly add to the overall cumulative impacts on public use because closures to public use on the river immediately underneath and adjacent to the bridge, due to unsafe passage under the bridge, may need to be implemented.

Effects of the Build Alternative on Public Access

Under the Build Alternative, the bridge would be reconstructed adjacent to its current location. Also, Olympic Hot Springs Road would be realigned at the new intersection with US 101 to intersect with the new highway alignment. The Build Alternative would have short-term, direct, adverse impacts on public access during construction of the new bridge, the removal of the current bridge, and realignment of the intersection with Olympic Hot Springs Road. This would be due to the need to temporarily restrict public parking and pedestrian access to the river and the bank immediately under and adjacent to

the bridge and construction zone during construction activities for public safety. Following construction, parking and pedestrian access to the river would return to similar to pre-project conditions. The somewhat longer term effects of the Build Alternative would be neutral. The Build Alternative maintains the current level of river access and parking with a different configuration due to the new bridge alignment and approach. While there is public interest in improving public access to the river at this location, public access improvements are not within the scope of this bridge replacement project. Figure 8 shows the proposed parking area and access trail.

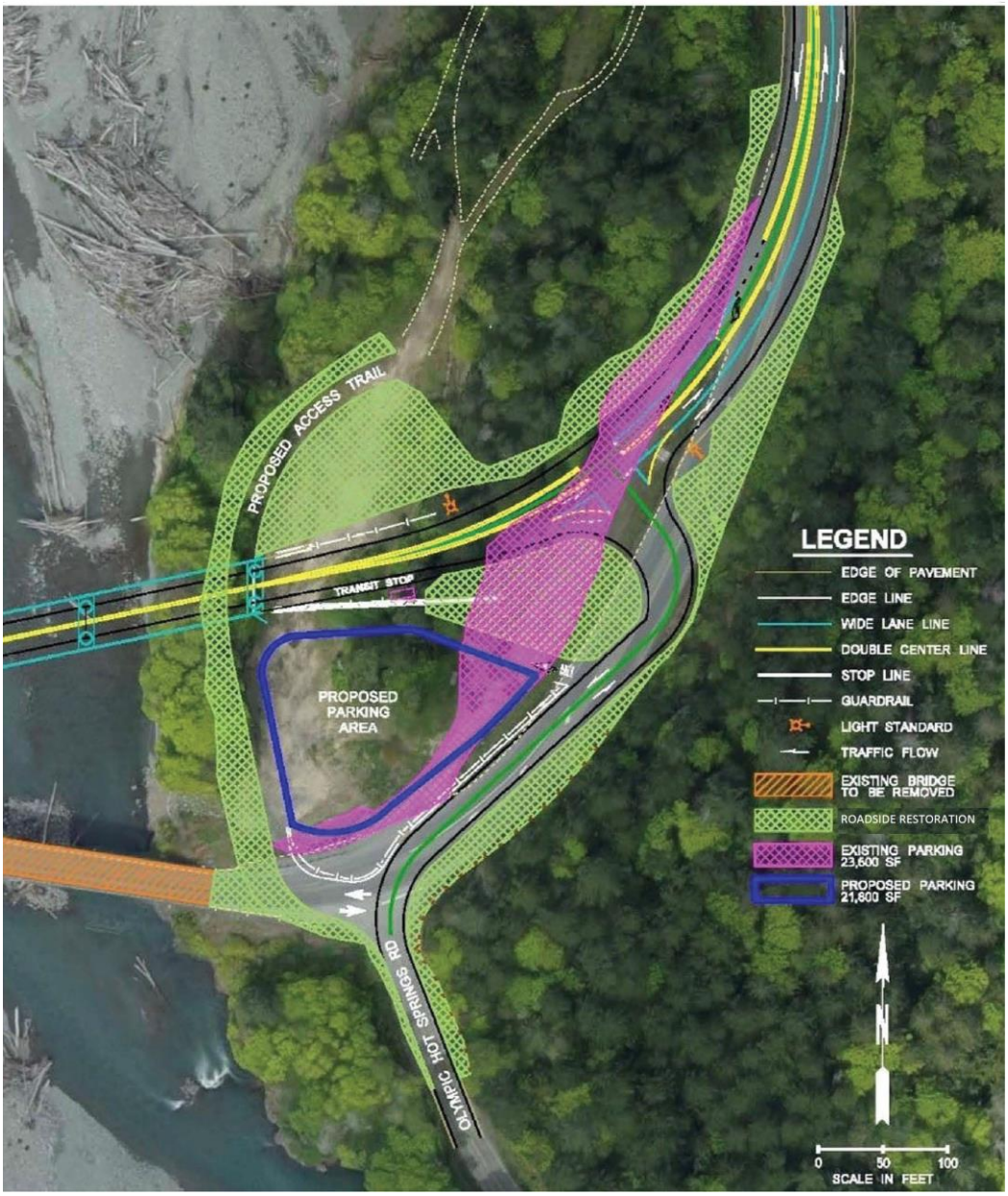

Figure 8. Project Map with Proposed Informal Parking Area

Cumulative effects of the Build Alternative on Public Access

Past, present, and reasonably foreseeable future actions with the potential to impact public access include US 101 rehabilitation at Lake Crescent, along with regular maintenance of US 101, and a geotechnical investigation and potential rehabilitation or relocation of the Olympic Hot Springs Road.

Overall, past, present, and reasonably foreseeable future actions would result in adverse impacts on public access. The Build Alternative would have short-term, direct, adverse effects on public access during new bridge construction, the removal of the current bridge, and realignment of the turnoff onto Olympic Hot Springs Road. This would be due to the need to restrict public access on the river and the bank immediately under and adjacent to the bridge and construction area during construction activities due to public safety. When the incremental impacts of the Build Alternative are added to the impacts of other past, present, and reasonably foreseeable future actions, the overall adverse cumulative impacts on public use would be adverse. The effects of the Build Alternative would add a slight increment to the overall adverse cumulative impacts on public use.

Conclusion

Under the No Build Alternative, closures to public use on the river immediately underneath and adjacent to the bridge, due to unsafe passage under the bridge, may need to be implemented. Past, present, and reasonably foreseeable future actions such as US 101 rehabilitation at Lake Crescent, regular maintenance of US 101, and a geotechnical investigation and potential rehabilitation or relocation of the Olympic Hot Springs Road would contribute adverse cumulative impacts. Overall cumulative impacts on public use under the No Build Alternative would be adverse. The effects of the No Build Alternative would slightly add a short- or long-term adverse increment to the overall cumulative impacts mainly due to a potential need for closures to public use on the river under and adjacent to the bridge due to unsafe passage under the bridge. Under the Build Alternative, a new bridge would be constructed, the current bridge would be removed, and US 101 would be realigned at the turn-off for Olympic Hot Springs Road. These

actions would have short-term adverse impacts on public use. Past, present, and reasonably foreseeable future actions such as US 101 rehabilitation at Lake Crescent, regular maintenance of US 101, and a geotechnical investigation and potential rehabilitation or relocation of the Olympic Hot Springs Road would contribute adverse cumulative impacts. Overall cumulative impacts on public use under the Build Alternative would be adverse. The effects of the Build Alternative would add a slight short-term adverse increment to the overall adverse cumulative impacts mainly due to the need to restrict public access on the river and the bank immediately under and adjacent to the bridge and construction area during construction activities due to public safety.

3.4.14 Visual Quality

US 101 through the project area is part of the Pacific Coast Scenic Byway which begins in Olympia, Washington and loops around the Olympic Peninsula. The Scenic Byway is a draw unto itself, and also serves as the main artery for travel between the eastern and western sides of the Olympic Peninsula. The highway passes through ONP along Lake Crescent and provides access to some of the more popular and heavily visited areas in the park and on the Olympic Peninsula. A portion of US 101 around the Olympic Peninsula has been designated as part of the Pacific Coast National Scenic Byway by the FHWA, and the segment along the Lake Crescent shoreline is considered among the most scenic segments on the byway. The roadside character of the area is heavily forested with native vegetation in a rolling, mountain foothill terrain. Views tend to be intact with few encroachments.

Visual quality is defined by the FHWA as the result of the interactive experience between viewers and their environment. While viewers may have different opinions on a given view within the purview of a transportation project, FHWA considers that the reason a viewer is in the area has a direct link to how they perceive that view. FHWA maintains that the viewer's self-interest can be used to predict what viewers would and would not enjoy viewing. The entire project area is located within a Scenic Byway and a mature forest. Most viewers can therefore be expected to prefer a forested view, having travelled to the area for this reason. Exceptions exist of course, but in general, it can be assumed

that a forested view would be the preferred view. Areas where the forested view is blocked by constructed elements, road signs, light standards or other encroachments can be expected to be less visually valued than unobstructed views. Views where the natural appearance of the land has been disturbed, soils bared, and trees removed, can also be expected to be lower in visual quality. Overall, visual quality within the project limits is a river valley within a mature forest with few encroachments and likely to be perceived as high. Viewer sensitivity is moderate as most of the viewers use US 101 as a travel route.

Effects of the No Build Alternative on Visual Resources

Under the No Build Alternative, the bridge would remain open until monitoring shows it is no longer structurally sound and is unsafe for vehicle traffic. No efforts would be undertaken to fix, reconstruct, or remove the bridge. Therefore, this alternative would not alter the existing visual quality of the project area in the short-term. In the long term, the existing US 101 Elwha River Bridge would eventually become unusable and traffic would be diverted as described under the Transportation section above. This would result in an adverse effect on visual quality because the integrity of the Pacific Coast Scenic Byway would be interrupted with detours utilizing SRs 112 and 113.

Cumulative effects of the No Build Alternative on Visual Resources

When the incremental impacts of the No Build Alternative are added to the impacts of other past, present, and reasonably foreseeable future actions, the overall cumulative impacts on visual quality would be adverse. In the long-term, the US 101 Elwha River Bridge would become unusable and views enjoyed along the Pacific Coast Scenic Byway would be interrupted with detours into other areas.

Effects of the Build Alternative on Visual Resources

Short-term effects:

Construction activities typically detract from visual quality because construction sites are usually dynamic and active. For this project, new bridge construction would occur alongside the existing roadway. Construction would include clearing and grading. Large construction equipment and construction staging areas would likely be in use and visible from the adjacent roadway. Construction activities and staging areas typically detract

from visual quality and would have an adverse impact on existing visual resources. Upon completion of the new bridge, the existing bridge would be removed, and the new alignment for Olympic Hot Springs Road would be constructed. These activities would continue to cause negative impacts on the visual quality. The project is expected to take 1.5 to 2 years to complete after start of construction. Once all construction and demolition is completed, there would be gaps in vegetation until the newly planted areas become established, which can take 5-10 years before gaining a natural appearance.

Roadway construction would involve excavation and fills, temporary shoring, embankment and retaining wall construction, reconstruction of existing driveway accesses; and drainage, stormwater, and culvert installations. Embankments would be constructed for the roadway approaches. Retaining walls are proposed at two locations along the roadway and around the bridge abutments.

Long-term effects:

Representative Views

The project is within a single landscape unit. Views were selected to represent those most often seen by highway users, along with views selected to represent the areas that would be most impacted by the project or seen by the most sensitive of viewers. Six views were selected. The Build Alternative would include restoration of these areas and views to as close to pre-construction conditions as is possible.

View 1-View from US 101 Approaching Existing Bridge:

Key View – Looking west

Approaching from the east, this view gives a sense of the confinement of the viewshed. Large mature trees border the roadway on both sides limiting views. The bend in the roadway leads to the intersection of Olympic Hot Springs Road with US 101 and the entrance to the Elwha River Bridge. The gravel road to the right of the highway leads to the parking area for access to the existing Elwha River Observation Area, which is a cleared gravel area just off the road. The parking area and utilities are the only visible encroachments. The viewshed remains intact and the view quality is high.

Post Construction View Analysis:

Post construction, this approach would be eliminated. The gravel road to the right is the approximate location of the new alignment. The road to the new bridge would begin to curve to the right for the approach of the new bridge. The existing road would be realigned for the new turn-off onto Olympic Hot Springs Road, relocation of the informal parking area, river access path, and viewpoint. There would be negligible encroachment into the bank on the south side of the road, but the new alignment would necessitate vegetation removal and grading to the new bridge approach. Mature trees would be removed, but a mature forest exists behind them and would help visually limit the impact of removal. Areas of exposed soils, where vegetation would be removed for grading and the realignment, would be replanted. The view would be temporarily degraded due to construction.

View 2-View from South East Corner of Bridge:

Key View – Looking east

This view shows the intersection of US 101 and Olympic Hot Springs Road. Guardrails, utilities, and signs encroach on this view. Overall, the viewshed remains intact and this particular view quality is moderate.

Post Construction View Analysis:

This view would be eliminated to through traffic. Any guardrails would be replaced with U.S. Forest Service (USFS) approved guardrails treated with weathering agent for scenic byways. The view would be temporarily degraded due to construction.

View 3-View from North East Corner of Bridge:

Key View – Looking west

This view shows the east end start of the bridge. As the viewer travels west across the bridge, views up and down the Elwha River are revealed within a rolling mature forest. Guardrails and utility lines detract slightly from the attraction of the river. As the viewer crosses the bridge, the viewshed returns to a confined view with mature forest stands on both sides of the road. The viewshed remains intact and view quality is high.

Post Construction View Analysis:
This view would be eliminated to through traffic. The new bridge would allow for the same views up and down the river, with a slight shift to the right (north). As the viewer crosses the bridge from the east, views of the roadway beyond the bridge would be cut off until reaching the end of the bridge when the new roadway realigns with the existing roadway. The view would be temporarily degraded due to construction.

Views 4 and 5 Views from Bridge:

Looking north and south

These views show the Elwha River looking downstream and upstream respectively from the bridge. Power lines have minor impact on the south view. To the left on the south view is the location of the Olympic Hot Springs Road as it follows the river. This segment of the viewshed gives a break from constricted views leading to the bridge. The view quality is high.

Post Construction View Analysis:
The view to the south would remain as-is because the location of the existing bridge abutment would become the new viewpoint. Power lines would be removed, as utilities are re-routed. The views in both directions would remain virtually the same as travelers cross the new bridge slightly to the north.

View 6-View from Location of New Bridge Approach:

Key View – Looking southeast

This view is from the approximate location where the proposed trail would be located, with the proposed parking area to the left. The first abutment for the new bridge would be located just behind (east of) this point, so the actual bridge would be just overhead.

Post Construction View Analysis:
The east end of the existing bridge and the approximate location of the new connection with the current alignment of US 101 is visible in the center of the photo. When the new bridge is completed and open for traffic, the old bridge would be removed. The new crossing would retain similar views over the river as currently exists. Visibility of the proposed relocation of the informal parking area, proposed viewpoint, and some of the proposed trail would detract somewhat from pristine views in both directions, but the overall viewshed would remain intact.

Mitigation Measures:
WSDOT's policy is to remove the minimum amount of vegetation necessary to complete the project. Once the final design has been approved, a tree survey would be undertaken to determine the number and size of trees the project would remove. When trees are removed for a project, WSDOT's policy is to replace them within the limits of the project. All vegetation planted on WSDOT properties will meet all WSDOT setback requirements for sight distance and other safety and maintenance considerations. All plant materials, including seeding would be funded by the project for weed suppression and plant establishment for a minimum of 3 years.

Since US 101 is designated a National Scenic Byway as well as a State Scenic Highway, new guardrail would be treated with a weathering agent by USFS and scenic byway standards.

Cumulative effects of the Build Alternative on Visual Resources

Past, present, and reasonably foreseeable future actions with the potential to impact visual quality include US 101 rehabilitation at Lake Crescent, along with regular maintenance of US 101, and a geotechnical investigation and potential rehabilitation or relocation of the Olympic Hot Springs Road.

Overall, past, present, and reasonably foreseeable future actions would result in adverse impacts on visual quality. The Build Alternative would have short-term, direct, adverse effects on visual quality during new bridge construction and while restoration areas develop. When the incremental impacts of the Build Alternative are added to the impacts of other past, present, and reasonably foreseeable future actions, there would not be noticeable additional cumulative impacts on visual quality. In the long term, the project area would have a high quality visual character much like the current uninterrupted scenic byway.

Conclusion

The No Build Alternative would not include US 101 modifications and would not alter the existing visual quality of the project area in the short-term. In the long-term, the existing US 101 Elwha River Bridge would eventually become unusable and traffic would be diverted as described in the Transportation section of this document. This would result in an adverse effect on visual quality because the integrity of the Pacific Coast Scenic Byway would be interrupted with detours through other areas. Under the Build Alternative, a new bridge would be constructed, the current bridge would be removed, and US 101 would be realigned at the turn-off for Olympic Hot Springs Road. The Build Alternative would temporarily decrease visual quality in the project corridor during construction and while restoration areas develop. In the long term, the project area would have a high quality visual character much like the current uninterrupted scenic byway.

3.4.15 Section 4(f) of the U.S. Department of Transportation Act of 1966

Section 4(f) refers to a special section of the Department of Transportation Act of 1966 which stipulates that U.S. Department of Transportation (USDOT) agencies cannot approve the use of land for transportation projects from publicly-owned parks, recreation

areas, wildlife and waterfowl refuges, or public and private historical sites unless the following two conditions apply:

- There is no feasible and prudent alternative to the use of the land from the property.
- The action includes all possible planning to minimize harm to the property resulting from such use.

The project is in an archeologically sensitive area with three discrete archeological sites identified within the project Area of Potential Effect (APE). For archeological sites to qualify as Section 4(f) resources they must 1) be on or eligible for listing on the National Register of Historic Places (NRHP), and 2) warrant preservation in place (23 CFR 774.13(b)). Sites 45CA727, 45CA774, and 45CA775 meet these requirements and are thus considered 4(f) resources. They are Olcott sites eligible for listing in the NRHP under Criteria A and D. The sites are eligible under Criterion A based on their proximity to the confluence of Indian Creek and the Elwha River, a location of cultural significance to the Lower Elwha Klallam Tribe (LEKT). The confluence represents a well-known fishing camp used for hundreds (if not thousands) of years by Klallam peoples. The confluence is the location of Tee-tee-ulth, a village site described in the ethnographic record (Lane 1972). As such, these sites are "*associated with events that have made a significant contribution to the broad patterns of our history*" in accordance with National Criteria for Evaluation (Criteria A).

As part of a required individual 4(f) evaluation, eight alternatives were considered. The No Build Alternative was the only *avoidance* alternative and was considered to not be prudent. The No Build Alternative was found to not fulfill the project purpose and need and further analysis of impacts was discontinued. Three of the eight alternatives were considered to be feasible and prudent and were advanced to a 4(f) "Least Harm Analysis". If there is no feasible and prudent avoidance alternative, FHWA may approve the alternative that causes the least overall harm in light of the purposes of Section 4(f) from among the alternatives that use Section 4(f) properties. FHWA determined that the Build Alternative described in this EA has the least overall harm of the alternatives

considered that also meet the need and purpose of the project. The Build Alternative would result in the permanent use of all three archeological sites (45CA774, 45CA775, & 45CA727) as described in the Cultural Resources section (3.4.8) and project MOA (Appendix G). The full individual 4(f) evaluation for the project is presented in the separate document *US 101 Elwha River Bridge Replacement Draft Section 4(f) Evaluation* (WSDOT 2021) which is included in Appendix G.

3.4.16 Hazardous Materials

The old Elwha Resort situated at the east bridge approach formerly used two underground storage tanks at its service station. These tanks and associated distribution lines were installed in 1946, taken out of service in 1992 and ultimately decommissioned and removed in 1997. Soils were identified as being impacted by lead and petroleum at that time. Demolition of the Resort in 2001 included removal of 41 tons of petroleum impacted soils. The Washington State Department of Ecology (Ecology) ultimately issued a No Further Action Determination for soil associated with the old Resort in August of 2014 (Cleanup Site ID 7511).

A search of theEcology site facility database in March 2021 revealed no known hazardous sites within a half mile of the project area. There is a low risk of encountering hazardous materials in the soil associated with the former Elwha Resort gas station. Prior to removal, the Elwha River Bridge will undergo a good faith asbestos survey.

3.4.17 Climate Change

WSDOT is required to address climate change. WSDOT acknowledges that the effects of climate change may alter the function, sizing, and operation of our facilities. To ensure facilities can function as intended for their planned 50-, 70-, or 100-year lifespan, they should be designed to perform under the variable conditions expected as a result of climate change. For example, drainage culverts may need to be resized to accommodate more intense rainfall events or increased flows due to more rapid glacial thawing.

The Pacific Northwest climate projections are available from the Climate Impacts Group at the University of Washington (UW 2018).

Washington State is likely to experience the following over the next 50 years:

- Increased temperature (extreme heat events, changes in air quality, glacial melting)
- Changes in volume and timing of precipitation (reduced snow pack, increased erosion, flooding)
- Ecological effects of a changing climate (spread of disease, altered plant and animal habitats, negative impacts on human health and well-being)
- Sea-level rise, coastal erosion, saltwater intrusion

US 101 in the vicinity of the Elwha River is rated as having "low vulnerability" to climate change in the Climate Impacts Vulnerability Assessment (WSDOT 2011). Consistent with requirements, the project team developed the preliminary bridge design for the Build Alternative in light of possible modifications in the surrounding natural environment potentially induced by climate change. As part of standard design, this project has incorporated features that will provide greater resiliency and function with the potential effects brought on by climate change. The existing 1926 bridge is 30 feet above normal high water. The proposed bridge includes a higher clearance above the normal high water of 40 ft. The bridge design also meets the design requirements for hydraulics and seismic activity.

3.3.18 Greenhouse Gas Emissions

WSDOT is required to address greenhouse gas emissions. Vehicles emit a variety of gases during their operation; some of these are greenhouse gases (GHGs). The GHGs associated with transportation are carbon dioxide (CO_2), methane, and nitrous oxide. Any process that burns fossil fuel releases CO_2 into the air. Carbon dioxide makes up the bulk of the emissions from transportation.

Vehicles are a significant source of greenhouse gas emissions and contribute to global warming primarily through the burning of gasoline and diesel fuels. National estimates show that the transportation sector (including on-road vehicles, construction activities, airplanes, and boats) accounts for about 27 percent of total domestic CO_2 emissions. However, in Washington State, transportation accounts for nearly half of GHG emissions because the state relies heavily on hydropower for electricity generation, unlike other states that rely on fossil fuels such as coal, petroleum, and natural gas to generate electricity. The next largest contributors to total GHG emissions in Washington are fossil fuel combustion in the residential, commercial, and industrial sectors at 22 percent and electricity consumption at 17 percent. Figure 9 shows the gross GHG emissions by sector, for Washington State and nationally.

Source: Washington Department of Ecology, 2015

Source: Washington Department of Ecology, 2015

Figure 9. GHG Emissions by Sector, Washington State (2012) and National (2013)

Project Level Green House Gas Emissions

The GHG emissions from a single project action are usually very small, (and often less than without the project). However, overall, users of the transportation system contribute close to half of the state's GHG emissions (see Figure 9). WSDOT believes that transportation GHG emissions are better addressed at the region, state, and transportation systems level where multiple projects can be analyzed in aggregate. We recognize that most current plans at these broader levels do not yet provide the emissions analysis that would put our proposed transportation improvements in a larger context. We also

recognize the public's interest in these issues and the need to disclose GHG emissions at the project level for major public projects.

Effects of the Build Alternative on GHG emissions

The state and federal investments in transportation projects are made to improve current conditions of the multi-modal transportation network. The proposed highway bridge replacement project contains several features that would not increase GHG. In general, project-level actions that can help reduce greenhouse gas emissions include:

- Reducing stop and go conditions
- Improving roadway speeds to a moderate level
- Improving intersection traffic flow to reduce idling
- Creating more safe and efficient freight movement
- Expanding transit and non-motorized options for travelers
- Increasing vegetation density over pre-project conditions to sequester carbon

Construction of the project is currently planned to last 75 years from 2020 to 2095. Project construction and production of materials used in the US 101 Elwha River Bridge Replacement project would release greenhouse gases. Likewise, maintenance activities and materials over the life of the project would produce GHG emissions.

Chapter 4: Consultation and Coordination

4.1 Public and Agency Outreach

Community engagement has been integral to the success of the US 101 Elwha River Bridge Replacement Project. Effort was implemented to ensure effective participation at numerous junctures throughout the planning and environmental review phases of the project. This section provides a summary of the various engagement activities conducted, major messages and themes surfacing from the outreach, and ways in which community engagement has shaped the action alternative.

Overall Approach

The community engagement strategy was designed to involve people in ways that allowed them to provide informed, timely, and meaningful input to the project. The strategy recognized that different members of the community have different needs for engagement and input. It also recognized the need to balance highly technical engagement with opportunities for general interest engagement. The goal was to create multiple opportunities and ways for people to participate.

Project Website

A primary vehicle for providing on-going information to the public was a project website hosted by WSDOT http://www.wsdot.wa.gov/Projects/US101/ElwhaRiverBridgeReplace/default.htm. Visitors to the site could obtain information on the project from easy to understand content on the home page. Those looking for detailed information and data could readily find reports, analysis, summaries, maps, schedules, and other project related information. Visitors can sign up to receive e-mail notifications of meetings and other project milestones. There was also an easy to find form with which to leave detailed questions, comments, and concerns. People took advantage of this communication opportunity to voice their opinions and ask specific questions of interest about the project. Project staff provided detailed and timely responses to every comment and question received.

Electronic Distribution System

The project also employed a robust electronic distribution system to keep local residents informed of project progress. The system, called GovDelivery, allows individuals to self-subscribe to email or text messages free of charge, and currently 850 individuals have availed themselves of that service. In addition, communications about the project are sent to local media, elected officials, first responders, and city and county jurisdictions. With each communication comes an invitation to ask questions or provide comments, to which WSDOT promptly replies.

Presentations

WSDOT staff have made several visits to both Port Angeles and Forks since August 2016 to provide updates in person, the most recent being February 20 and February 21, 2018. WSDOT staff provided updates at the Port Angeles City Council meeting, the Forks Professional and Business Association and the Forks Chamber of Commerce. They were also able to meet with the newly-elected Forks Mayor.

Miscellaneous

In addition to the many project related engagement opportunities noted above, there have been other miscellaneous outreach efforts. From February 27, 2018 to March 14, 2018 a public survey related to recreational access was conducted to gather specific information from the community. Project staff received 275 completed surveys. The surveys demonstrated that the public has an interest in improved recreational access at this location. Social media outreach was a component of the survey process and took place throughout the survey. A bridge briefing was provided to the Peninsula Regional Transportation Planning Organization (RTPO). One-on-one legislative briefings were also provided at several junctures during 2017 and 2018.

Major Messages and Themes heard from the public

Economic and related concerns about bridge closure have been an intense area of public focus. There has been no disagreement among participants to date that the structural integrity of the existing bridge has been compromised and a fix is needed as soon as possible. Although contingencies for detour routes have been carefully established with involvement from the community, the SR 112 and SR 113 detour routes and a no build

solution would involve time intensive travel delays potentially affecting employment, commerce, business interests as well as recreational, health, travel, and social activities.

Residents clearly wanted the design and construction process to go faster. In response, some of the public outreach focused on increasing awareness of bridge replacement requirements, necessary design and environmental processes, and the timeline needed for a project of this scope and size. Generally, residents seem to be satisfied with the overall approach to the project, the interim measures enacted to stabilize and extend the life of the existing bridge, and the level and frequency of communications they were receiving from WSDOT.

A strong preference for a new bridge on a new alignment was another clear message from the public. WSDOT began looking at the problem by identifying seven alternatives that included variations on retrofitting the existing bridge, building a new US 101 connection elsewhere, and building a new bridge. The preference for alternative #7 (new bridge on new alignment) was overwhelmingly preferred by the public and elected officials alike.

Agency Outreach

WSDOT coordinates with agencies that are responsible for issuing environmental permits and who have special expertise in project related fields. This coordination is accomplished through e-mails, meetings, verbal contacts, and official letters. For this project, coordination is ongoing with: FHWA, USFWS, NMFS, EPA, US Army Corps of Engineers (USACOE), Ecology, WDFW, DAHP, and Clallam County.

Tribal Outreach & Coordination

To ensure that WSDOT takes into account the effects on properties listed in, or eligible for listing in the National Register of Historic Places, WSDOT initiated Section 106 consultation with several tribes including the Lower Elwha Klallam Tribe, the Makah Tribe, Port Gamble S'Klallam Tribe, and Jamestown S'Klallam Tribe (JSKT). These tribes were invited to review the project Area of Potential Effect (APE) in April 2017 and were invited to comment on an archeological testing report in November of 2018. WSDOT Olympic Region Administrator, John Wynands, has been meeting regularly

with the Lower Elwha Klallam Tribe Chairperson Frances Charles about cultural resource issues as well as a variety of other project related concerns throughout the project planning and environmental documentation phases of the project.

Through the consultation exchange of letters included in Appendix E, we want to ensure that the tribal governments are afforded the opportunity to:

- Identify any concerns they may have regarding the effects of the proposed undertaking on historic properties;
- Advise FHWA and WSDOT on the identification and evaluation of historic properties, including those of traditional religious and cultural importance;
- Express their views on the undertaking's effects on such properties; and,
- Participate in the resolution of any adverse effects which the undertaking might have on those properties.

As defined by the Advisory Council on Historic Preservation, consultation means "...the process of seeking, discussing, and considering the views of other participants and, where feasible, seeking agreement with them regarding matters arising in the section 106 process." Consultation is fundamental to the process of seeking ways to avoid, minimize or mitigate the effects of the undertaking on historic properties. Consequently, the tribe's active participation as a consulting party in the proposed undertaking is encouraged. The letter exchange to document our consultation is included in Appendix E.

William "Bill" White, LEKT Tribal Archaeologist, contributed to project research design and visited during fieldwork on January 9 and 21, 2018. Bill was also helpful in making connections to provide LEKT and JSKT tribal members for the field crew. The Section 106 consultation is an ongoing effort with involvement from the LEKT, NPS, WSDOT, FHWA and the Washington State Department of Archaeology and Historic Preservation (DAHP). A Memorandum of Agreement (MOA), signed by consulting parties in May 2021 , details how the adverse effects to cultural resources will be managed and mitigated. .

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Appendix A Elwha Act Legislation

Elwha River Ecosystem and Fisheries Restoration Act
One Hundred Second Congress of the United States of America
January 3, 1992

To restore Olympic National Park and the Elwha River ecosystem and fisheries
(Enrolled Bill (Sent to President))

--H.R.4844--

H.R.4844

One Hundred Second Congress of the United States of America
AT THE SECOND SESSION
Begun and held at the City of Washington on Friday, the third day of January,
one thousand nine hundred and ninety-two
An Act
To restore Olympic National Park and the Elwha River ecosystem and fisheries
in the State of Washington.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be referred to as the `Elwha River Ecosystem and Fisheries Restoration Act'.

SEC. 2. DEFINITIONS.

For the purposes of this Act:

(a) The term `Administrator' means the Administrator of the Bonneville Power Administration.

(b) The term `Commission' means the Federal Energy Regulatory Commission.

(c) The term `electric power' means electric peaking capacity or electric energy or both.

(d) The term `Elwha Project' means the Elwha River Hydroelectric Project, Federal Energy Regulatory Commission Project Number 2683, including appurtenant works and project lands, located on the Elwha River in Clallam County, Washington.

(e) The term `Glines Project' means the Glines Canyon Hydroelectric Project, Federal Energy Regulatory Commission Project Number 588, including appurtenant works and project lands, located on private and public lands both within and without the exterior boundaries of Olympic National Park on the Elwha River in Clallam County, Washington.

(f) The term `local industrial consumer' means the owner of the pulp and paper mill located on Ediz Hook in Port Angeles, Washington, that, on the date of enactment of this Act, receives and consumes the electric power produced by the Projects, or its successors or assignees.

(g) The term `local preference customer' means Port Angeles City Light.

(h) The term `owner' means the current owner of the Projects or its successors or assignees, but shall not mean the Secretary, the United States, or any other entity acquiring title to the Projects or features thereof pursuant to the terms of this Act.

(i) The term `Park' means Olympic National Park.

(j) The term `Project' or `Projects' means either or both the Elwha Project and the Glines Project, including project works and appurtenant lands.

(k) The term `project replacement power' means electric power delivered to the local industrial consumer to replace losses of electric power generation from the Projects following their acquisition by the Secretary pursuant to this Act, in an amount not to exceed 172.088 gigawatthours of energy in any year.

(l) The term `Secretary' means the Secretary of the Interior.

(m) The term `State' means the State of Washington, including its agencies and departments.

SEC. 3. ACQUISITION OF PROJECTS.

(a) Effective sixty days after submission to the Congress of the report referred to in section 3(c), the Secretary is authorized to acquire the Elwha and Glines Canyon Projects, and all rights of the owner and local industrial consumer therein, subject to the appropriation of funds therefor: Provided, That the Secretary shall not acquire the projects unless he has determined pursuant to subsection (c) that removal of the Project dams is necessary for the full restoration of the Elwha River ecosystem and native anadromous fisheries and that funds for that purpose will be available for such removal within two years after acquisition.

(b) The consideration for acquisition of the Projects shall be $29.5 million and no more, to be paid by the Secretary to the owner and local industrial consumer at the time of acquisition, and shall be conditioned on a release of liability providing that all obligations

and liabilities of the owner and the local industrial consumer to the United States arising from the Projects, based upon ownership, license, permit, contract, or other authority, including, but not limited to, project removal and any ecosystem, fish and wildlife mitigation or restoration obligations, shall, from the moment of title transfer, be deemed to have been satisfied: Provided, That the United States may not assume or satisfy any liability, if any, of the owner or local industrial consumer to any federally recognized Indian Tribe nor shall such liability to the Tribe, if any, be deemed satisfied without the consent of such Tribe.

(c) The Secretary shall prepare a report on the acquisition of the Projects and his plans for the full restoration of the Elwha River ecosystem and the native anadromous fisheries and submit such report on or before January 31, 1994, to the Appropriations Committees of the United States Senate and the United States House of Representatives, as well as to the Committee on Energy and Natural Resources of the Senate and the Committees on Energy and Commerce, Interior and Insular Affairs, and Merchant Marine and Fisheries of the United States House of Representatives. The report shall contain, without limitation:

(1) The precise terms of acquisition of the Projects, with an analysis of the costs, in addition to the consideration set out in section 3(b), and potential liabilities and benefits, if any, to the Federal Government resulting from the acquisition and all other actions authorized under this Act;

(2) Alternatives, in lieu of dam removal, for the restoration of the Elwha River ecosystem and the native anadromous fisheries and wildlife of the Elwha River Basin, consistent with the management plan of the Park, the rights of any Indian tribe secured by treaty or other Federal law, and applicable State law. The report shall include feasibility studies for each alternative considered and a definite plan for removal. Such definite plan shall include the timetable after conveyance for removal of the dams and the plans for removal and disposal of sediment, debris, and other materials consistent with all applicable environmental laws and a detailed explanation of all costs of removal. In conducting the feasibility studies and in the preparation of the definite plan, the Secretary is authorized to use the services of any Federal agency on a reimbursable basis and the heads of all Federal agencies are authorized to provide such technical and other assistance as the Secretary may request. For each alternative considered, the Secretary shall estimate total costs, environmental risks and benefits, the potential for full restoration of the Elwha River ecosystem and native anadromous fisheries, and the effect on natural and historic resources (together with any comments made by the Advisory Council on Historic Preservation for any properties which are listed, or eligible for listing, on the National Register of Historic Places).

(3) Specific proposals for management of all lands or interests therein acquired pursuant to this Act which are located outside the exterior boundaries of the Olympic National Park. The Secretary shall specifically address the suitability of such lands, or portions thereof, for addition to the National Wildlife Refuge System; National Park System; transfer to the Lower Elwha Klallam Tribe in trust for tribal housing, cultural, or economic development purposes in accordance with a plan developed by the Lower Elwha Klallam Tribe in consultation with the Secretary; and development and use by the State. Upon acquisition, all lands and interests therein within the exterior boundaries of the Park shall be managed pursuant to authorities otherwise applicable to the Park. For the purposes of protecting the Federal investment in restoration, that portion of the river outside the Park on which the Federal Government will acquire both banks shall, upon such acquisition, be managed in

accordance with the declared policy of section 1(b) of Public Law 90-542, except that modifications necessary to restore, protect, and enhance fish resources and to protect the existing quality of water supplied from the river are hereby authorized.

(4) Specific proposals and any Federal funding and the availability of that funding that may be necessary to protect the existing quality and availability of water from the Elwha River for municipal and industrial use from possible adverse impacts of dam removal.

(5) Identification of any non-Federal parties or entities, excluding Federally recognized Indian tribes, which would directly benefit from the commercial, recreational, and ecological values that would be enhanced by the restoration of the Elwha River ecosystem and fisheries, if the Secretary believes that such parties or entities should assume some portion of the cost involved in the restoration, together with the specific cost-share provisions which the Secretary deems necessary and reasonable.

(d) In preparing his report, the Secretary shall consult with appropriate State and local officials, affected Indian tribes, the Commission, the Environmental Protection Agency, the Secretary of Energy, the Administrator, the Pacific Northwest Power Planning Council, the Secretary of Commerce, and of the Advisory Council on Historic Preservation, as well as interested members of the public. In addition, the Secretary shall afford an opportunity for public comment on the report prior to its submission to the Congress.

(e) Upon the appropriation of the sum provided for in section 3(b) for the acquisition of the Projects and the determination that dam removal is necessary, the owner and local industrial consumer shall convey to the United States, through the Secretary, title to the Projects, including all property and all other rights and interests. Upon such conveyance and payment of the consideration as provided in section 3(b), and without further action by the United States, title shall transfer and vest in the United States, the owner and local industrial consumer shall be released from any further liability to the United States, as provided in section 3(b), and the acquisition from the owner and local industrial consumer shall be deemed to be completed.

SEC. 4. ECOSYSTEM AND FISHERIES RESTORATION.

(a) Effective sixty days after submission of the report referred to in section 3(c) and following the conveyance in section 3(e), the Secretary is authorized and directed, subject to the appropriation of funds therefor, to take such actions as are necessary to implement- -

(1) the definite plan referred to in section 3(c)(2) for the removal of the dams and full restoration of the Elwha River ecosystem and native anadromous fisheries;

(2) management of lands acquired pursuant to this Act which are located outside the exterior boundaries of the Park; and

(3) protection of the existing quality and availability of water from the Elwha River for municipal and industrial uses from possible adverse impacts of dam removal.

(b) The definite plan referred to section 3(c)(2) must include all actions reasonably necessary to maintain and protect existing water quality for the City of Port Angeles, Dry Creek Water

Association, and the industrial users of Elwha River water against adverse impacts of dam removal. The cost of such actions, which may include as determined by the Secretary, if reasonably necessary, design, construction, operation and maintenance of water treatment or related facilities, shall be borne by the Secretary. Funds may not be appropriated for removal of the dams, unless, at the same time, funds are appropriated for actions necessary to protect existing water quality.

(c) Nothing in this section shall be construed as an entitlement for which a claim against the United States may be made under the Tucker Act.

SEC. 5. PROJECT OPERATION AND REPLACEMENT POWER.

(a) Notwithstanding any other provision of law, neither the Federal Energy Regulatory Commission nor any other agency of the Federal Government shall have the authority or jurisdiction to issue a permanent license or similar order with respect to either Project prior to conveyance as provided in section 3(e), except that the Commission shall have jurisdiction under the Federal Power Act and is hereby authorized and directed to issue or maintain in effect annual licenses or authorizations for both Projects, authorizing continued operation of both Projects by the owner and local industrial consumer, such operation to be under such terms and conditions and in accordance with such practices as existed on September 1, 1992, until (1) the date the Secretary has acquired title to the Projects or (2) if the Secretary's report required in section 3(c) does not provide for dam removal, five years after the expiration of the current annual license or authorization then in effect, after which time the Commission shall have authority under the Federal Power Act to issue appropriate licenses with respect to such Projects to the extent the Commission has jurisdiction over such Projects under such Act on the date of enactment of this Act.

(b) To ensure the availability of adequate electric power supplies to the operating facilities of the local industrial consumer, the Administrator shall, following acquisition of the Projects pursuant to this Act, deliver all project replacement power required by the operating facilities of the local industrial consumer through the local preference customer at a rate equal to the priority firm rate, or the rate which is then the equivalent of the priority firm rate if that designation is no longer used by the Administrator, as such rate is fixed by the Administrator from time to time, without regard to any new large single load determinations or similar factors. The local industrial consumer shall pay the local preference customer for such project replacement power at the same rate as all other industrial consumers of the local preference customer.

(c) Upon conveyance of the Projects to the United States, the Secretary shall maintain the dams in a safe condition for the period prior to their removal.

SEC. 6. LEASE OF FEDERAL LANDS.

(a) LEASE OF LANDS TO THE CITY OF PORT ANGELES- After the Secretary makes the determination to remove the dams and actually acquires the projects and funds are appropriated for such conveyance and removal, the Secretary is authorized to issue a lease to the City of Port Angeles, Washington, for those lands situated on Ediz Hook, Clallam County, Washington, currently leased to the City under Lease No. DOT-CG13- 4811-72, dated April 4, 1972, as amended, except for that parcel of land described in subsection (b)(2).

Such lease shall be issued pursuant to the Act of June 14, 1926, as amended (43 U.S.C. 869), for a period of 99 years, beginning on a date to be determined by the Secretary, without right of patent.

(b) LEASE OF LANDS TO THE LOWER ELWHA KLALLAM TRIBE- (1) After the Secretary makes the determination to remove the dams and actually acquires the Projects and funds are appropriated for such conveyance and removal, the Secretary is authorized to lease to the Lower Elwha Klallam Tribe that parcel of land situated on Ediz Hook, Clallam County, Washington, described in paragraph (2) for the purposes of the construction and operation of a tribal cultural facility, such as a longhouse or a museum, and associated interpretive and parking facilities. Such lease shall be issued pursuant to the Act of June 14, 1926, as amended (43 U.S.C. 869), for a period of ninety-nine years beginning on a date determined by the Secretary, without right of patent.

(2) The parcel of land to be leased to the Lower Elwha Klallam Tribe is that parcel of land lying south of the existing roadway and extending southward to the southern boundary of the land currently leased to the City of Port Angeles (Lease No. DOT-CG13- 4811-72, dated April 4, 1972, as amended) and beginning at the north-south line 200 ft east of the western boundary of Out Lot 6 and running easterly 600 ft to the north-south line 300 ft west of the eastern boundary of Out Lot 6.

(3) In addition to the general terms and conditions applicable under the Act of June 14, 1926, as amended (43 U.S.C. 869), the lease to the Tribe shall be subject to the following terms and conditions:

(A) There shall be public access to the beach along the south side of the parcel at all times.

(B) The City of Port Angeles shall have the right to construct and maintain a waterfront trail adjacent to the existing roadway along the north side of the parcel, the location of which shall be determined in conjunction with the Secretary.

(C) Parking facilities on the parcel shall be open to the public at all times.

(c) In addition to the terms and conditions described in this section for the leases to the City and the Tribe, the Secretary shall incorporate by reference into each lease the Agreement entered into on August 11, 1992, between the City and the Tribe regarding the use of the adjacent leaseholds.

SEC. 7. TRIBAL LAND ACQUISITION AND DEVELOPMENT.

(a) After the Secretary makes the determination to remove the dams and actually acquires the Projects and funds are appropriated for such conveyance and removal, the Secretary is authorized to acquire by purchase, and hold in trust in reservation status for the benefit of the Lower Elwha Klallam Tribe, lands in Clallam County, Washington, for housing, economic development, and moorage for the Tribal commercial fishing fleet.

(b) There is authorized to be appropriated an amount not to exceed $4,000,000 to carry out the land acquisition purposes of this section.

SEC. 8. SAVINGS.

(a) Nothing in this Act shall abridge or modify existing rights to Elwha River water.

(b) Nothing in this Act shall affect the rights of any Indian Tribe secured by Treaty or other law of the United States.

(c) This Act does not modify any of the Administrator's obligations or require the Administrator to take any actions regarding the protection, mitigation, or enhancement of fish and wildlife or expand those provided for under the Pacific Northwest Power Planning and Conservation Act, Public Law 96-501. Notwithstanding any other provision of law, the Administrator shall not be required to make any expenditures from the Bonneville Power Administration fund for the operation, maintenance, rehabilitation, improvement, or removal, breach, or bypass of the Projects.

SEC. 9. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Secretary of the Interior for expenditure through the Assistant Secretary for Fish, Wildlife, and Parks and to the Secretary of Commerce for expenditure through the National Marine Fisheries Service such sums as may be necessary to carry out the purposes of this Act: Provided, That such authorization shall not become effective until sixty days following submission of the report provided for in section (3)(c) of this Act.

Speaker of the House of Representatives.

Vice President of the United States,
President of the Senate.

Appendix B Discipline Studies/Memos and List of Preparers

The following individuals contributed to the production of this environmental assessment.

Name	Company	Role
Paul Dreisbach	*WSDOT*	*Author*
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Courtney Leas	*FHWA*	*Guidance*
Dean Moberg	*FHWA*	*Guidance / Review*
Liana Liu	*FHWA*	*Review*
Sharon Love	*FHWA*	*Guidance / Review*

Noise Technical Memorandum
US 101 Elwha River Bridge Replacement, WSDOT, April 12, 2018

Preliminary Hydraulic Analysis for the Biological Assessment
US 101 Elwha River Bridge Replacement, WSDOT State Hydraulics Engineer, July 23, 2017

Biological Assessment
US 101 Elwha River Bridge Replacement, Parametrix, Inc., September 2017

Visual Impact Assessment
US 101 Elwha River Bridge Replacement, WSDOT, April 2018

Appendix C EA Distribution List

Wide distribution of the Environmental Assessment will continue to foster effective communication between FHWA, WSDOT, Olympic National Park, public agencies, tribal governments, and the local community regarding the US 101 Elwha River Bridge Replacement

Federal Agencies/
Director Office of Environmental Policy and Compliance – Department of the Interior
U.S. National Park Service
U.S. Forest Service
Bureau of Reclamation
Federal Highway Administration
Federal Emergency Management Agency
National Marine Fisheries Service
U.S. Environmental Protection Agency, Region 10
U.S. Army Corps of Engineers, Seattle District Office
U.S. Fish and Wildlife Service

State Agencies
Department of Archaeology and Historic Preservation Department of Commerce
Department of Ecology
Office of Attorney General
Department of Fish and Wildlife
Department of Natural Resources
WA Parks and Recreation
Puget Sound Partnership

Regional Agencies
Clallam Transit System
Peninsula RTPO
Clallam County Planning Department
Clallam County SEPA Reviewer
Clallam County Sheriff's Department

Local Agencies
City of Port Angeles Fire Department
City of Port Angeles Police Department
City of Port Angeles SEPA Reviewer
City of Forks
East Jefferson Fire & Rescue
Port Angeles School District
Clallam County Fire District
Clallam County PUD

Native American Tribes

Lower Elwha Klallam Tribe
Port Gamble S'Klallam Tribe
Jamestown S'Klallam Tribe
Makah Tribe

24th District Legislators
Kevin Van De Wege
Mike Chapman
Steve Tharinger

Appendix D Environmental Commitments

Resource	Commitments
Soils	To the extent possible, earthwork operations will be limited to the drier times of the year when erosion potential is reduced. This can be accomplished by careful planning of construction staging and by the use of geometric covers. Potential for erosion during construction operations would be replaced by following the BMP's outlined in the Standard Specification Erosion Control Requirements and the Temporary Erosion and Sediment Control (TESC) Plan sections of WSDOT's Highway Runoff Manual and Environmental Manual.
Vegetation	Temporary impact areas would be restored with native trees and shrubs. Some portions of the vacated US 101 roadway would similarly be restored where project elements such as the realigned turnoff for the Olympic Hot Springs Road or stormwater treatment facilities are not designated. A total of 5.14 acres of project area are designated for restoration with native vegetation as part of the Build Alternative.
SurfaceWater	Water quality effects would be limited by the use of Best Management Practices (BMPs) which would be outlined in the contract specifications for the project. The project would maintain compliance with state water regulations in WAC 173-201A. Before project completion, WSDOT would install water quality treatment facilities along new roadway segments and construct conveyance structures to carry stormwater to planned treatment areas and discharge points.
Fish/Wildllife/ESA	The project Biological Assessment (Section 1.4) (WSDOT & FHWA 2017) prescribes numerous specific impact avoidance and minimization measures pertaining to fish species. These include species specific measures such as for Bull Trout, general impact avoidance and minimization, BMP's to reduce the risk of delivering sediment to waterbodies, BMP's to reduce the risk of introducing pollutants to waterbodies, and BMP's for in-channel construction (eg. restricting work to approved "in-water work windows"). Project activities will fully comply with the Hydraulic Project Approval's (HPAs) issued for the project by WDFW. The contractor will designate at least one employee as the erosion and spill control lead. That person will be responsible for installing and monitoring erosion control measures and maintaining spill containment and control equipment. The

	erosion and spill control lead will also be responsible for ensuring compliance with all local, state, and federal erosion and sediment control requirements, including discharge monitoring reporting for the Washington State Department of Ecology. Erosion control blankets or an equally effective BMP will be installed on steep slopes that are susceptible to erosion and where ground-disturbing activities have occurred. Doing so will prevent erosion and assist with establishment of native vegetation. Project staging and material storage areas will be located a minimum of 150 feet from surface waters or in currently developed areas such as parking lots or previously developed sites. Erodible material that may be temporarily stored for use in project activities will be covered with plastic or other impervious material during rain events to prevent sediments from being washed from the storage area to surface waters. Exposed soils will be seeded and covered with straw mulch or an equally effective BMP after construction is complete. Any temporary construction impact areas will be revegetated with native plants following final grading activities. All exposed soils will be stabilized during the first available opportunity, and no soils shall remain exposed for more than 2 days from October 1 to April 30, and for more than 7 days from May 1 to September 30. Any areas disturbed on a temporary basis will be permanently stabilized and restored in a manner consistent with the WSDOT's Roadside Policy Manual (WSDOT 2015). The WSDOT will remove any temporary fills and till-compacted soils, and restore woody and herbaceous vegetation according to an engineer-approved restoration or planting plan. A minimum 1-year plant establishment plan will be implemented to ensure survival, or replacement, of vegetation by stem count at the end of 1 year. Elwha River flows will be monitored throughout construction using the Northwest River Forecast Center station at McDonald Bridge, upstream of the project site. During flow events approaching the 2-year discharge, equipment and materials will be moved off the access pads until water levels subside.

	During flow events approaching the 2-year discharge, equipment and materials will be moved off the demolition laydown pads until waters subside. Portions of the cofferdam may be selectively removed to provide flow relief and prevent catastrophic failure. Engineered log jams will be installed to mitigate for in-stream impacts.
Cultural Resources	WSDOT is currently undergoing Section 106 consultation with the LEKT and Department of Archeology and Historic Preservation (DAHP) to address potential project impacts and appropriate mitigation measures. A Memorandum of Agreement (MOA), signed by consulting parties in May 2021,details how the adverse effects to cultural resources will be managed and mitigated. .
Visual Resources	WSDOT will remove the minimum amount of vegetation necessary to complete the project. Once the final design has been approved, a tree survey would be undertaken to determine the number and size of trees the project would remove. When trees are removed for a project, WSDOT replaces them within the limits of the project. All vegetation planted on WSDOT properties will meet all WSDOT setback requirements for sight distance and other safety and maintenance considerations. All plant materials, including seeding would be funded by the project for weed suppression and plant establishment for a minimum of 3 years. Since US 101 is designated a National Scenic Byway as well as a State Scenic Highway, new guardrail would be treated with a weathering agent by USFS and scenic byway standards.
Greenhouse Gas Emissions	The project traffic plan includes strategic construction timing (like night work) to continue moving traffic through the area and reduce backups to the traveling public to the extent possible. WSDOT will seek to set up active construction areas, staging areas, and material transfer sites in a way that reduces standing wait times for equipment. WSDOT will work with our partners to promote ridesharing and other commute trip reduction efforts for employees working on the project.

Appendix E Agency and Tribal Correspondence

Appendix F Bridge Design and Cross-sections

Appendix G Draft Section 4(f) Evaluation and Section 106 Memorandum of Agreement