

# US 101 - SHORE RD. TO KITCHEN-DICK RD. - WIDENING



## Environmental Assessment January, 2011

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# US 101 - Shore Rd. to Kitchen-Dick Rd. - Widening

Clallam County, Washington

## Environmental Assessment

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

By the

U.S. Department of Transportation - Federal Highway Administration  
and

Washington State Department of Transportation

  
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### Abstract:

The *US 101 - Shore Rd. to Kitchen-Dick Rd. - Widening* project is located in western Washington on the Olympic Peninsula in Clallam County. In accordance with the National Environmental Policy Act, this Environmental Assessment evaluates the environmental effects of the Proposed Action and the No Action Alternative. The Proposed Action begins on the west side of the city of Sequim and widens about 3.5 miles of US 101 from one lane each direction to two lanes each direction. The existing McDonald Creek Bridge will be replaced and a new parallel bridge over McDonald Creek will be constructed.

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## Acronyms and Abbreviations

ADT	Average Daily Traffic
AM	Morning (midnight to noon)
APE	Area of Potential Effect
ASA	Aggregate source approval
BA	Biological Assessment
BGE	Below ground elevation
BMP	Best management practices
CFR	Code of Federal Regulations
cfs	cubic feet per second
CAVFS	Compost-amended vegetated filter strips
CD	Compact Disc for computer
CFR	Code of Federal Regulations
CSS	Context Sensitive Solutions
CTS	Clallam Transit System
DAHP	Department of Archaeology and Historic Preservation (state)
dBA	A-weighted sound frequency
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
Ft.	Feet, or Foot
GIS	Geographical Information System
GMA	Growth Management Act
HazMat	Hazardous Materials
HOV	High Occupancy Vehicle
HPA	Hydraulic Project Approval
HRM	Highway Runoff Manual
HSP	State Highway System Plan
HSS	Highway of Statewide Significance
IVM	Integrated vegetation management
LAMIRD	Limited Areas of More Intensive Rural Development
LEP	Limited English proficiency
LOS	Level of Service
LWM	Large woody material
MBTA	Migratory Bird Treaty Act
MP	Mile post
MSAT	Mobile source air toxics
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHS	National Highway System
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRCS	National Resource Conservation Service

NRHP	National Register of Historical Places
NWI	National Wetland Inventory
OHWM	Ordinary High Water Mark
OSPI	Office of Superintendent of Public Instruction
PAH	Polycyclic Aromatic hydrocarbons
PFOA	Peninsula Friends of Animals
PM	Afternoon (noon to midnight)
PUD	Public Utility District
RCW	Revised Code of Washington
Rd.	Road
REC	Recognized environmental conditions
RIRO	Right in and right out turns
RMP	Roadside Management Plan
RTP	Regional Transportation Plan
SEPA	State Environmental Policy Act
SHPO	State Historic Preservation Officer
STIP	State Transportation Improvement Program
TAPPS	Technical Applications Program (WSDFW)
TCP	Traditional cultural property
TESC	Temporary Erosion and Sediment Control
TIP	Transportation Improvement Program
TDM	Transportation Demand Management
TSM	Transportation System Management
UDP	Unanticipated Discovery Plan
UGA	Urban Growth Area
US	United States
USACOE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground storage tank
WAU	Watershed administrative unit
WSDOE	Washington State Department of Ecology
WSDNR	Washington State Department of Natural Resources
WSDOT	Washington State Department of Transportation
WTP	Washington Transportation Plan
WWGMHB	Western Washington Growth Management Hearings Board

# Executive Summary

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This executive summary describes why this project is important and lists some of the benefits. It presents a brief description of the alternatives that were considered but rejected, the No Action Alternative, and the Proposed Action. It shows the project purpose and need. It also summarizes the effects of the No Action Alternative and the Proposed Action on the built and natural environment.

## **ES1 Where is the US (United States) 101 - Shore Rd. (Road) to Kitchen-Dick Rd. - Widening project located?**

The Shore Rd. to Kitchen-Dick Rd. widening project on US 101 is located between the cities of Sequim and Port Angeles in Clallam County on the north end of the Olympic Peninsula in Western Washington. Refer to Exhibit ES-1 on page 3 of this chapter.

## **ES2 What is the history of environmental documentation along this part of US 101?**

This portion of US 101 was part of the Final Environmental Impact Statement (FEIS), issued in March 1993, US 101 O'Brien Rd. to Palo Alto Rd. This FEIS went through the State Environmental Policy Act (SEPA) process.

Two sections of US 101 were analyzed in the 1993 FEIS:

**West of the Dungeness River** between O'Brien Rd. and Joslin Rd. [Milepost (MP) 255.11 to MP 260.73] referred to as the "West Half"; and

**East of the Dungeness River** between the Dungeness River Bridge and the Palo Alto Road vicinity (MP 262.33 to MP 267.43)

## Executive Summary

referred to as the “East Half.” The “East Half” of the project, commonly referred to as the Sequim Bypass was completed in 2001.

The “West Half” of the FEIS was to be constructed with three separate projects:

- O’Brien Rd. to Lewis Rd., MP 255.11 to MP 256.42 – Two new lanes were constructed parallel to the existing roadway. (Constructed in 1999)
- Shore Rd. to Kitchen-Dick Rd. Widening, MP 256.91 to MP 260.38 – Two new lanes will be constructed parallel to the existing roadway. Construction will begin in 2012.
- Lewis Rd. to Joslin Rd., MP 256.42 to MP 260.73 – The existing and proposed four-lane highway will be widened to provide a median. Construction is waiting for the availability of funding.

The second project above is the Shore Rd. to Kitchen-Dick Rd. Widening, and it is the subject of this EA. The Federal Highway Administration (FHWA) and the Washington State Department of Transportation (WSDOT) have concluded that this project has logical termini and independent utility. It:

- Connects logical termini (Shore Rd. and Kitchen-Dick Rd.) and is of sufficient length (about 3.5 miles) to address environmental matters on a broad scope
- Has independent utility (can be useable without any other improvements)
- Does not restrict consideration of future reasonably foreseeable transportation projects (such as the future widening of the median from Lewis Rd. to Joslin Rd.).

**Exhibit ES-1 Project Vicinity Map**



**ES3 Why is this project important, and what are the benefits?**

This proposed action will improve transportation in the project area by providing a safe efficient roadway that will meet current and projected future traffic demand. The Proposed Action identified in this document has been determined by FHWA and WSDOT to be the most desirable in terms of balancing functional efficiency with environmental, social, and economic effects. If the Proposed Action is selected, the 3.5 miles on US 101 between Shore Rd. to Kitchen-Dick Rd. will be widened from a two-lane to a four-lane roadway.

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The primary function of an Environmental Assessment (EA) is to help the lead agencies make an informed decision on the Proposed Action.

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Benefits include:

- Provide long term traffic congestion relief. Additional lanes reduce traffic congestion and move more vehicles.
- Increase safety for the traveling public and those that live along the corridor. The widened median will reduce the potential for head-on collisions and the elimination of left turns onto US 101 will reduce the amount and severity of accidents.
- Improve water quality through treatment of stormwater runoff.

- Construct the new McDonald Creek Bridge to serve as a detour bridge for US 101 when the existing McDonald Creek bridge is replaced as part of the Proposed Action. This eliminates the need for a temporary detour bridge.
- Construct a shared-use path under US 101 on the west side of McDonald Creek.
- Improve one existing culvert to allow fish passage.
- Provide route continuity by continuing 4 lanes between Port Angeles and Sequim.
- Three sites known to be contaminated with hazardous materials will be cleaned.
- Approximately 53 acres of land will be acquired to develop compensatory mitigation; this includes grading and planting to increase the size and enhance the functions of existing wetlands on the site.

#### **ES4 What is the purpose of the project, and why is it needed?**

The Proposed Action will complete the vital link of continuous four-lane highway between Port Angeles and Sequim in support of increased tourism, resort development and population growth.

It will increase traffic capacity, decrease existing and future levels of congestion, improve the safety of this section of US 101, and meet future traffic demand.

#### **ES5 Who is directing the project?**

With federal funding contributing to part of the project costs, FHWA and WSDOT are co-lead agencies. They guide the environmental review oversight and roadway design guidance.

#### **ES6 What are the typical steps in the NEPA EA process?**

The typical steps in the Environmental Assessment process are:

- Meet with the public, agencies, and interested tribes to help determine the scope of the Proposed Action.
- Identify the project purpose and need and screening criteria.
- Perform the screening of alternatives to identify the Proposed Action and the No Action Alternative.
- Produce discipline studies for the Proposed Action and the No Action Alternative.
- Issue EA.
- Hold EA Environmental Hearing.

- Evaluate comments from the public, agencies, and interested tribes.
- Confirm the final scope of the Proposed Action.
- If determined to be appropriate by the FHWA, the FHWA will issue the Finding of No Significant Impact (FONSI).
- WSDOT will Adopt the EA/FONSI under SEPA Rules.

## **ES7 What alternatives are evaluated in this EA?**

### **ES7.1 No Action Alternative**

Under the No Action Alternative, no new major construction activities described in the project Proposed Action below will occur. Short-term minor construction necessary for continued operation of the existing roadway facility will be accomplished, and minor safety improvements could be constructed as required.

The No Action Alternative includes other currently funded or planned transportation improvement projects expected to be in operation in the project area by 2030. These baseline transportation improvement projects are identified in a Transportation Improvement Program (TIP) by each local agency. These baseline transportation improvement projects are not addressed in this environmental document. Each lead agency will direct a separate project-specific environmental review. These projects are considered in the analysis of indirect (secondary) and cumulative impacts. Refer to Chapter 4 - Indirect and Cumulative Effects.

### **ES7.2 Proposed Action**

The proposed action will provide two additional lanes and intersection improvements on US 101 from MP 256.91 to MP 260.38 in Clallam County. The Proposed Action will be a four-lane divided highway as shown later in Exhibit 2.3. Proposed improvements include:

- Providing two additional travel lanes with a new 40 foot wide median.
- Replacing the existing McDonald Creek Bridge with a longer and wider bridge.
- Constructing a new bridge over McDonald Creek (south and upstream of the existing bridge).

- Constructing a shared-use path underneath the two new bridges on the west side of McDonald Creek.
- Constructing culverts for several tributaries.
- Constructing stormwater treatment facilities.
- Creating a compensatory wetland mitigation site.
- Extending culverts and irrigation ditches.
- Acquiring right of way and implementing managed access of US 101.
- Constructing retaining walls.
- Reconfiguring county road intersections.
- Removing a fish barrier for one culvert.
- Constructing six indirect left turns.

### **ES7.3 What other alternatives were considered but rejected?**

Section 2.2 discusses the details of the alternatives that were considered but rejected. They are referred to as:

- **S. Barrier Separated Alternative** – This alternative would widen US 101 to the south of the existing highway and separate the directions of travel with a median barrier (did not satisfy route continuity with adjacent sections that eliminated median barrier, high cost of retaining walls).
- **N. Barrier Separated Alternative** This alternative would widen US 101 to the north of the existing highway and separate the directions of travel with a median barrier (did not satisfy route continuity with adjacent sections that eliminated median barrier, high cost of retaining walls).
- **South Alignment Alternative** - This alternative would widen US 101 to the south of the existing highway and separate the directions of travel with a 40 foot wide median (4.4 acres of wetland impacts with 1 acre being Class 2, 8 residential displacements, and 3 commercial displacements, and a relocation of Owl Creek).
- **North Alignment Alternative** - This alternative would widen US 101 to the north of the existing highway and separate the directions of travel with a 40 foot wide median (2.5 acres of wetland impacts with 1.45 acres being Class 2, displacements of 14 residential and 11 commercial).

- **Transportation System Management (TSM) Alternative** - (Since this is not an urban area with a population over 200,000, this alternative alone will not satisfy the purpose and need of the project.)
- **Transportation Demand Management (TDM) Alternative** (This alternative alone will not meet the purpose and need of the project, but selected parts of this and the TSM are already being implemented by Clallam Transit System and Clallam County.)
- **The Mass Transit Alternative** (The building of light or heavy rail system or a greatly expanded bus system is not prudent with the population of the entire county being well under the 200,000 threshold. The majority of traffic consists of local commuters and tourists in the summer. This alternative does not meet the purpose and need of the project.)

**ES8 When will construction of the Proposed Action begin and end?**

The project construction is scheduled to begin in the first half of 2012, and it is estimated to be completed in the fall of 2014 (about 30 months for construction).

**ES9 How much will it cost to build the project?**

The estimated project costs are \$92,700,000. The costs include preliminary engineering, construction engineering, right of way acquisition, and construction.

**ES10 What will happen if this project doesn't get built?**

Under the No Action Alternative, US 101 will not be improved to increase capacity. No new major construction activities will occur. Without the Proposed Action, this section of the highway will not be able to serve the traffic demands now and in the future.

## **ES11 How do the effects compare for the No Action Alternative and the Proposed Action?**

**ES11.1 Transportation (see Section 3.5)** Current conditions are labeled as level of service (LOS) D (the ability to maneuver is severely restricted due to traffic congestion) and E (unstable traffic flow). Appendix E further explains the concept of LOS with words and photographs.

As congestion increases, the demand to pass other vehicles is high, but opportunities to pass become rare during peak operating hours. The current accident rate in the project vicinity is greater than the statewide average for this class of highway. With the No Action Alternative, all intersections will severely fail in 2032. Some will fail to the point of being totally inaccessible.

With the Proposed Action in 2032, US 101 LOS improves to LOS A (completely free-flowing conditions) in the morning. The afternoon will be LOS A and B. With LOS B, the average speeds are the same as in LOS A, but drivers have slightly less freedom to maneuver.

The five at-grade intersections with county roads and private and commercial driveways will be modified to restrict the turning to allow only right in and right out movements. Pedestrians and bicycles will be able to cross under US 101 at the west end of the McDonald Creek Bridges.

**ES11.2 Highway Sound (see Section 3.6)** A noise wall was considered at one location in the southeast corner of the intersection of US 101, Sherburne Road, and McDonnell Creek Road. It is not recommended for construction as it was found that the construction of this wall along the right of way was not feasible. The existing driveway accesses will create openings in the wall, and this makes the barrier ineffective to decrease the effects of noise. Therefore the noise wall is not feasible.

**ES11.3 Air Quality (see Section 3.7)** The Air Quality Conformity Analysis shows that the Proposed Action will not cause new exceedances nor will it contribute to any existing exceedances of the National Ambient Air Quality Standards (NAAQS) in the year of opening (2014) or the design year (2032). The project will have a beneficial effect on greenhouse

gases. Emissions in 2032 will likely be lower than present levels as a result of the USEPA's national control programs that are projected to reduce Mobile Source Air Toxics (MSAT) emissions.

**ES11.4 Wetlands (see Section 3.8)** The No Action

Alternative will not impact wetlands, but the quality of water entering existing wetlands will be less than with the Proposed Action. The Proposed Action will affect 2.57 acres of wetlands (mostly lesser quality Class III and IV) with the roadway cut and fill activities. Permanent effects to the wetland buffers are 6.5 acres. At least 2.57 acres of wetland will be created and at least 10.29 acres of wetland enhanced.

**ES11.5 Fish (see Section 3.9)** Puget Sound Steelhead was designated as a threatened species by the National Marine Fisheries Service (NMFS) in 2007. The Proposed Action will have "No Effect" on Puget Sound Steelhead. Coastal cutthroat trout is a federal "Species of Concern" in Owl Creek. The Species of Concerns do not warrant an effect determination. The fish passage barrier on Owl Creek at MP 259.79 will not be modified for fish passage under the No Action Alternative. The long-term fisheries benefit of providing access to additional habitat for coho and coastal cutthroat trout will not occur under the No Action Alternative. In-water work at milepost 259.79 and 259.84 with the Proposed Action may require the relocation and exclusion of fish at both locations.

**ES11.6 Wildlife (see Section 3.10)** The additional two traffic lanes and increase in the volume of traffic may make US 101 more difficult for animals to cross. This may lead to a long-term increase in wildlife mortality from vehicle collisions in the study area. Operation of the project will increase disturbance levels along the corridor, especially in areas where development currently does not exist. The wetland mitigation site will also benefit mammals and migratory birds.

**ES11.7 Vegetation (see Section 3.11)** No major adverse effects to vegetation are anticipated as a result of the Proposed Action. Noxious weed control will occur under both the No Action Alternative and the Proposed Action.

**ES11.8 Water Resources (see Section 3.12)** The new impervious surfaces will be treated and highway runoff controlled with such features as compost-amended vegetated filter strips (CAVFS), media filter drains and treatment ponds.

**ES11.9 Land Use and Farmland (see section 3.13)** Construction equipment and activities could likely affect adjacent businesses and property owners over the length of construction time needed to complete the Proposed Action. About 65 parcels will be directly impacted due to the highway right of way acquisition and stormwater treatment requirements while five parcels will be directly impacted by wetland mitigation efforts. The Proposed Action will convert about 84 acres of existing land uses to transportation related uses (right of way, storm water mitigation, and wetland mitigation). Existing farmland will be converted to wetland mitigation at the Dungeness River Site. The farmland conversion and wetland mitigation has been coordinated with resource agencies. The Proposed Action is consistent and compatible with state, local and regional plans and regulations.

**ES11.10 Relocation (see Section 3.14)** The No Action Alternative will not acquire new right of way, and no relocations will occur. The Proposed Action will relocate five single family units and three mobile homes. Two businesses and one public facility will be relocated. See Appendix F for a discussion of the Property Acquisition process. Both state and federal laws protect the rights of sellers.

**ES11.11 Social, Economics, and Environmental Justice (see Section 3.15)**

There will be no adverse nor disproportionate effects to low-income or minority populations with the Proposed Action. The analysis illustrates that WSDOT has chosen the Proposed Action without prejudice. No demographic group will be adversely and disproportionately impacted, and the project will benefit all demographic groups in and beyond the study area.

**ES11.12 Hazardous Materials (see Section 3.16)**

11 properties were identified that have or might have soil or groundwater contamination. These parcels could be impacted by the Proposed Action. Approximately 21 structures will be demolished that may contain asbestos, lead based paint, and/or underground storage tanks (UST).

**ES11.13 Archaeological and Historic Resources (see Section 3.17)**

No archaeological resources have been identified in the roadway Area of Potential Effect (APE). Evidence of prehistoric activity was discovered in the off-site area of wetland mitigation. Site 45CA650 consists of a low density, low diversity midden site comprised of three loci (circular areas). One of the three loci was found to be archaeologically significant, and will be avoided. The site will not be adversely affected.

Two other properties, Dupuis' Restaurant and the McDonnell Creek Diversion Dam and Fish Screen, are eligible for listing in the National Register of Historic Places. Neither site will be affected by the Proposed Action. Eight parcels were not examined for archaeological resources due to the lack of a permitted right of entry. They will be considered for archaeological resources prior to construction ground disturbance. WSDOT has conducted formal consultation pursuant to Section 106 of the National Historic Preservation Act with the Jamestown S'Klallam Tribe, the Port Gamble S'Klallam Tribe and the Lower Elwha Klallam Tribe.

**ES11.14 Public Services and Utilities (see Section 3.18)**

No relocation of existing utilities will occur under the No Action Alternative. For the Proposed Action, existing utilities within the proposed roadway will require relocation. This will ultimately reduce the risk of damage by errant vehicles and provide a buffer zone while utility vehicles are maintaining their facilities. Project specific traffic management plans will be developed and coordinated early before construction begins with fire, police, emergency medical services, transit, schools and local agencies.

**ES11.15 Visual Quality (see Section 3.19)** No effects will result from the No Action Alternative. A slight decrease in visual quality results from the removal of mature trees that provide visual screening for adjacent residential dwellings. The effects from the Proposed Action are not considered a substantial decrease in visual quality.

**ES11.16 Geology and Soils (see Section 3.20)** The Proposed Action will result in a net export of earth materials (about 234,800 cubic yards of cut and about 62,000 cubic yards of fill). Hauling of earth material on local roads will be minimized. Access to construct the two new lanes will be from the existing two US 101 lanes. Identified landslide hazards are limited to the steep slopes in the McDonald Creek drainage and to a shallow landslide in the vicinity of MP 258.4.

### **ES12 How will the traffic be affected during project construction?**

Temporary and intermittent interruptions to the flow of traffic are anticipated. Construction of intersection areas will be handled using flaggers and other traffic control devices. Traffic control will be provided to maintain traffic flow and safety during construction. Traffic detour routes are not anticipated except as traffic is moved from one McDonald Creek Bridge to the other bridge and back.

### **ES13 What mitigation is proposed for the project?**

Mitigation is a way for a project to lessen the negative effects or impacts of development. Early in the project development, several studies are prepared that describe the environmental effects associated with a proposed design. Gathering environmental information early and integrating it into the roadway engineering design process makes it possible to avoid some impacts. In other cases, unavoidable impacts can be minimized. When impacts are unavoidable, the project evaluates ways to compensate for these impacts. For example, compensating for unavoidable impacts such as wetland fill impacts or stream buffer clearing often means that a project will propose to enhance, restore, or create these important features somewhere else. Stormwater treatment facilities will be used to catch and filter contaminants out of the water before the water is released into local creeks. Retaining walls may be used to reduce impacts to wetlands and the built environment.

### **ES14 What decisions need to be made?**

Any decisions will rely on the technical information provided in this EA and the studies that were prepared in support of the EA. Decisions on design details will continue beyond the environmental phase as design is refined further to reduce impacts. You are invited to participate in this project by reviewing the EA, attending public meetings, and providing comments on the information. The input you provide will be carefully

considered in agency decision making. WSDOT and FHWA look forward to receiving your comments on the improvements that are proposed. The improvements will better serve future transportation needs including decreased congestion in this part of US 101, safety improvements, and improved freight mobility in the corridor.

Comments are to be sent to:

**Steve Fuchs, Project Engineer**

P.O. Box 47375

Olympia, WA 98504-7375

Phone: 360-570-6660

Email: FuchsS@wsdot.wa.gov

### **ES15 What issues are of concern?**

Support for the Proposed Action has been very good at public open houses. The subject raised most at public open houses has been the planned change in access to and from US 101. Part of this change is the right in and right out access feature to and from county roads and private driveways. The access will be managed to provide a safer highway and the indirect left turns (bulb shaped u-turns) are part of that design.

### **ES16 Who will make the project decisions, and how can I be involved in this decision?**

The lead agencies (WSDOT and FHWA) are providing the roadway design guidance and environmental review oversight for this Environmental Assessment.

The decision to choose either the No Action Alternative or the Proposed Action will be based on the technical information provided in this EA, the studies that were prepared in support of the EA, and valuable input from tribes, agencies, and the public.

You are invited to participate in this project by reviewing the EA, attending public meetings, and providing comments on the information. The input you provide will be given careful consideration by the lead agencies.



# Chapter 1- Introduction

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## 1.1 Where is the US (United States) 101, Shore Rd. (Road) to Kitchen-Dick Rd. - Widening project located?

The US 101, Shore Road to Kitchen-Dick Road project is located in Clallam County on the north Olympic Peninsula in Western Washington. See Exhibit 1-1, Vicinity Map

## 1.2 What is the purpose of this project?

This Rural Mobility project will complete construction of about three and one half miles of four lane roadway between the cities of Port Angeles and Sequim in Clallam County. We will do this by constructing two additional lanes on the south side of the existing highway from west of Shore Road (MP 256.91) to east of the Dryke/Pierson intersection (MP 259.5). The new lanes will then switch to the north side of the existing highway to the end of the project east of Kitchen-Dick Road (MP 260.38).

This project will relieve congestion, increase capacity, and improve safety for the traveling public.

Development of this section will establish four-lane continuity on the North Olympic Peninsula's most heavily traveled route.

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### How do we use the project purpose and need?

The project purpose describes the project improvements or "what" we are proposing to do.

The project need is the "why" we are doing the work.

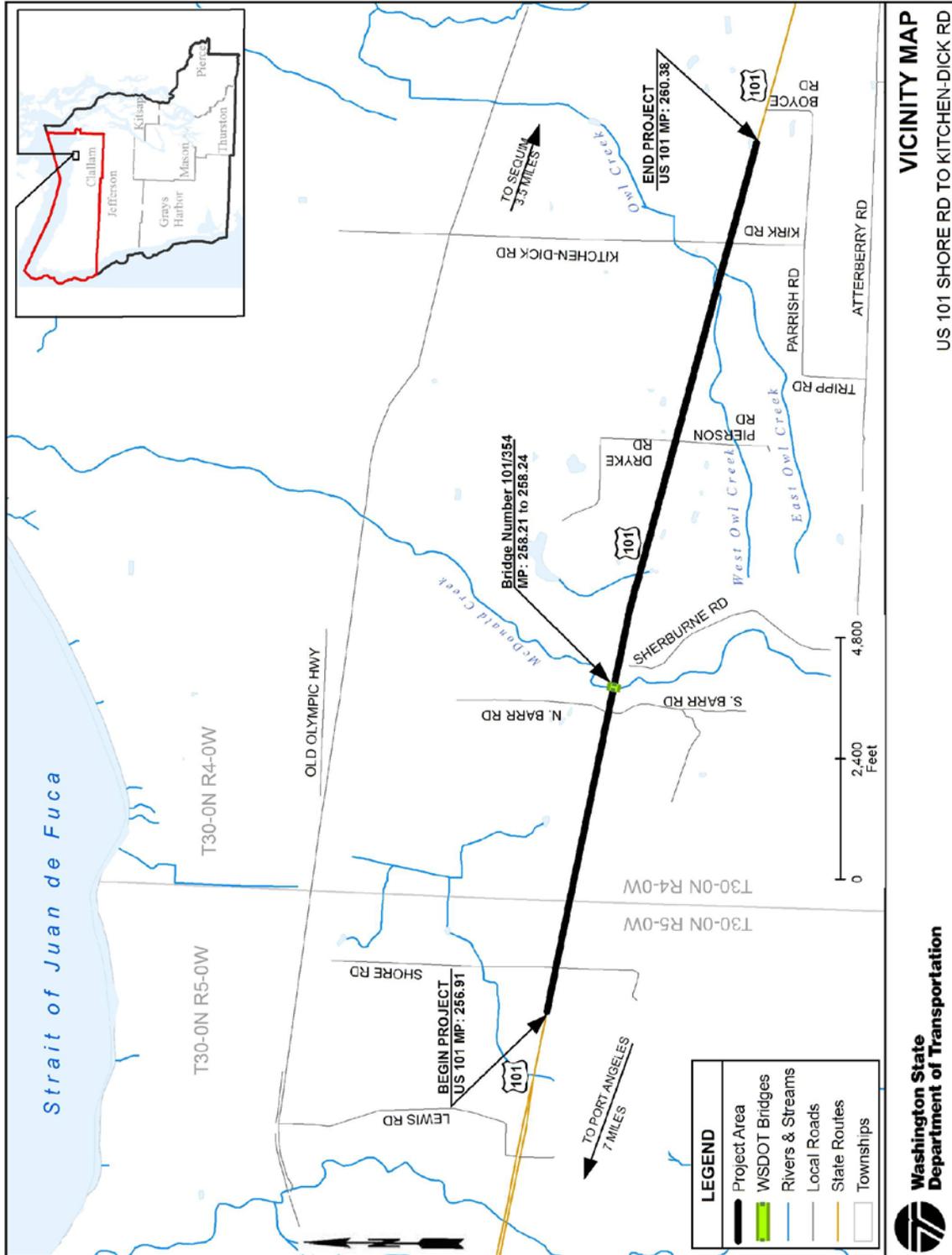
The review of the project purpose and need allows the taxpayer to judge that these improvements are a prudent expenditure of public funds.

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**US 101 in the project area has an average daily traffic (ADT) volume of 19,000**

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**Exhibit 1-1, Vicinity Map**



The Proposed Action will construct:

- Two new 12 foot lanes
- Four foot left shoulder and a 10 foot right shoulder
- Forty foot median between the two lanes in each direction
- Improvements to intersections (turn lanes, limiting turning movements)
- Pavement removal from existing US 101
- Ditches, culverts, small closed storm sewer systems and detention ponds
- Retaining walls and guardrail
- Two new bridges over McDonald Creek (MP 258.21)
- Shared-use path for pedestrians beneath the west side of McDonald Creek.
- Culvert replacement to allow fish passage where applicable.
- Indirect left-turn lanes. Right-in right-out intersections will use a u-turn to make a left turn.

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**LOS** letters designate each level of roadway service from A to F. LOS A represents the best operating conditions, and LOS F represents the worst conditions that result in more travel time delays.

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### 1.3 What conditions are driving the need for this project?

The need for the proposed action is to improve capacity and reduce congestion.

- **Level of Service (LOS).** US 101 is designated by WSDOT as a rural Class 1 roadway with a design LOS C [WSDOT Design Manual Chapter 320.06(1)].

Most sections of US 101 within the study area currently operate at LOS D (fairly congested) in both the morning (AM) and afternoon (PM) peak hours.

If no action is taken, travel times in the project area will continue to worsen as future traffic volumes increase. It will be at LOS E in year 2032.

- **Crash data.** Motorists expect to travel at relatively high speeds on US 101. The data indicates an “above average” number of crashes within the project area. There were four fatal injuries, and there was one serious injury. There were 91 collisions. The fatality rate is more than twice the statewide average for this type of roadway. The cost to society of these crashes is estimated to be almost \$8,000,000.
- **Regional system linkage.** The current highway does not support the regional transportation system. The US 101 roadway is a major link from the rest of Washington to the ferry terminal in Port Angeles that serves the route to and from Victoria, Canada. It is designated as a Highway of Statewide Significance (HSS) by the state of Washington and part of the National Highway System (NHS) by the U.S. Department of Transportation (USDOT). NHS facilities are important to the nation’s economy, defense, and mobility.

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**Traffic crash data** on US 101 was analyzed from December 1, 2005 through November 30, 2008.

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Under the No Action Alternative, US 101 will be an important regional facility that will fail to provide efficient regional and local traffic mobility. The operational analysis of the project area indicates that the roadway currently operates below minimum acceptable service standards.

- **Support of local plans.** The area is developing based on local agency Comprehensive Plans and zoning. However, the area lacks a completed transportation network appropriate for the community. The annual rate of population growth and traffic volume on US 101 for the area is expected to be 1.5 % through 2032. The traffic growth factor of 3.4% per year was used for county roads in the area (Carlsborg Area Transportation Study, 2008). The traffic study in 2008 indicates that the roadway segments are having LOS ranging from D to E. With No Action Alternative, the LOS in 2032

would become E in all the roadway segments. With the project, the LOS in 2032 would become between A and B in all the roadway segments.

#### 1.4 What is the planning history of US 101 in this area?

The US 101 roadway was originally constructed in the 1930's, and it is the primary highway serving Washington State's Olympic Peninsula. For the most part, US 101 is a two-lane roadway with 12 foot lanes and 8 foot shoulders. Auxiliary lanes have been constructed over the years in areas where additional traffic carrying capacity was needed.

Two projects were analyzed in the SEPA EIS noted at the right sidebar:

**East of the Dungeness River** between the Dungeness River Bridge and the Palo Alto Road vicinity (MP 262.33 to MP 267.43) referred to as the "East Half." The "East Half" of the project, commonly referred to as the Sequim Bypass was completed in 2001.

**West of the Dungeness River** between O'Brien Road and Joslin Road (MP 255.11 to MP 260.73) referred to as the "West Half"; and

The "West Half" was planned to be constructed with three separate projects:

- O'Brien Road to Lewis Road, MP 255.11 to MP 256.42 – Two new lanes were constructed parallel to the existing roadway. (Constructed in 1999)
- Shore Road to Kitchen-Dick Road, MP 257.15 to MP 259.95 – Two new lanes will be constructed parallel to the existing roadway as discussed in this EA (part on north side and part on south side).

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The improvements described in this EA were included at a broader level in the US 101 O'Brien Road to Palo Alto Road Final Environmental Impact Statement (EIS), March, 1993, issued under the State Environmental Policy Act (SEPA).

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- Lewis Road to Joslin Road, MP 256.42 to MP 260.73 –  
The existing and proposed four-lane highway would be widened to provide a median.

### 1.5 What are the project termini, and why are they logical?

FHWA and WSDOT have concluded that this project has logical termini and independent utility.

In this case, the west and east termini match into the existing four lane roadways on each end (Shore Road and Kitchen-Dick Road). The roadway addressed in this EA will eliminate the existing bottleneck in roadway operation (causing congestion) and will provide a missing link of two lanes each way to replace the three and a half miles of one lane each way.

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**Logical Termini** are rational end points for the environmental analysis.

It allows us to treat environmental issues on a sufficiently broad scope to ensure that the project will function properly without requiring additional improvements elsewhere. In highway talk, we say that it has independent utility.

It does not restrict consideration of other foreseeable transportation improvements.

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### 1.6 What are the benefits of the Proposed Action?

- It will reduce long term traffic congestion. The additional lanes will move more vehicles in a given period of time. The indirect left turns (“bulb turn around”) will allow drivers to make left turns across opposing traffic without the substantial delay under existing conditions.
- It will increase safety for the traveling public and those that live along the corridor. The widened median will reduce the potential for head-on crashes.
- It will provide a shared-use path under the two bridges to provide a safe pedestrian crossing at McDonald Creek.
- It will allow provide a detour bridge to facilitate the replacement of the existing McDonald Creek Bridge. This will eliminate the need for a temporary detour bridge for traffic.

- It will improve the treatment of stormwater runoff from the proposed roadway pavement for water quality and quantity treatment.
- It will remove a fish passage barrier.
- It will remove creosote wood from the existing McDonald Creek Bridge which will be demolished.
- It will reduce greenhouse gas emissions due to improved efficiency.

### **1.7 Who is the project proponent and lead agency?**

The Federal Highway Administration (FHWA) is the lead agency for the NEPA environmental process. The Washington State Department of Transportation (WSDOT) is a co-lead agency. Both are involved with the roadway design guidance and environmental review oversight.

The primary function of this Environmental Assessment (EA) is to help the lead agencies make a series of informed decisions on the proposed project. These decisions will be made after thoughtful consideration of input from the public, other agencies and concerned tribes.

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#### **What is an Environmental Assessment?**

Under the National Environmental Policy Act (NEPA), an Environmental Assessment (EA) is prepared when project effects are not known without examining technical studies to judge the magnitude of these environmental effects. The decision document can be a Finding of No Significant Impact (FONSI) or an environmental impact statement (EIS). It can also decide on the Proposed Action or the No Action Alternative.

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### **1.8 Why was the EA environmental document chosen?**

WSDOT and FHWA determined that an EA is the appropriate level of environmental documentation.

The initial analysis of the level of effect on the various natural and man made resources showed that studies were needed to find out if any effect may be determined to be significant.

One of the purposes of this EA is to identify the level of significance. We want to identify environmental effects and the mitigation measures. The issuance of this EA and the interaction with the public, agencies, and tribes will allow the FHWA to determine if the Finding of No Significant Impact (FONSI) may be the appropriate decision document.

### **1.9 What are the typical steps in the Environmental Assessment process?**

Early in this environmental process, a decision was made by the lead agencies (FHWA and WSDOT) to prepare an EA. The two-fold reason for an EA is to make informed decisions and to determine if the Proposed Action requires an environmental impact statement.

A series of alternatives are identified and then run through a screening criteria process. This is to determine if the alternatives meet the project purpose and need and identify the alternative that has the least environmental effects.

Once the Proposed Action is identified, the discipline studies begin for the various areas of effect involved. Some projects have as many as 21 areas of effect to analyze.

The No Action Alternative is required to be included in the studies to use as a baseline comparison. This determines what will occur if no highway improvements are made.

The EA is assembled for internal review and then issued to the agencies, public, and tribes. The Environmental Hearing is held after the EA is issued.

Public, agency, and tribal comments are given careful consideration from the Environmental hearing and from those received during the comment period of the EA.

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#### **When is an Environmental Impact Statement (EIS) required?**

An EIS is required when it is anticipated that significant impacts will result from the completion of a proposed action. An EA is developed to identify impacts and assesses the impacts to determine if they are significant.

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The lead agencies may make adjustments to the Proposed Action based on received comments, and they determine whether it is the proper course of action for the project.

If it is a proper course of action, a FONSI is prepared for internal review and issued by the FHWA.

The EA and FONSI are then adopted by WSDOT under SEPA Rules.

### **1.10 What were the main issues from previous public interaction?**

Based on written and verbal comments at the public open houses on October 15, 2009, and June 24, 2010, traffic congestion is the public's primary concern. Some citizens were concerned about the effect on value for properties adjacent to the highway resulting from the project.

Some citizens expressed concern about animal carcasses and crashes as a result of widening the roadway.

The tribes have expressed concerns over protecting listed species and cultural resources. The tribes have identified a small likelihood of encountering cultural artifacts during construction.

The control of access at the county roads was a concern when the use of the indirect left turn ("bulb turn around") features was revealed. Although left turns are not allowed from the county roads, once on US 101, it will allow drivers to make left turns across opposing traffic without the substantial delay under existing conditions. This is described more in the Transportation Study and in Chapter 2 and 3 of this EA.

### **1.11 What decisions must be made?**

As the lead NEPA agency, the FHWA will decide if the environmental document process is adequate, if the effects are significant, and ultimately whether the project will be constructed. The decision will rely on the information provided in this Environmental Assessment (EA), the technical studies that were prepared in support of the EA, interaction with the public, other agencies, and interested tribes, and pending the availability of funds.

### **1.12 How can you be involved in this decision?**

You are invited to participate in this project by reviewing the EA, attending the public environmental hearing and other public meetings, and providing comments on the information. The input you provide will be carefully considered in agency decision making.

#### **Typical ways for you to be involved:**

- Project Web site:  
<http://www.wsdot.wa.gov/projects/us101/shoretokitchendick/>
- Project newsletter on May 31, 2009 and a project folio on October, 2009
- Project open houses on October 15, 2009 and June 24, 2010
- Project meetings with individuals and groups
- Project meetings with agencies [USFWS, USACOE, USEPA, WDFW, and DOE on October 13, 2009]
- Comments on the Environmental Assessment during the comment period.
- Comments on the project telephone message line 1-888-323-7732.

The lead agencies look forward to hearing your comments on the improvements that are being proposed. Please send your comments to:

**Steve Fuchs, Project Engineer**

P.O. Box 47375

Olympia, WA 98504-7375

Phone: 360-570-6660

Email: [FuchsS@wsdot.wa.gov](mailto:FuchsS@wsdot.wa.gov)

### **1.13 How long will the Proposed Action take to build?**

The project is now in the environmental and design phase. Construction could begin in the summer of 2012 and be open to traffic by fall of 2014. The following bar chart of major milestones shows when major elements may be constructed and one possible sequence of events for construction.

### **1.14 What will the Proposed Action cost to build?**

The estimated project costs are \$92.7 million based on 2009 baseline year estimates. The total cost includes preliminary engineering, construction engineering, right of way acquisition, and construction.

**Exhibit 1-2, Estimated Construction Schedule**

Activity	2012			2013				2014		
	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3
Contractor Mobilization	■									
Clearing & Grubbing	■									
Grading	■	■	■	■						
Build EB McDonald Crk Bridge	■	■	■	■						
Utility Relocations			■	■	■					
Drainage				■	■	■				
Illumination					■	■	■			
Gravel Base Course					■	■				
Paving						■				
Signing/Striping						■	■			
Build Temporary Detour					■					
Remove Ex. McDonald Crk Bridge						■				
Build WB McDonald Crk Bridge						■	■	■	■	
Build Shared-Use Path									■	
Realign Existing Road									■	■
Remove Temporary Detour										■
Final Paving										■
Final Pavement Marking										■
Construction Complete										■

## **1.15 What approvals, permits, and consultations will be needed before construction begins?**

### **Federal Agencies**

National Marine Fisheries Service -

Endangered Species Act consultation

National Resource Conservation Service -

Farmland Conversion Coordination

U.S. Army Corps of Engineers -

Section 404 Individual Permit

U.S. Fish & Wildlife Service -

Endangered Species Act consultation

### **State Agencies**

Department of Archaeological & Historical  
Preservation -

Section 106 Concurrence

Dept of Ecology -

Section 401 Water Quality Certification

Section 402 National Pollutant Discharge  
Elimination System (NPDES) Permit.

Coastal Zone Management Certification

Dept of Fish & Wildlife -

Hydraulic Project Approval

## **Local Agencies**

Clallam County -

Critical Area Ordinance Review

Floodplain Development Permit

Noise Variance

Shoreline Substantial Development Permit

### **1.16 What information is in the remainder of this document?**

Chapter 2 - Description of the Alternatives

Chapter 3 - Existing Environment, Effects and Mitigation

Chapter 4 - Indirect and Cumulative Effects

Chapter 5 - Public Agency and Tribal Coordination

Chapter 6 - Preliminary Commitments

Appendices

A. List of Preparers

B. Discipline Studies

C. References

D. EA Distribution

E. Level of Service (LOS)

F. Right of Way Acquisition Process

G. Wetland Impact Table and Maps

H. Agency and Tribal Coordination Letters

# Chapter 2 - Description of the Alternatives

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## 2.1 Introduction

The FHWA, WSDOT, and the local community have long recognized the need for roadway improvements on US 101 in the project area. The alignment and scope of work presented as the Proposed Action in this Environmental Assessment best meets the purpose and need for the project while avoiding, minimizing, and/or mitigating for created effects on the environment.

## 2.2 What alternatives were considered but dismissed from further consideration?

The primary resources affected by the Proposed Action are wetlands and residential and commercial properties. Exhibit 2-1 lists the four alternatives that were considered but dismissed. There is a complete description of these alternatives following the exhibit.

There are 36 wetlands located along the highway within the project limits so it is difficult to avoid impacting wetlands with this highway widening project. Considerable time and effort was spent looking at ways of minimizing impacts to wetlands. Because of the 60 mph design speed and the fact that the wetlands are on both sides of the highway, it was not feasible to design an “S-curve” alignment to zigzag around the wetlands.

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**Screening of Alternatives** – This section looks at why some alternatives were dismissed from further consideration. This allows us to focus our evaluation later on the Proposed Action and the No Action Alternative for comparison in this EA beyond this Chapter 2.

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**Exhibit 2-1 Primary Effects of Rejected Build Alternatives**

<b>Alternatives</b>	<b>Class 2 Wetland Impacts</b>	<b>Total Wetland Impacts</b>	<b>Number of Residential Displacements</b>	<b>Number of Commercial Displacements</b>	<b>Satisfy Route Continuity</b>
S. Barrier Separated	0.87 acres	3.35 acres	7	2	No
N. Barrier Separated	1.31 acres	2.43 acres	9	11	No
South Alignment	1.06 acres	4.42 acres	8	3	Yes
North Alignment	1.45 acres	2.53 acres	14	11	Yes

**2.2.1 South Barrier Separated Alternative**

This alternative would construct two 12 foot (ft.) lanes, with 10 ft. outside and 4 ft. inside shoulders to the south of the existing highway, separated by a traffic barrier/retaining wall.

Total wetland impacts associated with this alternative will be 3.35 acres of which 0.87 acres are Class 2 wetlands. Current design standards require flatter vertical grades and larger radius curves to meet stopping sight distance when compared to the existing highway. Therefore, this alternative will require retaining walls to serve as a median barrier along the entire project due to the difference in elevation between the existing highway and the new roadway. These retaining walls also significantly impact animal crossing opportunity.

This alternative will require less right of way when compared to the alternatives with the 40 ft. median. However, the footprint of the project will be very similar among the alternatives at the intersections due to the channelization required for the turn lanes. The number of residential displacements will be seven and the commercial displacements will be two.

A disadvantage of this alternative is that stormwater runoff from the existing highway will be collected in a closed drainage system, rather than sheet flow into a vegetated median where it can infiltrate into the ground.

US 101 is designated as a National Scenic Byway as regulated under RCW 47.39 & 47.42. The US 101 Corridor Master Plan provides guidance for the highway designer and tells us to complement the visual experience of a scenic byway. This alternative includes retaining walls that will be 10-15 ft. in height in some areas, which is not consistent with the design parameters for a National Scenic Byway.

The O'Brien to Lewis project already built the first project for the "West Half" with a 40 ft. median, which was consistent with the EIS and the Corridor Master Plan. Route continuity is part of the purpose and need for this project and switching to a barrier separated highway in the middle of the corridor is inconsistent with visual characteristics of this route and will not be acceptable by the community or elected officials.

For all the reasons presented above, this alternative was not carried forward.

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**The Washington Coastal Corridor Plan – US 101 Corridor Master Plan** was completed in 1997. It recommends that jersey barriers be eliminated. It emphasizes the importance of the natural environment. Highway projects are to be planned to complement the visual experience of a scenic byway.

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### **2.2.2 North Barrier Separated Alternative**

This alternative would construct two 12 ft. lanes, with 10 ft. outside and 4 ft. inside shoulders to the north of the existing highway separated by a traffic barrier/retaining wall.

Total wetland impacts associated with this alternative will be 2.43 acres of which 1.31 acres are Class 2 wetlands. This alternative will also require retaining walls to serve as a median barrier along the entire project due to the difference in elevation between the existing highway and the new roadway. These retaining walls also significantly impact animal crossing opportunity.

This alternative will require less right of way when compared to the alternatives with the 40 ft. median. However, the footprint of the project will be very similar among the alternatives at the intersections due to the channelization required for the turn lanes. The number of residential displacements will be nine and the commercial displacements will be eleven.

This alternative will also require a closed drainage system rather than sheet flow into a vegetated median where it could infiltrate into the ground.

The Washington Coastal Corridor Plan emphasizes the importance of the natural environment and directs us to plan highway projects that complement the visual experience of a scenic byway. This alternative includes retaining walls that will be 8-13 ft. in height in some areas, which is not consistent with the design parameters for a National Scenic Byway.

The O'Brien to Lewis project already built the first project for the "West Half" with a 40 ft. median, which was consistent with the previous SEPA EIS and the Corridor Master Plan. Route continuity is part of the purpose and need for this project and switching to a barrier separated highway in the middle of the corridor is inconsistent with visual characteristics of this route and will not be acceptable by the community or elected officials.

For these reasons, this alternative was not carried forward.

### **2.2.3 South Alignment Alternative**

The south alternative would be constructed to the south of the existing highway. The new roadway would have two 12 ft. lanes, with 10 ft. outside and 4 ft. inside shoulders. The lanes would be separated by a 40 ft. median. This median would be measured from the left lane edge stripe in one direction to the left lane edge stripe in the other direction. The south alternative was the preferred alternative in the 1993 FEIS (see Executive Summary).

The typical roadway section (see Exhibit 2-3) was used in the earthwork model, and no walls were used to minimize cut and fill slope impacts to wetlands. This alternative results in 4.42 acres of wetland impacts of which 1.06 acres are Class 2 wetlands. This alternative also results in eight residential displacements and three commercial displacements. There will be an impact to Owl Creek west of Kitchen-Dick Rd. that will require the relocation of the creek.

For these reasons, this alternative was not carried forward.

#### **2.2.4 North Alignment**

The north alternative would be constructed to the north of the existing highway. The new roadway would have two 12 ft. lanes, with 10 ft. outside and 4 ft. inside shoulders separated with a 40 ft. median, as measured from the left lane edge stripe in one direction to the left lane edge stripe in the other direction.

This alternative is a mirror image of the south alternative except that it is along the north side of the highway. The typical roadway section (see Exhibit 2-3) was used in the earthwork model, and no walls were used to minimize cut and fill slope impacts to wetlands. This alternative results in 2.53 acres of wetland impacts of which 1.45 acres are Class 2 wetlands. This alternative also results in fourteen residential displacements and eleven commercial displacements.

For these reasons, this alternative was not carried forward.

#### **2.2.5 The Transportation System Management (TSM) Alternative**

This alternative attempts to affect how the existing transportation system operates. It makes the best use of the existing roadway network to move people and goods more efficiently. Possible areas

of improvement to consider include ridesharing, designating existing lanes as high-occupancy vehicle (HOV) lanes, and traffic signal timing to promote a better flow of traffic. Since the population of Clallam County (just over 71,000 in 2009) does not meet the threshold of being over 200,000 for an urbanized area, this alternative alone will not satisfy the purpose and need of the project.

### **2.2.6 Transportation Demand Management (TDM) Alternative**

The Transportation Demand Management strategies attempt to influence how and when the existing transportation system is used.

Possible strategies include

- Public mode support (Clallam Transit) already provides 12 fixed-route buses, and coordinates with nearby transit organizations to provide 2 intercounty commuter bus lines. They provide paratransit for disabled riders and they also sponsor 17 vanpools.
- Employers and developer-based ideas
- Pricing
- Telecommunications
- Land use
- Public policy and regulatory

This alternative alone will not meet the purpose and need of the project.

Selected parts of the TDM alternatives strategies are already being implemented by Clallam Transit and Clallam County.

### **2.2.7 The Mass Transit Alternative**

The building of light or heavy rail system or a greatly expanded bus system is not prudent with the population of the entire county being well under the 200,000 threshold and the majority of traffic consisting of local commuters and tourists in the summer. This alternative will not meet the purpose and need of the project.

## **2.3 What are the major features of the two alternatives under consideration in this Environmental Assessment?**

Two alternatives are presented in this Environmental Assessment (EA):

- The Proposed Action.
- The No Action Alternative.

### **2.3.1 What is the No Action Alternative?**

The No Action Alternative includes short-term minor types of activities such as safety and maintenance improvements. This maintains the continuing operation of the existing roadway.

Under the No Action Alternative, no new major construction activities described in the Proposed Action will occur. Short-term minor construction necessary for continued operation of the existing roadway facility will be accomplished, and minor safety improvements could be constructed as required.

The No Action Alternative includes other currently funded or planned transportation improvement projects expected to be in operation in the project area by 2032. These baseline transportation improvement projects are identified in a Clallam County Transportation Improvement Program. These baseline transportation improvement projects are not specifically addressed in this environmental document and will be the subject of separate

project-specific environmental review. These projects are considered in the analysis of indirect and cumulative impacts.

### **2.3.2 What is the Proposed Action?**

The Federal Highway Administration (FHWA) and the Washington State Department of Transportation (WSDOT) propose to improve three and one half (3-1/2) miles of US 101. This will widen the highway from two lanes to four lanes between Port Angeles and Sequim. The Proposed Action will provide two additional lanes and channelization improvements at five intersections on US 101 from MP 256.91 to MP 260.38 in Clallam County.

This will be in support of crash reduction, decreased congestion, and increased tourism, resort development and population growth as allowed by the local agency Comprehensive Plans and their zoning designations.

The Proposed Action will improve transportation in the project area by providing a safe efficient roadway to meet current and projected future traffic demand. The Proposed Action in this document is presented by WSDOT and FHWA to be the most desirable in terms of balancing functional efficiency with environmental, social, and economic effects.

If the Proposed Action is selected, the entire existing two lane roadway discussed in the 1993 SEPA EIS will have been replaced with a four-lane highway. It will provide route continuity for the seventeen miles of highway between Sequim and Port Angeles.

This alternative will construct two 12 ft. lanes, 10 ft. outside and 4 ft. inside shoulders separated with a 40 ft. median, as measured from left lane edge stripe in one direction to left lane edge stripe in the other direction. However, the alignment will be constructed to the south of the existing highway from the west end of the project to approximately 1000 ft. east of the Dryke/Pierson intersection.

From there, the alignment would be shifted to the north side of the existing highway.

The Proposed Action is a combination of the north and south alignment alternatives discussed earlier. The typical roadway section in the earthwork model did not use retaining walls to minimize cut and fill slope impacts to wetlands. Because there are 36 wetlands along both sides of the highway within the project limits, our strategy was to minimize impacts to the Class 2 wetlands as the best overall screening criteria for evaluating horizontal alignments.

The Proposed Action results in 2.57 acres of wetland impacts of which 0.12 acres are Class 2 wetlands. This alternative also results in eight residential displacements and two commercial displacements for an approximate cost of \$8.8 million.

**Exhibit 2-2 Primary Effects of the Proposed Action**

<b>Alternative</b>	<b>Class 2 Wetland Impacts</b>	<b>Total Wetland Impacts</b>	<b>Number of Residential Displacements</b>	<b>Number of Commercial Displacements</b>	<b>Satisfy Route Continuity</b>
Proposed Action	0.12 acres	2.57 acres	8	2	Yes

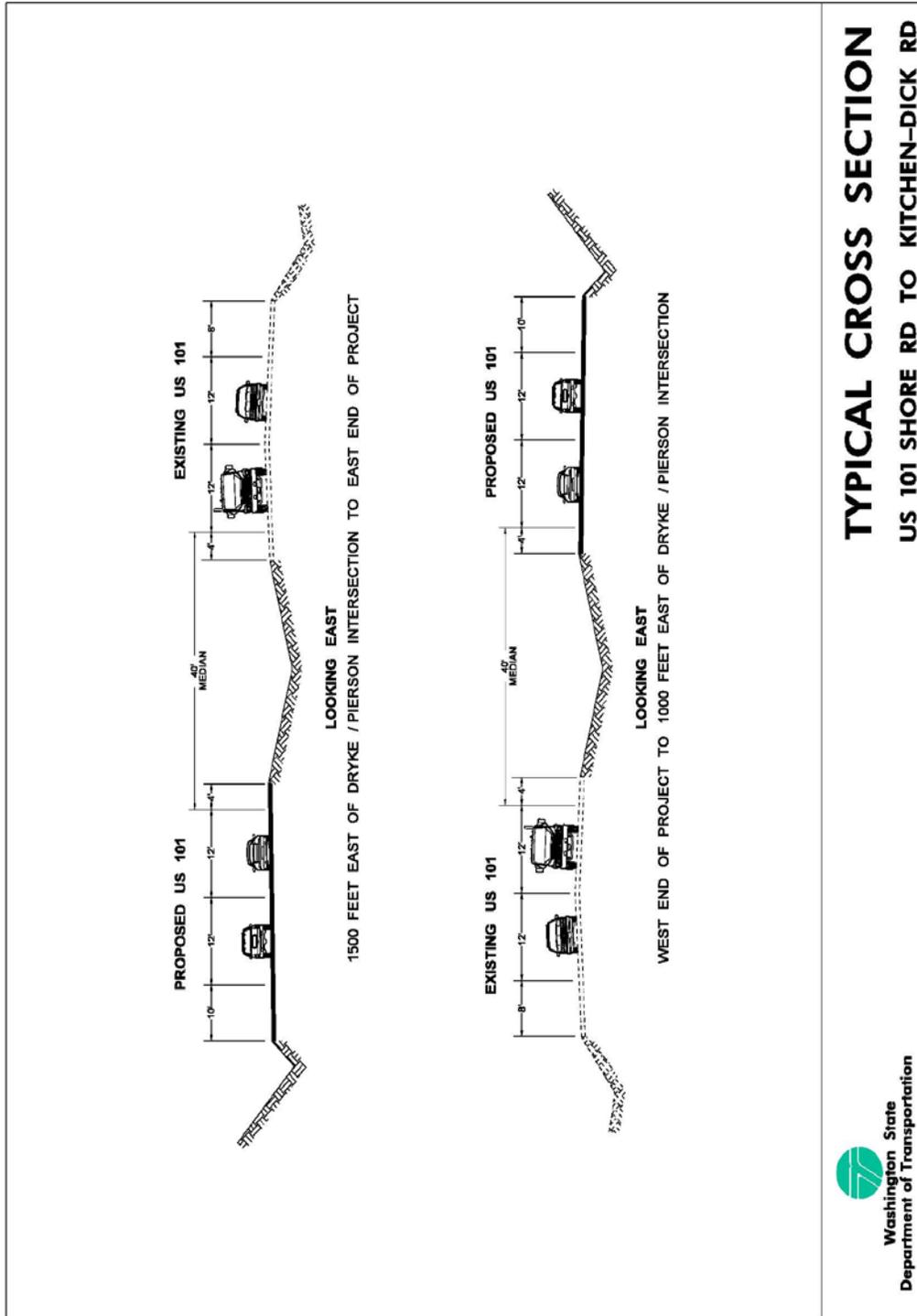
Specific proposed improvements include the following:

- Constructing two additional travel lanes with a new 40 foot median
- Constructing a new bridge over McDonald Creek at MP 258.21.
- Replacing the existing bridge over McDonald Creek at MP 258.21
- Construct a shared-use path under the two bridges to provide a safe pedestrian crossing at McDonald Creek.
- Constructing culverts for several tributaries
- Constructing stormwater treatment facilities
- Constructing a compensatory wetland mitigation site

Chapter 2 - Description of the Alternatives

- Extending culverts and irrigation ditches
- Acquiring right of way and implementing managed access
- Constructing six indirect left turns (bulb shaped u-turns)
- Reconfiguring county road intersections
- Constructing retaining walls to minimize environmental effects
- Removing a fish barrier for one culvert

Exhibit 2-3, Roadway Sections



## **2.4 What environmental consequences may be expected from the Proposed Action and the No Action Alternative?**

The environmental consequences of construction and operation of the Proposed Action are in the Executive Summary, pages ES-8 through ES-12. The No Action Alternative is discussed for comparison.

Additional details are found under each area of impact in Chapter 3. Mitigation measures are identified and evaluated for potential environmental impacts. These environmental areas of impacts were chosen as being possibly affected by the Proposed Action.

# Chapter 3 Existing Environment, Effects, and Mitigation Measures

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## 3.1 Introduction

Roadway projects can potentially affect the natural environment (wetlands, vegetation, fish and wildlife, etc.) and the built environment (residential areas, businesses and supporting infrastructure such as roads and services) in many ways.

This chapter of the Environmental Assessment analyzes the environmental consequences of construction and operation of the Proposed Action and identifies and evaluates mitigation measures for environmental impacts. The No Action Alternative is also examined which leaves the roadway mostly as it exists today.

### 3.1.1 What are the types of environmental effects?

The different kinds of effects or impacts to be evaluated are:

- **Direct temporary or short term** – These effects are typically related to a construction activity and go away when the construction activity stops.
- **Direct permanent or long term** – These effects are more lasting and are associated with the permanent roadway. These effects are often called operational effects because they are associated with the opening and operation of the roadway.

- **Indirect** – Also known as secondary impacts, indirect effects are caused by the project and occur at a later time or away from the project. These impacts are discussed in Chapter 4 of this EA.
- **Cumulative** - These are incremental changes that occur in the project area that are considered in relationship to impacts associated with both past development and anticipated future development. This is the sum of the direct and indirect effects so part of these may be caused by the project. These impacts are discussed in Chapter 4 of this EA.

### 3.1.2 What are the mitigation measures?

Using mitigation measures is a way for a project to lessen the effects and impacts of the Proposed Action. Early in a project's development, studies are prepared that describe the environmental impacts associated with a proposed design. One benefit of gathering environmental information early and integrating it into the roadway engineering design process is that it is often possible to avoid some impacts. In other cases, unavoidable impacts can be minimized. When impacts are unavoidable, we evaluate ways to compensate for these impacts. For example, compensating for unavoidable impacts such as wetland fill impacts or stream buffer clearing often means that a project will propose to enhance, restore, or create these important features somewhere else.

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**We strive to avoid or minimize effects. If that is not possible, we enhance, restore, or create these important environmental features elsewhere.**

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### 3.1.3 What technical studies were prepared and where can I review them?

Technical specialists prepared studies to determine the effects of the project on the local environment for both the No Action Alternative and the Proposed Action. They are listed in Appendix B and are incorporated by reference into this Environmental Assessment.

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**Copies of the technical studies may be viewed at the locations listed in Appendix B**

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A compact disc (CD) is available for those who wish to read these documents on a computer. Hard copies are also available. Copies of the CD are available for a \$2.50 fee and hard copies are available for \$20.00 upon request to Harjit Bhalla, WSDOT, Olympic Region at (360) 570-6704. A copy of the EA can also be viewed at the WSDOT website at:

*<http://www.wsdot.wa.gov/projects/us101/shoretokitchendick/>*

#### **3.1.4 Will the Proposed Action have any significant unavoidable adverse effects on the environment?**

No significant effects are identified at this time, but that conclusion will ultimately be made by the Federal Highway Administration after the Environmental Assessment is issued, the environmental hearing is held, and comments received from the public, agencies, and tribes are given careful consideration.

### **3.2 What environmental elements will not be affected by the alternatives in this Environmental Assessment?**

The following resources were determined to be nonexistent in the project area or have no measurable impacts in the study area.

- Wild and Scenic Rivers – there are no designated rivers in the project area. No wild and scenic rivers are within the project limits.
- 4(f) Resources – there are no effects to public recreation resources affected by the project that qualify for a Section 4(f) evaluation. There are three park and recreation facilities in the vicinity. Access to the Dungeness National Wildlife Refuge north on Kitchen-Dick Road, the Robin Hill Farm County Park (north on Dryke Road), and the Olympic Discovery Trail for bicycles and pedestrians

(about one mile north of and parallel to US 101) will experience very minor temporary and intermittent effects as channelization features are constructed on US 101 in the Proposed Action.

One prehistoric archaeological site was recommended to be potentially eligible for inclusion in the National Register of Historic Places (NRHP). This site will be avoided by the construction project.

There are two historical features that are eligible for the NHRP in the study area; neither will be affected by the Proposed Action.

- Energy– there is no measureable effect to energy.

### **3.3 Why do we study environmental effects and involve the public in project decisions?**

Our roadway improvement projects are planned to benefit the state’s citizens by supporting safe travel and the efficient transportation of goods. The benefits derived from these improvements may reach beyond the local community, but it is at the community level where the project’s effects are typically most concentrated.

Both the National and State Environmental Policy Acts (NEPA and SEPA) require us to disclose the social, economic, and environmental effects of our proposals. These acts ensure that all members of the community have the opportunity and are encouraged to contribute information and opinions that will be given careful consideration by the project’s decision makers. Our interaction with the public, agencies, and tribal governments are documented in Chapter 5 – Public, Agency, and Tribal Coordination.

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**We want your input, and we pledge that the decision makers will give it careful consideration.**

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### **3.4 What areas of effect are addressed in this Environmental Assessment?**

The remainder of this chapter contains findings from the technical studies listed in Appendix B.

## 3.5 Transportation

A Transportation Discipline Report was completed in January, 2010. It describes the existing traffic conditions in the US 101 project study area and evaluates potential traffic impacts with and without the proposed project in 2032 (design year). This study is listed in Appendix B, and it is incorporated by reference into this Environmental Assessment.

### 3.5.1 Studies, coordination, and methods

The study area for the transportation study is one of the larger geographical areas for analysis. It uses population growth factors for the entire county to predict annual growth in traffic for both the US 101 corridor and local intersecting roads.

### 3.5.2 What assumptions are in the current traffic analysis?

The existing year for traffic analysis is 2008. Based on our latest schedule, the year of opening is 2014 for the new widened road, and the design year is 2032. The speed limit on US 101 is 55 miles per hour (MPH).

### 3.5.3 How is the traffic in the US 101 corridor predicted to grow between now and 2032?

An annual growth factor of 1.5% was used to predict 2032 traffic volumes on US 101. This agrees closely with the statewide population growth and traffic growth over a 12 year span.

The “Carlsborg Area Transportation Study” (2008) by Clallam County was used to predict traffic volumes on the intersecting county roads. This study predicted a growth of 3.4% per year.

### **3.5.4 How do the two alternatives compare in their ability to move people and goods now and in 2032?**

US 101 is designated by WSDOT as a Rural Class I principal arterial roadway. Motorists expect to travel at relatively high speeds on Class I roadways. They are typically major intercity routes, primary arterials connecting major traffic generators, daily commuter routes, or primary links in state or national highway networks.

The WSDOT level of service (LOS) standard for traffic operations on this facility is LOS C. This LOS standard applies to both mainline traffic operations and intersections. LOS C describes satisfactory stable operating conditions where minor traffic delays occur and are generally acceptable by motorists.

#### **Existing Conditions in 2008**

The US 101 LOS in the peak operative period for the No Action Alternative in 2008 is D for three of the roadway analysis units (Shore to Barr, Barr to Sherburne, and Sherburne to Dryke) and is LOS E for the Dryke to Kitchen-Dick unit.

LOS D denotes unstable traffic flow. The demand to pass other vehicles is high as congestion increases, but opportunities to pass become rare during peak operating hours.

Passing opportunities will continue to decline as traffic volume increases. Increases in travel duration due to a variety of factors, such as slow moving vehicles, roadside distractions, intersection conflicts, and driver frustration, will increase to create a potentially unsafe operating environment. This operating condition underscores the need for capacity improvements that improve mobility and enhance safety.

The intersections of Shore, North Barr/South Barr, Sherburne, Dryke/Pierson, and Kitchen-Dick/Kirk all currently operate below the WSDOT minimum acceptable standard of LOS C (with the exception of North Barr/South Barr, which operates at LOS C only

for the AM period) for unsignalized intersections in rural areas. The LOS ranges from C to F with delays ranging from 24 seconds to 134 seconds of waiting to go through these intersections. The time delays will become worse with increases in traffic volumes to make mobility and safety issues more of a concern.

### **The No Action Alternative in 2032**

Crash data from December 1, 2005 through November 30, 2008, indicates that the study area of US 101 has a higher accident rate than the statewide average for rural principal arterial roads. With four fatalities in the three year period studied, the fatality rate was twice the statewide average.

The total number of crashes was 91 in the categories of:

- Fatal Injury = 4
- Serious Injury = 1
- Evident Injury = 12
- Possible Injury = 15
- Non-Injury = 59

With the predicted crash categories of Fatal, Injury, and Non-Injury, the Proposed Action will be roughly two times safer than the No Action Alternative for each category in 2032.

If no action is taken, the LOS will be E in 2032 in the US 101 corridor. US 101 will continue to be an important regional facility that will be failing in every aspect of its function to provide regional and local traffic mobility, local access, and safe operations.

The intersections with county roads will decrease to a LOS F. This translates into time delays from between 77 seconds (AM peak) and 2475 seconds (PM peak) for the five intersections. It will become increasingly more difficult to make left turns onto the highway. With the No Action Alternative, the operation (ability to

move traffic) of all intersections will severely fail before 2032. Some will fail to the point of being totally inaccessible.

Fatal injury crashes and total number of all types of collisions are expected to increase between now and 2032. This also increases the cost to society in loss of lives and lost wages.

### **Construction Temporary Effects with the Proposed Action**

Temporary and intermittent effects to the traveling public will be minimized because most of the new roadway construction will be separated from the existing highway. When the new lanes are ready for traffic, US 101 traffic will be shifted onto the new roadway while the existing two lanes are improved.

Traffic could be affected by construction equipment and trucks making their way to and from the project.

### **The Proposed Action in 2032**

With the Proposed Action, the US 101 LOS improves to LOS A (as the optimal operating condition) in the morning peak traffic period. The afternoon traffic peak period will be LOS A and LOS B. With two additional new lanes, WSDOT anticipates more efficient traffic flow, and therefore corridor travel times will decrease upon project completion. This will result in a decrease in driver frustration and much safer operations.

The crash analysis demonstrates that there will be an annual reduction in the cost to society of accidents of \$1,868,000 (see Transportation Study for details on this calculation) with the Proposed Action. Over the design life of the Proposed Action, this will translate into fewer accidents and deaths.

The five at-grade intersections with county roads will be modified to allow right in and right out (RIRO) movements. Additionally, left turns from US 101 onto county roads will also be allowed at Shore, Dryke, Pierson, Kitchen-Dick and Kirk Roads. U-turn features will be constructed at locations that will safely accommodate them to lessen the effects of the lack of through and

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There will be a pair of indirect left turns between:

- Shore Rd. and Barr Rd.
  - Sherburne Rd. and Dryke Rd.
  - Pierson Rd. and Kitchen-Dick Rd.
-

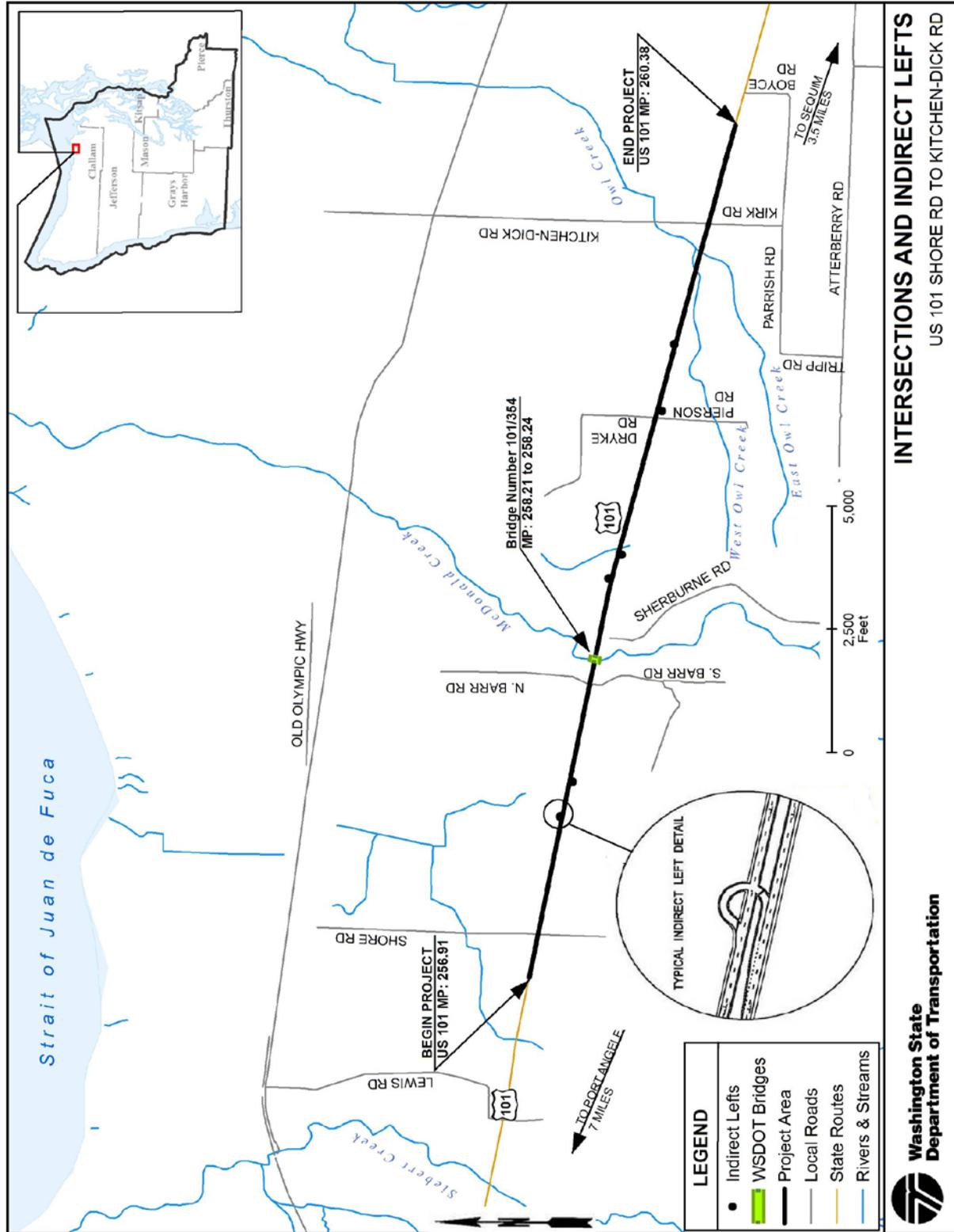
left turn movements onto US 101. All intersections are predicted to achieve a satisfactory LOS B in 2032.

All existing private road approaches will be limited to the RIRO movement.

### **3.5.5 How will the Proposed Action affect the connections with local roads and intersections?**

A Cost Risk Assessment and Value Engineering study in June, 2009, recommended restriction of left turn movements at existing county road intersections. These left turn movements will be allowed instead through the construction of indirect left turns (bulb shaped u-turns). This will allow the 55 mph speed limit on the highway to be maintained while improving safety through the elimination of conflict points at county road intersections. See Exhibit 3-1, Intersections and Indirect Lefts.

Exhibit 3-1, Intersections and Indirect Left Turns



### **3.5.6 How will the project affect transit and school bus routes?**

Clallam Transit designates their Transit Route 30 on US 101 as being the spine of the transit system. It has, by a wide margin, the highest daily ridership on the transit network with over 930 daily riders. Within the study area, this route averaged 59 riders on a typical day. During construction, some transit pickup points on both sides of US 101 may require minor adjustments to avoid temporary areas of work. WSDOT will coordinate with Clallam Transit on this issue. Future transit usage is not expected to change as a result of the project. Since current transit users are largely transit-dependent, they will continue to use the transit system as their primary method of transportation. School buses presently pick up students in both directions of US 101. This eliminates any need for students to cross the highway. Similar to the local transit routes, some pickup or drop points may require minor adjustments to avoid temporary areas of work. WSDOT will coordinate with the Sequim School District on this issue.

### **3.5.7 How will the project affect bicycle and pedestrian traffic?**

The existing US 101 road carries high volumes of traffic at high speeds. The existing roadway has 8 ft. wide outside shoulders. After construction is completed, the new roadway will have a 10 ft. wide outside shoulder while the existing roadway will remain with an 8 ft. wide outside shoulder.

The intersecting county roads are also used by bicycles. The west-east Olympic Discovery Trail is about one mile north of US 101. The removal of the ability to directly cross US 101 will affect pedestrians. Currently, pedestrians are crossing US 101 at the intersections with county roads and at many points other than at

intersections without marked pedestrian crossings. When crossing in between the intersections, pedestrians currently only need to cross two lanes, with no median. The proposed action will discourage pedestrian crossing of US 101 due to the added lanes and the 40-foot grassy median. Because it is unsafe for pedestrians to cross a high-speed 4-lane highway, it is against WSDOT policy to encourage pedestrians to cross a highway such as US 101. But analysis shows that realistically, pedestrians will still cross at intersections. Pedestrians who decide to cross will do so at county road intersections and will have a much easier time identifying when it is safe to cross because there will be fewer conflict points with vehicles due to right-in/ right-out movement of traffic; will only need to cross one direction of traffic at a time; and will be able to wait for a break in traffic in the paved part of the median.

To accommodate pedestrians who need to cross US 101, part of the proposed action includes an ADA compliant shared-use path under the two McDonald Creek bridges. This shared-use path is approximately 1000 feet long and provides a paved and lighted route dedicated to foot and bicycle traffic that is separate from automobile traffic, thus making for a much safer way to cross US 101(See Exhibit 3-2). People who want to cross US 101 by means of the shared-use path or a crosswalk have the option of riding a transit bus to these destinations if unable or unwilling to walk to them. The nearest crosswalks are located outside the project limits, at the intersection with Carlsborg Road (to the east) or Kolonel Way (to the west) of the project. Both intersections serve as Clallam Transit bus stops, with both eastbound and westbound bus service. Exhibit 3-3 shows the length of bus rides from stops within the project limits to these intersections and to the shared-use path.

The distances from the entrance of the shared-use path to the following intersections are approximately: 1.8 miles from the Kitchen-Dick/Kirk Rd intersection, 1.04 miles from the Dryke/Pearson intersection, 1 mile from the Shore Rd intersection, 900 feet from the Sherburne Rd intersection; approximately 100 feet from the Barr Rd intersection.

Exhibit 3-2; Proposed Path Connection Under the McDonald Creek Bridges



**Exhibit 3-3; Length of bus ride to shared-use path and nearest crosswalks**

Transit times to nearest crosswalk to east of project\*:

<b>Eastbound Stops (west to east)</b>	<b>Time to Hooker Rd. Crosswalk</b>
O'Brien Rd (for reference - outside project limits)	8 Minutes
Fern	
S. Barr Rd.	
Sherburne	
Pierson	3 Minutes
Kirk Rd.	
Hooker Rd. Crosswalk	0 minutes

Transit times to nearest crosswalk to west of project\*:

<b>Westbound Stops (east to west)</b>	<b>Time to Kolonel Way Crosswalk</b>
Carlsborg Rd. (for reference - outside project limits)	15 minutes
Kitchen-Dick Rd.	
Dryke Rd.	12 minutes
N. Barr Rd.	
Shore Rd.	
Kolonel Way Crosswalk	0 minutes

\*Times given are provided by Clallam Transit. Intermediate stops need to be interpolated to determine time.

### **3.5.8 How will the traffic flow be affected during construction of the Proposed Action?**

The duration of construction is roughly 30 months. The two new US 101 lanes will be constructed while traffic remains on the existing two lanes (one lane in each direction). Signs warning of construction activities will be posted, and local authorities, emergency service providers, and transit and school bus providers will be notified about alternate routes or projected congestion as they are expected to occur. When the new lanes are completed, temporary paved connections will bring traffic to the new lanes while work is completed on the existing lanes. When completed, there will be two lanes in each direction.

### **3.5.9 Will US 101 lanes and/or local streets be closed during construction?**

In general, complete closures of US 101 or the intersecting county roads will not be required for the construction of the Proposed Action. Some intersections will require temporary and intermittent alternate routes as the reconstruction to connect with the highway occurs.

### **3.5.10 What route will be used to haul construction materials?**

US 101 will be used to access the construction site. Local roads are not anticipated to be used for the operation of construction trucks or equipment.

Impacts from construction will impact traffic on US 101 as construction equipment enters and leaves the site. The duration of construction is roughly 30 months.

**3.5.11 Will the project have significant unavoidable adverse effects to transportation?**

Although some disruptions to traffic may occur during construction, they are expected to be minor and intermittent. Some transit and school bus stops may need to be temporarily moved to avoid short-term areas of work. The indirect-left turns and right in-right out turning movements from county roads may increase the distance some motorists will need to travel, but these features will ultimately increase the safety of this section of US 101. Pedestrians who cross US 101 will need to cross four lanes of traffic and a 40-foot median, but the project includes an ADA-compliant shared-use path under the new McDonald Creek bridges, which is a safer alternative, since users of the shared-use path will be separated from high-speed traffic. Overall, the project will result in a safer highway for motorists and pedestrians that also provides a more efficient traffic flow and decreased travel times.

The project will not have significant unavoidable adverse effects to transportation.

## 3.6 Highway Sound

A noise technical report was completed in December, 2009. It describes the existing noise conditions in the project study area and evaluates potential noise impacts in 2032 (design year) with the No Action Alternative and the Proposed Action. See Appendix B for locations where this study can be viewed. This study is incorporated by reference into this Environmental Assessment

### 3.6.1 Studies, coordination, and methods

Traffic sound is the predominant source of sound in the study area. Peak sound levels occur at times when traffic volumes are heavy but still moving at or near the posted speed limit.

The Federal Highway Administration's (FHWA's) Traffic Noise Model (TNM) Version 2.5 computer model (FHWA, 2004) was used to predict  $L_{eq}(h)$  traffic noise levels. The model estimates the acoustic intensity at a receiver location calculated from a series of straight-line portions of roadway. TNM considers effects of intervening barriers, topography, trees, and atmospheric absorption. Noise from sources other than traffic is not included. Noise monitoring results were used to validate the accuracy of the noise model constructed for the project.

### 3.6.2 What is the study area for the noise analysis?

The study area for the noise analysis includes all noise sensitive sites within 500 feet of the proposed improvements.

### 3.6.3 What noise sensitive properties are located in the study area?

The project environment was evaluated for the presence of receivers sensitive to traffic noise. The project area is a mix of

residential and commercial land uses. 58 receivers (10 commercial and 48 residential) were modeled to identify current and future noise impacts under this project's No Action Alternatives and Proposed Action.

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**Sound is created when objects vibrate. This results in a small variation in surrounding atmospheric pressure called sound pressure.**

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### **3.6.4 What are some characteristics of sound?**

The human response to sound depends on the magnitude of a sound as a function of its frequency and time pattern (U.S. Environmental Protection Agency (EPA) 1974). Magnitude measures the physical sound energy in the air. The range of magnitude from the faintest to the loudest sound the ear can hear is so large that sound pressure is expressed on a logarithmic scale in units called decibels (dB). Loudness, compared to physical sound measurement, refers to how people subjectively judge a sound, and it varies from person to person.

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**A doubling of the number of vehicles increases sound levels by 3 dBA.**

Humans respond to a sound's frequency or pitch. The human ear is very effective at perceiving sounds with a frequency between approximately 1,000 and 5,000 hertz (Hz), with the efficiency decreasing outside this range. Environmental sounds are composed of many frequencies occurring simultaneously.

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**A tenfold increase in the number of vehicles will add 10 dBA.**

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The human ear can barely perceive a 3 dBA increase, while a 5 or 6 dBA increase is readily noticeable and sounds as if the sound is about one and one-half times as loud. A 10 dBA increase appears to be a doubling in sound level to most listeners.

Generally, an increase in volume, speed, or vehicle size increases traffic noise levels. The engine, exhaust, and tires contribute to vehicular sound. Other conditions affecting traffic noise include defective mufflers, steep grades, terrain, vegetation, distance from the roadway, and shielding by barriers and buildings.

The propagation of sound can be greatly affected by terrain and the elevation of the receiver relative to the source. Level ground is the simplest case to analyze. Sound travels in a straight line-of-sight path between the source and receiver. Sound levels may be

reduced if the terrain crests between the source and receiver, resulting in a partial sound barrier near the receiver. If the sound source is elevated or the receiver is depressed, sound is often reduced at the receiver. The edge of the roadway can act as a partial sound barrier to block some sound transmission between the source and receiver. Even a short barrier, such as a solid concrete jersey-type safety barrier, can be effective at further reducing sound levels. A reduction of approximately 5 dBA results when the line of sight between the receiver and the highest sound source is interrupted.

### **3.6.5 What are some typical sound levels for comparison?**

Typical sound levels begin as soft as normal breathing at 10 dB (barely audible). Normal conversation at 40 inches is 60 dB. Busy traffic is 70 dB. Construction noise at 10 feet is 110 dB. Sounds above 80 dBA are typically described as annoying.

### **3.6.6 How is highway sound measured?**

Sound is created when an object moves, such as when the wind causes tree leaves to rustle in the breeze. Movement causes vibrations. When the vibrations reach our ears, we hear sound. Sound is measured by a meter that measures in units called decibels (dB). Adjustments in measurement are made to better reflect how an average person hears sounds. The adjusted sounds are called “A-weighted levels (dBA)”. This is most similar to how humans perceive sounds on a logarithmic scale. The A-weighted decibel scale begins at zero and represents the threshold of hearing. Loudness varies from person to person, so there is no precise definition of loudness.

### **3.6.7 What are the general results of the US 101 sound study?**

Fifteen of the fifty-eight modeled receivers were at or above impact level (66 dBA for residential and 71 dBA for the commercial) at existing (2008) conditions in the PM (afternoon) traffic conditions for the No Action Alternative. That means that they qualify for further examination.

For the No Action Alternative, the traffic volume will increase in 2032. The noise levels will increase by about 1 to 3 dBA over existing noise levels today. The model shows that there will be about 20 locations at or above impact level in 2032. Actual maximum noise level increases may be less than the predicted increase, since congestion may reduce traffic speed during peak traffic hours. Should this occur, peak noise levels may be similar to existing noise levels, but they will occur for a longer period each day than existing peak traffic periods.

Under the Proposed Action in 2032, noise levels are projected to increase by about 0-2 dBA over the No Action Alternative at the receivers in the study area. Traffic volumes used for the Proposed Action remained the same as the No Action Alternative. Twenty-six (26) locations are projected to be at or above impact level under the Proposed Action. All properties projected to be at or above impact level in the Proposed Action were analyzed for noise mitigation. The following exhibits show the location of the noise receptors.

Exhibit 3-4: Location of Noise Receptors

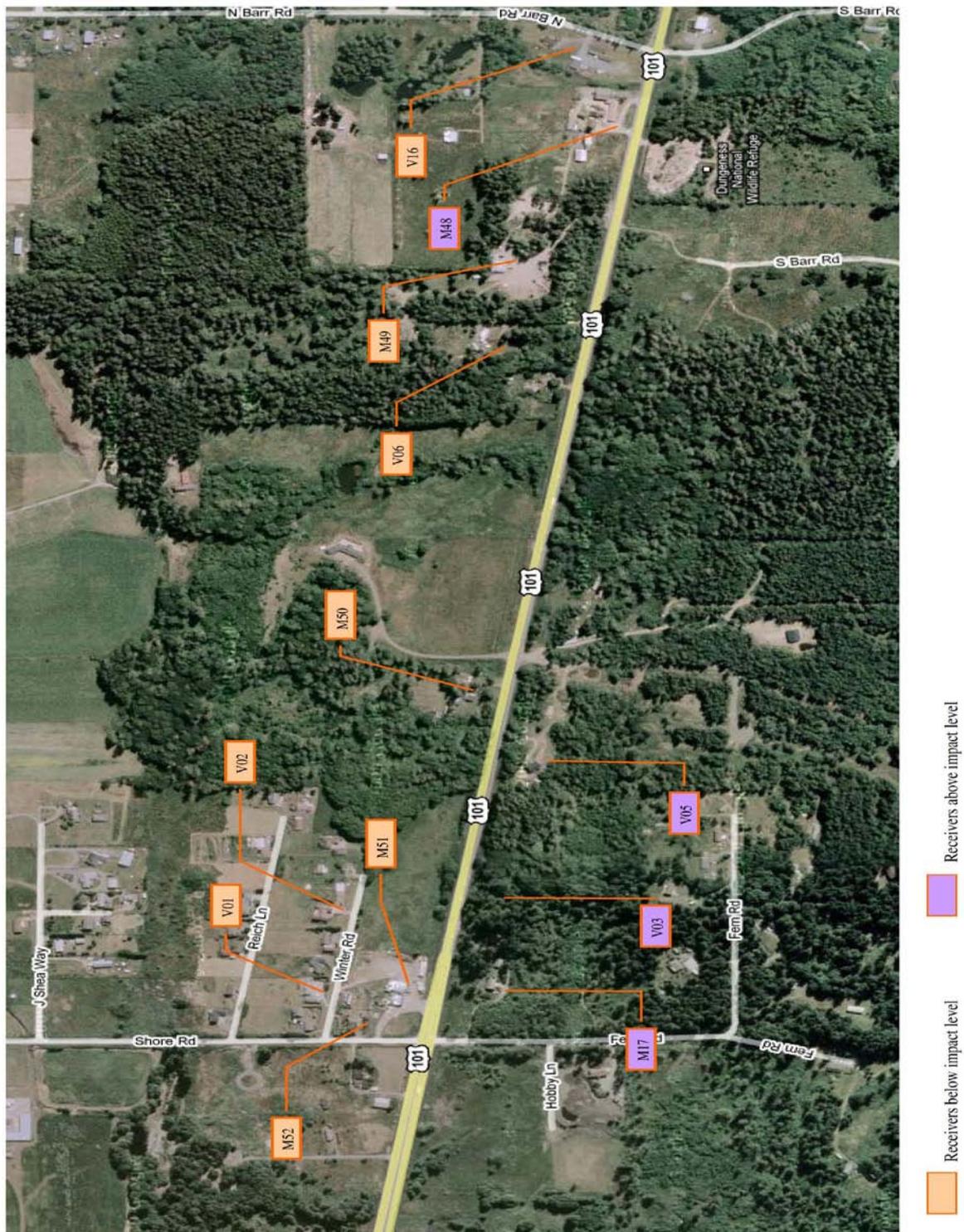


Exhibit 3-5: Location of Noise Receptors

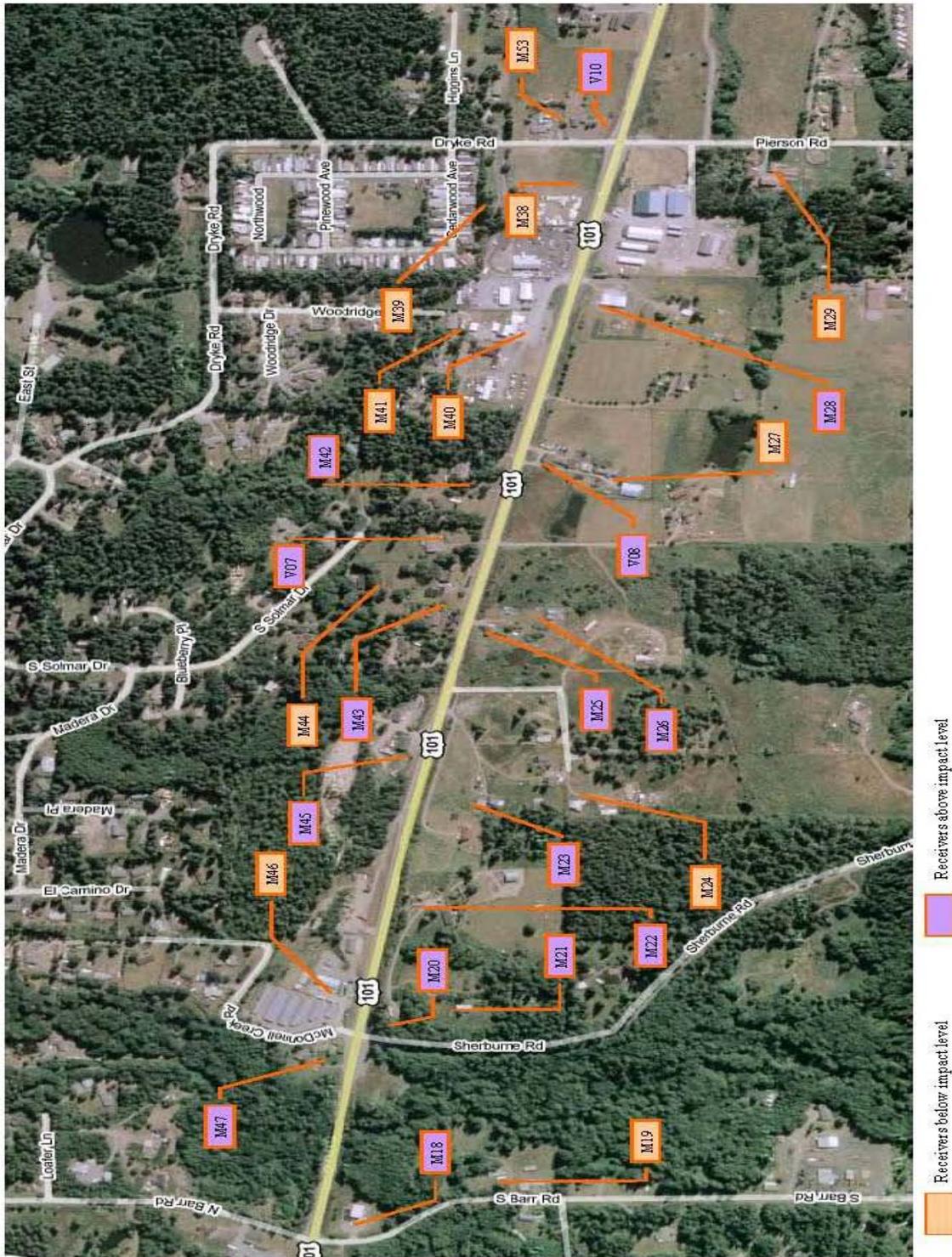
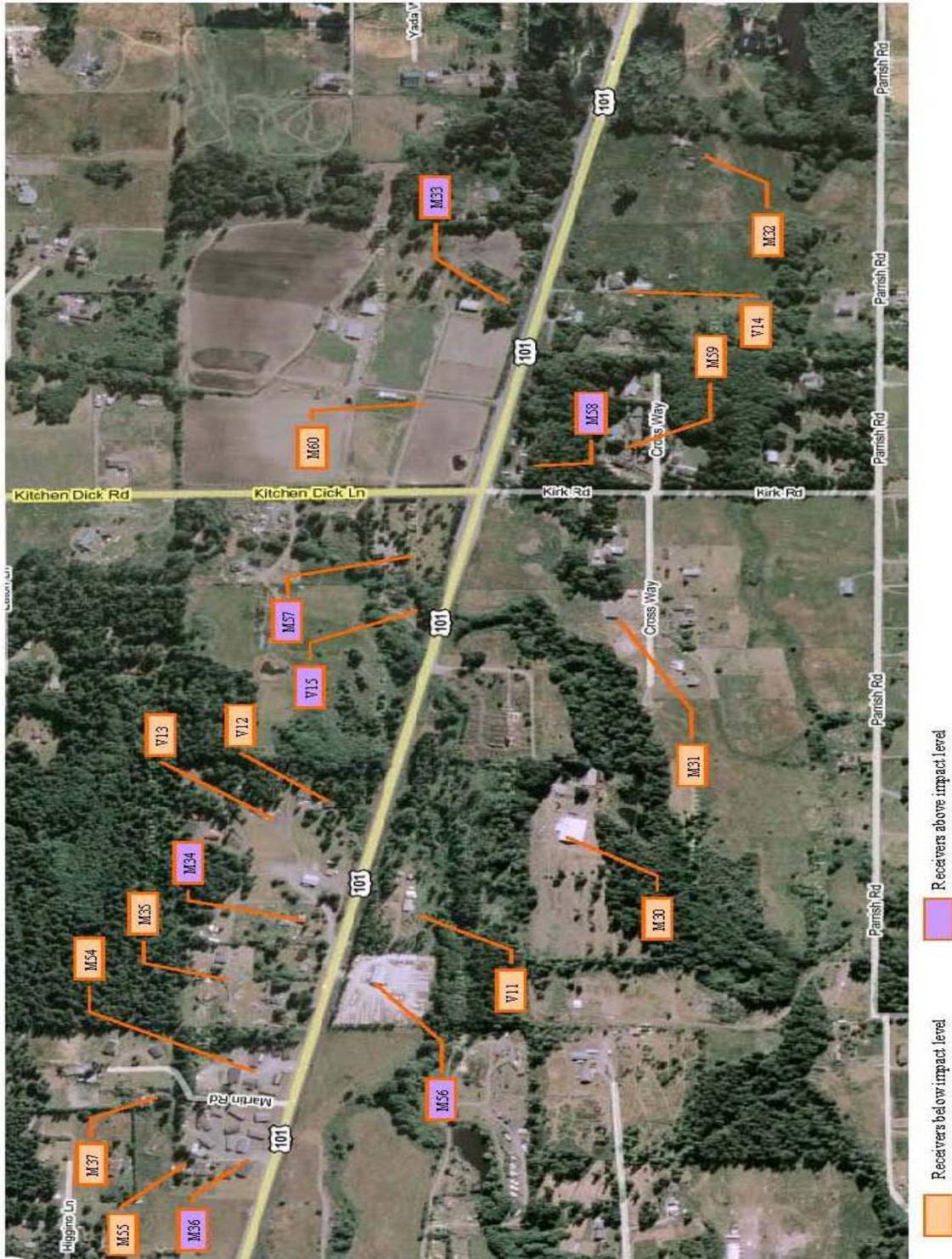


Exhibit 3-6: Location of Noise Receptors



**Exhibit 3-7: Noise Receptor Descriptions**

	Location (see figures 3,4 & 5)	Units	Existing	No	Build
			Dwelling (2008)	Action (2032)	(2032)
			$L_{eq}$ (dBA)	$L_{eq}$ (dBA)	$L_{eq}$ (dBA)
V01	Residential property	3	45	47	47
V02	Residential property	4	54	55	57
V03	Residential property	1	<b>69</b>	<b>71</b>	<b>71</b>
V05	Residential property	2	63	64	<b>66</b>
V06	Residential property	2	59	61	64
V07	Residential property	2	62	64	<b>67</b>
V08	Residential property	1	<b>67</b>	<b>69</b>	<b>69</b>
V10	Residential property	1	<b>66</b>	<b>67</b>	<b>69</b>
V11	Residential property	1	61	62	63
V12	Residential property	2	57	58	59
V13	Residential property	1	55	56	56
V14	Residential property	2	62	63	65
V15	Residential property	1	64	<b>66</b>	<b>66</b>
V16	Residential Property	1	55	57	59
M17	Residential property	1	<b>68</b>	<b>69</b>	<b>70</b>
M18	Commercial property	1	70	<b>72</b>	<b>72</b>
M19	Residential property	1	55	57	59
M20	Residential property	1	<b>71</b>	<b>73</b>	<b>73</b>
M21	Residential property	4	63	65	<b>67</b>
M22	Residential property	1	<b>69</b>	<b>71</b>	<b>71</b>
M23	Residential property	2	<b>69</b>	<b>71</b>	<b>71</b>
M24	Residential property	4	58	59	60
M25	Residential property	1	<b>71</b>	<b>73</b>	<b>73</b>
M26	Residential property	1	64	65	<b>67</b>
M27	Residential property	2	62	64	65
M28	Commercial property	2	70	<b>71</b>	<b>71</b>
M29	Residential property	2	58	60	60
M30	Residential property	3	53	55	56
M31	Residential property	4	56	58	58
M32	Residential property	1	61	63	65
M33	Residential property	1	64	<b>66</b>	<b>68</b>
M34	Residential property	5	<b>67</b>	<b>69</b>	<b>70</b>
M35	Residential property	3	59	61	62
M36	Residential property	8	<b>67</b>	<b>68</b>	<b>70</b>
M37	Residential property	3	56	57	58
M38	Commercial property	1	68	70	70
M39	Residential property	10	56	58	59
M40	Commercial property	5	64	66	67
M41	Residential property	4	56	58	59
M42	Residential property	1	61	63	63
M43	Residential property	3	<b>69</b>	<b>70</b>	<b>71</b>
M44	Residential property	3	57	58	59
M45	Commercial property	2	<b>71</b>	<b>73</b>	<b>73</b>
M46	Commercial property	3	68	69	70
M47	Residential property	2	<b>68</b>	<b>70</b>	<b>70</b>
M48	Commercial property	2	68	70	<b>71</b>
M49	Commercial property	1	57	59	62
M50	Residential property	3	62	63	64
M51	Commercial property	2	65	66	68
M52	Residential property	1	60	62	65
M53	Residential property	1	62	64	65
M54	Residential property	8	<b>66</b>	<b>67</b>	<b>69</b>
M55	Residential property	5	62	63	65
M56	Commercial property	1	68	70	<b>71</b>
M57	Residential property	1	64	<b>66</b>	<b>68</b>
M58	Residential property	1	<b>69</b>	<b>71</b>	<b>71</b>
M59	Residential property	4	60	61	62
M60	Residential property	1	60	62	63

Bold numbers represent noise levels at or above WSDOT impact level

**Exhibit 3-7 cont'd.: Noise Receptor Descriptions**

	Location (see Figures 3,4 & 5)	Dwelling Units	Existing (2008) $L_{eq}$ (dBA)	No Action (2032) (dBA)	Build (2032) $L_{eq}$ (dBA)
M41	Residential property	4	56	58	59
M42	Residential property	1	61	63	63
M43	Residential property	3	<b>69</b>	<b>70</b>	<b>71</b>
M44	Residential property	3	57	58	59
M45	Commercial property	2	<b>71</b>	<b>73</b>	<b>73</b>
M46	Commercial property	3	68	69	70
M47	Residential property	2	<b>68</b>	<b>70</b>	<b>70</b>
M48	Commercial property	2	68	70	<b>71</b>
M49	Commercial property	1	57	59	62
M50	Residential property	3	62	63	64
M51	Commercial property	2	65	66	68
M52	Residential property	1	60	62	65
M53	Residential property	1	62	64	65
M54	Residential property	8	<b>66</b>	<b>67</b>	<b>69</b>
M55	Residential property	5	62	63	65
M56	Commercial property	1	68	70	<b>71</b>
M57	Residential property	1	64	<b>66</b>	<b>68</b>
M58	Residential property	1	<b>69</b>	<b>71</b>	<b>71</b>
M59	Residential property	4	60	61	62
M60	Residential property	1	60	62	63

**Bold numbers represent noise levels at or above WSDOT impact level**

### 3.6.8 How loud will construction activities be?

Construction will be carried out in stages, each of which has its own mix of equipment and, consequently, its own noise characteristics. These stages will also occur in different areas along the project corridor.

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**Construction noise levels will depend on the type, amount, and location of construction.**

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Typical activities during construction will involve pavement removal, including saw-cutting, excavation, placement embankment material and pavement, and utility relocation.

The most constant noise source at construction sites will be internal combustion engines. Engine-powered equipment includes excavation equipment, material-handling equipment, and stationary equipment. Mobile equipment operates in a cyclic fashion, while stationary equipment, such as generators and compressors, operate at sound levels fairly constant over time. Because trucks will be present during most phases and will not be confined to the project site, noise from trucks could affect more receptors. Other noise sources will include impact equipment, which could be pneumatically powered, hydraulic, or electric.

The typical noise range of construction equipment is from 68 dBA to 95 dBA. The use of jack hammers can increase the noise to 98 dBA, and the use of pile drivers can reach as high as 105 dBA.

### 3.6.9 When is noise mitigation considered for highway projects?

Roadway projects in Washington must consider noise mitigation (called noise abatement) when the noise levels reach 66 dBA or greater. Then the proposed mitigation locations must meet WSDOT's feasibility and reasonableness criteria as discussed in the Noise Technical Report (see Appendix B).

**3.6.10 Is any noise mitigation proposed in the corridor to reduce traffic sound?**

A noise wall was considered at one location in the southeast corner of the intersection of US 101 and Sherburne Road. It is not recommended for construction as it was found that the construction of this wall along the right of way was not feasible. The existing driveway accesses will create openings in the wall, and this makes the barrier ineffective to decrease the effects of noise. A wall is considered not feasible when it does not provide an effective noise level reduction. In this case the opening reduces the efficacy of the wall making a wall not feasible.

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**No noise walls will be included in the Proposed Action.**

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**3.6.11 Will the project have significant unavoidable adverse effects because of highway noise?**

Under the No Action Alternative 20 locations are projected to be at or above impact level in 2032 as compared to 26 locations for the Proposed Action. Construction activities would also produce temporary noise impact under Proposed Action. The project will not result in significance adverse effect because of highway noise.

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### 3.7 Air Quality

An Air Quality Conformity Analysis was completed in November, 2009. It describes the existing air quality conditions in the US 101 project study area and evaluates potential air quality impacts with and without the proposed project in 2014 (year of opening) and 2032 (design year). It also discusses greenhouse gas and climate change. This study is listed in Appendix B, and it is incorporated by reference into this Environmental Assessment.

#### 3.7.1 Studies, coordination, and methods

State and federal agencies have labeled designated regions as being in “attainment” or “non-attainment” areas for particular air pollutants. Attainment areas are regions where air quality standards are not exceeded, while non-attainment areas are regions where air quality standards are exceeded.

The Proposed Action is located in an attainment area for all U.S. Environmental Protection Agency (EPA) criteria pollutants. EPA has established the National Ambient Air Quality Standards (NAAQS) which specify maximum concentrations for carbon monoxide (CO), particulate matter less than 10 micrometers in size (PM<sub>10</sub>), ozone, sulfur dioxide, lead, and nitrogen dioxide. These pollutants are referred to as criteria pollutants. The project area is in attainment for all criteria pollutants.

There are no specific analysis requirements for transportation air quality conformity in an attainment area. Project level air quality conformity using a hot-spot analysis was not performed for this project, but a general discussion is included for information.

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#### Who regulates Air Quality?

Air Quality is regulated by the U.S. Environmental Protection Agency (EPA), the Washington State Department of Ecology (DOE), and the Olympic Region Clean Air Agency.

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**MSAT** are compounds emitted from highway vehicles and non-road equipment and are proportional to the vehicle miles traveled (VMT).

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Mobile Source Air Toxics (MSAT) are a subset of the 188 air toxics defined by the Clean Air Act. Some toxic compounds are present in fuel and are emitted to the air when the fuel passes through the engine unburned.

### **3.7.2 What characteristics contribute to the existing air quality?**

The weather of the region, the absence of urban type vehicle volumes, and the lack of traffic signals contribute to not exceeding the air quality standards.

### **3.7.3 How will air quality be affected if the project is not built?**

The increase in vehicle congestion due to increasing traffic volumes, lack of adequate traffic lanes for a smooth flow of vehicles, and the continuing potential for delays caused by accidents will all contribute to making the air quality worse in 2032 under the No Action Alternative. Delays at the existing five intersections in the project limits for traffic accessing or crossing US 101 will also contribute to a decreased air quality.

### **3.7.4 Will the Proposed Action affect air quality?**

The Air Quality Conformity Analysis shows that the Proposed Action will not cause new exceedances nor will it contribute to any existing exceedances of the National Ambient Air Quality Standards (NAAQS) in the year of opening (2014) or the design year (2032). There are no signalized intersections within the project limits. However, the overall operation of signalized intersections located adjacent to the project will improve as a result of the Proposed Action.

The Proposed Action will minimize stop and go conditions. The free flowing traffic will promote more conservative use of fuel within the project vicinity. Moderating speed limits will also promote more efficient energy consumption. The project will have a beneficial effect on greenhouse gases.

The project will have a beneficial effect on greenhouse gases. For additional discussion of the subject of climate change and greenhouse gases, refer to Chapter 4, Indirect and Cumulative Effects.

In general, project-level actions that can help reduce greenhouse gas emissions include:

- Reducing stop and go conditions
- Improving mobility helps to keep traffic free flowing
- Improving intersection traffic flow to reduce idling

CO emission rates will fall by 53 percent by 2032 due to the Clean Air Act fuel and engine requirements under both the No Action Alternative and the Proposed Action. The Proposed Action will benefit because of the decline in emission rates and some reductions in congestion due to more travel lanes will combine to reduce emissions along the US 101 corridor.

No air quality impacts are anticipated from long term operation of the project. No long term mitigation measures are required.

### **3.7.5 How will the project address MSAT emissions?**

The project adds capacity to the existing roadway (by adding another two lanes), but it does not increase the average daily traffic (ADT) compared to the No Action Alternative.

Because the estimated Vehicle Miles Traveled (VMT) under the Proposed Action are not substantially different from the future No Action Alternative conditions, it is expected that there will be no appreciable differences in overall MSAT emissions between the

Proposed Action and the No Action Alternative. 2032 emissions will likely be lower also than present levels as a result of the EPA's national control programs that are projected to reduce MSAT emissions.

### **3.7.6 How will construction affect air quality?**

Construction activities may cause temporary increases in air pollutant emissions. The construction contractors will be required to comply with all local, state and federal regulations concerning air pollution abatement related to construction activities.

In addition to PM<sub>10</sub> emissions, heavy trucks and construction equipment powered by gasoline and diesel engines will generate PM<sub>2.5</sub>, CO, and nitrogen oxide in exhaust emissions. If construction traffic and lane closures were to increase congestion and reduce the speed of other vehicles in the area, emissions from traffic will increase temporarily while those vehicles are delayed. This increase in emissions will be temporary and limited to the immediate area where the congestion is occurring. Some construction phases (particularly during paving operations using asphalt) will result in short-term odors. These odors might be detectable to some people near the site, and will be diluted as distance from the site increases.

### **3.7.7 How will construction air quality impacts be minimized?**

Construction contractors will be required to comply with the state of Washington regulations. These require the owner or operator of a source of fugitive dust to take reasonable precautions to prevent it from becoming airborne. This will minimize emissions from their activities and equipment.

The project traffic management plan includes temporary traffic shifts and strategic construction timing (such as work at night) to continue moving traffic through the work area and to minimize delays to the traveling public. WSDOT will seek to establish

active construction areas, staging areas, and materials transfer sites to reduce standing wait times for equipment. We will work with our agency partners to promote more ridesharing and other commute trip reduction efforts for employees working on the project and those traveling through the work zones.

Incorporating mitigation measures into the construction specifications for the project will reduce construction impacts. Possible mitigation measures to control PM<sub>10</sub>, deposition of particulate matter, and emissions of CO and NO<sub>x</sub> during construction are listed below:

- Spraying exposed soil with water or other dust palliatives to reduce emissions of PM<sub>10</sub> and deposition of particulate matter;
- Wetting materials in trucks, or providing adequate freeboard (space from the top of the material to the top of the truck) to reduce particulate emissions during transportation;
- Providing wheel washers to remove particulate matter that vehicles will otherwise carry offsite to decrease deposition of particulate matter on area roadways;
- Removing particulate matter deposited on paved public roads to reduce mud and resultant windblown dust on area roadways;
- Placing quarry spall aprons where trucks enter public roads to reduce the amount of mud tracked out;
- Covering disturbed soil with appropriate BMPs within the timeframes specified in the WSDOT Standard Specifications Manual will protect soil from wind and water erosion;
- Coordinating construction activities with other projects in the area to reduce the cumulative effects of concurrent construction projects.

### **3.7.8 Will the air quality for the Proposed Action be in conformance with state and federal regulations?**

#### **Conformity Determination**

This project meets air quality conformity in accordance with state and federal regulations.

- The project is included in the current Transportation Improvement Program (TIP). The project is on a conforming TIP and conforms to the State Transportation Improvement Program (STIP). The project has been found to conform to all the necessary criteria of 40 Code of Federal Regulations (CFR) Part 93 and Washington Administrative Code (WAC) Chapter 173-420.
- The project is exempt from inclusion in the Metropolitan Transportation Plan (MTP).
- Because the project is not predicted to affect regional VMT, it is not predicted to impact regional CO, PM<sub>10</sub>, PM<sub>2.5</sub>, and O<sub>3</sub> levels. The project is also not predicted to impact greenhouse gas levels. MSAT levels are predicted to decrease substantially in the future due to federally mandated programs. The project is not expected to impact this reduction.
- The Proposed Action meets conformity requirements because the project will not cause any new exceedances, will not contribute to any existing exceedances of the NAAQS, nor will it delay the timely attainment of any standard.
- Hot Spot modeling is not required for project level conformity because the project area is in attainment.

### **3.7.9 Will the project have significant unavoidable adverse effects on air quality?**

The Air Quality Conformity Analysis shows that the Proposed Action will not cause new exceedances nor will it contribute to any existing exceedances of the National Ambient Air Quality Standards (NAAQS) in the year of opening (2014) or the design year (2032). The project will have a beneficial effect on greenhouse gases. Emissions in 2032 will likely be lower than present levels as a result of the USEPA's national control programs that are projected to reduce Mobile Source Air Toxics (MSAT) emissions.

The project will not have significant unavoidable adverse effects on air quality.

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## 3.8 Wetlands

A Wetland Assessment Report was completed in August, 2010. It describes the existing wetlands present in the US 101 project study area and evaluates potential wetland impacts with and without the proposed project. This study is listed in Appendix B, and it is incorporated by reference into this Environmental Assessment.

### 3.8.1 Studies, coordination, and methods

The study area for delineation and assessment of wetlands is defined as being about 100 feet from each side of the existing highway. Determinations were made by observing vegetation, hydrology, and soils in conjunction with data from the National Wetland Inventory (NWI) maps of the U.S. Fish and Wildlife Service (USFWS), the Soil Survey for Clallam County (USDA, 1987) and aerial photos.

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**Summary of wetland ratings:**

**Class I** = Score > 70

**Class II** = Score 51 - 69

**Class III** = 30 - 50

**Class IV** = < 30

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Wetlands were rated using the Washington State Wetland Rating System for Western Washington (Hruby, 2004) that uses Ecology's rating system with four classes. For example, Class I has the highest value such as a bog wetland that cannot be replaced. Wetlands categories are based on criteria such as rarity, sensitivity, and level of functions. For most wetland types, a cumulative score for functions is assigned based on points given for water quality, hydrologic, and habitat indicators. Category I wetlands are unique and sensitive to disturbance, impossible to replace, and/or provide a high level of functions (70+ points). Category II wetlands provide high levels of some functions and are difficult to replace (51-69 points). Category II wetlands perform moderate functions, are generally disturbed, and are easier to replace. Category IV wetlands have the lowest levels of functions and are often heavily disturbed (<30 points).

### 3.8.2 Why and how are wetlands protected?

Wetlands are protected because of the ecological and social benefits that they provide. They can recharge ground water supply, aid in improving water quality of lakes and streams, help control erosion, lessen the effects of flooding as well as provide habitat for a variety of wildlife including for waterfowl.

Wetland buffers are areas that surround wetlands and provide protection to the integrity and value of wetlands and their ecosystem.

Wetlands are protected by the federal Clean Water Act (Section 404), by the Governor’s Executive Orders (EO) 89-10, EO 90-04) and other regulations at the federal, state, and local levels. This guidance requires us to have “no net loss” of wetlands if the Proposed Action is selected to be constructed.

The Seattle District of the US Army Corps of Engineers has jurisdiction of the wetlands and will regulate the placement of fill in these wetlands. The Washington Department of Ecology also governs wetlands. Clallam County regulates wetland buffers in the project area. Local regulations establish the protective buffer widths of wetlands. The buffer width of impacted wetlands on this project is 75 feet except for one wetland, which is 150 feet.

Impacts to wetlands have been avoided and minimized by implementing a variety of avoidance measures, minimization measures, and Best Management Practices (BMPs). Primary among these measures was the development of a “hybrid” alignment shifting the widened new lanes to/from the north/south sides of the existing US 101. This substantially reduced the effects to the higher value (Ecology Category II) wetlands within the project corridor.

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**Wetlands are valuable natural resources.**

They support plant and animal communities while providing valuable functions to human communities.

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### 3.8.3 How will the No Action Alternative affect existing wetlands?

The existing roadway storm runoff is not treated with sedimentation or detention ponds.

We can expect gradual loss of wetland acreage and function caused by future local land development unless federal, state, regional, and local agencies continue to implement wetland protection to ensure “no net loss”.

The current level of degraded habitat along the roadway will continue.

### 3.8.4 Will area wetlands be affected by the Proposed Action?

Permanent effects with the Proposed Action are 2.57 acres from roadway cut and fill activities in the following categories:

Class II = 0.12 acres, Class III = 2.11 acres, and  
Class IV = 0.34 acres

Temporary effects during construction of the Proposed Action are 0.21 acres in the following categories:

Class II = 0.02 acres, Class III = 0.17 acres,  
Class IV = 0.02 acres

Permanent effects to the buffer of the wetlands are 6.5 acres.

Temporary effects to wetland buffers during construction of the Proposed Action are 1.18 acres.

The stormwater runoff from the new roadway lanes will be treated to remove pollutants and to retain the water in detention ponds to control downstream erosion. This will allow cleaner water to enter adjacent wetlands after treatment. The existing roadway stormwater runoff is not treated to remove

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**Wetland summary:**

**16 wetlands are identified on the north side of the existing highway.**

**20 wetlands are identified on the south side of the existing highway.**

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pollutants or to control the volume of runoff leaving the right of way.

There will be a loss of biodiversity adjacent to the roadway as vegetation is replaced with new pavement.

### **3.8.5 How will WSDOT compensate for lost wetlands?**

Under the Proposed Action, a compensatory wetland mitigation site (about 40 acres) will be constructed north of existing US 101 in the Lower Dungeness watershed in Sequim.

Approximately 7.8 acres of this site is set aside for the Dungeness River levee setback. The levee setback is being managed by Clallam County and is a collaborative effort between the County, Washington State Department of Fish and Wildlife (WDFW), United States Army Corp of Engineers (USACE), Washington State Department of Ecology (WSDOE), the Jamestown S'Klallam Tribe (JSKT), North Olympic Land Trust, and local land owners. The mitigation provides the following to compensate for project impacts to wetlands:

- At least 2.57 acres of wetland establishment (creation).
- At least 10.09 acres of wetland enhancement.
- Wetland preservation, including riparian areas.

The following table details how WSDOT calculated the appropriate mitigation.

<b>Wetland Category</b>	<b>Impact</b>	<b>Establishment Ratio</b>	<b>Total Wetland Establishment Ac. Required</b>	<b>Enhancement Ratio</b>	<b>Total Wetland Enhancement Ac. Required</b>
<b>II</b>	<b>0.121</b>	<b>1:1</b>	<b>0.121</b>	<b>8:1</b>	<b>0.968</b>
<b>III</b>	<b>2.111</b>	<b>1:1</b>	<b>2.111</b>	<b>4:1</b>	<b>8.444</b>
<b>IV</b>	<b>0.340</b>	<b>1:1</b>	<b>0.340</b>	<b>2:1</b>	<b>0.680</b>
<b>TOTAL</b>			<b>2.572</b>		<b>10.092</b>

The wetland mitigation site will replace the functions of the impacted wetlands and buffers. It will be constructed under regulations of the applicable resource agencies.

Most of the effects involve the lesser quality Category III wetlands and their buffers. Temporary wetland effects and effects to wetland buffers will be restored by planting native shrubs and trees after the construction is complete.

### **3.8.6 Will the project have significant unavoidable adverse effects on wetlands?**

As a result of avoidance and minimization measures and proposed compensatory mitigation, the proposed project will have no significant unavoidable adverse effect on the wetland resources.

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## 3.9 Fish

A Fisheries Discipline Report was completed in June, 2010. It describes the existing fishery resources present in the US 101 project study area and evaluates potential fishery impacts with and without the proposed project. This study is listed in Appendix B, and it is incorporated by reference into this Environmental Assessment

### 3.9.1 Studies, coordination, and methods

The project study area for fish is confined within the Elwha-Dungeness Water Resource Inventory (WRIA) #18. It is less than two miles south of the Strait of Juan de Fuca. It is roughly three miles west of the city of Sequim, Washington.

Coordination has occurred with the Jamestown S’Klallam, the Lower Elwha Klallam, and Port Gamble S’Klallam tribes. Continued coordination will occur through the construction phase.

Coordination has occurred with the Washington Department of Fish and Wildlife (WDFW) and with the Federal agencies of the National Marine Fisheries Service (NMFS) and the United States Fish and Wildlife Service (USFWS). The streams for the analysis cross US 101 at milepost 258.20 (McDonald Creek), 259.79 (West Owl Creek), 259.84 (East Owl Creek).

Stream classifications using the Washington State Department of Natural Resources (WDNR) criteria were documented during field visits.

### 3.9.2. What is the Endangered Species Act?

The Endangered Species Act of 1973, as amended, provides a means to conserve the ecosystems upon which endangered and threatened species depend. It provides programs for the conservation of those species and the prevention of extinction of plants and animals. The law is administered by the Interior Department's Fish & Wildlife Service (USFWS) and the Commerce Department's National Oceanographic & Atmospheric Administration, NOAA Fisheries, also known as National Marine Fisheries Service (NMFS), depending on the species. Any project using federal funds must adhere to the requirements of the ESA regarding consultation with the appropriate federal agencies above.

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The FHWA is responsible for compliance with Section 7 of the Endangered Species Act (ESA) for this Environmental Assessment .

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### 3.9.3 Are there threatened and endangered species in the study area and how are they impacted?

Puget Sound Steelhead was designated as a threatened species by the NMFS in 2007. The Proposed Action will have "No Effect" on Puget Sound Steelhead.

Coastal cutthroat is a federal "Species of Concern" in Owl Creek, and the effect is not determined for the Species of Concern.

### 3.9.4 Are there any fish resources in the study area and how are they protected?

Coho salmon, steelhead, rainbow trout, and coastal cutthroat trout are found in McDonald Creek.

Coastal cutthroat trout are in Owl Creek.

Prior to upland work that could possibly affect water quality, BMP's will be in place to protect fish resources from sediment or

chemicals from entering streams, either directly or through conveyance through ditches.

Fish will also be protected through work area isolation, exclusion and relocation prior to any in-water work that would affect any fish directly. Implementation of the work area isolation and fish capture and removal protocols will be planned and directed by a WSDOT biologist, or qualified biologist under contract to WSDOT, possessing all necessary knowledge, training, and experience.

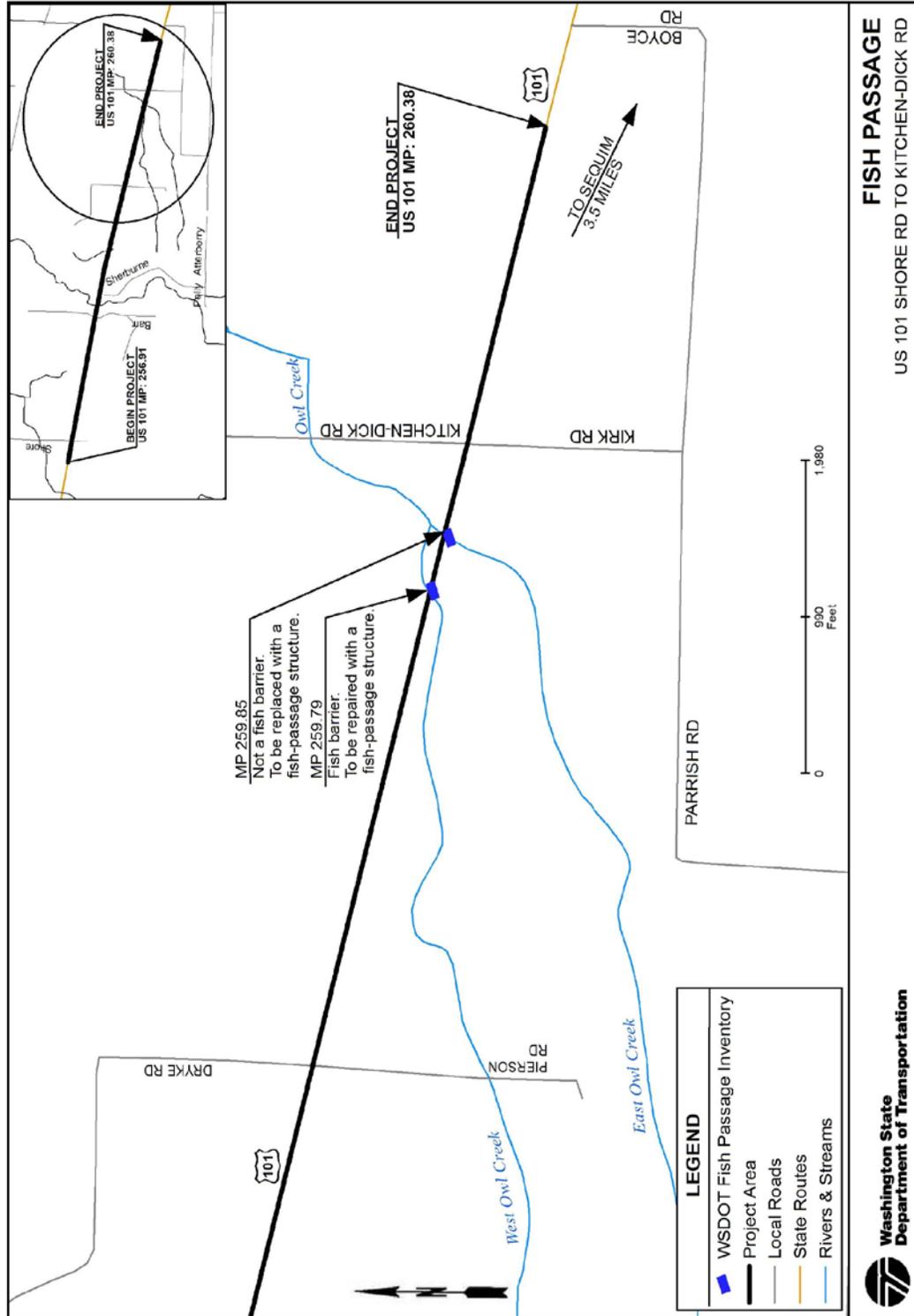
### **3.9.5 If the project is not built, what will be the existing conditions for fish?**

Under the No Action Alternative, no construction related effects on fisheries or fish habitat will occur. Current impacts to fish populations and/or habitats are occurring and will continue to occur. Habitat has historically been degraded by logging, grazing, road building, and land development activities. Non-project related residential development over time may occur. The fish passage barrier on West Owl Creek at MP 259.79 will not be modified for fish passage. The long-term fisheries benefit of providing access to additional habitat for coho and coastal cutthroat trout will not occur under the No Action Alternative.

### **3.9.6 How will fish be affected during construction of the Proposed Action?**

In-water work at milepost 259.79 and 259.84 will require the relocation and exclusion of fish at both locations. The 2008 WSDOT Fish Relocation Protocol will be followed to minimize harm to fish in the work area.

**Exhibit 3-8, Fish Passage**



During construction, coastal cutthroat and coho will be exposed to several aspects of water quality degradation. It is not likely that steelhead will be exposed to this water quality degradation. These typically include potential effects to temperature, sedimentation/turbidity, and chemical contamination. If any of these impacts occur, they will be temporary in nature. Long term temperature increases due to removal of riparian habitat are not anticipated.

Replacement of the existing culverts at milepost 259.79 and 259.84 and disturbance of other stream crossing structures may result in the short-term suspension of sediments in the streams if project activities are conducted under flowing conditions. The use of a stream bypass is expected to be incorporated into the project design. A first flush effect is likely to accompany the first storm flows of the fall and winter season and will produce short-term localized erosion and releases of sediment. Suspended sediments eroded from construction sites following construction events typically settle out of the stream at the next point downstream where a substantial change in hydraulic velocities occur (such as pools at bends or below riffles).

It is anticipated that there will be no long-term or substantial aquatic impacts due to project construction.

### **3.9.7 What other effects will occur under the Proposed Action after construction?**

The equivalent of 100% of the proposed impervious pavement will be treated for water quality and water quantity. The pollutant loading for the project action area will decrease in loads to receiving waters (McDonald Creek and Owl Creek) by 50% for dissolved copper and 74% of dissolved zinc.

Large woody material (LWM) in the channel is lacking at all three stream crossings of US 101. However, there is potential

recruitment within the riparian corridor at McDonald Creek. Minor impacts to LWM recruitment are expected from the removal of some conifers at McDonald Creek. If they are left in place, they could potentially be recruited into the stream as LWM at a later date. Impacts to the baseline conditions of the LWM parameter from the removal of these trees, is not expected to be substantial. Impacts to the storage of sediments is not anticipated due to the low number of relatively small trees that will be impacted. It is anticipated that the WDFW Hydraulic Project Approval (HPA) permit will require installation of LWM within Owl Creek. Therefore, project operation activities are expected to *improve* the LWM parameter.

McDonald Creek and Owl Creek appear to have less than 10 percent of the stream banks actively eroding within the project study area. Streambank stabilization techniques will be implemented as part of the Temporary Erosion and Sediment Control plan should any streambanks be disturbed. Therefore, the project operation will *maintain* the current width/depth ratio during operation.

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**The existing McDonald Creek Bridge will be replaced as part of this project.**

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The US 101 crossings of Owl Creek at MP 259.79 and 259.84 are perpendicular crossings and are expected to have a minimal effect on watershed conditions. An existing fish barrier will be fixed to allow access at MP 259.79 to previously inaccessible fish habitat upstream.

The existing McDonald Creek Bridge will be replaced as part of this project. The existing bridge is constructed of creosote treated timber, including piling within the ordinary high water mark of McDonald Creek. Creosote contains over 300 compounds, including numerous variants of polycyclic aromatic hydrocarbons (PAH). Some variants of PAHs are known to be very toxic to fish (NMFS, 1998). When the existing bridge is replaced with a new bridge, it will include the removal of existing creosote treated piles. But, until then, these pilings will remain, and the chemical contaminants baseline condition within McDonald Creek will be maintained at the current condition.

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**The new fish passable culvert at MP 259.79 on West Owl Creek will allow access to an additional mile of coastal cutthroat foraging, migration, overwintering, and some spawning habitat.**

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There are public recreational fishing opportunities at McDonald Creek. The project will not affect fishing opportunities except that access will be restricted during bridge demolition and construction. The removal of old fill debris, creosote pilings and the old box culvert will ultimately provide benefit to fish habitat and water quality.

### **3.9.8 How will we offset the effects to protected fish?**

Monitoring of turbidity will occur downstream and project Best Management Practices (BMPs) will be inspected and modified (as needed) to achieve compliance with water quality standards.

A Stormwater Pollution Prevention Plan (SWPPP) will be fully implemented before, during, and after construction to reduce the likelihood of pollutants reaching any water body within the project study area. The SWPPP will include a Maintenance and Operations manual that lists the procedures and frequency of applying the procedures required to keep the stormwater management system operating as intended.

To accommodate the addition of highway lanes, the number of crossing structures at McDonald Creek and Owl Creek will increase. Higher and wider structures have less impact on fishery resources and associated wildlife linkage corridors. These new culverts will meet the current WDFW technical applications program fish passage criteria (TAPPS).

The two new McDonald Creek Bridges will have no piers below the ordinary high water mark (OHWM) of McDonald Creek.

The existing culvert at MP 259.79 and MP 259.84 will be replaced to meet WDFW fish passage criteria. The culvert at MP 259.79 is currently documented as a fish passage barrier (TAPPS 2001).

If there is a change in species status, or are any changes to the project that may impact listed species, consultation with the Services will be reinitiated.

Fish habitat components such as logs and LWM are required as part of the project to mitigate project impacts. These fish habitat components will be installed to withstand 100-year peak flows. LWM will be placed or anchored to provide stable, functional fish habitat. LWM will consist of a coniferous species such as Douglas fir, western red cedar, spruce, or hemlock.

Alteration or disturbance of the bank and bank vegetation will be limited to that necessary to construct the project. Vegetated areas that are impacted during construction will be re-vegetated after construction is complete. A biologist will evaluate the status and location of listed species every six months until project construction is completed.

### **3.9.9 Will the project have significant unavoidable adverse effects on fish?**

The project will supply long-term benefits to fish by repairing two fish barriers, which will provide spawning and rearing habitat currently not available to fish. Although in-water work at milepost 259.79 and 259.84 may require the relocation and exclusion of fish at both locations, the effects will be temporary and not significant.

The project will not have significant unavoidable adverse effects on fish.

### 3.10 Wildlife

A Wildlife Discipline Report was completed in October, 2009. It describes the existing wildlife resources present in the US 101 project study area and evaluates potential wildlife impacts with and without the proposed project. This study is listed in Appendix B, and it is incorporated by reference into this Environmental Assessment.

#### 3.10.1 Studies, coordination, and methods

The study area for wildlife is defined as 300 feet beyond the area of disturbance for the roadway improvements. It is extended up to one-mile beyond the project limits of the linear US 101 project for analysis of the project effects under the Migratory Bird Treaty Act (MBTA).

Information from the US Fish and Wildlife Service (USFWS), the Washington Department of Fish and Wildlife (WDFW), and the Washington Department of Natural Resources (WDNR) was used to determine if any state or federally listed proposed, threatened, or endangered animal species are located in the project area. Field reconnaissance was conducted to verify the aerial photo interpretation.

The USFWS, the WDFW Priority Habitats and Species (PHS) Program, and the Washington Natural Heritage Program maintain records of sensitive, threatened, and endangered species occurring in the state. No sensitive, threatened, or endangered animal species were observed on the site during field investigations.

The WDFW PHS database indicated one detection of Cope's giant salamander in Owl Creek, and one detection of marbled murrelet to the south of the proposed project. Great blue herons may occasionally

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**The Migratory Bird Treaty Act (16 U.S.C. 703-711) is managed by the U.S. Fish and Wildlife Service (USFWS) to conserve migratory bird populations and their habitats.**

**The MBTA includes 1007 protected species based on the current revised list (2010).**

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**There are no major wildlife habitat linkages in the project area due to existing development.**

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be found foraging in wetlands located in the project area or may be observed flying over.

Minor wildlife linkages, such as limited riparian corridors, do exist. These small remaining corridors are very important because of the continuing loss of habitat in the region.

### **3.10.2 Are there threatened and endangered species in the study area?**

The marbled murrelet is a small seabird that utilizes the near shore marine environment for foraging. Nesting habitat is typically associated with low elevation mature or old growth trees. Neither suitable foraging nor nesting habitat are present in the MBTA study area.

Marbled murrelets could use portions of the MBTA study area as a travel corridor between suitable nesting habitat in the Olympic Mountains and foraging habitat in the Strait of Juan de Fuca (Salish Sea).

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**No habitats that are potentially used by listed, threatened, and endangered wildlife species, as primary resources, will be affected by the proposed project.**

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### **3.10.3 Are there wildlife resources in the study area?**

Habitats for the Migratory Bird Treaty Act (MBTA) include streams, riparian habitat, wetlands, and conifer-hardwood forest, agricultural land, grass fields, and urban lands.

Birds (such as robins, crows, and swallows), mammals (such as opossums, raccoons, deer, and elk), and amphibians (such as frogs, newts, and salamanders) occur within the study area.

Additional examples of the wildlife are found in the discipline study.

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**Up to 225 species of birds could potentially occur in the vicinity of the widening project. Occurrence relates to nesting, foraging, wintering, and seasonal migration through the study area.**

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**3.10.4 If the project is not built, what will be the existing conditions for wildlife?**

Development and agricultural activities generally occur next to creeks and leave little to no buffer areas for wildlife.

Developed areas often contain inclusions of other habitat types such as agricultural lands and wetlands. These are generally small and disconnected from other suitable habitats. This limits their use by some species and especially those that prefer continuous vegetated cover to travel between habitat blocks.

Effects to wildlife populations and/or habitats are currently occurring and are expected to continue.

**3.10.5 How will wildlife be affected during construction of the Proposed Action?**

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**No substantial effects to wildlife are anticipated during construction of this transportation project.**

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Direct impacts could result if nesting migratory birds were present in the project area during construction.

Based on the size and scope of the project, there will be long and narrow strips of land that will be cleared. This will result in the loss of vegetation and incidental loss to some small animals due to site preparation, road construction and operation.

**3.10.6 What other affects will occur under the Proposed Action after construction?**

Impacts to vegetation in the study area may cause the displacement of wildlife into neighboring habitats. Depending on the ability of the neighboring habitat to support additional wildlife, this displacement may lead to wildlife crowding and a decrease in

habitat quality. Modification and fragmentation of habitat could alter species composition in the study area. Species that are better adapted to urbanized landscapes such as crows, rock doves, starlings, and house finches will become increasingly abundant.

The addition of traffic lanes and increase in the volume of traffic may make US 101 more difficult for animals to cross. This may lead to a long-term increase in wildlife mortality from vehicle collisions in the study area. Operation of the project will increase disturbance levels along the corridor, especially in areas where development currently does not exist.

The Proposed Action will result in mortality of individual migratory birds, and loss and fragmentation of existing habitat. Increased traffic volumes traveling at greater speeds (compared to the slower speeds of the No Action Alternative) will result from the operation of the project. These conditions will likely result in additional mortality of migratory birds from collisions with automobiles. Automobiles occasionally strike raptors such as owls and red-tailed hawks that hunt along road right of ways, especially freeways where vehicle speeds are highest. Vehicles also occasionally strike waterfowl and smaller perching birds when suitable habitat occurs along roadways. Juvenile birds are also susceptible to collision with vehicles immediately after fledging due to a reduced capacity for flight and awareness of their new environment.

### **3.10.7. How will we offset the effects to protect wildlife?**

A habitat connectivity assessment was completed for this project. Although this project is not located in an area where habitat connectivity is a major issue, wildlife friendly practices will be implemented where possible. These include features such as over-sizing of culverts and bridges so that dry land is available for safe transit of wildlife. There are two locations where WSDOT will design the project to accommodate safe passage of wildlife

[McDonald Creek Bridge (milepost 258.22) and Owl Creek culvert (milepost 259.76)].

The wetland mitigation site will also benefit migratory birds. Approximately 3 acres of new wetlands will be created and 12.8 acres of wetland will be enhanced on the 40 acre site as a result of the Proposed Action.

Preservation of vegetation will decrease the impacts of project construction. Wherever possible, existing trees and shrubs adjacent to the alignment will be preserved as visual buffers. Vegetation buffers will also offer wildlife protection from noise and human activity on the site. WSDOT will restore the roadside disturbed by the construction activity with native plants to help mitigate habitat losses.

### **3.10.8 Will the project have significant unavoidable adverse effects on wildlife?**

WSDOT will use all practicable means to minimize impacts to habitats. Based on size and scope of the project, there will be some unavoidable loss of plants and animals due to site preparation, road construction and operation. Measures will be incorporated into the design of the proposal related to landscaping, soil retention, site rehabilitation and habitat restoration that will help reduce the impacts to wildlife and habitat.

Preservation of vegetation will decrease the impacts of project construction and existing native plants and trees will be preserved wherever possible. Trees and shrubs adjacent to the alignment will be preserved as visual buffers wherever possible. Vegetation buffers will also offer wildlife protection from noise and human activity on the site. Landscaping with native species will mitigate habitat losses in the alignment right of way.

The project will not have significant unavoidable adverse effects on wildlife.

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### 3.11 Vegetation

A Vegetation Discipline Report was completed in February, 2010. It describes the existing vegetation present in the US 101 project study area and evaluates potential vegetation impacts with and without the proposed project. This study is listed in Appendix B, and it is incorporated by reference into this Environmental Assessment.

#### 3.11.1 Studies, coordination, and methods

The study area extends 300 feet on either side of the existing highway between the project's west and east end limits.

The following resources were used, and staff at those agencies were contacted for this analysis of vegetation:

Aerial photograph (2008); Clallam County Critical Areas and Parcel Map (2009a); Clallam County Weed List (2009b); WSDOT Geographical Information System (GIS) data; Washington Department of Natural Resources (WDNR) Natural Heritage Program (WNHP database (2009); University of Washington, Washington Gap Project – Land Cover for Washington State (1991); and Washington State Noxious Weed Control Board (2009).

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A field verification of vegetation types was conducted in August, 2009, to ground truth the information previously gathered.

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#### 3.11.2 Are threatened and endangered species found in the project area?

The study area has no known occurrences of plant species listed as threatened or endangered under the Endangered Species Act (ESA) or that are candidates for such a listing. There are no plant species of federal concern or species included in the Washington Natural Heritage Program database.

### 3.11.3 What vegetation is found in the study area?

Land use adjacent to most of the project area consists of a combination of second-growth forest, residential areas, agricultural lands, and commercial lands.

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The project is located in a unique climatic area that receives an annual average of only 18 inches of precipitation.

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Vegetation is dominated by needle-leaved, evergreen tree species such as Douglas-fir, western hemlock and western red cedar. Other dominant tree species include red alder and big-leaf maple. Red alder is common in the wetlands associated with this project due to the area's history of disturbance. The majority of soils in the study area have been altered by excavating, clearing, and/or grading activities.

The eight vegetation cover types identified include:

1. Coniferous Forest (trees such as evergreen conifers and deciduous broadleaf trees with understory species such as salal, snowberry, ocean spray, salmonberry, etc.)
2. Mixed Forest (described above under #1)
3. Riparian (in support of aquatic habitats with red alder, black cottonwood, big-leaf maple, Himalayan blackberry, Indian Plum among others)
4. Grassland (likely created through human disturbance such as colonial bentgrass, tall fescue, sweet vernalgrass, bluegrasses, and bromes. Bracken fern is co-dominant in some places)
5. Wetlands (in the 36 wetlands in the study area, typical plant species include red alder, Nootka Rose, Douglas spirea, salmonberry, reed canarygrass, soft rush, common cattail, slough sedge and creeping buttercup)
6. Agriculture (cultivated areas and those areas actively hayed or pastured reveal orchards, mowed areas, grazed areas, and bare ground. Crops such as sweet corn, pumpkins, and potatoes are present north of US 101. Seed grass and hay (alfalfa, bluegrass, orchard grass, and fescue) are typical.

7. Rural and Residential (Rural) (characterized by human dwellings and land uses that include a combination of natural and human-construction surfaces)
8. Urban and Developed (Urban) (typically commercial areas. Understory vegetation is minimal or sometimes completely absent)

#### **3.11.4 Are noxious weeds present in the study area?**

Noxious weeds are found throughout the project area. They are non-native and invasive species that contribute to the loss of agricultural production or ecological diversity.

The most abundant noxious weed within the project area is Reed Canarygrass. Other noxious weeds observed include Oxeye Daisy, St. Johnswort, Canada Thistle, Bull Thistle, Scotch Broom, Field Bindweed, and Hairy Cats Ear.

#### **3.11.5 If the project is not built, what will be the existing conditions for vegetation?**

There will be no construction related direct impacts under the No Action Alternative. Vegetation will continue to be managed within the US 101 ROW in its current condition. Management activities will continue to include periodic mowing and selective herbicide application, removal of dead or dying trees and tree limbs that could fall on the roadway, and clearing brush that encroaches on the roadway. These activities affect vegetation by preventing trees from establishing too close to the road and preventing forested areas from developing natural features such as snags and downed wood where there is potential to impact traffic safety. Weed control will continue as needed for noxious weed species as designated by state and county law.

### 3.11.6 How will vegetation be affected during construction of the Proposed Action?

Approximately 37.5 acres of vegetation will be impacted by the Proposed Action. The affected vegetated areas are broken down into habitat types – mixed forest (8.65 acres); riparian (1.52 acres); grassland (4.99 acres); wetland (2.60 acres) agriculture (1.91 acres); rural & residential (17.82 acres). Existing vegetation, where shown in the plans or designated by the Engineer, will be saved and protected through the life of the contract. The Engineer will designate the vegetation to be saved and protected by a site preservation line, individual flagging and/or high visibility construction fencing.

Temporary effects to vegetation will also occur outside of the project footprint and within the US 101 right of way. These include areas designated to be temporarily affected by construction equipment, and areas within 10 feet of cut and fill lines that are designated for clearing and grubbing. The disturbed vegetation because of construction will be restored with native vegetation and managed to minimize re-establishment of noxious weeds.

There is a potential to introduce additional noxious and invasive species with the road improvements through movement of seeds on construction equipment or vehicles. Use of Best Management Practices (BMPs) will minimize this possibility.

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**No major adverse effects to vegetation are anticipated as a result of the Proposed Action.**

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### 3.11.7 What other effects will occur under the Proposed Action after construction?

The project will eradicate some of the noxious weeds through vegetative and seed bank removal. Routine maintenance of WSDOT right of way within the

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**WSDOT or Clallam County may apply herbicides to manage invasive non-native species such as blackberry.**

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biological study area will include mowing grass in medians and along the shoulders.

Maintenance may also include removal of trees and branches that are a hazard to the roadway users.

**3.11.8 Will the project have significant unavoidable adverse effects on vegetation?**

Although there will be some unavoidable impacts to vegetation, the impacts will be minor in scope. The impacts will be minimized by the use of BMPs, through replacing noxious, invasive weeds with native plants, and through enhancing the vegetation through the wetland mitigation site development.

The project will have no significant unavoidable adverse effects on vegetation.

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## 3.12 Water Resources

A Water Resources Discipline Report was completed in February, 2010. It describes the existing water resources present in the US 101 project study area and evaluates potential water resource impacts with and without the proposed project . This study is listed in Appendix B, and it is incorporated by reference into this Environmental Assessment.

### 3.12.1 Studies, coordination, and methods

The study area for this discipline report is the footprint of the existing and proposed lanes of the US 101 roadway to roughly 500 feet on either side of the new right of way line. This accounts for the potential effects to water wells in the project vicinity.

WSDOT designs roadway improvements to anticipate the effect of the additional pavement on stormwater runoff quantities and water quality. These effects from the US 101 improvements that are expected to occur are presented in the Water Resources Discipline Report. Stormwater runoff was calculated from the additional paved areas. Combining this information with future traffic volumes derived from computer models, they were able to predict the levels of potential pollutants that would be brought in to the stormwater from the roadway improvements.

WSDOT will provide water quality treatment for an area equal to the new impervious surface as a minimum. The stormwater runoff from the existing US 101 will not be treated.

### **3.12.2 What are water resources, and why are they important?**

The term “water resources” refers to surface waters, groundwater (aquifers and wells), and floodplains. This translates into water quality. Water resources are an important environmental asset to protect as described below:

- Surface waters and floodplains provide valuable wildlife habitat.
- Surface waters are valuable recreation areas.
- Surface and groundwater are sources of drinking water.
- Floodplains are areas where major rain events overflow stream banks to allow natural stream meander.
- Floodplains provide storage for floodwater.
- Water quality is important in maintaining human health, wildlife habitat and vegetation.
- Drainage systems distribute sediment, nutrients and large debris throughout the watershed and provide food plus habitat for aquatic and terrestrial species.

### **3.12.3 What regulations do we follow when dealing with water resources?**

The federal Clean Water Act is the primary federal regulatory mechanism for addressing water quality.

The Clean Water Act Section 401 deals with discharges to waters of the United States that is subject to a federal permit. It requires certification that the discharge will not violate water quality standards. This regulation is enforced by the State Department of Ecology (WDOE) and the Federal Environmental Protection Agency (USEPA).

The Clean Water Act Section 402, National Pollutant Discharge Elimination System (NPDES) covers discharges from point sources, municipal storm systems, and construction areas. WDOE is the lead agency to enforce this regulation.

The Water Pollution Control Act (RCW 90.48) is the primary water pollution law for Washington State. Discharge of pollutants into waters of the state is prohibited unless authorized.

The State of Washington Growth Management Act (GMA), 1990, requires the designation and protection of critical areas such as wetland, fish and wildlife habitat, aquifers and geologically hazardous areas such as steep slopes and areas that flood frequently.

The State of Washington Shoreline Management Act (SMA), 1971, requires local governments to protect shoreline functions of streams that have a flow rate greater than 20 cubic feet per second (CFS), including environmental functions such as fish and wildlife habitat.

The State of Washington Hydraulic Code is administered by the Washington Department of Fish and Wildlife (WDFW). It requires a permit for work that will affect the bed or flow of any state waters. It contains rules that protect all fish, not just the listed species.

The Water Resources Act of 1971 (RCW 90.54) outlines the fundamentals of water resource policy for the state to ensure waters are protected and fully used for the greatest benefit to the citizens of Washington. The Act provides direction to WDOE and local governments in implementing water resource programs.

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**No TMDLs have been identified within the project limits.**

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The Total Maximum Daily Loads (TMDLs) WDOE 303d listings (2008) determine the amount of pollutant loading that a given water body can receive and still meet water quality standards.

### 3.12.4 Are there water resources in the study area?

#### Surface Waters

McDonald Creek is classified as a Class AA water body per the Washington Administrative Code (WAC) 173-201A. It is also identified for aesthetic, beneficial use, and as irrigation conveyance. It crosses US 101 at milepost 258.22 and is a major drainage feature that drains north to the salt water of the Strait of Juan de Fuca. Flows have been recorded in a range from less than 1 cubic feet per second (cfs) in late summer to 25 cfs in June.

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A Class AA water body is the highest category for water quality.

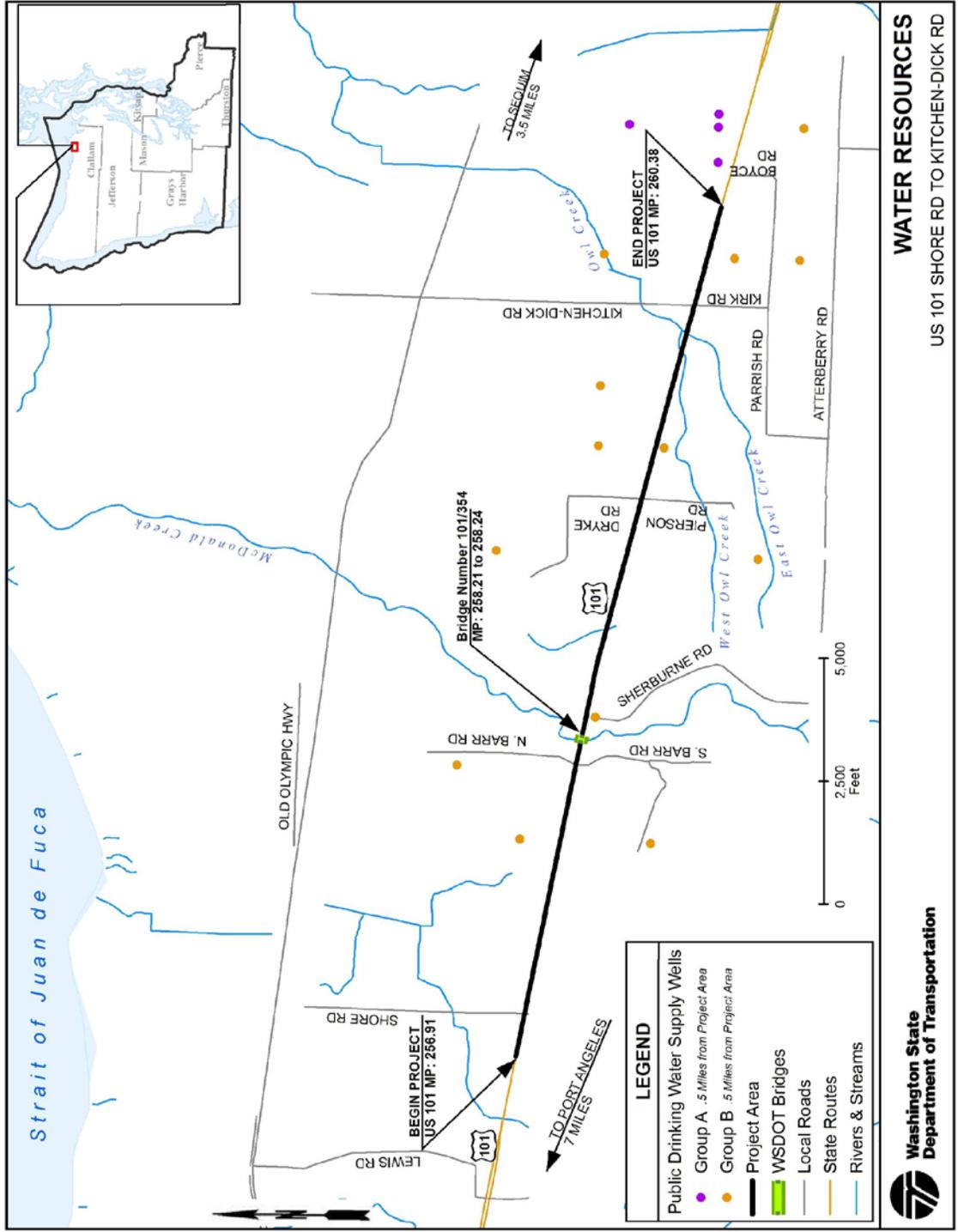
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Owl Creek, also a Class AA water body, crosses US 101 at milepost 259.79 and milepost 259.84 and is dry throughout parts of the year. It provides fish passage during the wet season.

#### Agnew Irrigation District (North)

This initial system of irrigation pipes, flumes, and open streams was created in 1895 to bring Dungeness River water (south of US 101) to the parched prairie (north of US 101).

Exhibit 3-9, Water Resources





## **Groundwater**

The project area is adjacent to private drinking wells. Storm water treatment facilities are planned to be built a minimum of a 100 foot radius away from well heads as outlined in WSDOT's Highway Runoff Manual (HRM) (2008b). Water quality monitoring data by the Washington State Department of Health indicates that groundwater quality in wells is of high quality.

Both surface and groundwater are hydraulically connected and flow north towards the Strait of Juan de Fuca.

## **Floodplains**

There are no floodplains in the roadway study area. However, for the wetland mitigation site north of the study area, there are planned improvements that will relocate an existing levee along the Dungeness River by other agencies. They will remove the existing levee near the Dungeness River and rebuild the levee near the outer perimeter of the acquired property. This will reconnect the mitigation site to the river so it can once again function as a floodplain. This project will restore functional and beneficial habitat to a variety of aquatic life, birds, and mammals. This new feature is led by Clallam County and has been coordinated with the US Army Corps of Engineers, the Federal Emergency Management Agency (FEMA), and the National Resource Conservation Service (NRCS).

### **3.12.5 What effects will result under the No Action Alternative?**

Traffic volumes are anticipated to grow in the coming years, and congestion is expected to get worse if this project is not built. Stormwater runoff from existing impervious surfaces will remain untreated or use outdated treatment facilities. There will be no flow control or reduction in pollutant loads. Continued traffic congestion will add to vehicle pollutants that will eventually enter

surface water systems, and lead to negative impacts to downstream water resources. No effects will occur to the existing irrigation system.

### **3.12.6 How will water resources be affected during construction of the Proposed Action?**

#### **Surface water**

Construction work below the Ordinary High Water Mark (OHWM) is expected to include work in the water due to proposed culvert installations, bridge installation, grading, and extension of irrigation crossings. A dewatering or temporary bypass of a stream crossing of US 101 is expected when culverts are extended under the road fill for the new lanes. This will be done under the requirements of the Hydraulic Project Approval permit as issued by the WDFW. A request to WSDOE for a short term temporary water quality modification will also be considered for project construction.

The proximity of construction vehicles to water resources increases the risk of foreign materials contaminating water resources. This risk will be minimized through the implementation of Best Management Practices (BMPs).

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

Construction activities during the wet winter months will increase the risk of construction runoff into waters of the State. Impacts from construction activities during wet weather increases the risk of erosion hazards and the negative effects to areas with unstable

slopes. Construction during the summer months, when there is very little rainfall, will reduce these risks. Activities that pose a greater threat to water resources will occur in dry weather as practical, to minimize these risks.

Construction ground-clearing activities will have the temporary impact of exposing soils to erosive forces. Soil loss from erosion could affect surface water resources and associated habitat by adding suspended solids and increased turbidity into receiving streams. To minimize exposure of open soils to erosion, excavation will occur only where necessary, and exposed soils will be protected by various BMPs which protect soil from erosion. Advanced planning will ensure a comprehensive erosion control plan and compliance with various environmental permits.

### **Staging areas**

There is an estimated five acres of temporary staging area to support construction activities (WSDOT, 2009). The development and use of staging areas is necessary and could compact surface soils. This may alter the amount of storm water that infiltrates the soils and could increase the amount of surface runoff in the immediate area. Controlling the flow rates from the construction site is necessary to ensure that the flow does not exceed the capacity of the storm drain system.

There is a slight potential of pollutants such as oil, grease, and fuels used on construction equipment at work sites and in staging areas to enter surface or ground water. However, implementation of the SPCC plan should minimize this potential.

### **Irrigation District**

This project lies entirely within the Agnew Irrigation District (North). The Proposed Action will be designed to minimize or eliminate any detrimental effects to the irrigation district through use of current design standards, Best Management Practices (BMPs) and proper coordination.

### **Groundwater**

Construction activities that require removal of vegetation could potentially affect groundwater resources with less infiltration. Spills from construction equipment may enter shallow aquifers if not controlled properly.

Some residential parcels will be purchased for the construction of the Proposed Action. Four wells on these properties are expected to be decommissioned in accordance with the Department of Health guidelines.

### **Floodplain**

The only floodplain associated with the Proposed Action is where the proposed wetland mitigation site is planned to be constructed north of US 101. The existing levee along the Dungeness River will be relocated to open up more floodplain for the river. The wetland mitigation site will be constructed at a lower elevation than the existing elevation.

#### **3.12.7 What other effects will occur under the Proposed Action after construction?**

The water quality of stormwater runoff from the completed roadway will be better than under the No Action Alternative. Stormwater runoff from the new roadway will be managed for both quality and quantity. The treatment of the stormwater for quality and quantity is in accordance with the WSDOT Highway Runoff Manual (HRM). The HRM is in conformance with the requirements of the WSDOE Stormwater Manual for Western Washington.

This project intends to use compost amended vegetative filter strips (CAVFS) as well as media filter drains along the side slopes of the roadway to treat the stormwater runoff. These two BMPs remove pollutants and encourage infiltration. To control the volume of stormwater runoff that leaves the right of way, there will be multiple infiltration ponds to collect and hold surplus

stormwater. These ponds will use control structures at the outfalls to meter the release of highway runoff to prevent channel erosion in the receiving water body.

Operational effects may result from stormwater runoff, landscaping maintenance activities, and spills from vehicle accidents. Pollutants in stormwater runoff from roadways typically include suspended solids, nutrients, toxic metals, biochemical oxygen demand, oil, and grease. Estimates of annual pollutant loads to McDonald Creek show an overall decrease of 46% in dissolved copper and an overall decrease of 73% in dissolved zinc. Annual pollutant loads for Owl Creek are estimated to decrease by 53% for dissolved copper and 74% for dissolved zinc. New flow control facilities associated with the project will reduce peak runoff flows in receiving waters. This will benefit the surface water resources that surround the project.

### **3.12.8 How will we offset the effects to water resources during construction?**

Due to an increase in impervious surfaces, compost-amended vegetated filter strips (CAVFS), media filter drains and treatment ponds will be used to control highway runoff. These devices will help minimize the effects of added impervious surfaces, including sheet flow, water quality and infiltration rates. A Temporary Erosion and Sedimentation Control (TESC) Plan is required to be developed and implemented as a first order of work on all WSDOT projects.

To determine the condition of existing wells adjacent to the US 101 corridor that may be affected by the Proposed Action, flow rate and quality tests will be conducted for each well in question. These tests will occur before construction begins to establish a baseline condition of the flow rate and water quality. Tests will also occur after construction is complete to verify if the Proposed Action had an effect on the existing wells.

Spill Prevention Countermeasure Control (SPCC) measures will be developed by our contractor and implemented to help prevent construction related impacts to water quality. Spills will be controlled by measures outlined in this plan.

Scheduled maintenance programs developed for the storm water treatment system will include provisions for the regular removal of contaminants and restoration of treatment operations.

Any discharge of construction stormwater to waters of the State will conform to the requirements of a National Pollutant Discharge Elimination System (NPDES) permit to be obtained from Ecology. Testing for water quality will be conducted per the NPDES permit for removal of contaminants and restoration of treatment systems. The NPDES permit requires preparation of a Storm Water Pollution Prevention Plan (SWPPP). These measures, in addition to Best Management Practices (BMPs) will minimize or avoid effects on water quality during construction.

The proposed McDonald Creek Bridges will be designed to construct the bridge footings and piers above the Ordinary High Water Mark to avoid stream impacts.

### **3.12.9 Will the project have significant unavoidable adverse effects on water resources?**

As discussed above, many measures will be employed to protect the different forms of water resources. Compliance with permit conditions, utilization and maintenance of BMPs, advance planning and adaptive management will ensure that any adverse effects to water resources, including surface water, groundwater, stormwater, wetlands, and floodplains will be minimized.

The project will have no significant unavoidable adverse effects on water resources.

### 3.13 Land Use and Farmland

A Land Use and Farmland Discipline Report was completed in February, 2010. It describes the existing land use and farmlands present in the US 101 project study area and evaluates potential land use and farmlands impacts with and without the proposed project. This study is listed in Appendix B, and it is incorporated by reference into this Environmental Assessment.

#### 3.13.1 Studies, coordination, and methods

The study area for this discipline report is land area extending approximately one-half mile in all directions of the project limits. The farmland study area extends to the wetland mitigation site to the north of US 101.

Clallam County zoning plans were field checked to ensure accuracy with current conditions.

#### 3.13.2 What regulations do we follow when dealing with land use and farmlands?

We show in Section 3.13.4 that the Proposed Action is in conformance with the Clallam County Comprehensive Plan and the various other planning documents.

When the conversion of farmland to transportation purposes is proposed, as we have in the construction of the proposed wetland mitigation site, evidence of coordination is required with the National Resource Conservation Service (NRCS). Two Farmland Conversion Impact Rating forms (CPA-106 and AD 1006) were completed by WSDOT and NRCS. They are contained in the Discipline Report. It shows that the amount of farmland to be

converted in both locations (the corridor widening and the wetland mitigation site) accounts for only .01 percent of the farmland in Clallam County, per the FPPA.

### **3.13.3 What types of land use are in the study area?**

Land use types in the study area include residential, commercial, vacant or undeveloped, and resource lands (agricultural and timberland). The primary designated land use in the immediate area of the project is residential consisting primarily of single family homes and manufactured homes. Commercial activities are situated within the designated Dryke/Sherburne Local Area of More Intensive Rural Development (LAMIRD) located approximately midway along the project corridor. Resource lands, such as farms and timber are dominant features within the study area.

### **3.13.4 What are the currently adopted regional and local land use and transportation plans in the study area?**

Clallam County has adopted comprehensive land use plans that define urban and rural lands, and an urban growth area (UGA) boundary that provides a separation between those lands. State, regional, and local jurisdiction plans, regulations, as well as maps from Clallam County, were used to identify existing and potential future land uses within the study area and to evaluate the effects of the proposed project. The following plans and policies were reviewed, and the Proposed Action is in compliance with them:

**Growth Management Act (GMA) (1990)** – identifies urban growth area among other items. GMA also specifies that transportation projects be identified and constructed concurrent with future development projects. The Proposed Action is identified in the County Plans shown below.

**Washington Transportation Plan (WTP) (2007-2026)** – is a blueprint for transportation programs and investment as adopted by the state Transportation Commission. It forms the long-range plan for the state’s transportation system.

**Washington State Highway System Plan (HSP) (2007-2026)** - addresses current and forecasted state highway needs based on the investment options identified in the WTP. The HSP identified the proposed Shore Road to Kitchen-Dick Road widening project as a mobility strategy to address a recognized mobility deficiency. The HSP analysis demonstrated that the portion of US 101 between City of Port Angeles and City of Sequim was a congested corridor where travel speeds fell below 70 percent of the posted speed.

**Peninsula Regional Transportation Planning Organization (RTPO) Regional Transportation Plan** – is a regional plan that recognizes the importance of US 101 as the primary regional corridor that connects the counties and cities located on the Olympic Peninsula.

**Clallam County Comprehensive Plan (2007)** - serves as a guide for directing local land use policy and decision-making. The county-wide portion of the Clallam County comprehensive plan goals and policies emphasizes the need to preserve and enhance Highway 101 corridor. The County recognizes US 101 as the primary through-corridor for all vehicle traffic between Sequim and Port Angeles, and all points to the east and west of those communities. The County also has an interest in the safe and efficient traffic flow on US 101 for commercial, private and emergency vehicular traffic throughout its length. One of the policies reflected is: Encourage the State Legislature and Department of Transportation to complete improvements to the US 101 corridor as outlined in the Final Environmental Impact Statement for the SR 101, Palo Alto to O'Brien Road Corridor. The design of indirect-left turns is consistent with the County’s comprehensive plan (31.02.420).

**Clallam County Shoreline Master Program (1992)** – provides the policy framework for management of those Clallam County Shorelines under the jurisdiction of the Washington Shoreline Management Act.

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**McDonald Creek located within the project area is designated as a shoreline of the state.**

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### **3.13.5 What effects will result under the No Action Alternative?**

The No Action Alternative will not result in any construction related effects on the project area. No right of way will be acquired.

With time, land use in the study area is expected to change under the No Action Alternative, but for reasons unrelated to improvements (or no improvements) on US 101. Land use is determined by local agencies with their Comprehensive Plans and zoning regulations. Land use adjacent to the roadway in the study area could be negatively affected by increased congestion and not accommodate projected traffic demand due to the lack of route continuity.

### **3.13.6 How will land use and farmlands be affected by the Proposed Action?**

Approximately 70 parcels will be directly impacted by the Proposed Action. 65 parcels will be directly impacted due to right of way and stormwater requirements while five parcels will be directly impacted by wetland mitigation efforts. The breakdown by residential and commercial properties is described in the next section of this EA, 3.14, Relocation.

The duration of construction is estimated at 30 months. Construction impacts primarily address temporary changes in use or access to properties. Residential, commercial, and public land uses are sensitive to temporary construction-related activity. The magnitude of the impact varies with the timing, intensity, location,

and duration of the type of land use exposed to disturbance. Construction equipment and activities could likely affect adjacent businesses and property owners over the length of construction time needed to complete the Proposed Action.

Construction will impact access to businesses and/or residences, and vehicle delays. Vehicle delays will occur particularly as the result of lane reductions established to provide work zones. The only planned alternate routes during the construction of the Proposed Action will be when traffic is routed onto the new McDonald Creek Bridge while the existing adjacent bridge is replaced. Short and long-term shoulder and lane closures may be necessary. Construction in the vicinity of intersection areas will impact traffic. Traffic in these areas will be handled by the use of flaggers and traffic control devices.

While it is not anticipated that construction will result in the loss of property within adjoining land use zones, the function of adjacent properties for applicable land uses may be diminished or precluded until construction activities are completed. While it is difficult to predict the extent of this potential impact, it is not expected to result in any changes to land uses.

### **3.13.7 What other effects will occur under the Proposed Action after construction?**

Operational impacts under the Proposed Action will involve the long-term conversion of almost 92 acres of existing land uses to transportation related uses (right of way, storm water mitigation, and wetland mitigation).

### **3.13.8 How will we offset the effects to land use and farmlands during construction?**

Affected businesses and residences will be notified of construction activities in advance (including any necessary closures, lane reductions, etc.). Reasonable efforts will be made to ensure that traffic flow is maintained and negative effects on land use and access revisions are minimized.

To mitigate for the loss of wetlands under the proposed action WSDOT is participating in the Lower Dungeness Levee Setback project. Approximately 40 acres of farmland is planned to be converted to transportation purposes and acquired north of the US 101 corridor. This mitigation includes grading and planting to increase the size and enhance the functions of existing wetlands on the site. Some of the land will be kept as wetland buffer. The development activities will also remove the existing levee near the Dungeness River by other agencies. They will rebuild the levee near the outer perimeter of the acquired property. This will reconnect the mitigation site to the river so it can once again function as a floodplain. By reconnecting this portion of floodplain to the river, this project will restore functional and beneficial habitat to a variety aquatic life, birds, and mammals. This levee effort is led by Clallam County and has been coordinated with the US Army Corps of Engineers, the Federal Emergency Management Agency (FEMA), and the National Resource Conservation Service (NRCS) among others.

Since the Proposed Action is consistent and compatible with state, local and regional plans and regulations, no mitigation will be required for compliance.

**3.13.9 Will the project have significant unavoidable adverse effects on land use and farmland?**

Although approximately 70 parcels will be directly impacted by the Proposed Action, the project is compatible with state, local and regional plans and regulations. Wetland loss will be mitigated for through the development of the mitigation site, which will result in a net gain of wetland area, quality and function.

Evaluation of farmland conversion was done in coordination with the Natural Resources Conservation Service. There will be approximately 89 acres of farmland converted to transportation-related use as a result of the proposed action (36 acres for the widening of US 101 and stormwater ponds, and 53 acres for the development of the wetland mitigation site). The amount of farmland to be converted in both locations accounts for only .01 percent of the farmland in Clallam County, according to the Farmland Protection Policy Act. No agricultural activities or farms would be displaced by the Proposed Action.

The project will not have significant unavoidable adverse impacts on land use or farmland.

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### 3.14 Relocation

A Land Use and Relocation Discipline Report was completed in February, 2010. It describes the existing residential and commercial locations in the US 101 project study area and evaluates potential relocation impacts with and without the proposed project. This study is listed in Appendix B, and it is incorporated by reference into this Environmental Assessment.

#### 3.14.1 Studies, coordination, and methods

The study area for this discipline report extends approximately one-half mile in all directions of the project limits. Since there are no relocations involved to construct the wetland mitigation site to the north of US 101 under the Proposed Action, it is addressed in the previous section of this EA.

A current site inspection of the entire project study area was conducted to verify existing land uses on a parcel-by-parcel basis. Each parcel was examined to determine if either alternative will prevent or limit the ability to use property for an existing or allowed land use.

Research was made into what replacement residences and commercial buildings are available in the area. This is discussed later in section 3.14.8

#### 3.14.2 What regulations do we follow when dealing with relocations of residential and commercial property?

Where right of way acquisition is needed, the acquisition and relocation program will be conducted in accordance with the federal Uniform Relocation and Real Property Acquisition Policies Act of 1970, as amended. Relocation resources are available to all relocated residents and businesses without discrimination.

Chapters 8.08, 8.25, and 8.26 of the Revised Code of Washington (RCW) will govern right of way acquisition proceedings. These laws ensure fair and equitable treatment of those displaced. They also encourage and expedite acquisition of property by negotiation.

In addition, the State of Washington Uniform Relocation and Assistance and Real Property Act of 1970, as amended, provides for payment of reasonable and necessary costs to relocate people, businesses, or farms displaced for all build alternatives. This law protects both tenants and owners. It requires provision of advisory services on available housing; ensures prompt fair relocation payments; requires agency review of grieved parties; and provides for relocation assistance payment for necessary moving expenses.

Prior to initiation of acquisition proceedings, state law may provide for payment of necessary increased mortgage interest cost and closing costs for replacement dwelling purchase and for supplemental assistance when necessary for purchase or rental of replacement housing.

### **3.14.3 What types of land use are in the study area?**

Land use types in the study area include residential, commercial, vacant or undeveloped, and resource lands (agricultural and timberland). The primary designated land use in the immediate area of the project is residential consisting primarily of single family homes and manufactured homes. Commercial activities are situated within the designated Dryke/Sherburne Local Area of More Intensive Rural Development (LAMIRD) located approximately midway along the project corridor. Resource lands, such as farms and timber are dominant features within the study area.

#### **3.14.4 What effects to relocations will result under the No Action Alternative?**

The No Action Alternative will not result in any construction related effects on the project area. No new right of way will be acquired, and no relocations will occur.

#### **3.14.5 What effects will result under the Proposed Action?**

The duration of construction is estimated at 30 months.

Construction impacts primarily address temporary changes in use or access to properties. Residential, commercial, and public land uses are sensitive to temporary construction-related activity. The magnitude of the impact varies with the timing, intensity, location, and duration of the type of land use exposed to disturbance.

Construction equipment and activities could likely affect adjacent businesses and property owners over the length of construction time needed to complete the Proposed Action.

Construction will impact access to businesses and/or residences, and vehicle delays. Vehicle delays will occur particularly as the result of lane reductions established to provide work zones. The only planned alternate routes during the construction of the Proposed Action will be when traffic is routed onto the new McDonald Creek Bridge while the existing adjacent bridge is replaced. Short and long-term shoulder and lane closures may be necessary. Construction in the vicinity of intersection areas will impact traffic. Traffic in these areas will be handled by the use of flaggers and traffic control devices.

While it is not anticipated that construction will result in the loss of property within adjoining land use zones, the function of adjacent properties for applicable land uses may be diminished or precluded until construction activities are completed. While it is difficult to predict the extent of this potential impact, it is not expected to result in any changes to land uses.

Approximately 70 parcels will be directly impacted by the Proposed Action. 65 parcels will be directly impacted due to right of way and stormwater requirements while five parcels will be directly impacted by wetland mitigation efforts. The breakdown by residential and commercial properties is described in the next section of this EA, 3.14, Relocation.

The breakdown by residential and commercial properties are listed in the following exhibits.

**Exhibit 3-11 - Parcel Acquisition for Proposed Action**

Zoning designation	R5			AR	Total
	R5	Interim	RC		
No Action	0	0	0		0
Proposed Action					
<b>Roadway Right of Way</b>					
Partial Acquisition	15	32	8		55
Total Acquisition	3	5	2		10
<b>Wetland Mitigation Right of Way</b>					
Partial Acquisition				4	4
Total Acquisition				1	1
<b>Total</b>	18	37	10	5	70

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**Exhibit 3-12 - Relocations for Proposed Action**


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	Single Family Units	Mobile Homes	Businesses	Public Facilities
No Action Alternative	0	0	0	0
Proposed Action	5	3	2	1

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**Residential relocations**

Depending on the final design of the Proposed Action, up to eight residential units may be relocated; five single-family residences along with associated out buildings (sheds, garages, barns, etc.) and three mobile homes. Three of the single family residences and the two mobile homes are located south of the corridor, while the remaining residences are located on the north side east of Dryke Road. One of the three mobiles homes to be displaced is currently vacant. Up to 4 additional out buildings could be potentially displaced, but are not expected to result in relocations of any of the associated residences.

**Commercial relocations**

Up to two potential commercial displacements could be expected under the Proposed Action. The following commercial activities may be impacted:

**Midway Metals** - metal salvage and refuse disposal. The building that houses the business office will be displaced. There is potential for relocating the building on site.

**PA Swimmin' Hole and Fireplace** - retail activity may be displaced.

A small strip of land will be acquired from eight businesses. There are minor impacts to these businesses but they will not be displaced. The details are:

**Pro Build Lumber** - lumber yard. Retaining walls are being considered for this location to mitigate potential impacts to the property. The proposed retaining walls will result in the loss of parking and the commercial access to US 101. However, alternate access to the business currently exists off of Pierson Rd. (county road), and this will become the only access.

**Heritage Mobile Home Sales** - mobile sales activity. One display mobile home may be impacted due to loss of display space to highway right of way requirements.

**Buy-Rite Homes**- mobile sales activity. A couple of display mobile homes may be impacted due to loss of display space to highway right of way requirements.

**Peninsula Septic Tanks** - septic tank sales and service. No displacements are expected. Impacts for the loss of over half an acre of storage space and reconstruction of the driveway are likely.

**Affordable Services** – roofing contractor and crane supplier. No displacements are expected.

**Wenatchee Production Corporation** – farming. No displacements are expected.

**Olympia Restaurant Supply** – restaurant supplier. No displacements are expected.

**Schneider**– trucking company. No displacements are expected. Two buildings may be impacted and potentially displaced. One building houses the business offices and maintenance garage, the other is a storage building. The building housing the office/garage may be displaced due to access issues.

**One public facility** - located on property owned by the Washington Maritime Northwest Region Complex (US Department of Interior), will be displaced due to right of way and storm water pond requirements. This building, once a satellite office and maintenance facility, is currently vacant.

### **3.14.6 What other effects will occur under the Proposed Action after construction?**

Possible effects are that businesses that are displaced may reopen within the study area, may not reopen at all, or they may reopen outside of the study area.

### **3.14.7 How will we offset the effects to relocations during construction?**

Affected businesses and residences will be notified of construction activities in advance (including any necessary closures, lane reductions, etc.). Reasonable efforts will be made to ensure that traffic flow is maintained and negative effects on land use and access revisions are minimized.

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**The right of way acquisition and the relocation process is summarized in Appendix F of this EA.**

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Federal and state laws require that no person can be required to move from his or her residence unless a comparable replacement property is available for sale or rent within the displaced persons financial means. The location and sale price or rent of the comparable property is made available to the displaced individual.

In the event that replacement housing is not available within the affected person's financial capabilities, any number of other alternative solutions may be used. These alternative solutions known as providing "housing of last resort" include, but are not limited to:

- Purchasing housing for displaced person and renting or selling dwelling at a price within the person's financial means
- Renovating existing housing
- Providing financing for homeowners-occupants with low income and/or bad credit rating who have occupied their home for at least 180 days
- Entering into partnerships with public and private agencies that provide housing for low-income persons.

Individuals for the state will work with affected occupants to ensure that appropriate replacement housing opportunities are made available to any displaced resident in the project area.

Assistance available to business owners include reimbursements associated with moving costs, re-establishment costs, and/or fixed schedule move options. The eligibility and amounts of these benefits will be determined at the time of displacement. Benefits do not include the compensation for any lost revenue. WSDOT will work directly with affected business owners to determine relocation needs and the best assistance measures suited to affected business.

#### **3.14.8 Are replacement housing and commercial businesses sites available in the study area?**

Consistent with the Uniform Relocation Assistance & Real Property Acquisition Policies Act of 1970, relocation of displaced residents/businesses considers the availability of residences similar in cost and access to services as the displaced residences/businesses. Appendix F provides further details regarding the WSDOT's Right-of-Way Acquisition Process.

### **Replacement housing**

Review of the project study area's housing in Clallam County was conducted by the WSDOT Olympic Region Real Estate Services Office, in December 2010.

The area surveyed for the availability of single-family homes for sale and rent was a two-mile radius of the project limits. A search of the Northwest Multiple Listing Service identified several properties currently on the market which are available for replacement housing, all of which had at least two bedrooms. The review also included an internet search of property management companies that offer rental housing. It also revealed several single-family homes for rent within a two-mile radius of the project limits, all of which have at least two bedrooms.

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**It is likely that comparable housing is available throughout Clallam County.**

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Relocation of displaced residents depends on the availability of residences similar in cost and access to services as the displaced residences.

### **Commercial business**

The search area for businesses for sale or lease was a five-mile radius of the project limits. Only active and pending sales were included in the data. Within the search area, there were a total of five retail business locations for sale , and four commercial properties for lease.

#### **3.14.9 Will the project have significant unavoidable adverse effects regarding relocation?**

Two businesses and eight private residences will be relocated, but the state will work with affected occupants to ensure that appropriate replacement housing opportunities are made available to any displaced resident in the project area.

Assistance available to business owners include reimbursements associated with moving costs, re-establishment costs, and/or fixed schedule move options.

The project will not have significant unavoidable adverse effects respecting relocation.

### **3.15 Social, Economics, and Environmental Justice**

A Socioeconomic and Environmental Justice Discipline Report was completed in January, 2010. It describes the existing conditions in the US 101 project study area and evaluates potential impacts with and without the proposed project in 2032. This study is listed in Appendix B, and it is incorporated by reference into this Environmental Assessment.

#### **3.15.1 Studies, coordination, and methods**

##### **Study area**

For social, economic, and environmental justice analysis, the study area extends one-half mile in all directions from the project limits.

##### **Data Collection**

Data was collected from visiting the project area and review of aerial photographs, U.S. Census Bureau data and School District Data, Geographic Information System (GIS) data, County Assessor Maps for parcel data, local planning documents, data from Washington State Departments of Revenue and Employment Security, and Washington State Office of Minority and Women's Business Enterprises for listed businesses.

The Washington State Office of Superintendent of Public Instruction (OSPI) updates their data once a year. The most recent school year data is 2007-2008. This data reflects the general population in terms of minority groups, low-income percentages, and Limited English Proficiency (LEP).

### **3.15.2 What is Environmental Justice, and how do we deal with it?**

The Environmental Justice evaluation determines whether low-income populations or minority populations would suffer disproportionately high and adverse effects of an action. This means that:

1. Low-income populations or minority populations would predominately bear the adverse effects; or
2. Low-income populations or minority populations would suffer the effects and the effects would be considerably more severe or greater in magnitude than the adverse effects suffered by the general population.

If either of these results is discovered, the evaluation goes on to determine whether the project will have beneficial effects for low-income populations and minority populations that will offset any high and disproportionate adverse effects.

The goal of Environmental Justice is to protect the rights of and to engage those groups who have traditionally been underrepresented in the project development process. Therefore, we strive to provide meaningful opportunities for involvement in the decision-making process, regardless of race, color, national origin, or income. All potentially affected communities will have opportunities to participate, and their contributions and concerns will be considered fairly. We want to identify factors that could interfere with full and fair participation by all potentially affected communities in the transportation decision-making process, such as access and language and then recommend measures to remedy those barriers. This section identifies any adverse effects of the proposed project and whether minority populations and low-income populations will bear disproportionately high and adverse effects. If yes, we then recommend measures to avoid, minimize, or mitigate those effects.

For environmental justice, the two primary areas of focus are the demographics (are there minority populations or low-income populations in the study area?) and public involvement (how did we involve the public in the transportation decision-making process?).

## **Demographics**

The data indicates the presence of minority persons and of low-income persons within the project area. Other than White, the highest percentage of any racial group present in these block groups is American Indian and Alaska Native (3.38%). While there was no geographic area with an identifiable minority population, there was some statistical variation in income level between the Census Block Groups.

## **Public involvement**

Public interaction is essential to involve all populations in the study area to assist in making transportation decisions. In addition to the public exposure to the Final EIS in 1993, recent efforts continued in October, 2007 with informing property owners of surveying rights of entry. A summary of public interaction events is shown in Chapter 5 – Public, Agency, and Tribal Coordination. As a partial summary:

- A project web site was established in February, 2009 to provide periodic updates.

<http://www.wsdot.wa.gov/projects/us101/shoretokitchendick/>

- An information notice was published in June, 2009. Newsletters were mailed to postal customers in the project area.
- Project open houses were held on October 15, 2009, and on June 24th, 2010, at the Greywolf Elementary School in Sequim to provide project design details and to receive input from the public, agencies, and tribal governments.
- Consultation will continue with the Jamestown S’Klallam, Lower Elwha Klallam, and Port Gamble S’Klallam Tribes. A Cultural Resource Survey has been performed, and provided to all consulted tribes for review and comment. See also the Archaeological and Historic section of this EA.

### **3.15.3 What are the existing conditions in the study area?**

The area surrounding the project is rural along a stretch of US 101 between the two cities of Sequim and Port Angeles. Most of the area is residential or open space, with some groupings of commercial and industrial businesses.

#### **Social**

The highest percent of minority population in any one census tract-block in the study area is American Indian and Alaska Native at 3.38%.

The Limited English Proficiency (LEP) population in the study area as a whole is well below the 5% U.S. Dept. of Justice threshold. However, the Hispanic population within the Sequim School District is 6.7%, so WSDOT will follow guidance from FHWA and provide informational posters in Spanish at businesses owned by or serve the Hispanic population near the project. WSDOT will also provide a translator or translated materials if a request is made.

Clallam County has a notably higher percentage population than the state of persons 65 years old and older, American Indian/Alaska Native persons, and White persons. The population growth of persons 65 years old and older in the county has been occurring mainly in Sequim, as it has increasingly attracted retirees.

Pedestrian and bicycle transportation are now accommodated on the shoulders of US 101. County roads in the Study Area do not have sidewalks, and shoulder widths and conditions vary. There are otherwise no specific pedestrian or bicycle facilities in the Study Area. The Olympic Discovery Trail passes just beyond the study area to the north and has an access point at Robin Hill Farm Park.

#### **Community cohesion**

Open space is evident through the project study area as partly wooded and partly agricultural fields. The houses that front the highway are mostly well spaced and screened by trees. There are a

few small patches of commercial and industrial land uses fronting the highway. Calvary Chapel has many group activities and meetings for all ages throughout the week as well as church services, providing a gathering place for segments of the community. Dupuis' Restaurant can be considered a service to travelers as well as residents. It could well be a traditional gathering place in the community. There are no other typical gathering places through the study area. It could be expected there is more of a sense of connection within the residential developments that set back from the highway where homes are grouped closer together.

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**Community cohesion refers to the interaction of people in the community that leads to a sense of connection.**

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### **Economic**

This last two-lane portion of US 101 between Port Angeles and Sequim is an issue in economic development and freight transport. This is a concern to industries and businesses in the area, as there is no railroad through Clallam County to relieve freight congestion on US 101.

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**The U.S. Department of Health and Human Services establishes yearly poverty guidelines based on family size and geographical location. They are used to determine financial eligibility for certain federal programs.**

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Funds spent on the project locally will have a multiplier effect, such as suppliers buying goods and services from other local businesses. This will also result in a short-term increase in local employment for the duration of construction for approximately 30 months.

### **Poverty level**

No Housing and Urban Development (HUD) housing or community development projects are identified in the study area. The 2000 Census data on poverty shows the highest percentage of population below the 1999 poverty level to be on the north side of US 101, west of Kitchen-Dick Road (12%).

### **Businesses**

Businesses fronting the highway within the study area include lumber supply, restaurant equipment, manufactured home sales, construction contracting,

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**There are approximately 20 businesses fronting the highway within the Study Area.**

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insulation supply, septic tank supply, self-storage, and metals salvage. Most of these businesses are not the types that typically depend upon drive-by business or spontaneous trips. These businesses will be expected to attract planned trips by customers from well beyond the Study Area. There are a few existing businesses, however, that could be expected to attract drive-by business, although not be dependent upon it, such as vehicle repair, and retail including auto and RV, hot tubs, fireplace and barbecue supply, and a landscape and garden center. There are two businesses within the Study Area that could be considered highway service/traveler-oriented businesses: a vehicle repair shop, and a restaurant. There is one gas station/convenience store just beyond the study area (at Lewis Road intersection, known as R Corner).

A non-profit organization, Peninsula Friends of Animals (PFOA), property fronts the north side of US 101 within the Study Area, about one-half mile east of Shore Road. PFOA provides shelter and veterinary care for rescued dogs and cats and finds homes for the animals.

### **Employment**

The top six employers (2009) for Clallam County are Olympic Medical Center, Port Angeles School District, Wal-Mart, Clallam Bay Corrections Center, Clallam County, and Safeway.

#### **3.15.4 Which of the existing condition elements apply to low income, minority, elderly, or disabled populations?**

### **Public Transportation**

A Clallam Transit survey revealed that their customers are mostly transit dependent, with 62% without a vehicle and 55% without a driver's license.

### **Bicycle and pedestrian facilities**

Travel by foot or bicycle is important to community health and also to those people who do not have access to a vehicle. Most transit users are also pedestrians, accessing the bus stops at each end of the trip by foot. The Clallam County Comprehensive Plan section on bicycle facility improvement needs states “A very important consideration is that of safety for both bicyclists and pedestrians in crossing the highway to and from transit stops”.

### **Housing affordability**

The Clallam County Economic Development Council reports on housing affordability. They use an index that measures the ability of the middle income family to carry the mortgage payments on a median priced house. They conclude that there is affordable housing in the study area.

### **Minority-owned businesses**

No businesses owned by minorities or women are identified in the study area.

### **3.15.5 What effects will result under the No Action Alternative?**

The social and economic costs of collisions and congestion will continue to increase if the project is not built. It will become increasingly difficult to make left turns onto the highway.

### **3.15.6 How will Social, Economic, and Environmental Justice be affected during construction of the Proposed Action?**

#### **Minority Populations and Low-Income Populations**

There are no identifiable portions of the Study Area that have predominately low-income populations or minority populations. Other than White, the highest percentage of any racial group present in the Study Area is American Indian and Alaska Native (3.38%). The highest percentages of all minority populations combined are found in the Block Groups on the north side of US 101, with the highest to the west of McDonald Creek, at 7.53%. Available data shows relatively lower incomes for the study area also to the north of US 101, west of Kitchen-Dick Road.

Meanwhile, a majority of the property impacts and displacements resulting from the project are on the south side of US 101 because most of the widening will take place on the south side of the existing roadway.

A total of 65 parcels with partial or total acquisition are next to US 101. 31 (48%) lie within the lower income Census Block Groups. A total of 8 residences will be displaced and 2 of those (25%) are within the lower income Census Block Groups.

Another five parcels will be acquired for the wetland mitigation site.

There are no adverse effects that will be predominately borne by a minority or low income population and be more severe or greater in magnitude than effects on populations who are not minority or low income.

#### **Community cohesion and social interaction**

There are no typical gathering places within the study area to be affected by the Proposed Action. There will be no impacts such as isolation or separation of any portions of the community.

### **Access to parcels**

Concerns about driveways and access to residences and businesses will be discussed with each affected parcel owner along the roadway. The Proposed Action includes a restriction of access onto US 101 to right-in and right-out only. This will occur at all local street intersections as well as residential and commercial approaches and driveways. Traffic will not be able to directly cross US 101 or make left-turns onto the highway.

The restaurant within the Study Area (but west of the area of construction) will not have any access change. Most businesses will still be visible across the median, and while the change in access may add distance to trips, regular customers will learn the new circulation patterns. Residents and other travelers who know the area well may find alternative routes instead of following the U-turn route to access their destinations.

No detours are planned other than to switch traffic from the existing McDonald Creek Bridge to the completed new McDonald Creek Bridge while the existing bridge is replaced. There could be temporary increases in traffic along adjacent county roads to avoid construction activities. Disruption of traffic or creation of noise during construction can cause effects on drive-by businesses. There are very few such businesses in the study area so this will not be a major effect on the community.

### **Indirect left turns (U-turns)**

Six indirect left turns, or U-turns, are included in the design to provide for safer alternative vehicle movement. The effect of this change is that some trips will require use of the U-turns. In some cases, the U-turn will require additional travel distance of over two miles; traveling an additional mile beyond the intended destination to reach the U-turn and then doubling back in the opposite direction.

### **Bicyclist Crossing**

The removal of the ability to directly cross US 101 will affect bicyclists. They will have to follow the same path as motorized vehicles to reach the other side of US 101. This may require bicyclists to travel an extra mile or two out of their way to cross. The bicyclists who need to cross US 101 can also use a shared-use path under the two McDonald Creek bridges. The shared-use path will be constructed as a part of the proposed action.

### **Pedestrian Crossing**

The removal of the ability to directly cross US 101 will affect pedestrians. Currently, pedestrians are crossing US 101 at the intersections with county roads or at many points other than the intersections without the marked pedestrian crossing. When crossing in between the intersections, pedestrians currently only need to cross two lanes, with no median. The proposed action will discourage pedestrian crossing of US 101 due to the added lanes and the 40-foot grassy median. Because it is unsafe for pedestrians to cross a high-speed 4-lane highway, it is against WSDOT policy to encourage pedestrians to cross a highway such as US 101. But analysis shows that realistically, pedestrians will still cross at intersections. Pedestrians who decide to cross will do so at county road intersections and will have a much easier time identifying when it is safe to cross because there will be fewer conflict points with vehicles due to right-in/ right-out movement of traffic; will only need to cross one direction of traffic at a time; and will be able to wait for a break in traffic in the paved part of the median.

To accommodate pedestrians who need to cross US 101, part of the proposed action includes an ADA compliant shared-use path under the two McDonald Creek bridges, which will be paved and lit. This allows for a path dedicated to foot and bicycle traffic that is separate from automobile traffic, thus making for a much safer way to cross US 101. People who want to cross US 101 by means of the shared-use path or a crosswalk have the option of riding a transit bus to these destinations if unable or unwilling to walk to them. The nearest crosswalks are located outside the project limits, at the intersection with Carlsborg Road (to the east) or

Kolonel Way (to the west) of the project. Both intersections serve as Clallam Transit bus stops, with both eastbound and westbound bus service. Exhibit 3-3 shows the length of bus rides from stops within the project limits to these intersections and to the shared-use path.

Traveling an extra distance is much more of an issue to people on foot than on bicycle. People who need to access transit stops are typically traveling by foot. Transit is a means of transportation for those without a vehicle and often for low-income populations. This could result in a reduction in use of these modes. It is also possible that there will be an increased demand for ParaTransit services.

### **Employment**

There are no major employers in the study area so there will not be a substantial reduction in employment.

### **Relocations**

Relocation of seven residences and two businesses will not create a disproportionate effect on the minority or lower income portions of the community. Property acquisition analysis concluded that there was not a disproportionate impact on the lower income portions of the community.

There is affordable replacement housing in Clallam County, according to the Clallam County Housing Affordability Index.

About 37 acres will be acquired to build this road widening project and another 47 acres will be acquired for the wetland mitigation site. These parcels will be removed from the County tax rolls and result in the redistribution of property taxes across the county. The Proposed Action will require the full or partial acquisition of 65 privately owned properties along the corridor.

### **3.15.7 What other effects will occur under the Proposed Action after construction?**

To accommodate pedestrians who need to cross US 101, part of the proposed action includes an ADA compliant shared-use path under the two McDonald Creek bridges, with access in the vicinity of Barr Road. This shared-use path is paved, has lighting, and is approximately 1000 feet long and is dedicated to foot and bicycle traffic that is separate from automobile traffic. This will provide a much safer way to cross US 101.

Currently, pedestrians are crossing US 101 primarily at the intersections with county roads without any designated pedestrian crossings. When crossing between intersections, pedestrians currently need to cross two lanes of opposing traffic, with no median. The proposed action will discourage pedestrians from crossing US 101 due to the added lanes and the 40-foot vegetated median. Because of the high traffic volume and high speed on US 101, it is against WSDOT policy to provide any at-grade pedestrian crossings as part of the proposed action. However, historical data and experience show that pedestrians will continue to cross US 101 at intersections after the highway has been widened. Pedestrians who decide to cross US 101 will do so mainly at county road intersections because the median will be paved for the left turn lanes from US 101 onto the county roads. Pedestrians will have a much easier time identifying when it is safe to cross the highway because there will be fewer conflict points with vehicles due to right-in/ right-out movement of traffic; will only need to cross one direction of traffic at a time; and will be able to pause and wait in the paved median for a break in traffic.

In other locations, bicycles will use the shoulder of US 101 to travel east-west. They will cross US 101 at the indirect left turns (bulb shaped u-turns) feature.

The indirect left turns will produce the long-term benefits of increased safety for all travelers. The wide median will reduce the

potential for head-on collisions. The access revision to right-in right-out will reduce the potential for all other collisions, while additionally reducing traffic delays and congestion caused by vehicles waiting to turn or cross the highway.

### **3.15.8 What measures are proposed to minimize or avoid effects to social and economic resources?**

The right of way acquisition necessary for the widening has been minimized to the extent possible. Opportunities to relocate within the vicinity appear ample with a good supply of undeveloped land or vacant established land uses within the study area.

Fill areas will be reduced using retaining walls where feasible. The design team has worked closely with residential property and business owners to accommodate access needs.

Property acquisition will be done in accordance with the federal Uniform Relocation and Real Property Acquisition Policies Act of 1970, as amended, as well as the Washington Relocation Assistance- Real Property Acquisition Policy. WSDOT will compensate all property owners at fair market value and provide relocation assistance where appropriate.

Construction effects will be minimized for the general public with the following methods:

- Current information on construction and travel delays will be posted on the project website.
- Variable message signs will be stationed in advance of the construction activity area to provide information about delays, if necessary.
- The contractor will be required to comply with all local, state and federal regulations concerning air pollution abatement related to construction activities.

- Maintaining as many traffic lanes as possible during peak travel times to reduce air quality effects caused by increased congestion.
- Coordinating construction activities with other projects in the area to reduce the cumulative effects of concurrent construction projects.
- Coordinating construction activities around local events to minimize traffic impacts.
- During construction activities that impact traffic, emergency vehicles will always have priority and will have an open lane through the construction zone. Advance notice of activities that will impact traffic will be given to emergency services.
- Access to all businesses will be maintained.
- Transit and school bus stops should remain as they are now, except with possible minor adjustments. Clallam Transit System and local school district coordinators should be given advance notice of construction activities that may affect bus routes or schedules.
- The new bridge over McDonald Creek will be constructed and open to traffic prior to demolition of the existing bridge, which will result in only minor traffic impacts.

### **3.15.9 Will the project have significant unavoidable adverse effects on environmental justice?**

The data indicates the presence of minority persons and low-income persons in the study area, although there is no identifiable geographical area of predominately minority population or low-income populations. There are no available data sources about the characteristics of the residents of the individual homes that are directly affected. The analysis does illustrate that WSDOT has chosen a preferred alternative for this project without prejudice. This analysis found no demographic group will be

disproportionately impacted, and that the project will benefit all demographic groups in and beyond the study area.

The project will impact pedestrians, bicyclists and transit users due to the removal of the ability to directly cross US 101, but this inconvenience is offset by the increased safety provided by the new shared-use path under the new bridges over McDonald Creek, which will separate pedestrians and bicyclists from the traffic of US 101.

There are no adverse effects that will be predominately borne by a minority or low income population, or be suffered by the minority or low-income population and be more severe or greater in magnitude than effects on non-minority or non-low-income populations.

The project will not result in significant unavoidable adverse effects on environmental justice.

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### 3.16 Hazardous Materials

A Hazardous Materials Discipline Report was completed in November, 2009. It describes the existing hazardous materials locations in the US 101 project study area and evaluates potential hazardous materials impacts with and without the proposed project. Hazardous Materials Memos were prepared in March, 2010, to examine the potential for hazardous materials at the proposed wetland mitigation site and in August, 2010 for the added McDonald Creek Bridge Replacement. This study and memo are listed in Appendix B, and they are incorporated by reference into this Environmental Assessment.

#### 3.16.1 Studies, coordination, and methods

The study area for the discipline study extends approximately one-half mile in all directions of the project limits. The same study area limits were also used for the wetland mitigation site memo.

A record search and visual inspection of sites were examined for the presence of Recognized Environmental Conditions (REC) related to hazardous materials. The physical environment was examined as well as the historic and the current land uses in the vicinity of the project area. WSDOT evaluated these natural and built conditions to identify the existence of properties that might be contaminated. This methodology then ranked sites based upon proximity to the project area, the extent of contamination, planned project work, and the complexity and cost associated with managing and cleaning up the contaminants if it becomes necessary.

WSDOT identified 11 properties that have or might have soil or groundwater contamination. These properties could be impacted by the Proposed Action or be impacted by project construction. These properties are called “Hazardous Materials Sites” and were or currently are used as gasoline stations, vehicle service and

WSDOT assigned a risk ranking to each hazardous materials site of “high”, “moderate”, or “low” contamination impact ranking. Cleanup was designated as “straightforward” or “complicated”.

maintenance shops, heavy equipment storage areas, a scrap metal yard, and a gun range.

### **3.16.2 What regulations do we follow when dealing with hazardous materials?**

Hazardous materials identification, handling, disposal, and remediation are governed by numerous State and Federal laws, regulations, guidance documents and policies. Appendix B of the Hazardous Materials Discipline Study identifies the most common of those laws, regulations, guidance documents, and policies.

### **3.16.3 What effects to hazardous materials will result under the No Action Alternative?**

No construction will occur under the No action Alternative. Any hazardous materials in place will not be disturbed. There is a chance of hazardous materials being spilled from traffic accidents on US 101. The most likely cause may be with traffic trying to access US 101 from the intersecting county roads or during periods of severe congestion on US 101.

### **3.16.4 How will hazardous materials be affected during construction of the Proposed Action?**

#### **Hazardous materials used for construction**

Accidental hazardous materials spills may occur due to construction activities. Construction sites involve various activities, equipment, and materials that can result in a release of hazardous materials into the environment. Construction vehicles and equipment typically use gasoline, diesel, motor oil, transmission fluid, radiator coolant, brake fluid, and hydraulic oil. New construction work typically uses cement, asphalt, tar, paving oils, tack, and paint. A Spill Prevention, Containment, and Countermeasures (SPCC) Plan is required for all WSDOT

construction projects per Standard Specifications Section 1-07.15. Prior to beginning construction, the Contractor is required to prepare a project-specific plan to be used throughout the duration of the project. The plan must be updated to reflect actual site conditions and practices. Preventing a spill is the primary goal; however, the Contractor is expected to be prepared to minimize the impacts of a spill through immediate and appropriate response actions.

### **Existing hazardous materials encountered during construction**

Hazardous materials that might be encountered are contaminants present in soil or groundwater that are excavated or dewatered as part of construction work. Typically, such contaminants would have migrated to the area where project construction work will occur (project area) or be drawn into the project area by construction-related dewatering activities.

Typical construction impacts may include construction delays and increased costs associated with encounters of unexpected contaminated media, encounters of underground storage tanks (USTs) and associated contamination, spills, demolition activities that require special handling and disposal of contaminated media, worker safety and public health issues, and disposal.

### **Risk analysis and cleanup rating**

One site has a potentially high impact and a complicated cleanup. WSDOT will acquire part of this parcel.

Three sites have a potentially moderate impact and straightforward cleanup.

One site has a potentially low impact with a complicated cleanup.

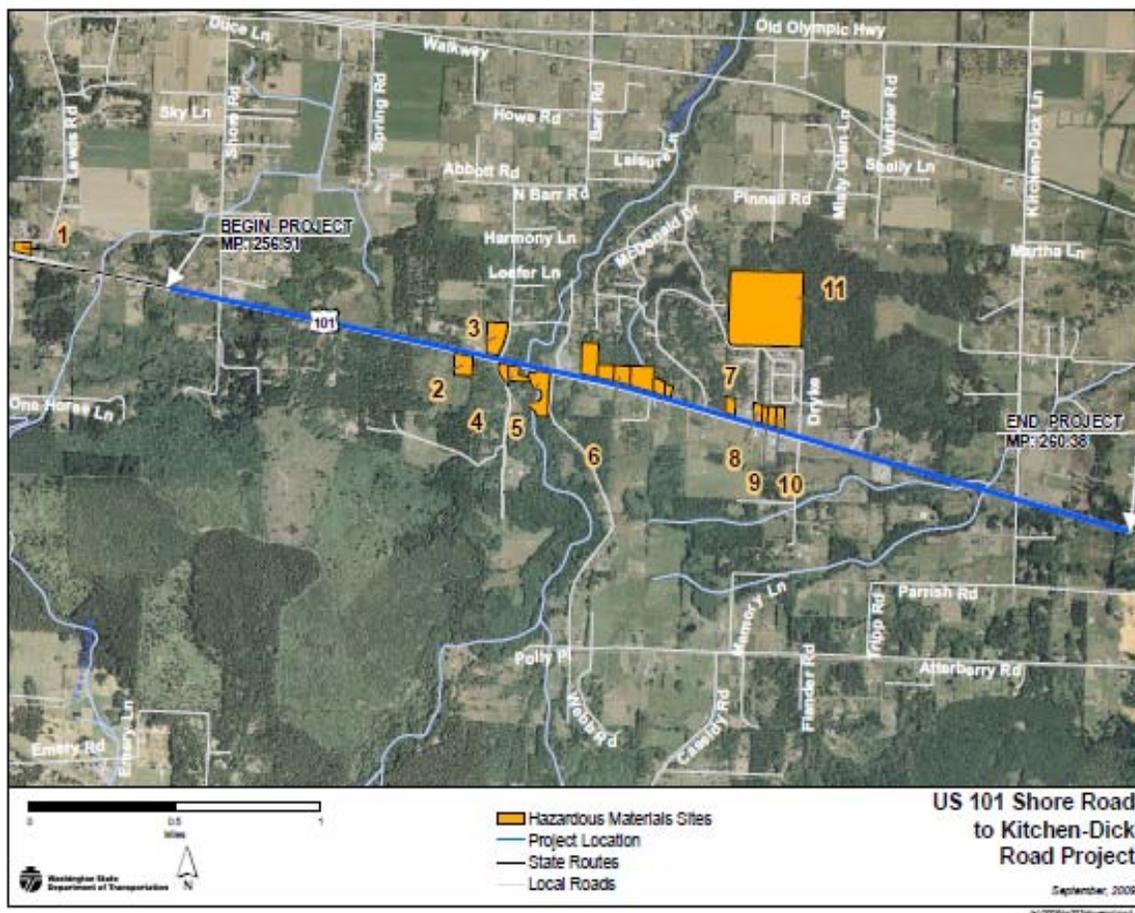
Six sites have a potentially low impact with a straightforward cleanup.

Approximately 21 structures will be demolished.

As part of project construction, asbestos containing materials, lead based paint, and/or underground storage tanks (UST) may be associated with any of these structures.

The site assigned a “potentially high impact” – “complicated cleanup” ranking was Site #2 Midway Metals. The site was assigned the ranking based on the fact that the site has confirmed soil contamination, but the nature and extent of contamination is unknown. WSDOT plans to acquire part of the site for the roadway widening. The contaminants that may exist on the site include petroleum products, metals, and solvents. Since the nature and extent of the contamination is unknown, cleanup associated with the site could be complicated and expensive.

**Exhibit 3-13, Hazardous Materials Sites**



Three hazardous materials sites (#4, #5, and #6) were given a “potentially moderate impact” – “straightforward cleanup” ranking. WSDOT will acquire sites #4 and #6 for the construction of stormwater ponds and currently owns site #5 (McDonnell Creek Store). Based on previous land uses, all three sites have the potential for petroleum products and/or heavy metals contamination of soil and/or groundwater. Typically, the methods used to clean such sites are straightforward and the costs are predictable.

**Exhibit 3-14 Potential Acquisition Impacts Related to Hazardous Materials Sites**

Site #	Hazardous Materials Site Name	Type of Acquisition	Risk Ranking and Potential contaminants
2	Midway Metals / E.T. Enterprises & Recycling	Partial	<b>High – Complicated</b> Petroleum products, heavy metals, and solvents
4	U.S. Fish and Wildlife Services / WA Maritime National Wildlife Refuge	Total	<b>Moderate – Straightforward</b> Petroleum products and heavy metals
6	Affordable Service / Affordable Roofing and Crane / Olympic Divers	Partial	<b>Moderate – Straightforward</b> Petroleum products and heavy metals.

Site #11 (Sunnydale Dryke Shooting Range) was given a potentially low impact – complicated cleanup ranking. Project work is not anticipated to directly impact this site which is located approximately one-quarter mile north of the project area.

The remaining six sites were assigned potentially low impact – straightforward cleanup rankings. Based on land use history, these sites have the potential for soil contamination created by petroleum

products and/or heavy metals soil. Previous land uses at the sites have included vehicle service and maintenance shops, heavy equipment storage areas, and a gasoline station. WSDOT does not currently have any plans to acquire or directly impact any of these sites, but if the contamination is encountered, the cleanup will most likely be straightforward.

The removal of the existing McDonald Creek Bridge (and subsequent replacement) will involve disturbing the creosote and zinc chloride treated timber piles. The contaminated piles will be delivered to an approved disposal site.

Phase II Environmental Site Assessments for sites #4 and #5 were conducted. No hazardous materials were found that would be affected by the Proposed Action.

Although WSDOT has identified the land uses that will typically involve hazardous material, no level of reasonable inquiry can ensure that all contamination is identified. Encountering unexpected hazardous materials in the project area is possible.

Construction activities will have a positive effect on the environment. WSDOT will properly handle and dispose of any contaminated soil and/or groundwater encountered.

#### **Wetland Mitigation Site**

No adverse liability to WSDOT is likely to be incurred with the acquisition of the site.

#### **3.16.5 What other effects will occur to hazardous materials under the Proposed Action after construction?**

The only effects identified after construction under the Proposed Action is the chance of an accidental spill from a traffic accident. This will be less probable with the Proposed Action than under the No Action Alternative due to the reduced congestion and improved safety.

### **3.16.6 How will we offset the effects to hazardous materials during construction?**

WSDOT will properly handle and dispose of any contaminated soil and/or groundwater encountered. Construction activities will eliminate potential contaminant sources and remove contamination that might otherwise have remained in the environment and continued to migrate.

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**There are no adverse hazardous materials effects in the study area that cannot be mitigated.**

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Prior to acquisition, WSDOT will perform sampling to further define the extent of contamination and reduce or eliminate WSDOT liability for cleanup.

Future Phase II Environmental Site Assessments for sites #2 and #6 will be conducted. The information gathered from these investigations will assist WSDOT to further determine how best to manage the contaminated material during construction. This will minimize potential project delays and increased costs.

A general special provision will be included in the contract document to address encountering hazardous materials.

### **3.16.7 Will the project have significant unavoidable adverse effects on hazardous material?**

There are inherent risks involving hazardous materials in construction activities and in encountering contaminated media. These risks are minimized by further investigation of identified sites, which includes a cleanup plan.

Risks of spills from construction equipment and materials are minimized by the use, implementation of and updating of a SPCC Plan.

Since project activities include the benefit of cleaning up hazardous material sites affected by property acquisition, and spills encountered during construction activities will be cleaned up, the project will not have significant unavoidable adverse effects on hazardous material.

### 3.17 Archaeological and Historic Resources

Cultural resource studies were conducted in May and June, 2009 and in August, 2009. The study was completed in September, 2009. A study was completed in March, 2010 for the wetland mitigation site north of Sequim near the community of Dungeness in Clallam County. Additional shovel testing in two stages and further analysis was completed in June, 2010. These studies are listed by name in Appendix B, and they are incorporated by reference into this Environmental Assessment.

This project requires compliance with Section 106 of the National Historic Preservation Act of 1966, as amended and its implementing regulations. The National Historic Preservation Act of 1966, as amended (16 USC 470f, Section 106), requires federal agencies including FHWA to take into account the effects of a project on historic properties included in or eligible for inclusion in the National Register of Historic Places.

The Section 106 process is codified in 36CFR800, "Protection of Historic Properties." The agency official must consult with the State or Tribal Historic Preservation Officer (SHPO/THPO) and other interested persons during the early stages of planning. Historic properties must be adequately identified and considered.

#### 3.17.1 Studies, coordination, and methods

An archaeological survey, historic structures inventory, and project background research was conducted for the project Area of Potential Effects (APE).

Eight parcels were not examined for archaeological resources due to the lack of a permitted right of entry. They will be examined for archaeological resources prior to ground disturbance.

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**The Area of Potential Effects includes all areas where project-related ground disturbance will occur as well as areas where indirect visual and auditory effects could impact historic properties.**

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The direct impact area of the project APE was surveyed by archaeologists walking on a grid pattern spaced at 30 meter or smaller intervals. In addition to visually examining the ground surface, systematic shovel testing of the project area involved excavating shovel tests at 10, 20, or 30 meter intervals, where possible, in direct impact portions of the project APE considered to have the highest probability for buried cultural resources. Excavated sediments from shovel holes were screened through 1/8-inch or 1/4-inch mesh hardware cloth and recovered artifacts were collected to recover cultural materials.

The APE for the wetland mitigation site was examined by systematic shovel probing and subsequent evaluative testing of archaeological resources identified within the site.

A historical building/structures survey of the entire project APE was done in May and August, 2009, after reviewing Clallam County parcel data.

WSDOT has consulted with the Jamestown S'Klallam, the Lower Elwha Klallam, and Port Gamble S'Klallam tribes about the project APE and potential impacts to cultural resources, including Traditional Cultural Properties. WSDOT attended a meeting with the Jamestown S'Klallam Tribe at their request to describe the project. No specific information regarding known cultural resources within the APE was revealed by the tribes. Continued coordination will occur through the construction phase.

WSDOT has consulted with the SHPO regarding the APE, study methods, and report findings, and has received SHPO concurrence with the finding of effect under Section 106 of the NHPA.

### **3.17.2 Are there any archaeological or historic resources in the APE?**

#### **Archaeological resources**

No archaeological resources have been identified in the roadway APE. Evidence of prehistoric activity was discovered in the off-site area of wetland mitigation. Site 45CA650 consists of a low density, low diversity midden site comprised of three loci (circular areas). Cultural materials in loci A and B, consisting primarily of shell from various species of marine shellfish, have been fragmented and redistributed by agricultural plowing, cattle trampling, and other disturbances. One midden feature consisting of burned marine shell, mammal and fish bone, charcoal, and fire-modified rock was identified in Locus C. Charcoal from the midden yielded a conventional radiocarbon date of 330 +/- 40 years before present (B.P.). The intact midden in Locus C possesses the potential to provide additional information important in prehistory, and is therefore considered eligible for the NRHP under Criterion D. Locus C will be avoided by the project and therefore, site 45CA650 will not be adversely affected.

#### **Historical resources**

A total of 26 buildings/structures 45 years of age and older were recorded within the project APE. Among these were 21 residential properties, two commercial properties, a barn, a bridge, and an irrigation complex.

Two of these properties, Dupuis' Restaurant and the McDonnell Creek Diversion Dam and Fish Screen, are eligible for listing in the NRHP.

Dupuis' Restaurant is eligible for listing in the NRHP under Criterion C as a largely intact example of 1930s-era road side architecture.

**Exhibit 3-15, Dupuis' Restaurant**



The McDonnell Creek Diversion Dam and Fish Screen, built around 1922, is an intact example of irrigation and fish protection technology. It is eligible for listing in the NRHP under Criterion A for its association with early irrigation efforts in the Port Angeles/Sequim vicinity and under Criterion C as an example of early irrigation construction techniques.

**Exhibit 3-16, McDonnell Creek Diversion Dam and Fish Screen**



Neither of the two historical resources identified in the roadway APE will be affected by the Proposed Action.

**3.17.3 How will the alternatives affect archaeological resources?**

The No Action Alternative and the Proposed Action will not adversely affect archaeological resources that may be eligible for the NRHP.

#### **3.17.4 How will the alternatives affect historical resources?**

The No Action Alternative will not affect historical resources.

The Proposed Action will not impact historical resources. The Dupuis' Restaurant is outside the area of direct impact and will not be directly or indirectly affected by project activities.

The McDonnell Creek diversion dam and fish screen are next to the area of direct impact, but WSDOT commits to avoiding effects to the system with construction activities.

#### **3.17.5 What measures will be taken to minimize effects to archaeological and historical resources?**

##### **Archaeological resources**

The NRHP-eligible archaeologically significant locus within the wetland mitigation site will be avoided.

##### **Historical resources**

No NRHP-eligible historical resources will be affected, and no mitigation measures are identified.

#### **3.17.6 Will the project have significant unavoidable adverse effects to archaeological and historical resources?**

Care has been taken with the design of the project and in consulting with Indian Tribes to ensure that archaeological and historic resources are not affected. To ensure that archaeological resources are not affected, WSDOT will provide archaeological monitoring during grading activities at the wetland mitigation site, and implement an inadvertent discovery plan in case any cultural resources are discovered during any project activities.

This project will not have significant unavoidable adverse effects to archaeological and historical resources.

### 3.18 Public Services and Utilities

A Public Services and Utilities Discipline Report was completed in December, 2009. It describes the existing public services and utilities located in the US 101 project study area and evaluates potential impacts with and without the proposed project. This study is listed in Appendix B, and it is incorporated by reference into this Environmental Assessment.

#### 3.18.1 Studies, coordination, and methods

Most public services have service boundaries or defined areas that each one serves. For example, a fire district boundary defines the limits where the district provides fire fighting and emergency response services. Other public services, such as religious institutions (see Section 3.15.3 of this EA for a discussion of the Calvary Chapel) or medical clinics, do not have defined boundaries and may serve people outside of the study area. We first identified public services by determining if any service boundaries overlapped or were adjacent to the project boundaries. For services that lack physical boundaries, we identified those in close proximity to the project, based on a 0.5-mile radius extending from both sides of the US 101 Shore Road to Kitchen-Dick Road Widening project proposed right of way. Those utilities located within the project's proposed right of way are assessed in this report.

See Section 3.2 for a discussion on the following three recreational resources on the north side of US 101: County Park Robin Hill Farm (access from Dryke Road), the Olympic Discovery Trail, and the Dungeness National Wildlife Refuge (access from Kitchen-Dick Road).

### **3.18.2 What public services are in the study area?**

There are no libraries, post offices, or social institutions such as community centers in the study area. Following are public service providers in the study area.

#### **Fire and Emergency Medical Services**

Fire District No. 3, Station 32 (Port Angeles)

Fire District No. 3, Station 33 (Sequim)

#### **Police Stations**

Clallam County Sheriff (Port Angeles)

Washington State Patrol, District 8 – Region III (Port Angeles)

#### **Transit**

Clallam Transit System (Port Angeles)

#### **Schools**

Greywolf Elementary (Sequim)

### **3.18.3 What utilities are in the study area?**

#### **Electricity**

Public Utility District (PUD) No. 1 of Clallam County

#### **Telecommunication**

Public Utility District No. 1 of Clallam County (broadband internet; part of Northwest Open Access Network (NoaNet))

Qwest Communications

Wave Broadband (Northland Cable)

**Drinking water**

Public Utility District No. 1 of Clallam County

Fairview Drinking Water System

**Natural Gas / Liquid Propane**

Sunshine Propane

Petit Oil

Ferrellgas

**Solid Waste Disposal**

Murrey's Olympic Disposal (owned/operated by Waste Connections)

**Irrigation**

Agnew Irrigation District (see Section 3.12.4 for district map)

**3.18.4 Who provides sewer service in the study area?**

All of the residents and businesses within the unincorporated areas of Clallam County are not connected to a municipal sewer system. They depend on private onsite treatment systems. The onsite treatment facilities include both in-ground and above-ground systems.

**3.18.5 How is stormwater currently treated?**

Clallam County does not currently have stormwater management facilities in place. Stormwater management is primarily handled through on-site control measures defined in the County's stormwater management regulations. These regulations adopt by

reference the 1992 edition of the Washington State Department of Ecology's Stormwater Management Manual. The County does have plans to develop a comprehensive stormwater management plan and ordinances.

### **3.18.6 What effects to public services and utilities will result under the No Action Alternative?**

No construction will occur under the No Action Alternative, so no effects will occur to public services and utilities.

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**US 101 is the major route between Port Angeles and Sequim used by fire, police, and emergency medical providers. Temporary construction effects will be coordinated with the services to minimize effects.**

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### **3.18.7 How will public services and utilities be affected during construction of the Proposed Action?**

#### **Public services**

The existing roadway is planned to remain open to traffic while the new roadway is constructed parallel to the existing roadway. Construction activities will temporarily increase traffic congestion along US 101 and more specifically at the county road intersections. Work zone traffic control on US 101 will primarily be limited to lane shifts with minor lane and shoulder-width reductions. Work zone traffic control at the county road intersections will primarily consist of lane and shoulder-width reductions and some lane closures while the county roads are reconnected to the new US 101 roadway. Complete lane closures will be coordinated to occur during non-peak travel hours to minimize impacts on the traveling public.

Clallam Transit System (CTS) serves the US 101 corridor with five bus stops along each side of the roadway in the study area. Temporary delays to transit service may occur during construction.

The school buses from the Sequim School District travel in both directions on US 101 so students can catch their bus without crossing the highway. Transit and school bus stops may need to be

shifted along US 101 due to construction activities. These will be minor and made only when needed.

The indirect left turns will allow the response times of the public service providers to operate much as they do today with minimal additional travel time. As congestion increases, the response time efficiency will increase over the No Action Alternative.

The increased roadway capacity will result in reduced travel time on the new and existing roadway after construction. This will increase the efficiency of transit travel.

Emergency providers may have a temporary increase in demand of services if accidents associated with construction activities occur.

### **Utilities**

Many of the existing utilities are located in the area planned for the new roadway lanes and the widened median. Current highway design standards require that all utilities be located outside of the construction footprint of the new roadway.

Utilities needing relocation include Public Utility District (PUD) #1 electricity lines and broadband internet connectivity; Qwest Communications and Wave Broadband for telecommunication service; PUD #1 and the Fairview Water System for drinking water; liquid propane by three providers; and private septic tanks and leach fields.

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**All existing utilities will be impacted to some degree.**

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The effects to utility customers during adjustments and relocations will mostly result in minimal service interruptions typically lasting only minutes.

Most private water and sewer systems will have little or no effects since their facilities are outside the area to be affected by construction activities. Some systems will need modifications lasting a few hours. Part of the Fairview water system at the west end of the project will be required to be relocate a portion of their water system as a minor effect.

Customers with curb pickup of solid waste will have minor effects. They may need to adjust the location where their refuse is typically picked up and the time they remove their containers after refuse pick up. Some service providers may need to establish new service routes to account for the new indirect left turns.

The irrigation facilities owned by the Agnew Irrigation District will be maintained. Some adjustment and extension of pipes will be required as the new roadway is built. Any interruptions in service are expected to be temporary and intermittent.

### **3.18.8 What other effects will occur to public services and utilities under the Proposed Action after construction?**

Emergency service providers will experience faster and safer response times.

The construction of the Proposed Action will benefit utilities by locating utilities away from the roadway. This will reduce the risk of damage by errant vehicles and provide a buffer zone while utility vehicles are maintaining their facility.

### **3.18.9 How will we offset the effects to public services and utilities during construction?**

#### **Public services**

Project specific traffic management plans will be developed and coordinated before construction begins with fire, police, emergency medical services, transit, schools and local agencies. Their input will be requested to minimize effects during construction. The following items are under consideration to be implemented during project construction to minimize disruptions to those using the roadway:

- Current and upcoming construction activities will be posted on the project website.

- Variable message signs will be located in advance of the construction area to provide information regarding upcoming closures or delays.
- Consideration will be given to advertising construction activities with traffic impacts in local newspapers and radio stations.
- Public education will be provided on the correct use of indirect left turn (U-turn) facilities.
- Access to all businesses will be maintained.
- Lane restrictions for specific activities will be specified to occur during non-peak traffic hours or at night.

### Utilities

Utilities affected by the project will be identified early with development of relocation or mitigation plans to follow. Relocation plans will be developed with input from the utility owners so that utilities are moved to a safe distance beyond the edge of roadway and construction activities.

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**Early coordination with the utility companies will occur during the design phase.**

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#### **3.18.10 Will the project have significant unavoidable adverse effects to public services and utilities?**

Some effects to public services and utilities may include traffic congestion during construction activities, delays or adjustments to transit services and school bus stops, and service interruptions to utilities, such as power, water, phone, etc. However, these interruptions will be intermittent, temporary, and short-term.

The project will provide increased capacity, which will result in increased efficiency of transit service and emergency responders.

The project will not have significant unavoidable adverse effects to public services and utilities.

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### 3.19 Visual Quality

A Visual Quality Discipline Report was completed in February, 2010. It describes the existing visual quality in the US 101 project study area and evaluates potential visual quality effects with and without the proposed project. This study is listed in Appendix B, and it is incorporated by reference into this Environmental Assessment.

#### 3.19.1 Studies, coordination, and methods

The study area for the discipline study extends in all directions of the project limits in a line of sight. Views towards the highway and away from the highway are analyzed.

This report was conducted in accordance with Section 459 of the Washington State Department of Transportation (WSDOT) Environmental Procedures Manual (WSDOT 2010). These guidelines are consistent with the U.S. Department of Transportation, FHWA Visual Impact Analysis for Highway Projects (FHWA 1988).

Visual quality assessments are prepared by trained professionals exercising professional judgment. The FHWA methodology provides a process of evaluation that guides the professional's judgment and produces an objective assessment of visual quality. It uses a qualitative and quantitative approach to analyze existing and proposed views of the project area. The process is repeatable by other experts.

Each selected viewpoint represents a substantial portion of the project viewshed. It represents where the greatest effect to visual quality from the project is anticipated. The four selected viewpoints are representative of the entire project limits.

### **3.19.2 What criteria are examined when dealing with visual quality?**

Three criteria are rated. A rating of 7 is very high, 4 is average, and 1 is very low. The ratings are used to perform an evaluative appraisal of the landscape visual quality:

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

**Intactness:** The integrity of visual order in the natural and man-built landscape, and the extent to which the landscape is free from visual encroachment.

**Unity:** The degree to which the visual resources of the landscape join together to form a coherent, harmonious visual pattern. Unity refers to the compositional harmony or inter-compatibility between landscape elements.

Expert evaluations based on the three criteria have proven to be good predictors of the visual quality using the following sample equation:

$$\text{Visual Quality} = \frac{\text{Vividness} + \text{Intactness} + \text{Unity}}{3}$$

Each of the three independent criteria evaluates one aspect of visual quality to determine the total visual quality rating for each viewpoint.

### **3.19.3 What effects to visual quality will result under the No Action Alternative?**

This portion of US 101 is located within the Pacific Coast Scenic Byway. The Pacific Coast Scenic Byway surrounds Olympic National Park, parallels ocean beaches, serves as an entrance to Pacific Northwest tribal centers, and meanders through a temperate rainforest.

It is important that the Shore Rd. to Kitchen-Dick Rd. Widening project regard the scenic quality of US 101 and impact its visual qualities as little as possible.

The existing visual quality within the project limits is dominated by forest and rural characteristics. The existing visual quality ratings for views from the road are at or above 4.0 on a scale of 7.0. This unity and intactness rating is considered moderately high. No direct effects will result from the No Action Alternative.

#### **3.19.4 How will the Proposed Action affect the existing visual quality?**

The following four key views show how the Proposed Action will slightly decrease the visual quality in the US 101 corridor.

Visual quality from Key View 4 is memorable and rated high at 5.5 for the No Action Alternative and the Proposed Action.

#### **3.19.5 How will visual quality be affected during construction of the Proposed Action?**

The project will impact the visual quality during and after construction period. There will be heavy equipment working within the project limits during construction and will likely create dust and distractions for drivers in the project vicinity. The existing lanes on US 101 may be narrowed during construction of the new lanes and the median. This may entail jersey barriers or traffic cones, and/or restriping of the roadway.

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**The construction duration is expected to be about 30 months. The contractor will determine the order of work.**

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Removal of vegetation and trees will be kept to a minimum, but enough will be removed to accommodate the widened roadway.

The contractor may use lighting to allow work at night. The project will use directional lighting to minimize night sky impacts.

These impacts are temporary in nature and do not require mitigation.

**Exhibit 3-17, Key View 1 - View westbound  
MP 260.38**



The visual quality rating will reduce from 5.5 to 4.7 for Key View 1.

**Exhibit 3-18, Key View 2 - View eastbound –  
MP 259.60**



The visual quality rating will reduce from 5.3 to 4.5 for Key View 2.

**Exhibit 3.19, Key View 3 - View westbound toward Port Angeles**



The visual quality rating will reduce from 4.5 to 3.8 due to the roadway improvements for Key View 3.

**Exhibit 3-20, Key View 4 - View south to Hurricane Ridge**



Visual quality from Key View 4 is memorable and rated high at 5.5 for the No Action Alternative and the Proposed Action.

### 3.19.6 What other effects will occur to visual quality under the Proposed Action after construction?

All roadside areas within the project limits will receive a minimum of Treatment Level 2 as described in the WSDOT Roadside Classification Plan. Native vegetation will be replanted on all disturbed roadside areas.

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The three distinct roadside characters throughout this corridor are roughly 45% forested, 35% rural, and 20% semi-urban.

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The existing visual quality in this study area ranges from moderately high to high. After the project, four key viewpoints from the roadway show slightly decreased visual quality ratings. Decreased ratings are a result of encroachments from road widening and removal of mature trees that provide visual screening for adjacent residential dwellings.

This project will lower the visual quality ratings in the project area from 5.1 to 4.3. This decrease in overall visual quality is due primarily to vegetation reduction and landform manipulation.

A total visual quality rating change of 1.0 or greater is considered to be a substantial visual impact for the purposes of this report. A total visual quality rating change of less than 1.0 point was not considered to be a substantial visual impact. The effects from the Proposed Action are not considered a substantial decrease in visual quality.

### 3.19.7 How will we offset the effects to visual quality during construction?

WSDOT will perform roadside restoration throughout the project limits. We have applied Context Sensitive Solutions (CSS) to decrease the visual effects of the project.

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Context Sensitive Solutions is a process that involves stakeholders to develop a transportation facility. This considers its total context by preserving scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility (FHWA 2009).

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## Vegetation

Use of vegetation can visually unify the corridor. Vegetation measures will be implemented as follows:

### Clear zone of roadway

We will only plant grass and shrubs within the clear zone of the roadway. Native grasses and forbs seed mixture will be selected to blend cut and fill slopes within the project limits with adjacent land uses.

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**The highway clear zone is an area on each side of the road that is free from obstructions. Out of control vehicles can recover or safely come to a stop without encountering a non movable object such as a tree, utility pole, etc.**

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### Sensitive areas and buffers

- Disturbance to native plant communities and specimen trees will be minimized by clearly identifying clearing and grading limits. In critical areas and their buffers temporarily disturbed by construction, roadside restoration with densely planted native trees and shrubs will be considered (as long as it is not within the highway clear zone).
- As many trees as possible will be maintained by allowing minimal fill around the base of existing trees.
- Tree species will be selected for replacement that are native and in context with the corridor.

### 3.19.8 Will the project have significant unavoidable adverse effects to visual quality?

The Proposed Action will slightly decrease the visual quality in the US 101 corridor, but the decrease will not be significant. Removal of vegetation and trees will be kept to a minimum, and native vegetation will be replanted on all disturbed roadside areas.

The project will not have significant unavoidable adverse effects to visual quality.

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## 3.20 Geology and Soils

A Geology and Soils Discipline Report (DR) was completed in November, 2009. It describes the existing soils conditions in the US 101 project study area and evaluates potential impacts with and without the proposed project. A DR Addendum was prepared in July, 2010 to address the replacement of the existing McDonald Creek Bridge and the addition of the pedestrian trail under the bridges along the creek. This study and addendum are listed in Appendix B, and they are incorporated by reference into this Environmental Assessment.

### 3.20.1 Studies, coordination, and methods

Sources of information for this study included U.S. Geological Survey (USGS) topographic and geologic maps; Washington Department of Natural Resources (WDNR) Geology and Natural Resource Division geologic maps; Natural Resource Conservation Service (NRCS) county soil surveys; county geologic hazard and critical areas maps; published reports, studies and boring logs from past projects along the subject corridor; and field review of the site. During our research, we also contacted the Clallam County Planning Department and consulted numerous county, state, and federal information websites.

Drilled test borings (24) and hand-excavated portable penetrometer test borings (2) within the corridor area were performed to better define the local corridor subsurface conditions and develop preliminary design criteria.

### 3.20.2 What are the soil and geologic conditions in the study area?

#### Topography

The project corridor is located on the north side of the Olympic Peninsula in Clallam County, Washington. The alignment trends in a generally east-west direction near the transition between the coastal plain to the north and the foothills of the Olympic Mountains to the south (Figure 3). The topography generally has a downward gradient of about 45 feet per mile toward the north. The topography is crossed by numerous north-trending drainages, including Sieberts Creek (west of the project), McDonald Creek (which crosses the highway near the center of the project) and the Dungeness River (east of the project). Numerous irrigation ditches have been constructed in the area, which tend to alter the generally north-south natural drainage patterns. Several of these cross US 101 via culverts.

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**Existing conditions for soils and geology include:**

- **Topography**
  - **Climate**
  - **Region geology and tectonic setting**
  - **Region groundwater**
  - **Corridor geology**
  - **Corridor soils**
  - **Corridor engineering geology**
- 

#### Climate

The subject corridor is within the Northeast Olympic-San Juan climatic zone, which has a generally temperate maritime climate, and includes the lower elevations along the northeastern slope of the Olympic Mountains. The area is in the rain shadow of the Olympic Mountains and is generally shielded from the winter storms that move inland from the Pacific. Precipitation, while high in the mountains to the south, decreases rapidly toward the coastal area. Winters are generally cool and wet, while summers are generally mild and dry. Winter average temperatures are generally in the 30s to 50s and average summer temperatures are generally in the 60s to 70s. Average annual precipitation is approximately 16.45 inches and average annual snowfall is approximately 5.3 inches (Desert Research Institute, 2009 - Sequim weather station).

### **Regional geology and tectonic setting**

The Olympic Mountains are an extension of the Coast Range from Oregon. The lifting of the ocean side (Pacific) tectonic plate has driven the land uplift (North American Plate) to form the Olympic Mountains.

Continental ice sheets scoured the north and northeast flanks of the Olympics and alpine glaciers sculpted the interior mountain valleys. Extensive glacial outwash deposits and tills cover the coastal plains and fill valley bottoms in the area (DNR, 2009).

### **Regional soils**

The General Soil Map, Clallam County Area, Washington in the Soil Survey of Clallam County Area, Washington assign all of the soils along the subject highway corridor to the general soil association "6 Elwha-Clallam-Catla: Shallow and moderately deep, moderately well drained, nearly level to steep soils; on hills. "

### **Regional groundwater**

The subject project corridor is located within Watershed Resource Inventory Area (WRIA) No. 18 ("Elwha-Dungeness") as defined by the Washington State Department of Natural Resources (DNR) and the Washington State Department of Ecology (DOE). For management purposes, this watershed area has been divided into subwatersheds, known as Watershed Administrative Units (WAUs).

“Virtually all of the groundwater within the report boundaries is derived from sands and gravels deposited by the northward flowing streams or as glacial outwash” (Noble, 1960). “There are now a number of wells drawing from the lower artesian aquifer, with several drawing in excess of 500 gallons per minute, that indicate the presence of a confined aquifer of great quantity

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Depending on how they are defined, there are usually seven or eight "major" plates on the surface of the earth. The two major plates affecting the Puget Sound Region are the North American Plate and the Pacific Plate.

These plates rest upon hot magma in the earth's core. The movement of these plates has caused the formation and break-up of continents over very long periods of time.

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The western portion of the corridor is within the Siebert McDonald unit (WAU No. 180202) and the eastern portion of the corridor is within the Dungeness Valley unit (WAU No. 180103).

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beneath the Sequim Prairie” (Polaris Engineering and Surveying, Inc. 1993).

Recorded groundwater depths in test borings drilled along the project corridor varied and include areas of surface water, locally perched groundwater in buried channels at about 6 to 7 feet below ground elevation (bge), and deeper groundwater levels in the range of 13 to 19 feet bge. Seepage zones were also observed in McDonald Creek (generally perched on top of Unit 4 soils) along the stream bank. The highway corridor crosses or abuts several wetlands and irrigation ditches that contain ponded or channeled surface water.

### **Corridor geology**

Two general geologic units directly underlying the proposed highway corridor are “alluvium” and “glacial deposits”.

### **Corridor soils**

Five general soil types have been mapped along or immediately adjacent to the subject highway corridor:

**1. Clallam gravelly sandy loam, 0 to 15 percent slopes**

Runoff is reportedly medium, and the hazard of water erosion is slight.

**2. Hoypus gravelly sandy loam, 0 to 15 percent slopes**

Runoff is reportedly slow, and the hazard of water erosion is slight.

**3. Hoypus loamy gravelly loamy sand, 30 to 65 percent slopes**

Runoff is reportedly slow, and the hazard of water erosion is severe.

**4. McKenna gravelly silt loam**

Runoff is generally ponded, and the hazard of water erosion is slight.

## 5. Mukilteo muck

Poorly suited for subgrade material due to its poor drainage, poor permeability, and its compressibility.

Seasonal high water severely limits the use of wheeled and tracked equipment.

### **Corridor features requiring geology (geotechnical) engineering**

The proposed alignment will involve new excavations (cuts) as high as about 40 feet and new embankments (fills) up to about 20 feet high, new bridge structures to cross McDonald Creek, retaining structures, possible intersection modifications, ditches, small storm sewer systems, stormwater treatment facilities, irrigation-ditch crossings, a fish passage culvert, and possible replacement culverts.

### **Geologic hazards**

See Section 3.20.3 for a discussion of earthquakes.

#### **Erosion**

Erosion is occurring around the existing McDonald Creek Bridge. Construction activities for the new alignment will expose loose surface soils that could be subject to water and wind erosion.

#### **Landslides**

The Clallam County Parcel and Critical Areas Map identifies the steep slopes within the McDonald Creek drainage as being within a Critical Area for potential landslides.

Most of the remainder of the corridor has a relatively low probability of occurrence from this type of geologic hazard.

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**Potential geologic hazards evaluated include erosion, landslides, volcanoes, flooding, frost action, settlement and the presence of locally high groundwater and low soil permeability areas.**

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### **Volcanoes**

No active volcanoes are located on the Olympic peninsula. Prevailing wind patterns tend to direct ash-fall from Cascade volcanoes away from the Olympic Peninsula.

### **Flooding**

The Federal Emergency Management Agency (FEMA) classifies the roadway project area as an area of minimal flooding. The wetland mitigation site will be located in a floodplain.

### **Frost action**

Highway pavements especially can suffer serious structural damage during the spring thaw (called the “spring breakup”).

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**The study area does not typically experience the prolonged deep freezes that create frost action.**

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### **Settlement**

While most of the soils mapped within the corridor limits are relatively dense coarse-grained deposits of glacial origin, several soil designations have been mapped within the corridor limits that could potentially result in excessive settlement, if not mitigated by design features or avoided.

### **Presence of locally high groundwater**

Areas where the groundwater table is relatively close to the surface (or perched on relatively impermeable materials) can affect highway projects in several ways:

- In areas underlain by fine-grained soils, high groundwater can render these areas susceptible to seismically-induced liquefaction
- In areas where adjacent wells have been developed in unconfined shallow aquifers, changes in the groundwater levels due to construction activities (construction cuts that intercept the groundwater table, dewatering and drainage provisions) can affect water yields in these wells

- Areas of high groundwater can affect the availability of storage for potential stormwater treatment facilities (e.g., stormwater ponds)
- High groundwater can substantially affect the stability of proposed cut slopes and embankment slopes.

Additional studies relative to groundwater levels along the corridor will be needed during the design phase to evaluate the applicability and extent of these areas of limitation.

### **Low soil permeability areas**

Areas of low soil permeability are reported in many areas along the subject corridor. These include areas of compact glacial till, as well as fine-grained silts and clays, sediment-filled depressions and wetlands. Areas of low soil permeability could affect required design runoff calculations for surface water management and the sizing of stormwater facilities and conveyance systems.

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**Permeability reflects the amount of water absorbed by the soil. A high value shows that the water soaks into the soil. A low value shows that the water soaks much slower into the soil (if at all).**

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### **Geologic Resources**

Borrow material is the only identified geologic resource within the proposed highway alignment corridor. No aggregate source is identified within the proposed construction limits, based on a search of the WSDOT Aggregate Source Approval (ASA) web site. The potential pit (sand and gravel), quarry, and common borrow sources in the area may not be complete because the ASA database only includes those sources that submit material to WSDOT for testing. In addition, the database does not provide the Washington State mining permit status. Some of the geologic resources listed in the ASA database may be inactive and not currently permitted for mining. We will need to evaluate the suitability of nearby material sources following a request by the selected construction contractor.

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**The interactive Aggregate Source Approval (ASA) web search site listed 237 potential sources of materials within Clallam County. 31 are listed as being within the same Township as the subject project.**

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### 3.20.3 Could earthquakes occur near the project? If so, how will they affect the proposed Action?

Potential seismic hazards include earthquakes and their associated surface phenomena, including ground shaking, liquefaction, liquefaction-induced settlement and lateral spreading and ground surface rupture.

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There are numerous faults within the region capable of generating major earthquakes that could affect the site.

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There are no mapped faults crossing the subject alignment corridor in the literature reviewed for this project.

#### Liquefaction

Soil liquefaction occurs in loose, saturated, non-cohesive and often sandy or silty soils when the water pressure in the pore spaces increases to a level that is sufficient to separate the soil grains from each other. Liquefaction can result in ground settlement, lateral spreading (lateral ground movement on gentle slopes), landslides, localized ground disruptions from sand boils (ejection of sand and water at the ground surface), and reduced vertical and lateral capacity for structure foundations.

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Soil liquefaction can occur during ground shaking and results in a reduction in shear strength of the soil (a quicksand-like condition). The ground turns to mush during vibration.

The Liquefaction Susceptibility Map (LSM) of Clallam County by DNR shows the project limits as being within an area of very low to moderate susceptibility.

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The potential impacts of fault rupture include abrupt, large, differential ground movements and associated damage to structures that might straddle a fault and are rated low in the study area. The soil conditions along the U.S. 101 corridor primarily consist of glacial and alluvial deposits, local organic deposits and a locally perched groundwater table. It is likely that ground motion from a moderate to strong earthquake will impact the project corridor. The potential for ground motion amplification and possible liquefaction will be quite variable.

#### **3.20.4 What effects to soils and geology will result under the No Action Alternative?**

The only effects identified with the No Action Alternative are the continued scour and erosion in the steep slopes of the McDonald Creek Bridge vicinity.

#### **3.20.5 How will geology and soils be affected during construction of the Proposed Action?**

Local traffic may be impacted by adding round-trip dump truck loads bringing processed aggregate. Excess soils will be transported from the construction area.

Stockpiles of earth materials and potential waste may be placed within the highway right of way during construction. These piles will be exposed to erosion from wind and surface water runoff.

Two bridge structures are proposed over McDonald Creek. Excavated materials for the foundations will likely be stored on-site until the foundation is completed and backfilled.

The removal of existing structures such as buildings, water wells, septic systems, basements, etc. can have potential impacts to the environment. They are discussed in other discipline reports for this project.

The proposed action would partially deplete available aggregate resources in Clallam County. Uses for these resources would include the production of processed aggregates for pavement and other constructed works. Since no approved aggregate material sources are available within the proposed highway corridor, WSDOT may need to initiate request(s) for Washington State Department of Natural Resource (WSDNR) mining permit(s) for WSDOT's quarry sources in Clallam County to produce aggregates and pavement materials.

The primary environmental impact will be incrementally exposing an approximately 80- to 90-foot wide section of native soils for the length of the project.

**3.20.6 How much material will be transported to and from the site?**

Current design concepts for the earthwork for the Proposed Action will result in a net export of earth materials (approximately 234,800 cubic yards of cut and approximately 62,000 cubic yards of fill). Hauling of material on local roadways will be minimized. The construction of the two new lanes will be accessed from the existing two US 101 lanes.

**3.20.7 What other effects will occur to geology and soils under the Proposed Action after construction?**

Long term erosion will be minimized by replanting exposed areas of the roadside.

**3.20.8 How will the community be protected from earthmoving activities during construction of the Proposed Action?**

**Traffic created by earthwork activities**

Some traffic hauling of earth materials on roads and highways for the construction of the Proposed Action cannot be avoided. However, using on-site common borrow from cuts to construct embankments will reduce the potential impacts to local traffic. Due to the lack of approved aggregate resources in the highway corridor, aggregate and pavement products may need to be acquired from outside source(s).

## **Erosion**

Erosion by wind and surface water runoff (including the generation of airborne dust during construction) will be an ongoing construction issue. Limiting the acreage of newly exposed soils will reduce erosion. Consideration will be given to limiting earthwork operations to the drier times of the year when erosion potential is reduced. If the soil remains moist, it is unlikely to be eroded by wind during typical construction operations. One way to mitigate wind erosion (and dust generation) is to apply water to the newly exposed soils during construction operations.

Stockpile and waste sites within the project corridor will require similar erosion mitigation methods and techniques described below.

Following the best management practices (BMPs) outlined in the "Temporary Erosion and Sediment Control (TESC) Plan" in the WSDOT Highway Runoff Manual and the WSDOT Environmental Procedures Manual will reduce the potential for erosion during construction operations.

Culvert outflow on embankment slopes will be controlled or dissipated by extending culverts near the base of the embankment slope and/or designing hardened, energy dissipating outflow channels on the face of the embankment slopes.

Erosion control structures in the proposed highway median will reduce the erosive energy in areas where surface water runoff may concentrate.

Permanent erosion control measures will be installed in areas where concentrated flows of offsite surface water threaten the stability of cut slopes.

### **Landslides**

Identified landslide hazards are limited to the steep slopes in the McDonald Creek drainage and to a shallow landslide in the vicinity of MP 258.4. Use of internal design guidelines and manuals for soil cuts and embankments, highway runoff, and temporary erosion and sediment control should avoid the creation of new landslides. The new cuts in the vicinity of the Station MP 258.4 are anticipated to be mitigated through slope flattening and/or the use of retaining walls.

### **Seismic Hazards**

Using standard practice seismic engineering design guidelines will minimize the likelihood and extent of structural failure, differential settlement, and/or highway surface damage from a moderate to strong earthquake in the Clallam County area.

### **Frost Action**

The potential effects of frost action on the proposed improvements will be minimized and/or mitigated through proper identification of susceptible soils along the project corridor during the design-phase geotechnical investigation and applying the BMPs outlined in the WSDOT Geotechnical Design Manual and other applicable WSDOT manuals and procedures.

### **Settlement**

The potential effects of total and differential settlements to the proposed pavements and structures can be minimized and/or mitigated through proper identification of susceptible soils along the project corridor during the design-phase geotechnical investigation and applying the BMPs outlined in the WSDOT Geotechnical Design Manual and other applicable WSDOT manuals and procedures. Depending upon the extent of soils subject to excessive settlement, avoidance and removal-and-replacement options can be considered.

**3.20.9 Will the project have significant unavoidable adverse effects to geology and soil?**

The project will not affect local geologic characteristics. The project design will use standard practice seismic engineering design guidelines, which will minimize the likelihood and extent of structural failure, differential settlement, and/or highway surface damage from a moderate to strong earthquake in the Clallam County area.

The project's effects to soils will be minimized by the use and maintenance of soil erosion BMP's. Use of engineering guidelines for soil cuts and identification of susceptible soils along the project corridor will reduce the potential of creating areas susceptible to landslides. The new cuts in the vicinity of MP 258.4 are anticipated to be mitigated through slope flattening and/or the use of retaining walls.

The project will not have significant unavoidable adverse effects to geology and soils.



# Chapter 4 - Indirect and Cumulative Effects

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## 4.1 Introduction

The purpose of this chapter is to analyze and describe the indirect and cumulative effects for the Proposed Action and No Action Alternatives. These alternatives are described in Chapter 2.

### 4.1.1 What are indirect effects?

Indirect effects (also known as secondary effects) are effects caused by the project, but the effects are away from the project in distance or could occur at a later time. These effects happen as a result of the initial project construction, and can include change in resources such as land use, economic vitality, and water quality.

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**In accordance with Section 1502.16(b) of the President's Council on Environmental Quality NEPA Regulations, an analysis must address the indirect effects caused by the Proposed Action.**

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### 4.1.2 What are cumulative effects?

Cumulative effects are effects on the environment that result from the incremental impact of the action, but include other past, present, and foreseeable future actions regardless of what agency or person undertakes those actions.

The cumulative effects analysis builds on information from the direct effects and indirect analyses for each resource, and from historical context, trends and other foreseeable actions.

## **4.2 How did we conduct this analysis?**

This analysis used an eight-step process. This process is described in Washington State Department of Transportation's (WSDOT) Guidance on Preparing Cumulative Impact Analyses (WSDOT, 2008a). The eight steps are as follows:

1. Identify the resources that may have cumulative effects to consider in the analysis;
2. Define the study area and timeframe for each affected resource;
3. Describe the current health and historical context for each;
4. Identify the direct and the indirect effects that may contribute to a cumulative effect;
5. Identify other historic, current and reasonably foreseeable actions that may affect resources;
6. Assess potential cumulative effects to each resource; determine magnitude and significance;
7. Report the results; and
8. Assess and discuss potential mitigation issues for adverse effects (see Chapter 6 - Preliminary Commitments)

#### **4.2.1 What resources are included in this analysis?**

The resources initially selected for cumulative effect assessments are the same as those for which direct effects were evaluated. The assessments evaluated the anticipated effects of the Build Alternative and the No Build Alternative on each of the following resources.

Information gathered from discipline reports for each resource was used to determine which resources need to be analyzed for indirect and cumulative effects.

The following resources have direct or indirect effects resulting from the Proposed Action Alternative and are included in the cumulative effect analysis:

- Transportation (4.5.1)
- Air Quality and Climate Change (4.5.2)
- Wetlands (4.5.3)
- Fish (4.5.4)
- Wildlife (4.5.5)
- Vegetation (4.5.6)
- Water Resources (4.5.7)
- Land Use and Relocation (4.5.8)
- Farmland (4.5.9)
- Social and Economic (4.5.10)
- Public Services and Utilities (4.5.11)
- Visual Quality (4.5.12)
- Geology and Soils (4.5.13)

#### **4.2.2 What resources are not included in the analysis?**

WSDOT concluded that the proposed project will not contribute indirect or cumulative effects on Hazardous Material, Archaeological and Historical, and Noise disciplines.

#### **4.3 What is the scope of this analysis?**

In general, the geographic and temporal (timeframe) study areas identified for assessing potential cumulative effects encompass the whole of Clallam County and extend in time from the point of active European settlement (circa 1850) to the planning horizon of the current County Comprehensive Plan, which is 2025. However, when determining the information needs for cumulative effects analysis of a specific resource, the geographic and temporal study areas depend on current resource characteristics and the nature of the effects being considered.

For most of its history after European settlers began to arrive in the 1850s, Clallam County depended on expansive stands of Douglas fir, red cedar, western hemlock, Sitka spruce and other large conifers for logging. Pioneer farmers began to establish agriculture when the first irrigation ditch brought Dungeness River to the Sequim Prairie in 1896.

The historical context and current status/viability of each resource analyzed in this report are described based on the discipline reports for the US 101 Shore Rd. to Kitchen-Dick Rd. Widening project.

#### **4.4 What other current and reasonably foreseeable actions are in the study area?**

Population and commercial growth is largely dependent on future land use. Development is controlled by local agencies through zoning regulations and the comprehensive plan. Much of the currently undeveloped land in the area is zoned for low density residential use under the County's comprehensive plan. It indicates that the zoning and rural character of US 101 is not expected to change in the next 20 years.

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According to US Census Bureau 2008 population estimates, Clallam County's population has grown since 2000 at a rate just slightly lower (10.7%) than the state growth rate (11.1%).

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WSDOT examined the local plans and development trends. There are no other major developments currently occurring or planned within the project route.

The proposed project is the final part of US 101 to be widened from two lanes to four lanes in a previously issued environmental impact statement (see Chapter 2). It provides route continuity by completing work started by previous WSDOT projects including US 101 widening between Joslin Road and O'Brien Road and the Sequim Bypass. The proposed project does not provide new access to currently undeveloped land, and is not expected to influence the population or development growth rate of the area.

No major transportation system improvements are planned in the vicinity of the project through 2015 (Clallam County Six Year Improvement Program). The WSDOT Highway System Plan does not identify any foreseeable state route improvements within the area for the next 20 years.

#### **4.5 What are the results of the cumulative effects analysis?**

This section describes the findings from WSDOT's examination of the proposed project's effects in combination with the effects of other past, present and future actions. The result is the expected future condition of the resource when the external factors known or likely to affect it are taken into account.

### 4.5.1 Transportation

The transportation systems that service this rural area are US 101, county roads, and Clallam County Intercity Transit. These transportation facilities are within the project boundaries and study area. The study of the condition of these facilities started in 2005 and is predicted up to the design year of 2032.

The transportation systems in the area have been impacted by traffic congestion and users of the systems have experienced delays in their commute, problems with safe access and exit from the state highway, and exposure to traffic accidents in this area. The state highway system on either side of the project has been improved to facilitate the current transportation needs in the area. Access to the state highway and transit service has not substantially changed since 2005.

If the project is not constructed, negative effects associated with delay and collisions will continue into the future.

The project will have planned transportation improvements and will have beneficial effect that improves operating service levels above minimum WSDOT operating standards. In addition, the project will improve safety.

During project construction there will be temporary and intermittent traffic disruptions due to detours and construction equipment. As noted in prior sections of this EA, WSDOT will fully mitigate the traffic impacts, and provide long-term improvements to transportation.

This project will provide a direct benefit to transportation. Since this is a completion of an existing highway corridor, no indirect effects on transportation were identified. This project will not contribute to a negative cumulative effect on transportation.

## 4.5.2 Air Quality and Climate Change

### Air Quality

An air quality conformity evaluation was conducted to determine that the project is consistent with air quality standards. The focus of the air quality study is the project area and nearby signalized intersections. The study included current conditions and short term construction effects in years 2012 to 2014 and long term conditions up to the design year 2032.

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**The project is located in an attainment area for all U.S. Environmental Protection Agency (USEPA) criteria pollutants where air quality is not an issue of concern.**

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Minor direct effects to air quality will occur from temporary increases in construction traffic, operating construction equipment, and from construction activities that disturb soils. However, these effects will be temporary and will not continue beyond project construction. To avoid and minimize negative effects to this resource, the project will implement all applicable design, procedural, and physical Best Management Practices (BMPs) as outlined in the project's Temporary Erosion and Sediment Control (TESC) Plan, and all applicable minimum requirements from the most current Highway Runoff Manual (HRM). Implementing Integrated Vegetation Management (IVM) techniques and a project specific Roadside Management Plan (RMP) will help prevent eroding soil from becoming airborne over the long-term.

Additionally, capacity and mobility will increase and vehicles will not idle as long while waiting to turn onto or off the highway, or be forced to decelerate and accelerate as frequently to pass slower moving vehicles.

The project design will avoid and minimize the potential for increasing vehicle emissions and particulate matter during the short-term, and will decrease vehicle emissions over the long-term. WSDOT concludes that no substantial adverse impacts will occur to this resource as a result of the proposed project. For this reason, WSDOT concluded that the project will not contribute to a cumulative effect on air quality.

## **Climate Change**

### **Are greenhouse gases associated with transportation?**

Vehicles emit a variety of gases during their operation. Some of these are greenhouse gases (GHGs). The GHGs associated with transportation are water vapor, carbon dioxide (CO<sub>2</sub>), methane (also known as “marsh gas”), and nitrous oxide (used in dentists’ offices as “laughing gas”). Any process that burns fossil fuel releases CO<sub>2</sub> into the air. Carbon dioxide makes up the bulk of the emissions from transportation.

### **What is WSDOT’s approach to climate change at the project level?**

In our work to date, we have found that the GHG emissions from a single project action are usually very small, (and often less than without the project). However, on a statewide basis, users of the transportation system contribute close to half (47%) of the state’s GHG emissions. WSDOT believes that transportation GHG emissions are better addressed at the planning level where multiple projects can be analyzed in aggregate. We recognize that the various regional and local plans are not in place yet to provide the kind of analysis that would put our proposed transportation improvements in a larger context. We also recognize the public’s interest and the decision makers’ direction to disclose GHG emissions at the project level for major public projects. Essentially, project-specific analysis can be done now, and WSDOT will reference planning level information when it becomes available.

This project followed the *WSDOT Guidance for Project-Level Greenhouse Gas and Climate Change Evaluations* and received technical support from the WSDOT Air/Noise/Energy Program.

**How will this project minimize emissions while under construction?**

Construction of the project is currently planned to last 30 months from 2012 to 2014. The project traffic plan includes detours and 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.

**What effect will the transportation improvements from this project have on greenhouse gas emissions?**

Traffic improvements proposed by this project will create smoother driving conditions. More specifically, widening and intersection improvements proposed on the project will minimize stop and go conditions thereby conserving fuel. It will also promote more efficient energy consumption by moderating speeds. This proposed project will enable better movement of vehicles in 2032 for project area intersections and on the mainline. Decreased vehicle delay reduces collisions, reduces traffic congestion, and promotes more efficient driving.

**Will the products used to construct the facility contribute to GHG emissions?**

WSDOT has designed the project using materials with the longest available life. This includes using bridges rather than highway fill at the stream crossings. These choices mean that the new highway will have a longer life before needing to be replaced, which will reduce overall emissions for highway reconstruction and replacing materials.

**How did the project consider future conditions related to climate change?**

WSDOT acknowledges that effects of climate change may alter the function, sizing, and operations of our facilities. Therefore, in addition to mitigating GHG emissions, WSDOT must also ensure that its transportation facilities can adapt to the changing climate. To ensure that our facilities can function as intended for their planned 50, 70, or 100 year lifespan, they are 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 flow due to more rapid glacial thawing.

The Pacific NW climate projections are available from the Climate Impacts Group at the University of Washington <http://cses.washington.edu/cig/fpt/ccscenarios.shtml>

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

- increased temperature (extreme heat events, changes in air quality)
- 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, salt water intrusion

The project team considered the information on climate change with regard to preliminary design as well as the potential for changes in the surrounding natural environment. As part of its standard design, this project has incorporated features that will provide greater resilience and function with the potential effects brought on by climate change.

**Will the Proposed Action contribute to the cumulative effect of climate change?**

Because the project design minimizes the potential for increasing vehicle emissions during the short-term, and decreases vehicle emissions over the long-term, WSDOT concludes that no substantial adverse impacts will occur to this resource as a result of the proposed project. The project improves a section of US101 that is not in an area vulnerable to sea-level rise. WSDOT concluded that the project will not contribute to a cumulative effect on climate.

**4.5.3 Wetlands**

The proposed project will have 2.57 acres of permanent wetland impacts. Permanent wetland buffer impacts total 6.51 acres. The table of wetlands in the study area is in Appendix G of this EA.

Of the 36 wetlands identified, not all will be impacted by the Proposed Action. Twelve wetlands will have wetland impacts and 20 wetlands will have buffer impacts. Most of the project impacts are to Category III wetlands.

Nine are Category II (highest level of functions and values), 20 are Category III and 7 are Category IV (Ecology rating system).

Most project wetlands occur in areas of prior disturbance from land clearing and logging, agriculture, commercial, residential and road construction. Non-native plant species present in many of the wetlands indicate past disturbance. In addition, it is likely that past development has fragmented previously larger wetlands.

To mitigate for the loss of wetlands under the proposed action, the offsite wetland mitigation site of about 40 acres (Exhibit A-8 and A-9 in Appendix G) will include grading and planting to increase the size and enhance the functions of existing wetlands on the site.

WSDOT is part of a collaborative effort with the County, Washington State Department of Fish and Wildlife (WDFW), United States Army Corp of Engineers (USACE), Washington State Department of Ecology (WSDOE), the Jamestown S’Klallam Tribe (JSKT), North Olympic Land Trust, and local land owners. This is known by agencies and others as the Lower Dungeness Dike Setback project.

The development activities by other agencies will remove the existing levee near the Dungeness River. Other agencies will rebuild the levee near the outer perimeter of the acquired property (on an easement issued by WSDOT). This will reconnect the mitigation site to the river so it can once again function as a floodplain. The levee will not cross through a location where wetland establishment or enhancement is proposed.

By reconnecting this portion of floodplain to the river, functional and beneficial habitat will be restored to a variety of aquatic life, birds, and mammals.

To avoid and minimize negative effects to all wetlands in the study area, the project will implement all applicable design, procedural, and physical Best Management Practices (BMPs) as outlined in the project’s Temporary Erosion and Sediment Control (TESC) Plan, and all applicable minimum requirements from the current WSDOT Highway Runoff Manual (HRM). The project is designed to divert, infiltrate, or disperse runoff from new impervious surfaces before it reaches a wetland. Additionally, implementing Integrated Vegetation Management (IVM) techniques and a project specific Roadside Management Plan (RMP) will help treat runoff over the long-term.

It is unlikely that indirect effects to wetlands will occur since the project will not promote any new access to lands for development. Furthermore, this resource is protected by the Clallam County Critical Areas Code.

The project design fully compensates for direct impacts to wetlands.

WSDOT concluded that the project, with the proposed mitigation, will have a minor beneficial contribution to the cumulative effects on wetlands.

Mitigation for wetland losses will convert about 40 acres of farmland to non-farmland use. No mitigation for the conversion of farmland is planned on this project. The amount of farmland to be converted as a result of this project accounts for only 0.01 percent of the farmland in Clallam County, according to the Federal Farmland Protection Policy Act (FPPA) evaluation done for the project.

Construction activities will temporarily impact 0.21 acres of wetlands and 1.18 acres of wetland buffers.

#### **4.5.4 Fish**

##### **Fish and Fish Habitat**

McDonald Creek has been affected by timber harvest in the upper watershed, residential development, irrigation and other agricultural practices. NMFS indicators for McDonald Creek are either at risk or not properly functioning. None were listed as properly functioning. (See prior chapter on affected environment.)

Owl Creek (MP 259.79 and MP 259.84) has been affected by land clearing. Most adjacent forest stands have been removed. The stream has little to no overhanging vegetation. Fish barriers exist upstream and downstream of US 101.

Under the No Action Alternative, the fish barrier on Owl Creek at MP 259.79 will not be improved for fish passage. The long-term fisheries benefit of providing access to additional habitat for coastal cutthroat trout will not occur.

The proposed action includes fixing the existing fish barrier on Owl Creek at MP 259.79 to allow fish passage and open up approximately one mile of cutthroat trout habitat upstream of US 101. Riparian

enhancements and restoration will be implemented as a part of mitigation.

To avoid and minimize negative effects to this resource, the project will implement all applicable design, procedural, and physical Best Management Practices (BMPs) as outlined in the project's Temporary Erosion and Sediment Control (TESC) Plan, and all applicable minimum requirements from the most current Highway Runoff Manual (HRM).

It is unlikely that indirect effects to fish and fish habitat will occur since the project will not provide new access. Furthermore, development along the existing highway near these resources is restricted or limited by Clallam County's critical areas components of the comprehensive land use plan, shoreline plan, zoning.

WSDOT concludes that no substantial adverse impacts to this resource will occur as a result of the proposed project. For this reason, WSDOT concluded that the project will not contribute to a cumulative effect on fish and fish habitat.

The stream crossings required for the Owl Creek tributaries at MP 259.79 and 259.84 will temporarily displace existing foraging and overwintering habitat. Correction of the fish barrier at MP 259.79 will provide access to upstream habitat.

Temporary construction-related impacts to fish will be minimized as described above. Over the long-term, this project will have a minor beneficial contribution to cumulative effects on fish.

#### **4.5.5 Wildlife**

There are two geographic study areas for this project. For wildlife, the study area is the project footprint, plus those areas extending 300-feet outside the project footprint.

Effects to wildlife populations and/or habitats are currently occurring and are expected to continue to occur as non-project related development occurs in the project area.

For the Migratory Bird Treaty Act, the study area includes the geographic region within one-mile of the project area.

Since wildlife habitat is supported by native vegetation and water bodies, the historical context and current health of this resource will be similar as for vegetation, wetlands, streams and fish.

Road widening will cause loss of wildlife habitat, and will increase habitat fragmentation with the added pavement to cross.

Increased traffic volumes and greater speeds will likely result in additional mortality of migratory birds from collisions with automobiles.

Impacts to vegetation in the study area may cause the displacement of wildlife into neighboring habitats. This could lead to crowding and a decrease in habitat quality.

Impacts to vegetation in the study area may cause the displacement of wildlife into neighboring habitats, which could lead to crowding and a decrease in habitat quality.

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**For most of its history after European settlers began to arrive in the 1850s, Clallam County depended on expansive stands of Douglas fir, red cedar, western hemlock, Sitka spruce and other large conifers for logging.**

**Pioneer farmers began to establish agriculture when the first irrigation ditch brought Dungeness River water to the Sequim Prairie area in 1896.**

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#### **4.5.6 Vegetation**

The native vegetation originally existing in the study area has been affected by disturbance and management from land clearing and logging, agriculture, commercial, residential and road construction. Forest areas are generally remnant patches. Noxious weeds made up of invasive non-native species are found throughout the project area. Large areas of managed land such as pasture and agriculture have lowered the vegetative diversity in the area.

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**The entire project lies in the fringe of the Puget Sound Area western Washington western hemlock vegetation zone. It is dominated by needle-leaved evergreen tree species such as Douglas-fir, western hemlock and western red cedar.**

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The potential for indirect effects will be addressed by the roadside vegetation management plan. Because the project design avoids and minimizes direct and indirect impacts to vegetation, WSDOT concludes that no substantial adverse impacts to this resource will occur as a result of the proposed project. For this reason, WSDOT concluded that the project will not contribute to a cumulative effect on vegetation.

#### 4.5.7 Water Resources

The study boundaries are all areas that could potentially be affected by the project but may not be limited to the project area. The project is located within the Elwha-Dungeness Water Resource Inventory Area (WRIA) #18.

For surface water, the study area includes, in addition to the project area, the sub-basins that drain in the project's receiving waters. These include McDonald Creek, Owl Creek, and an unnamed stream northwest of the project and irrigation ditches.

The study area for irrigation is the Agnew Irrigation District (North).

The roadway portion of the project is outside the 100-year floodplain. For a description of the mitigation site and floodplain, please see Section 4.7.3.3.

For groundwater, the study area includes the aquifer that supplies water to drinking wells.

According to Clallam County, McDonald Creek is classified as a Class AA water body, and is listed for aesthetic beneficial use and irrigation conveyance. Owl Creek is also classified as a Class AA water body. No total maximum daily load (TMDL) requirements have been identified in the project area.

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**Class AA water bodies are considered the highest quality water resource.**

**Total Maximum Daily Loads (TMDLs) are pollutant limits placed on a water body that does not meet water quality standards. The TMDL would place a limit on a particular pollutant.**

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The project area is adjacent to private drinking wells. Water quality monitoring data indicates that the groundwater quality is high. Surface

and groundwater are hydraulically connected and flow north toward the Strait of Juan de Fuca.

Eleven hazardous materials sites have been identified in the project area. None of these sites are identified as having the potential for major impacts to the project that cannot be mitigated.

Although there will be an increase in impervious surface, the total pollutant loads for the project will have a decrease in loads to receiving waters by 50% for dissolved copper and 74% for dissolved zinc. New flow control facilities associated with the project will reduce peak flow runoffs to receiving waters.

This project will have a negligible contribution to cumulative impacts on streams and water resources.

#### **4.5.8 Land Use and Relocation**

The project is located within Clallam County, a rural county. The project is within the Sequim-Dungeness Planning region, and is adjacent to an unincorporated urban growth area, the Carlsborg Urban Growth Area.

The time frame for this study originates with the passage of the Washington State Growth Management Act (GMA) in 1990, after which time the county adopted comprehensive land use plans that define urban and rural lands, and an urban growth boundary providing a separation between those lands.

The study identifies future development through the year 2015, consistent with the Clallam County Six Year Improvement Program. There are no other major developments currently occurring or planned within the project route through 2015 (Clallam County Six Year Improvement Program).

The No Action Alternative will not be consistent with local, regional and state plans and policies. It does not meet county and regional polices calling for completing the US 101 highway improvements. Nor

will it address the mobility need as identified in the current State Highway System Plan.

The No Action Alternative assumes that the proposed project will not be constructed and that no additional right of way will be acquired, so no impacts to land uses are anticipated. Cumulative effects on land use without the project will include continued loss of mobility with traffic and services adversely affected.

The Proposed Action will not affect land use indirectly by inducing land use changes or encouraging unplanned growth. In addition, the Proposed Action is generally compatible with existing and regional land use plans.

The Proposed Action does not affect the viability of most parcels within the project corridor of their current zoned land use or for further development. The proposed alignment only intrudes into the edge of the parcels. No parcels are bisected by the Proposed Action that will lead to fragmentation of the property.

Project improvements will impact adjacent businesses when travel habits are modified by prohibiting direct left hand turns to and from the highway. After project construction, drivers will be required to drive to intersections where indirect left-hand turns are permitted. The Proposed Action is outside of designated urban growth boundaries, and the access restriction supports that status.

Some land uses will be affected by parcel acquisition and displacement. About 84 acres will be acquired for the project. 38 acres will be converted to transportation related use along the highway. Slightly more than 40 acres of the offsite 47 acre wetland mitigation site north of US 101 will be converted to wetland mitigation. The balance of the wetland mitigation site is devoted to the dike modification by others in collaboration with agencies, tribes, and land owners.

Residential and agricultural land uses are the most affected by this project. The majority of agricultural and residential land is acquired for wetland mitigation (24.5 acres agricultural, 28.1 acres residential).

The conversion of existing land to transportation use will not be measureable compared to the total cumulative impacts.

WSDOT concludes that no substantial adverse impacts to this resource will occur as a result of the proposed project. The project has been designed to avoid and minimize the potential for impacts to existing land use, farms and farmland during both the short- and long-term. For this reason, WSDOT concluded that the project will not contribute to a cumulative effect on land use and vegetation.

#### 4.5.9 Farmland

The study area for land use is the land area extending approximately one-half mile in all directions from the project limits, but also includes county-wide considerations for evaluating trends.

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**Prime farmland is a designation for land that has the best combination of desirable physical and chemical characteristics and minimum costs for producing agricultural crops.**

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Development trends for farmland in this study are evaluated beginning in 2002 to the present time.

Farmlands are dominant features within the area. They are deemed important and are protected in Clallam County. There are active commercial farmlands near the US 101 corridor.

The 2007 US Census of Agriculture shows that 22,822 acres of land in Clallam County were devoted to agricultural uses. Of this acreage, 38% consisted of cropland use, 26% woodland use, and remaining acreage was used for permanent pasture and rangeland.

Within the study area there is approximately 227 acres of land designated for agricultural use. Of this amount, 32 acres are located along US 101 within the project corridor, all of which is located in the vicinity of the Kitchen-Dick and US 101 intersection. The wetland mitigation site is comprised of 34.5 acres of farmland.

Of the 38 acres of farmland located along the project corridor, 34.4 acres are classified as Prime Farmland and will be converted to transportation related use.

The 40 acre site that will be converted for wetland mitigation by WSDOT is prime farmland. This privately owned site was selected after a review of available public land in accordance with RCW 47.01 requiring WSDOT to consider using public lands first when agriculture lands are considered in meeting environmental mitigation requirements. Before selecting the wetland mitigation site, coordination has occurred with the local farmland community, and multi-agency and tribes on the Dungeness River Dike Modification project. WSDOT will provide approximately 7.8 acres of this site which will be managed by Clallam County for the Dike Modification project.

Only one agricultural activity, consisting of approximately 37 acres, is located adjacent to US101 at the northwest corner of Kitchen-Dick intersection, will be affected by the project. Approximately 2.3 acres of agricultural designated land on three parcels will be taken out of production. This land will be a linear portion on the edge of the farm.

The Proposed Action will not affect land use indirectly by inducing land use changes or encouraging unplanned regional growth. The Proposed Action alternative is generally compatible with existing regional and land use plans.

The amount of farmland to be converted in both locations accounts for only 0.01 percent of the farmland in Clallam County, according to the Farmland Protection Policy Act (FPPA) Conversion Impact Rating. The Proposed Action is not likely to contribute any substantial cumulative effects on farmland in the study area.

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**Twenty years ago, communities on the Olympic Peninsula relied heavily on agriculture and forestry. Now the area looks toward tourism, recreation, residential development, retail, light manufacturing and medical services for its economic future.**

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#### 4.5.10 Social and Economic

The study area for this resource is one-half mile in all directions from the project limits. The temporal extent of the study begins with the 2000 Census Block Group Data, and extends to the year project design year, 2032.

Clallam County's population has grown since 2000 at a rate just slightly lower than the state growth rate. The county has a notably higher percentage of people 65 years and older, American Indian/Alaska Native people, and White people.

Since the 2000 Census, Clallam County has seen major growth in Hispanic populations, though this growth is occurring most heavily on the west end of the county and around Forks, Washington. There is also a major Hispanic population in Sequim.

Operation of the project will have no indirect impact to any parks, community centers and schools in the study area. The change in access to right-in/right-out only could be expected to discourage new private approaches to the highway.

The future customer base of businesses in or beyond the study area will not be affected by the displaced residents by the Proposed Action. Nor does it displace enough businesses to affect other businesses in or beyond the study area.

There may be an increased demand for paratransit services with the removal of left turns at cross streets. This may affect pedestrians that will have to cross US 101 at either the shared-use path or at intersections. This might require approximately an additional half-mile of walking. If someone has limited ability of walking, they might require assistance reaching their destination due to the possible added distance to their trip to cross US 101 at an intersection instead of being able to cross directly.

Effects of the Proposed Action include access changes along the project length, property acquisition for the additional right of way, and noise and visual impacts to properties adjacent to the project.

Access revisions (right in/right out only turns and access changes) will lengthen the travel distance for many trips and will require drivers to use U-turns. In contrast, the travel times will be decreased for motorists formerly attempting a left turn from a county road to US 101. It will be more difficult for people to cross the highway due to the addition of the median.

The project will add a cumulative benefit to the US 101 corridor in conjunction with other transportation projects by improving the level of service and improving travel time and safety.

WSDOT concludes that no demographic group will be adversely or disproportionately affected by the project, and that all demographic groups will benefit from the project.

#### **4.5.11 Public Services and Utilities**

The study area for public services is a 0.5 mile radius extending from both sides of the project corridor for services that lack physical boundaries. For services that have established boundaries, the study area is the service boundaries. The study area for utilities is the right of way for the proposed project.

The temporal boundary for public services and utilities is from the present to the project design year of 2032.

The study area is served by Clallam County Fire District No. 3, the Clallam County Sheriff's Office, Washington State Patrol District 8, the Clallam Transit System, and Greywolf Elementary School.

Utilities serving the project area include Public Utility District No. 1, for electricity, broadband internet connectivity and public drinking water. Residents and businesses in the project study area that are not served by a municipal drinking water system, do rely on various types of private wells. Telecommunication service is also provided within the project limits by Qwest Communications and Wave Broadband.

None of the residents and businesses within unincorporated areas of Clallam County are connected to a municipal sewer system, so they depend on private onsite treatment systems.

Clallam County does not currently have stormwater management facilities. Solid waste pick-up is provided by Murrey's Olympic disposal.

There is no natural gas infrastructure in place in the study area, but the area is serviced by three providers of liquid propane.

Several private irrigation districts provide irrigation water to the study area.

Demands on utilities are not expected to change since the project will not be increasing development or population to the project area.

Utility companies will have better access for maintaining and servicing utility lines above and below ground. Since above-ground utilities will be located further away from the roadway, there will be less risk of damage from vehicles.

In the No Action Alternative, high traffic volumes and congestion will continue to degrade the already low level of service to the existing highway. The added traffic congestion will impact public services by increasing their response travel time.

Upon completion of the project, the roadway will operate at service levels above minimum WSDOT operating standards. These conditions will continue into the 2032 design year and potentially beyond. The project will improve response time for public services because of better traffic conditions.

WSDOT concludes that no substantial adverse impacts to this resource will occur as a result of the Proposed Action. For this reason, WSDOT concluded that the project will not contribute to a cumulative effect on public services and utilities.

#### **4.5.12 Visual Quality**

The geographic boundary of visual quality includes the roadway and its surrounding visual context. The visual quality study evaluates views of the road and views from the road. Views from the road will include the viewshed (what can be seen from a viewpoint), which may extend far beyond the US 101 right of way or limits of construction.

The temporal boundaries include the existing condition of the visual environment, evaluated in 2009, to the design year of 2032.

US 101 is a highly scenic corridor that is travelled by recreational visitors, residents and commercial drivers.

The existing visual quality in the study area ranges from moderately high to high, and is comprised roughly of 45% forested, 35% rural and 20% semi-urban characteristics.

The WSDOT Roadside Classification Plan classifies the roadside in the project area as “Rural”. It is characterized by intermixed built and natural elements.

The project will lower the visual quality ratings in the project area due to vegetation reduction and landform manipulation, and is not considered a substantial visual impact.

The minor direct effects to visual resources from project construction will occur where the proposed project is in close proximity to some rural residences. In contrast, visual quality as viewed from the proposed project would improve. Implementing Integrated Vegetation Management (IVM) techniques and the Roadside Management Plan (RMP) will minimize direct effects to visual quality from construction activities during the long-term.

The project design avoids and minimizes the potential for effects to visual quality during the short and long-term. WSDOT concludes that no substantial adverse impacts will occur to this resource as a result of

the proposed project. For this reason, WSDOT concluded that the project will not contribute to a cumulative effect on visual quality.

#### **4.5.13 Geology and Soils**

Constructing the project will expose soils to erosion from both wind and rainfall that could produce minor direct effects to soil resources in close proximity of construction activities. However, these effects will be temporary and will not continue beyond project construction. To avoid and minimize negative effects to soils exposed by construction, the project will implement all applicable design, procedural, and physical Best Management Practices (BMPs) as outlined in the project's Temporary Erosion and Sediment Control (TESC) Plan. It will use all applicable minimum requirements from the most current Highway Runoff Manual (HRM). Implementing Integrated Vegetation Management (IVM) techniques and development of a project specific Roadside Management Plan (RMP) will help prevent soil erosion over the long-term.

The amount of development will be limited by Clallam County's comprehensive land use plan, zoning, and the demand for services.

WSDOT concludes that no substantial adverse impacts will occur to this resource as a result of the Proposed Action. The project has been designed to avoid and minimize the potential for soil erosion during both the short- and long-term. Indirect effects to soils will be minimal, localized, and subject to local and state erosion and stormwater requirements. For this reason, WSDOT concluded that the project will not contribute to a cumulative effect on soils.

## **4.6 Summary**

No substantial environmental indirect or cumulative effects are identified for the Proposed Action or the No Action Alternative.



# Chapter 5 Agency, Tribal, and Public Coordination

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## 5.1 Why does WSDOT coordinate with the agencies, tribes, and the public?

According to FHWA policy, public involvement and agency coordination are essential to the development process for the Proposed Action. In the spirit of WSDOT’s management principle to be accountable to the people of Washington, elected officials and other transportation partners, WSDOT coordinates with agencies, tribes, and the public to communicate information about possible project environmental impacts. Through this interactive process (giving and receiving information), WSDOT raises public awareness and helps ensure that the public is involved with the decision process. This also helps the project team to improve the design and find ways to avoid, minimize, and appropriately mitigate adverse environmental impacts. We strive to initiate this coordination at the earliest possible time to inform, involve and collaborate with the agencies, tribes, and the local community.

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**Project interaction is planned to be early and often.**

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## **5.2 What was our strategy for coordination?**

WSDOT's strategy for coordination was to contact as many federal, state, local and tribal governments, as well as the public, as soon as practicable. This included phone calls, e-mails, letters, newspaper advertisements, mailings, meetings, and open houses. WSDOT has also created a web site for this project for receiving input from the public. We initiated communication with federal, state, and local agencies not only involved in permitting, and also with agencies that can provide helpful guidance and input in the project design.

## **5.3 How has WSDOT involved the public?**

WSDOT created a web page for this project in May, 2009, that provided information about the project and contact information for the design office. At approximately the same time, a newsletter was sent out to the community, and newspaper ads were published to inform other community members. The purpose of the information campaign was to inform the community that we had started the design process and that they would see people onsite in the coming months as we gathered data to prepare the EA. We also sent requests for "Right of Entry" to all of the property owners along the corridor to allow WSDOT staff to enter onto their property to gather data. The newsletter along with the requests for "Right of Entry" initiated multiple phone calls and emails from the community.

The first project-related Open House was held on October 15, 2009, at Greywolf Elementary School. At that Open House WSDOT presented the preliminary design. This event was attended by approximately 130 people, and valuable public input was shared with the design team that led to design changes.

The second Open House was held on June 24, 2010 to highlight changes in the project design and to solicit more input from the community. This event was attended by approximately 75 people. There were many

“Thank You’s” for the changes that we had made to the project design. WSDOT continues to meet with property owners to discuss impacts to their property as well as resolve driveway issues in accordance with WSDOT operational practice. Many of the property owners stay in communication via email as well.

The result of this process will yield an Environmental Assessment (EA) to be issued to the public and agencies for their comments. The EA will be in Clallam County Offices and Libraries for review by the public and all interested parties. After issue of the EA, an Environmental Hearing is tentatively scheduled for March 2011 to provide an opportunity for the community to comment on the EA.

Project web page updates occur at the beginning of every month to highlight progress on the project. WSDOT has met with the local fire station at R Corner to share the design and to obtain feedback. WSDOT has communicated with the Clallam Transit System and the Sequim School District, and will provide them with more detailed information as construction nears. WSDOT has made contact with both the Clallam County Sheriff and the Washington State Patrol, and they are engaged in providing input to the project design.

#### **5.4 How has WSDOT involved tribes?**

WSDOT is committed to government-to-government consultation with interested tribes in the project area. The consultation process under Section 106 of the National Historic Preservation Act (16 USC 470f and 36 CFR 800) is followed to make sure tribal issues are considered in the design of projects. To comply with the NEPA environmental review and Section 106 processes, WSDOT follows the Model Comprehensive Tribal Consultation Process for the National Environmental Policy Act (available on the WSDOT Web site) when coordinating with tribes. This

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**WSDOT is consulting with the Jamestown S’Klallam Tribe, the Port Gamble S’Klallam Tribe and the Lower Elwha Klallam Tribe under Section 106 of the National Historic Preservation Act.**

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model provides a consistent method of tribal consultation and opens a channel of communication between WSDOT and tribes whose area of interest is within the project boundaries.

The tribes were informed about the project and were given opportunity to comment on Area of Potential Effects (APE). This is the project area that may include impacts due to ground-disturbing activity for the roadway widening and the wetland mitigation site. Since the first APE was developed and sent to the tribes for review and comment, project alignment changes have required minor adjustments to the APE, and the tribes were provided an opportunity to comment on these refinements as well.

At the request of the Jamestown S’Klallam Tribe, WSDOT met with tribal cultural resources and natural resources staff in June, 2009, at their office to give details about the project and to receive input about the cultural and natural resource concerns associated with the construction of the project.

WSDOT shared some of the discipline reports, which help explain the impacts of the proposed project.

The tribes were also contacted for input during the cultural resources survey by the WSDOT consultant. The survey reports were sent to the tribes for comment before sending to the Department of Archaeology and Historic Preservation.

The Jamestown S’Klallam Tribe received 50 announcements for an open house, held in Sequim. These announcements were the same as the mailers sent to the general public in the area, but were for general distribution to tribal members from the Tribal Center.

The Jamestown S’Klallam Tribe was consulted, and they concurred with the selection of the wetland mitigation site. WSDOT will continue to keep the tribes informed of project activities with regular updates through letters and the project website.

## 5.5 How has WSDOT involved agencies?

WSDOT coordinates with agencies that are responsible for issuing environmental permits and who have special expertise in project related environmental fields. This coordination is accomplished through e-mails, verbal contacts and official letters. For this project, the agencies coordinated with are: Federal Highway Administration (FHWA), United States Fish & Wildlife Service (USFWS), National Oceanic and Atmospheric Administration - National Marine Fisheries Service (NMFS), United States Environmental Protection Agency (USEPA), US Army Corps of Engineers (USACOE), Natural Resource Conservation Service (NRCS), Washington State Department of Ecology (WSDOE), Washington State Department of Fish & Wildlife (WSDFW), Washington State Department of Archaeology & Historic Preservation (DAHP), Clallam County, Clallam Transit System, and the Sequim School District.

WSDOT coordinated with USACOE and WSDOE in April, 2009, to discuss the preliminary design, associated wetland impacts and the ability to permit the project. Along with other recommendations, WSDOE and the USACOE suggested an onsite meeting to include the USEPA.

This onsite meeting was held in October, 2009. It was attended by representatives of the USACOE, USEPA, WSDOE, USFWS, WSDOT and Clallam County.

WSDOT consulted with DAHP by informing them of the US 101 APE and of subsequent changes in that APE. We also informed them of the wetland mitigation site APE. DAHP was invited to the meeting we had with the Jamestown S'Klallam Tribe in June, 2009. Cultural resources reports and their effect determinations were developed and sent to DAHP for their concurrence. WSDOT received letters of concurrence from DAHP in December of 2010.

A Biological Assessment (BA) for NMFS and USFWS are part of and are developed under guidance of Section 7 of the Endangered Species Act. The BA considers how the project will affect species listed on or are eligible for listing on the Endangered Species List. The BA and its effect

determinations were sent to the services for their concurrence or further consultation in September 2010.

An on-site meeting was held in March 2009 between WSDFW and WSDOT design and environmental staff to discuss design requirements for culverts in the project that need to meet fish-passage design criteria. To ensure the culvert design will best serve goals of successful fish passage, WSDOT will continue to seek technical guidance from WSDFW.

When selecting a site to mitigate for unavoidable wetland impacts, WSDOT collaborated with Clallam County, WSDFW and the Jamestown S'Klallam Tribe.

Clallam County was invited early on in the design phase to provide input as to the schedule, timing, and design aspects of the project.

WSDOT coordinated with NRCS regarding the farmland impacts due to the project. Farm Conversion Impact Rating forms were filled out by WSDOT land use experts and sent to the NRCS. The NRCS conducted its evaluation and returned the signed forms. While completing the Land Use discipline report, the writers contacted Clallam County and the Peninsula Regional Transportation Planning Organization for information and data.

Agency and Tribal coordination letters are listed in Appendix H of this document. WSDOT will continue to meet with regulatory agencies and interested parties to resolve any environmental issues that may occur during project design and construction.

## Chapter 6 Preliminary Commitments

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The following preliminary commitments are listed to “assist with agency planning and decision-making” and to “aid an agency’s compliance with NEPA when no environmental impact statement is necessary”. [40 CFR 1501.3(b) and 1508.9(a)(2)].

The number after each area of effect title refers to the section of Chapter 3 – Existing Environment, Effects, and Mitigation of this EA.

### **6.1 Transportation (Section 3.5)**

Signs warning of construction activities will be posted.

To ensure essential services to local residents are not disrupted, and to minimize temporary traffic impacts, WSDOT will coordinate during construction with emergency providers, law enforcement, school district, Clallam Transit buses, the city of Sequim, and Clallam County.

WSDOT will maintain an active public interaction program to inform the public of changes to US 101 and to the local street system during the construction of the Proposed Action.

WSDOT will solicit ridesharing and other commute trip reduction efforts for their project employees and the contractor. This will help reduce the number of vehicles on the project site, and help air quality.

## **6.2 Highway Sound (Section 3.6)**

Construction activities will be limited primarily to between 7 am and 7 pm. However, there will be short term night work throughout the project duration. A noise variance will be pursued for work falling between the hours of 10:00 pm and 7:00 am.

## **6.3 Air Quality (Section 3.7)**

The contractor will be required to pursue the work in an efficient manner with minimal disruption to traffic. The work will be pursued in an efficient manner to minimize standing wait times for equipment, engine idling, and the need to block the movement of other activities on the site.

Prior to beginning work, the Contractor is required to adopt the Temporary Erosion and Sediment Control (TESC) Plan or modify the TESC plan provided in the contract. This plan will address air pollutant control measures that include standard BMPs to minimize soil erosion such as:

- Spraying exposed soil with water or other dust palliatives to reduce deposition of particulate matter
- Wetting materials in trucks, or providing adequate freeboard (vertical space from the top of the material to the top of the truck bed) to reduce particulate emissions during transport
- Providing wheel washers to remove particulate matter that vehicles will otherwise carry offsite to decrease deposition of particulate matter on area roadways
- Removing particulate matter deposited on paved public roads to reduce mud and resultant windblown dust on area roadways
- Placing quarry spall aprons where trucks enter public roads to reduce the amount of mud tracked out
- Covering disturbed soil with appropriate BMPs within the timeframes specified in the WSDOT Standard Specifications Manual to protect soil from wind and water erosion

- Coordinating construction activities with other projects in the area to reduce the cumulative effects of concurrent construction projects.

#### **6.4 Wetlands (Section 3.8)**

A compensatory mitigation site will be constructed off site and includes grading and planting to increase the size and enhance the functions of existing wetlands on the site. The site is north of existing US 101 in the Lower Dungeness watershed in Sequim. At least 2.57 acres of wetland establishment (creation), 10.29 acres of wetland enhancement, and wetland preservation including riparian areas will result. Some of the land will be kept as wetland buffer. It will be constructed under regulations of the applicable resource agencies.

Temporary wetland and buffer effects will be restored by planting native shrubs and trees after the construction is complete.

Construction will comply with the terms and conditions of a Section 404 of the Clean Water Act permit to be issued by the U.S. Army Corps of Engineers.

Equipment fueling and maintenance, and staging and material stockpiling areas will be located above the ordinary high water mark and outside of environmentally sensitive areas.

#### **6.5 Fish (Section 3.9)**

Construction work will occur in compliance with the terms and conditions of the Hydraulic Project Approval (HPA) issued for the project by the Washington State Department of Fish and Wildlife. This may involve added stream bank stabilizing features such as log weirs, vegetated geogrids, and other large woody material (LWM) as required by the HPA permit.

In-water work areas will be dewatered, and the fish will be relocated to outside of the work area before work begins in that area or as required under the HPA permit.

In addition to the Stormwater Pollution Prevention Plan (SWPPP) , a Maintenance and Operations Manual will be developed to list the maintenance frequency and the procedures required to keep the permanent stormwater management system operating as intended.

The existing culverts at MP 259.79 and 259.84 will be replaced. The culvert at MP 259.79 is currently documented as a fish passage barrier. These new culverts will meet the current WDFW Technical Applications (TAPPS) Division for program fish passage criteria.

Fill material at the ends of the new culverts will be structurally stable and be protected with temporary erosion control BMPs until the permanent erosion control measures are effective.

Fish habitat components such as logs and stumps are required as part of the project to mitigate project impacts. These fish habitat components will be installed to withstand 100-year peak flows. LWM will be placed or anchored to provide stable, functional fish habitat. LWM will consist of coniferous species such as Douglas fir, western red cedar, spruce, or hemlock.

If there is a change in threatened and endangered species status, or there are any changes to the project that may impact listed species, consultation with the US Fish and Wildlife Service and the National Marine Fisheries Service will be reinitiated.

Alteration or disturbance of the bank and bank vegetation will be limited to that necessary to construct the project. Any disturbed stream bank will be replanted with trees, brush, or grasses that shall resemble the type and density of surrounding growth.

## **6.6 Wildlife (Section 3.10)**

WSDOT will design the project to accommodate safe passage of wildlife under US 101 at McDonald Creek Bridge (MP 258.22) and Owl Creek culvert/Bridge (MP 259.76).

Existing native plants and trees will be preserved wherever possible next to the alignment as visual buffers and to offer wildlife protection from noise and human activity.

WSDOT will restore the roadside disturbed by the construction activity with native plants to help mitigate habitat losses.

## **6.7 Vegetation (Section 3.11)**

High visibility fencing will be installed around preservation areas prior to construction to avoid harm to vegetation, wetlands, riparian zones, or other sensitive areas.

Vegetation removal will be limited, and large trees will be retained to the extent practicable. Root zones of the trees to be retained will be protected.

Disturbed areas will be restored according to the WSDOT Roadside Classification Plan.

Soils to be planted will be tilled, amendments applied, or other methods used, to promote plant growth.

Disturbed riparian areas will be seeded and planted with a preference for woody vegetation to provide in-stream shading and prevent sediment loading to water bodies within the study area.

## **6.8 Water Resources (Section 3.12)**

Stormwater from this project requires enhanced treatment to remove pollutants prior to infiltrating into the ground.

The turbidity of any wastewater produced by the project will be brought into compliance with water quality standards prior to discharge into any wetland, stream, or lake.

All water resources will be protected from fresh concrete, binding material, paving or paint striping in case inclement weather unexpectedly occurs. The contractor will avoid or minimize paving or stripe painting operations during rainy weather.

The contractor will contain or remove any water from the site that has direct contact with uncured concrete, as appropriate. Any such water will be tested for pH prior to direct discharge to ensure the meeting of state water quality regulations.

The contractor will establish concrete chute cleanout areas to properly contain wet concrete and wash water.

Waste pavement, concrete, or other construction material will be reused or disposed of at a permitted facility.

Equipment will be inspected daily for leaks and proper function. The contractor will ensure that equipment is clean and free of external petroleum-based products.

To the extent practicable, equipment will be fueled and maintained at least 150 feet from the OHWM and wetlands marked for preservation. In areas where vegetation is to be only temporarily removed, the plant root systems will be retained to help bind the soil and prevent soil erosion.

Permanent flow control facilities will be installed according to protocols outlined in WSDOT's current Highway Runoff Manual (2008), which is consistent with the Washington State Department of Ecology's Stormwater Management Manual for Western Washington (revised 2005).

With construction of the wetland mitigation site within the future floodplain, WSDOT will ensure that no net loss of flood storage capacity occurs.

WSDOT will model the hydraulic characteristics of the proposed design to ensure that proposed bridge and culvert structures do not increase flood water elevations or velocities.

A Temporary Erosion and Sediment Control (TESC) Plan for construction activities will be prepared to include measures to minimize erosion and prevent sediment from entering streams. The TESC Plan will remain on site during the duration of the construction contract.

All stormwater facilities will have routine inspection and maintenance and will be designed to facilitate their functions. Maintenance will be based on regular inspections. Maintenance practices will follow WSDOT standards for protecting roads and the environment including the BMPs established in Section 5-5 of the 2008 WSDOT HRM.

WSDOT will identify water wells that may be affected by the Proposed Action in advance of construction. With permission of the owner, each of these wells will be documented by WSDOT for water flow capacity and for water quality. This will establish a baseline to assist in determining if future effects may be caused by the Proposed Action.

## **6.9 Land Use and Farmland (Section 3.13)**

Affected businesses and residences will be notified of construction activities in advance (including any necessary closures, lane reductions, etc.).

Reasonable efforts will be made to ensure that traffic flow is maintained and negative effects on land use and access revisions are minimized.

### **6.10 Relocation (Section 3.14)**

The acquisition and relocation program will be conducted in accordance with the Uniform Relocation and Real Property Acquisition Policies Act of 1970, as amended. Relocation resources are available to all relocated residents and businesses without discrimination. Chapters 8.08, 8.25, and 8.26 of the Revised Code of Washington (RCW) will govern right of way acquisition proceedings. These laws ensure fair and equitable treatment of those displaced.

The State of Washington Uniform Relocation and Assistance and Real Property Act of 1970, as amended, provides for payment of reasonable and necessary costs to relocate people, businesses, or farms displaced for the Proposed Action. This law protects both tenants and owners.

No person will be required to move from his or her residence unless a comparable replacement property is available for sale or rent within the displaced persons financial means. The location and sale price or rent of the comparable property is made available to the displaced individual.

### **6.11 Social, Economics, and Environmental Justice (Section 3.15)**

Community residents, business owners, property owners, and tenants will be notified of scheduled events including construction activities, planned temporary road closures, expected congestion and delays, and changes in commonly used travel routes.

Temporary closures to intersecting county roads will be coordinated to the best extent possible to minimize effects on community gatherings, special celebrations, or other similar events or activities (such as the Irrigation Festival).

Contact methods will be employed for residents and business owners to convey concerns about construction activities and the effectiveness of mitigation measures during the construction period such as a project phone number, address, or email.

Efforts will be made to outreach to Spanish-speaking persons in the area by posting project informational posters in Spanish at locations where Spanish-speaking persons are likely to gather.

### **6.12 Hazardous Materials (Section 3.16)**

As underground storage tanks (UST) are removed, WSDOT will send a letter to WSDOE to verify that the tank has been removed and to inform them about the disposition of any hazardous materials from the removal.

Utilities providing power service will be coordinated with to remove and relocate transformers, as necessary, along the alignment.

Asbestos and lead surveys will be conducted for all structures to be demolished. If required, removal and disposal will be done by qualified personnel in accordance with current regulations.

Site assessments will be conducted, as necessary, to evaluate soil and groundwater conditions in the vicinity of the potentially hazardous materials. Hazardous materials will be removed and disposed of in accord with an approved cleanup plan. Contaminated soil and groundwater will be remediated through a Special Provision in accordance with applicable regulations.

WSDOT will comply with hazardous materials designation procedures and disposal requirements. Any contaminated materials generated during construction, including soil, water, and debris, will be identified prior to disposal.

### **6.13 Archaeological and Historic Resources (Section 3.17)**

WSDOT will provide an Unanticipated Discovery Plan (UDP) to the contractor. This will specify a guide for halting construction work if previously unidentified archaeological resources or human remains are encountered.

WSDOT will avoid the historical resources of the diversion dam/fish wheel on McDonald Creek (upstream from US 101) and the area of the wetland mitigation site referred to as Locus C.

Grading and excavation activities at the wetland mitigation site will be monitored for archaeological resources by a qualified archaeologist.

Eight privately-owned parcels within the direct impact area of the Area of Potential Effect have not been surveyed for archaeological resources due to access restrictions. A programmatic Memorandum of Agreement will be used to ensure that an archaeological survey of those parcels is completed prior to project construction on those parcels.

#### **6.14 Public Services and Utilities (Section 3.18)**

WSDOT will coordinate early with the utilities in the study area that may need relocating or adjustment. The affected utilities will give advance notice to customers if service will be disrupted for temporary and intermittent periods of time. Utility shut-offs will be scheduled during low use times of the day.

Where possible, replacement utilities will be in place before existing lines are removed or abandoned.

#### **6.15 Visual Quality (Section 3.19)**

To the extent possible, mature trees and existing vegetation will be preserved to retain a visual screen between construction activities and surrounding areas.

Project staging and storage areas will be located outside the view range of existing neighborhoods when possible.

Areas disturbed by construction will be replanted with native trees and shrubs appropriate to the setting. Plants will be selected to restore roadside functions, such as screening undesirable views and provide visual continuity to the new interchange.

Vegetation will be selectively planted to reduce headlight glare onto oncoming traffic or adjacent properties and reduce the visual mass and reflectivity of new wall structures, as practicable.

Roadway light fixtures will have glare shields installed to minimize glare and ambient spillover into adjacent residential areas.

### **6.16 Geology and Soil (Section 3.20)**

Consideration will be given to limiting earthwork operations to the drier times of the year when erosion potential is reduced.

Stockpile and waste sites within the project corridor will require erosion mitigation methods and techniques.

Following the best management practices (BMPs) outlined in the Temporary Erosion and Sediment Control (TESC) Plan in the WSDOT Highway Runoff Manual and the WSDOT Environmental Procedures Manual will reduce the potential for erosion during construction operations.

Culvert outflow on embankment slopes will be controlled or dissipated by extending culverts near the base of the embankment slope and/or designing hardened, energy dissipating outflow channels on the face of the embankment slopes.

Erosion control structures in the proposed highway median will reduce the erosive energy in areas where surface water runoff may concentrate.

Permanent erosion control measures will be installed in areas where concentrated flows of offsite surface water threaten the stability of cut slopes.

Brow ditches will be installed at the tops of cut slopes in erodible soils to intercept and direct surface water runoff away from cut faces of the side slopes.

The new cuts in the vicinity of the Station 377+00 (MP 258.4) will be mitigated through slope flattening, use of retaining wall(s), or other means.

Standard practice seismic engineering design guidelines will minimize the likelihood and extent of structural failure, differential settlement, and/or highway surface damage from a moderate to strong earthquake in the Clallam County area.

The potential effects of frost action on the proposed improvements will be minimized and/or mitigated through proper identification of susceptible soils along the project corridor. This will occur during the design-phase geotechnical investigation and applying the BMPs outlined in the WSDOT Geotechnical Design Manual and other applicable WSDOT manuals and procedures.

# Appendices

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- A. Preparers
- B. Studies Performed
- C. References
- D. EA Distribution
- E. Level of Service (LOS)
- F. Right of Way Acquisition Process
- G. Wetland Impact Table and Maps
- H. Agency and Tribal Correspondence

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## A. Preparers

<b>Name and Affiliation</b>	<b>Contribution</b>	<b>Education Certifications, Licenses, and Professional Organizations</b>	<b>Years of Experience</b>
Harjit Bhalla WSDOT	Guidance and Review	BSCE	19 WSDOT
Kevin Workman WSDOT	Guidance, Review, Writing and Editing	AAS Civil Engineering	7 WSDOT
Ernest W. Combs WSDOT	Guidance and Review	Certified NEPA Practitioner	30 WSDOT
Carl Ward WSDOT	Guidance and Review of Wetlands, Fish, Wildlife, and Vegetation Reports	BS Wildlife and Fisheries Biology	19 WSDOT
Dean Torkko WSDOT	Writing and Editing	BSCE, EIT	41 WSDOT
William Bennett WSDOT	Transportation Report	MS Public Administration	10 WSDOT 8 SRTC
Paul Dreisbach WSDOT	Wetlands Report and Vegetation Report	BS Landscape Architecture, MS Environmental Studies	10 WSDOT
Akberet Ghebregzabiher WSDOT	Air Quality Conformance & Climate Change Memo, Noise Report	BSCE	9 WSDOT
Stan Gough EWU-AHS	Archaeological & Cultural Resource Survey	MS Geology	30 AHS
Eric Gower WSDOT	Fisheries Report	BS Marine Environment	10 WSDOT 4 WDFW
George Kovich WSDOT	Land Use, Farmland & Relocation Report	BA Social Science MSA System Management	11 WSDOT
Paul Mason WSDOT	Water Resources Report	BSCE, EIT	2 WSDOT
Hans Purdom WSDOT	Wildlife Report	BS Wildlife Biology, MS Environmental Studies	13 WSDOT
Rebecca Smith WSDOT	Social, Economics, and Environmental Justice Report	MS Urban and Regional Planning	12 WSDOT
Sarah Taylor WSDOT	Hazardous Materials Report	MS Geology	3 WSDOT
Peter Rinallo WSDOT	Water Resources & Flood- Plain Report	BSME Technology	10 WSDOT

Appendices

<b>Name and Affiliation</b>	<b>Contribution</b>	<b>Education Certifications, Licenses, and Professional Organizations</b>	<b>Years of Experience</b>
Eric Smith WSDOT	Earth Geology and Soil Report	BA Geology; LG; LEG	24 WSDOT
Rafael Reyes WSDOT	Public Services and Utilities Report	BSCE, PE	13 WSDOT
Ed Winkley WSDOT	Visual Impacts	BS Landscape Architecture WA State Registered Landscape Architect	14 WSDOT
Joanne Wright WSDOT	Indirect, Cumulative Effects	BA Landscape Architecture WA State Registered Landscape Architect	13 Constl. 10 WSDOT

## B. Studies Performed

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Studies and technical reports were completed during the environmental and design phases of this project. They contain additional information that supports the conclusions found in this Environmental Assessment. They are incorporated by reference into this EA.

You may view them at the following locations:

### **Washington State Department of Transportation**

#### **Olympic Region**

##### **Environmental Office**

Jeff Sawyer, Environmental Manager  
Environmental and Hydraulics Services  
150 Israel Road SW  
P.O. Box 47417  
Tumwater, WA 98501  
Telephone: (360)-570-6700

and

##### **Project Engineer's Office**

Steve Fuchs , P.E.  
6639 Capitol Blvd SW, Ste 320  
Tumwater, WA 98501  
Telephone: (360)-570-6664

### **Federal Highway Administration**

Washington Division  
Dean Moberg, P.E.  
711 South Capitol Way, Ste 501  
Olympia, WA 98501  
Telephone 360-534-9344

### **Studies prepared for the Environmental Assessment**

Air Quality Conformity Analysis Technical Memorandum, US 101 Shore Road to Kitchen-Dick Road, WSDOT – Akberet Ghebregzabiher, Nov. 2009

Cultural Resource Investigations, US 101 Shore Road to Kitchen-Dick Road – Widening, Clallam County, Washington. Archeological and Historical Services, Eastern Washington University, Timothy Smith, Ann Sharley, and Stephen Emerson, Sep. 2009

Cultural Resource Survey, US 101 Shore Road to Kitchen-Dick Road Widening Project, Wetland Mitigation Site, Clallam County, Washington, Archeological and Historical Services, Eastern Washington University, Fred Crisson, Stephen Emerson, and Stan Gough, Mar. 2010

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Fisheries Discipline Report, US 101 Shore Road to Kitchen-Dick Road – Widening, WSDOT - Eric Gower, Jan. 2010

Geology and Soils Environmental Discipline Report, US 101 Shore Road to Kitchen-Dick Road, WSDOT, Eric L. Smith, L.E.G., Nov. 2009

Hazardous Materials Discipline Report, US 101 Shore Road to Kitchen-Dick Road – Widening Project, WSDOT- Sarah Taylor, Nov. 2009

Indirect and Cumulative Effects Report, US 101 Shore Road to Kitchen-Dick Road – Widening Project, WSDOT – Joanne Wright, June, 2010

Land Use and Relocation Final Discipline Report, US 101 Shore Road to Kitchen-Dick Road Widening Project, WSDOT - George Kovich, Feb., 2010

Noise Technical Report, US 101 Shore Road to Kitchen-Dick Road, WSDOT - Akberet Ghebreghzabiher, Dec. 2009

Public Services and Utilities, US 101 Shore Road to Kitchen-Dick Road, WSDOT - Rafael Reyes, Dec, 2009

Socioeconomic and Environmental Justice Discipline Report, US 101 Shore Road to Kitchen-Dick Road – Widening Project, WSDOT - Rebecca Smith, Jan. 2010

Transportation Report, US 101 Shore Road to Kitchen-Dick Road – Widening Project, WSDOT - William Bennett, Jan., 2010

Vegetation Discipline Report, US 101 Shore Road to Kitchen Dick Road Widening Project, WSDOT - Paul Dreisbach, Feb., 2010

Visual Quality Discipline Report, UA 101 Shore Road to Kitchen-Dick Road Widening Project, WSDOT – Ed Winkley, Mar., 2010

Water Resources Discipline Report, US 101 Shore Road to Kitchen-Dick Road Widening Project, - Paul Mason and Peter Rinallo, February, 2010

Wetland Assessment Report, US 101 Shore Road to Kitchen-Dick Road – Widening Project, WSDOT - Paul Driesbach, Aug., 2010

Wildlife Discipline Report, US 101 Shore Road to kitchen-Dick Road – Widening Project, WSDOT – Hans Purdom, Oct., 2009

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## D. EA Distribution

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The wide distribution of the EA will continue to foster effective communication between FHWA, WSDOT, public agencies, tribal governments, and the local community regarding the US 101, Shore Rd. to Kitchen-Dick Rd. Widening Project.

### Federal Agencies

Director, Office of Environmental Policy and Compliance, Washington, D.C.  
U.S. Environmental Protection Agency, Region 10  
Federal Highways Administration  
Federal Emergency Management Agency  
U.S. Army Corps of Engineers, Seattle District Office  
U.S. Fish and Wildlife Service  
National Marine Fisheries Service  
National Resource Conservation Service

### State Agencies

Department of Archaeology and Historic Preservation  
Department of Commerce  
Department of Ecology  
Department of Fish and Wildlife  
Department of Natural Resources  
Washington State Patrol-Port Angeles

### Regional Agencies

Clallam County Planning  
Clallam County SEPA Reviewer  
Clallam County Fire District #3, Station #32 (Port Angeles)  
Clallam County Fire District #3, Station #33 (Sequim)  
Clallam County Sheriff (Port Angeles)  
Clallam Transit System (Port Angeles)  
Peninsula Regional Transportation Planning Organization  
Public Utility District #1 of Clallam County

## **Local Agencies**

Agnew Irrigation District  
Sequim Planning Department  
Sequim Fire Department  
Sequim School District No. 323

## **Native American Tribes**

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

## **Libraries**

North Olympic Library System-Sequim  
Washington State Library (2), Olympia  
WSDOT Library– Olympia

## **24<sup>th</sup> District Legislators**

Sen. James Hargrove  
Rep. Kevin VanDeWege  
Rep. Lynn Kessler

## E. Level of Service (LOS)

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### Level of Service<sup>1</sup>

A multilane highway is characterized by three performance measures:

- Density, in terms of passenger cars per mile per lane;
- Speed, in terms of mean passenger car speed; and
- Volume to capacity ratio.

Each of these measures indicates how well the highway accommodates traffic flow.

Density is the assigned primary performance measure for estimating LOS. The three measures of speed, density, and flow or volume are interrelated. If the values of two of these measures are known, the remaining measure can be computed.

**LOS A** describes completely free-flow conditions. The operation of vehicles is virtually unaffected by the presence of other vehicles, and operations are constrained only by the geometric features of the highway and by driver preferences. Maneuverability within the traffic stream is good. Minor disruptions to flow are easily absorbed without a change in travel speed.

**LOS B** also indicates free flow, although the presence of other vehicles becomes noticeable. Average travel speeds are the same as in LOS A, but drivers have slightly less freedom to maneuver. Minor disruptions are still easily absorbed, although local deterioration in LOS will be more obvious.

**In LOS C**, the influence of traffic density on operations becomes marked. The ability to maneuver within the traffic stream is clearly affected by other vehicles. On multilane highways with an FFS above 50 mi/h, the travel speeds reduce somewhat.

Minor disruptions can cause serious local deterioration in service, and queues will form behind any significant traffic disruption.

**At LOS D**, the ability to maneuver is severely restricted due to traffic congestion.

Travel speed is reduced by the increasing volume. Only minor disruptions can be absorbed without extensive queues forming and the service deteriorating.

<sup>1</sup> Quoted from the *Highway Capacity Manual 2000*, Chapter 12 – Highway Concepts, Multilane Highways, Pages 12-7 – 12-8.

**LOS E** represents operations at or near capacity, an unstable level. The densities vary, depending on the FFS. Vehicles are operating with the minimum spacing for maintaining uniform flow. Disruptions cannot be dissipated readily, often causing queues to form and service to deteriorate to LOS F. For the majority of multilane highways with FFS between 45 and 60 mi/h, passenger-car mean speeds at capacity range from 42 to 55 mi/h but are highly variable and unpredictable.

**LOS F** represents forced or breakdown flow. It occurs either when vehicles arrive at a rate greater than the rate at which they are discharged or when the forecast demand exceeds the computed capacity of a planned facility. Although operations at these points and on sections immediately downstream appear to be at capacity, queues form behind these breakdowns. Operations within queues are highly unstable, with vehicles experiencing brief periods of movement followed by stoppages. Travel speeds within queues are generally less than 30 mi/h. Note that the term LOS F may be used to characterize both the point of the breakdown and the operating condition within the queue.

Although the point of breakdown causes the queue to form, operations within the queue generally are not related to deficiencies along the highway portion.

### Exhibit A-1, Level Of Service Photographs

From the U. S. Department of Transportation Freeway Management Handbook, August 1997

3-10

FREEWAYS



Illustration 3-5. LOS A.



Illustration 3-8. LOS D.



Illustration 3-6. LOS B.

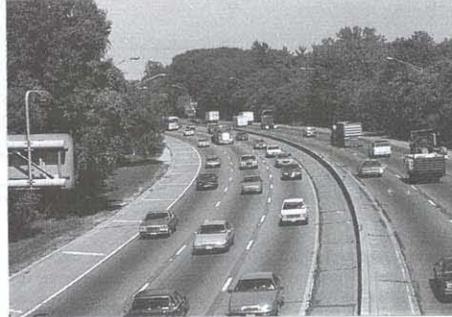


Illustration 3-9. LOS E.



Illustration 3-7. LOS C.



Illustration 3-10. LOS F.

Updated October 1994

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## F. Right of Way Acquisition Process

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Once right of way plans are approved and funding is made available for a highway project, the Washington State Department of Transportation (WSDOT) can begin to acquire the necessary right of way from property owners. The acquisition process may take up to one year and includes presentation of an offer to purchase and relocate people or personal property displaced by the project.

The price offered for property being acquired by the WSDOT is established by appraisal. The appraiser's task is to determine "just compensation" for affected properties based on "fair market values." When total acquisition is required, the property owner receives the current market value. Compensation for a partial acquisition is the difference between the fair market value of the original property and that of the remainder.

Upon completion of the appraisal process, a WSDOT representative will offer to purchase the property. The representative will answer any questions individuals may have about procedures, rights, and impacts associated with the project.

When a settlement is reached, the representative will collect the required signatures and complete the necessary paperwork. Only after these details have been completed will payment for the acquisition be processed.

If you are the occupant (tenant or owner) of a structure that is to be acquired by the WSDOT, or if you own personal property located within the area to be acquired, you may be eligible for certain relocation services. Eligibility complies with federal and state regulations (Public Law 91-646, RCW 8.26.010 to 8.26.910). Typically, these benefits may include advisory services, replacement dwelling supplements and reimbursement for moving expenses incurred as a result of the project.

Since each property, ownership and occupancy is unique, there may be considerable variation in procedures and time requirements. Including the reviews that are necessary during the process, it will normally take up to nine months from the appraisal start date to the date when the owner receives payment for the acquisition. Ownerships involving relocation will take about three months in addition to the acquisition time frame.

In all cases, the WSDOT will initiate contact with owners and tenants. Should questions arise about the schedule or process, please call WSDOT, Olympic Region, Real Estate Services Office (360-704-3251).

After the project is completed, WSDOT may identify and dispose of surplus real property. Frequently these properties are

## Appendices

created when right of way is vacated because a roadway is moved or when small uneconomical pieces are purchased during the acquisition process. Disposal of these pieces of land are offered to government agencies, abutting owners, or other interested individuals subject to established legal and standard policy procedures.

## G. Wetland Impact Table and Maps

**Exhibit A-2, Wetland Table of Impacts**

Wetland	Ecology Category	Permanent Buffer Impacts (Ac.)	Temporary Buffer Impacts (Ac.)	Permanent Wetland Impacts (Ac.)	Temporary Wetland Impacts (Ac.)
A	III	0.670	0.234	0.537	0.030*
B	IV	0.182	0.080	0.278	0
C	III	0.649	0.086	0.124	0
E	II	0.706	0.064	0.121	0.022*
F	III	0.835	0.018	0.139	0.009*
G	III	0.616	0.047	0.780	0.095*
H	IV	0.394	0.048	0.062	0.017
I	II	0	0	0	0
J	II	0	0	0	0
K	II	0	0	0	0
L	III	0	0	0	0
M	IV	0	0	0	0
N	III	0.135	0.053	0	0
O	II	0.075	0.026	0	0
P	III	0.106	0.040	0	0
Q	III	0	0	0.022	0
R	III	0	0	0.180	0
S	III	0.598	0.067	0.101	0.013*
T	II	0.255	0.065	0	0
U	II	0	0	0	0
V	IV	0.040	0.023	0	0
X	III	0	0	0	0
Y	II	0	0	0	0
Z	III	0	0	0	0
AB	III	0.084	0.054	0	0
AC	II	0	0	0	0
AD	IV	0.022	0.021	0	0
AF	III	0.500	0.047	0.225	0.025*
AG	III	0	0	0	0

Appendices

<b>Wetland</b>	<b>Ecology Category</b>	<b>Permanent Buffer Impacts (Ac.)</b>	<b>Temporary Buffer Impacts (Ac.)</b>	<b>Permanent Wetland Impacts (Ac.)</b>	<b>Temporary Wetland Impacts (Ac.)</b>
AH	III	0.011	0.018	0	0
AI	III	0	0	0	0
AL	III	0.135	0.056	0	0
AM	III	0	0	0	0
AN	III	0.448	0.061	0.003	0
AO	IV	0.045	0.067	0	0
SD	IV	0	0	0	0
<b>Total</b>	<b>-</b>	<b>6.506</b>	<b>1.175</b>	<b>2.572</b>	<b>0.211</b>

\* = Long-term temporary wetland impact.

Exhibit A-3, Existing Wetland Map #1

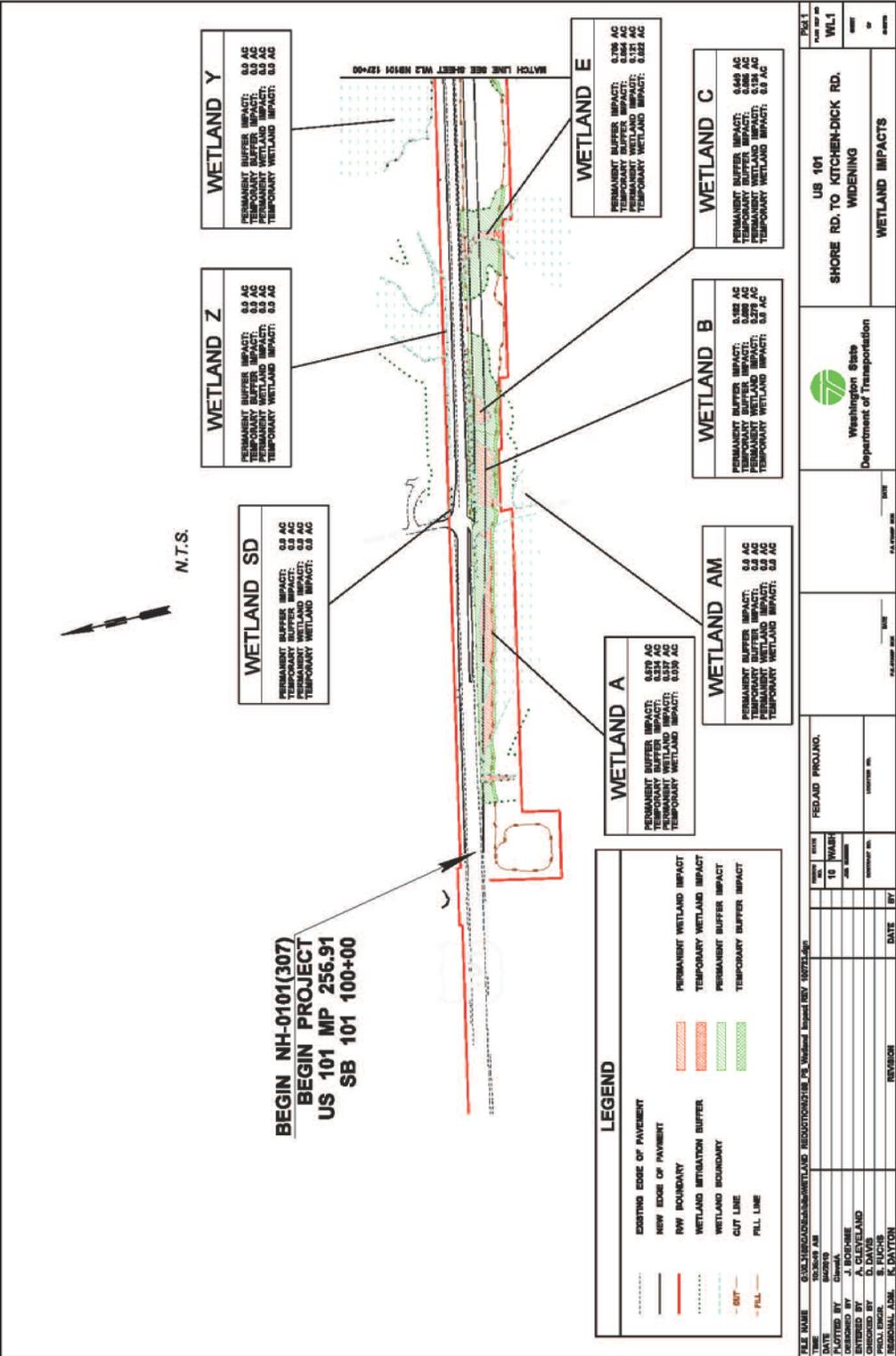
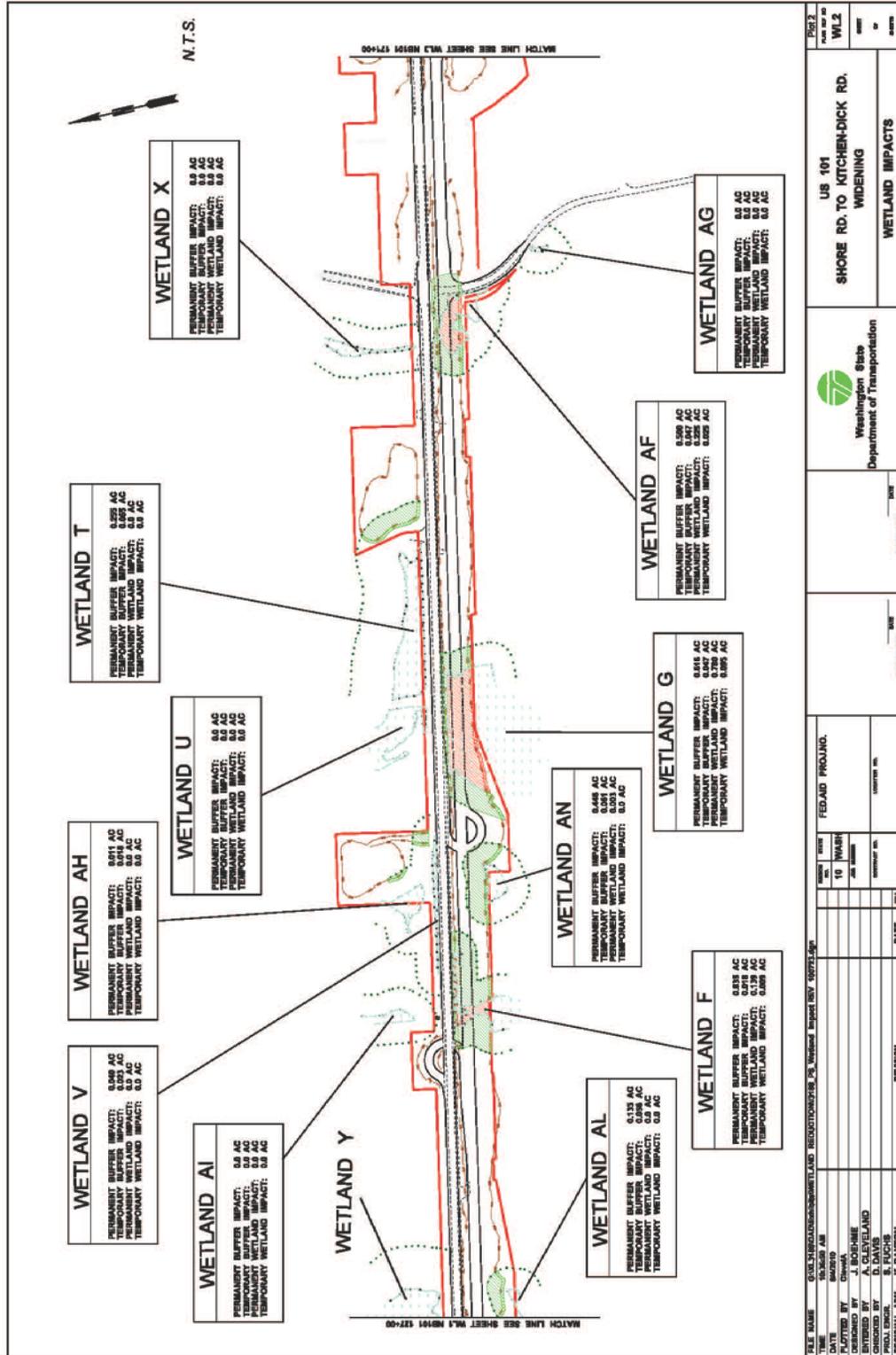


Exhibit A-4, Existing Wetland Map #2









**Exhibit A-8, Wetland Mitigation Vicinity Map**

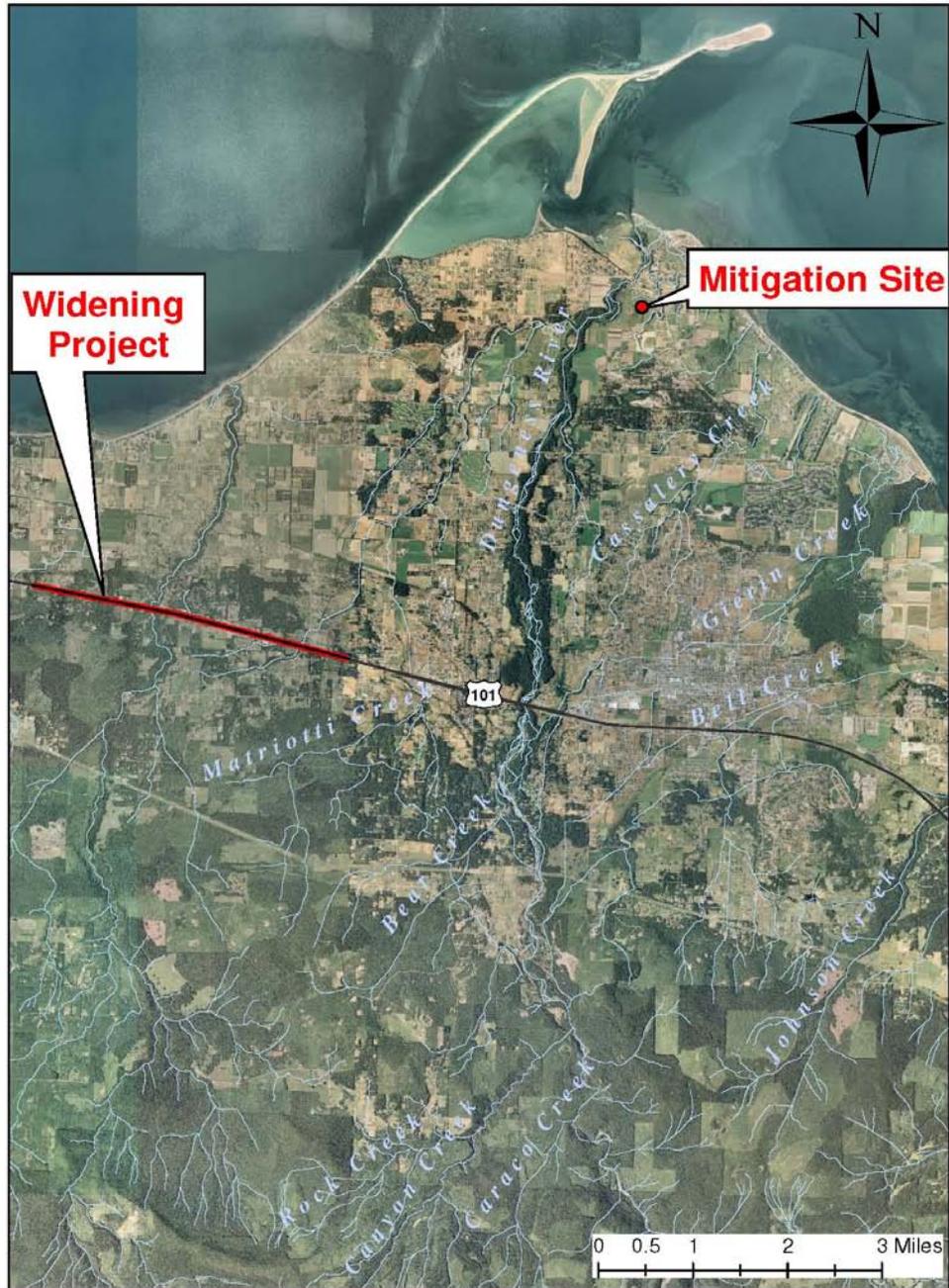
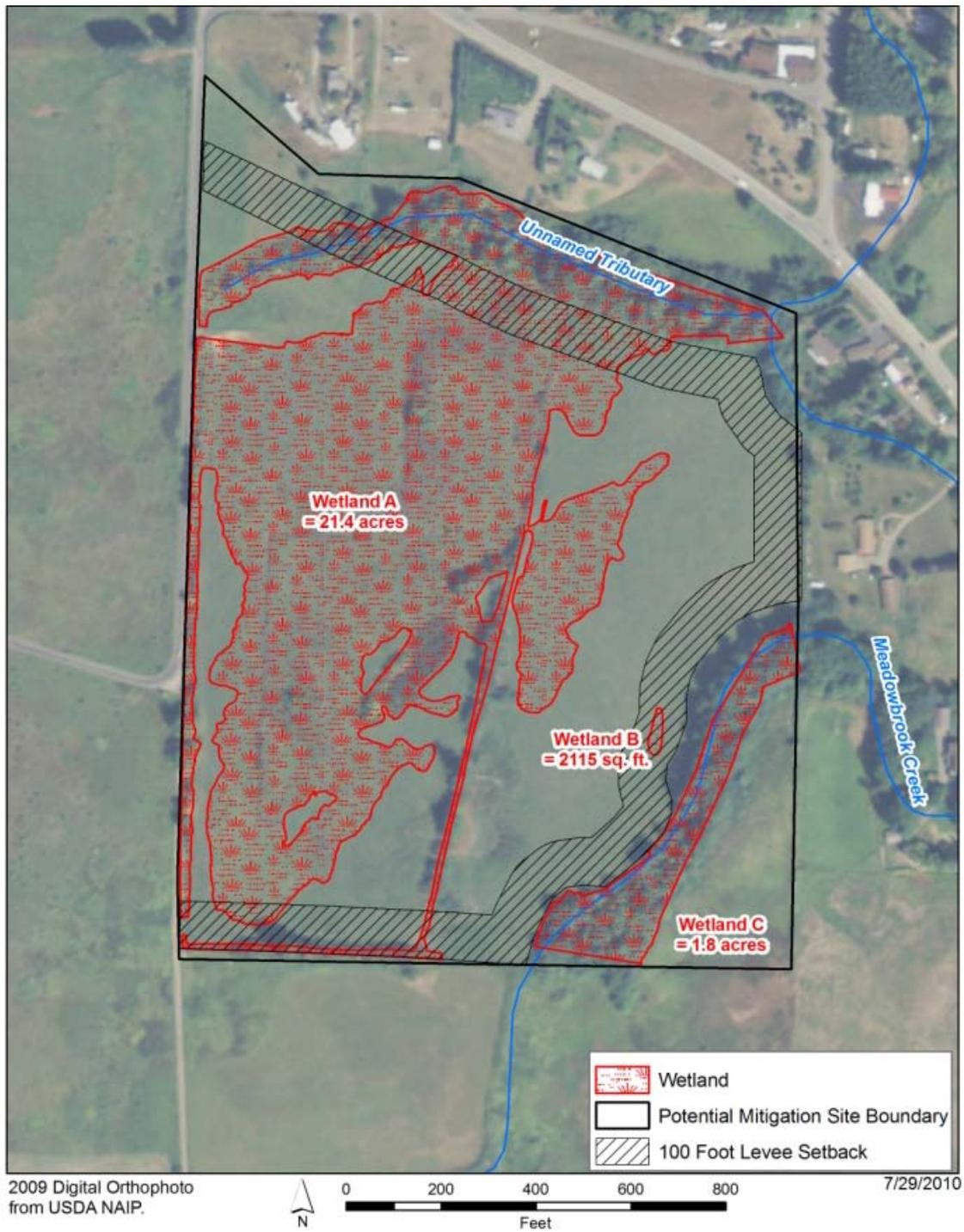


Exhibit A-9, Wetland Mitigation Site Photograph



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## H. Agency and Tribal Correspondence

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### Agency Correspondence

The letters below are on file in the WSDOT Olympic Region Environmental Office. Contact Harjit Bhalla at 360-570-6700.

#### Federal Agencies

**10-20-2010 From: National Marine Fisheries Service**

**To: WSDOT**

We concur that you have fulfilled the requirements under the Endangered Species Act for roadway widening, wetland mitigation site, and adding second bridge over McDonald Creek

**12-1-2010 From: United States Fish & Wildlife Service**

**To: WSDOT**

We concur that you have fulfilled the requirements under the Endangered Species Act for roadway widening, wetland mitigation site, and adding second bridge over McDonald Creek.

#### State Agencies

**03-03-2009 From: WSDOT**

**To: Department of Archaeology and Historic Preservation (DAHP)**

We request your comment on the Area of Potential Effect for the roadway widening of US 101. Widening of US 101 will only occur to the south.

**09-03-2009 From: WSDOT**

**To: DAHP**

We request your comment on the revised Area of Potential Effect for the roadway widening of US 101. This revised design widens both to the north and the south to reduce wetland impacts.

**01-07-2010 From: WSDOT**

**To: DAHP**

We ask your comment on the Area of Potential Effect for the wetland mitigation site.

**02-04-2010 From: WSDOT**

**To: DAHP**

We ask your comment on the Area of Potential Effect for the roadway widening of US 101. This allows for new driveway approaches, stormwater ponds, and small changes to the roadway design.

**04-19-2010 From: DAHP**

**To: WSDOT**

We concur with the level of effort for additional testing at wetland mitigation site.

**07-26-2010 From: WSDOT**

**To: DAHP**

We request comments on revised area of potential effect for adding second McDonald Creek Bridge. This allows for removal of the existing McDonald Creek Bridge, and construction of a new one.

**08-02-2010 From: DAHP**

**To: WSDOT**

We concur with your revised Area of Potential Effect.

## **Tribal Correspondence**

### **Purpose and scope of consultation**

Through the consultation exchange of letters following, 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 their properties.

The first step in the Section 106 process, prior to the identification and evaluation of historic properties, is to identify the area of potential effect. *Area of potential effect* means the geographic area or areas within which the proposed undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties

exist. The participation by the tribes as a consulting party in determining the area of potential effect is critical and is invited. Once this area has been defined, a cultural resources survey will be initiated. If the tribe has information about traditional cultural areas that might be affected by the proposed undertaking, their input will be a valuable contribution to the cultural resources survey effort.

Once historic properties have been identified and evaluated for their historical significance in accordance with the criteria of the Keeper of the National Register of Historic Places, the effects of the proposed undertaking on any properties determined to be listed in or eligible for listing in the National Register are assessed. The tribe's participation in this effort is invited.

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 efforts follows.

**04-02-2009 From: WSDOT**  
**To: Jamestown S'Klallam Tribe**  
**Lower Elwha Klallam Tribal Council**  
**Port Gamble S'Klallam Tribal Council**

FHWA & WSDOT is initiating government-to-government consultation with the tribes under Section 106 of the National Historic Preservation Act and the National Environmental Policy Act. We requested comments on the Draft Area of Potential Affect.

**04-09-2009 From: Lower Elwha Klallam Tribe**  
**To: WSDOT**

We concur with WSDOT determination that the project lies near lands traditionally used by the Lower Elwha Klallam Tribe. We encourage you to develop a cultural resource monitoring plan with our tribe prior to any ground disturbing activities and provide us a current contact list for this project.

**05-14-2009 From: Eastern Washington University on behalf of WSDOT**  
**To: Jamestown S’Klallam Tribe**  
**Lower Elwha Klallam Tribal Council**  
**Port Gamble S’Klallam Tribal Council**

We request any information about cultural resources including Traditional Cultural Properties that might be affected by the proposed project.

**06-09-2009 From: Jamestown S’Klallam Tribe**  
**To: Eastern Washington University**

We will notify you as the information is shared.

**06-30-2010 From: WSDOT**  
**To: Jamestown S’Klallam Tribe**  
**Lower Elwha Klallam Tribal Council**  
**Port Gamble S’Klallam Tribal Council**

We request review/comment of wetland mitigation site test excavations and revised Cultural Resource Study for widening of US 101

**07-13-2010 From: Lower Elwha Klallam Tribe**  
**To: WSDOT**

We concur with WSDOT’s determination of “no adverse effect” at wetland mitigation site

**07-28-2010 From: WSDOT**  
**To: Jamestown S’Klallam Tribal Council**  
**Lower Elwha Klallam Tribal Council**  
**Port Gamble S’Klallam Tribal Council**

We request comments on revised area of potential effect for adding second McDonald Creek Bridge. This allows for removal of the existing McDonald Creek Bridge, and construction of a new one.

**08-06-2010 From: Lower Elwha Klallam Tribal Council**  
**To: WSDOT**

We concur with WSDOT determination that the project lies near lands traditionally used by the Lower Elwha Klallam Tribe. We encourage you to develop a cultural resource monitoring plan with our tribe prior to any ground disturbing activities and provide us a current contact list for this project.