

## US 101: SR 112 TO SR 104.

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### **CHARACTERISTICS**

#### **Segment Description:**

This US 101 Corridor begins at SR 112 and ends at the SR 3/SR 104 Interchange (SR 112 to SR 104 Vicinity), MP 242.61 to MP 285.13, Arm 241.89 to Arm 284.17. It begins west of the City of Port Angeles and ends east of the City of Sequim.

**County/Counties:** Clallam/Jefferson

**Cities/Towns Included:** This corridor passes through the City of Port Angeles, bypasses the City of Sequim to the south, and into the communities of Blyn, Gardiner, and Discovery Bay. The Jamestown S'Klallam Tribe is located at/near the Blyn Community.

**Number of lanes in the corridor:** 2 to 4

**Lane width:** 11 to 12 feet.

**Speed limit:** 30 to 55 mph.

**Median width:** 0 to 35 feet.

**Shoulder width:** 0 to 10 feet.

#### **Highway Characteristics:**

US 101 is a Highway of Statewide Significance (HSS) and NHS with a freight classification of T-2 with ~7 million average gross annual truck tonnage in 2005.

#### **Special Use Lane Information (HOV, Bicycle, Climbing):**

Special use lanes along this US 101 corridor include 3.03 miles of two-way left turn lane, 4.05 turn lane miles, 1.5 acceleration lane miles, 0.26 mile of weaving/speed change, and 0.59 mile of slow vehicle lane miles along with 0.59 of climbing lane miles.

#### **Access Control Type(s):**

Varies between Full, Partial, Class 2, Class 3 and Class 4.

#### **Terrain Characteristics:**

This US 101 corridor segment is rolling terrain from MP 242.61 to MP 262.23, level terrain from MP 262.23 to MP 269.06 (Dungeness River west of Sequim to Sequim Bay State Park) and rolling terrain from MP 269.06 to MP 285.13 (Sequim Bay State Park to SR 104).

#### **Natural Features:**

US 101 is the primary access route into the Olympic National Park and Olympic National Forest. Sequim Bay State Park near Blyn and Discovery Bay between Gardiner and the Discovery Bay Communities afford scenic views.

#### **Adjacent Land Description:**

US 101 travels through the traditional areas of interest (usual and accustomed areas) for the Lower Elwha Tribe. The Jamestown S'Klallam Tribe is located in Blyn. The City of Port Angeles is urban with commercial development. The land is zoned primarily residential outside of Port Angeles with Blyn being a rural village.

#### **Environmental Issues:**

There are approximately 63 fish barriers of which approximately 29 require work, approximately 3 leaking underground storage tanks, and approximately 5 unstable slopes.

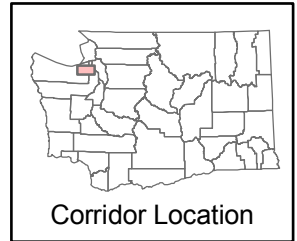
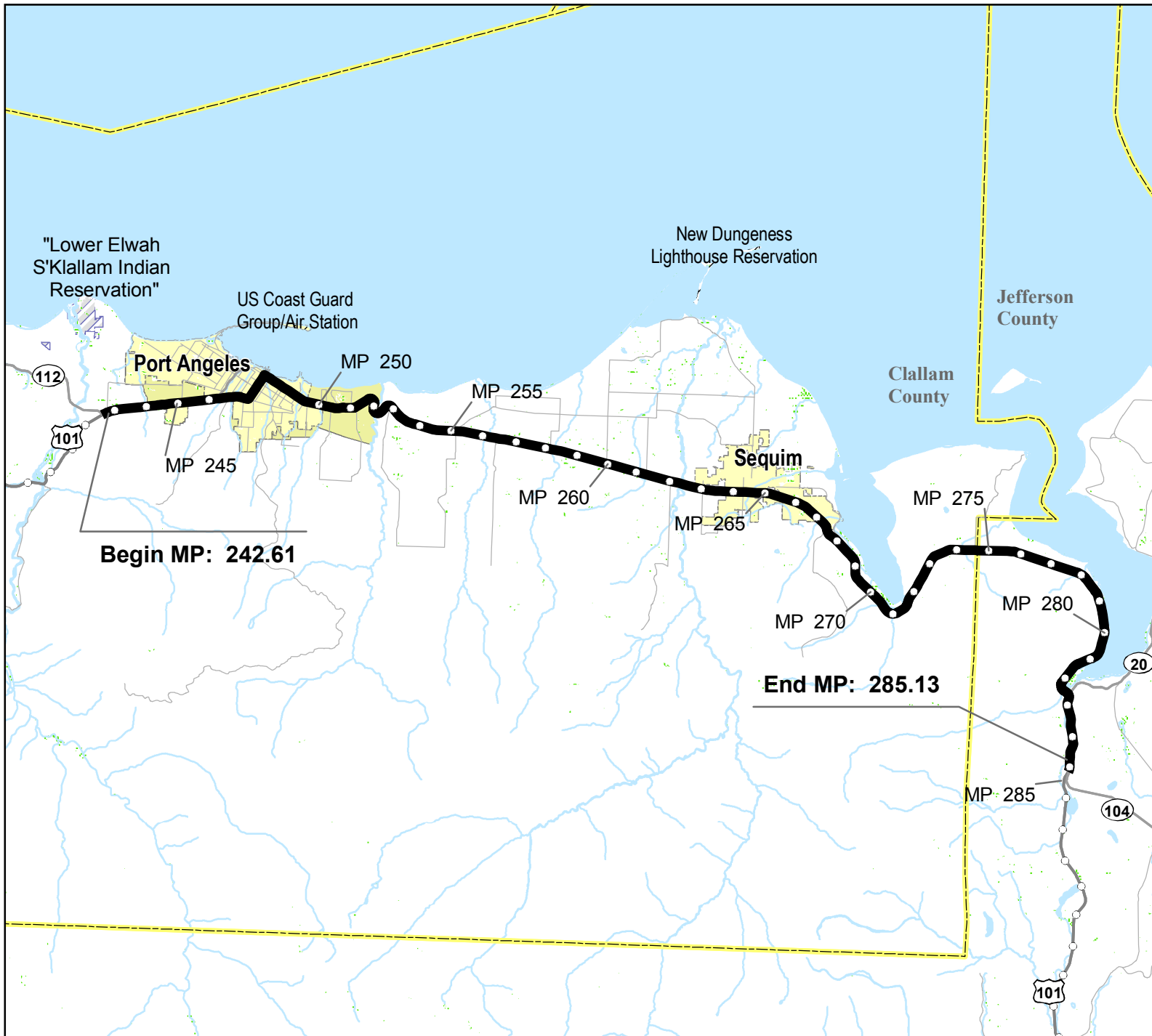
#### **Major Economic Issues:**

The City of Port Angeles is a recreational gateway into the Olympic National Park (Hurricane Ridge) and into Canada (Victoria) via a private ferry system. The City of Sequim is a growing retirement community that relies heavily on medical services in the Puget Sound Area to the East. The Jamestown S'Klallam Tribal Government and Seven Cedars Casino near Blyn are major tourist destinations.

# HSP Congested Corridor Analysis

## Characteristics

- Milepost Marker
- ▬ HSP Corridor Location
- ▬ U.S. Interstate
- ▬ U.S. Highway
- ▬ State Route
- ▬ Local Roads
- +++ Railroad
- ▨ Wetlands
- ▨ Military Reservation
- ▨ Tribal Lands
- ▨ City Limits
- ▨ Urban Area
- ▨ County Line



November, 2006



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### ***ASSETS***

#### **Pavement:**

There are approximately 108.66 lane miles of Hot Mix Asphalt on this segment of US 101 and approximately 0.74 mile of Concrete.

#### **Signal:**

There are approximately 8 existing signals in Port Angeles and a new signal at a ramp terminal in Sequim. There is a flashing yellow span wire signal head at MP 282.56 (SR 20 Intersection), LOS on minor leg turning movements not available

#### **Structures:**

There are two structures in this corridor that consist of Pre-Tensioned Concrete Slab.  
(Ramps, and locally owned structures (if any exist) are not identified in this section and may not be reflected on maps.)

#### **Features Crossed:**

Dungeness River west of Sequim.

#### **ITS Facilities:**

There is a variable message sign at MP 283.34 in the increasing direction and a highway advisory in the vicinity of MP 284.04 decreasing direction.

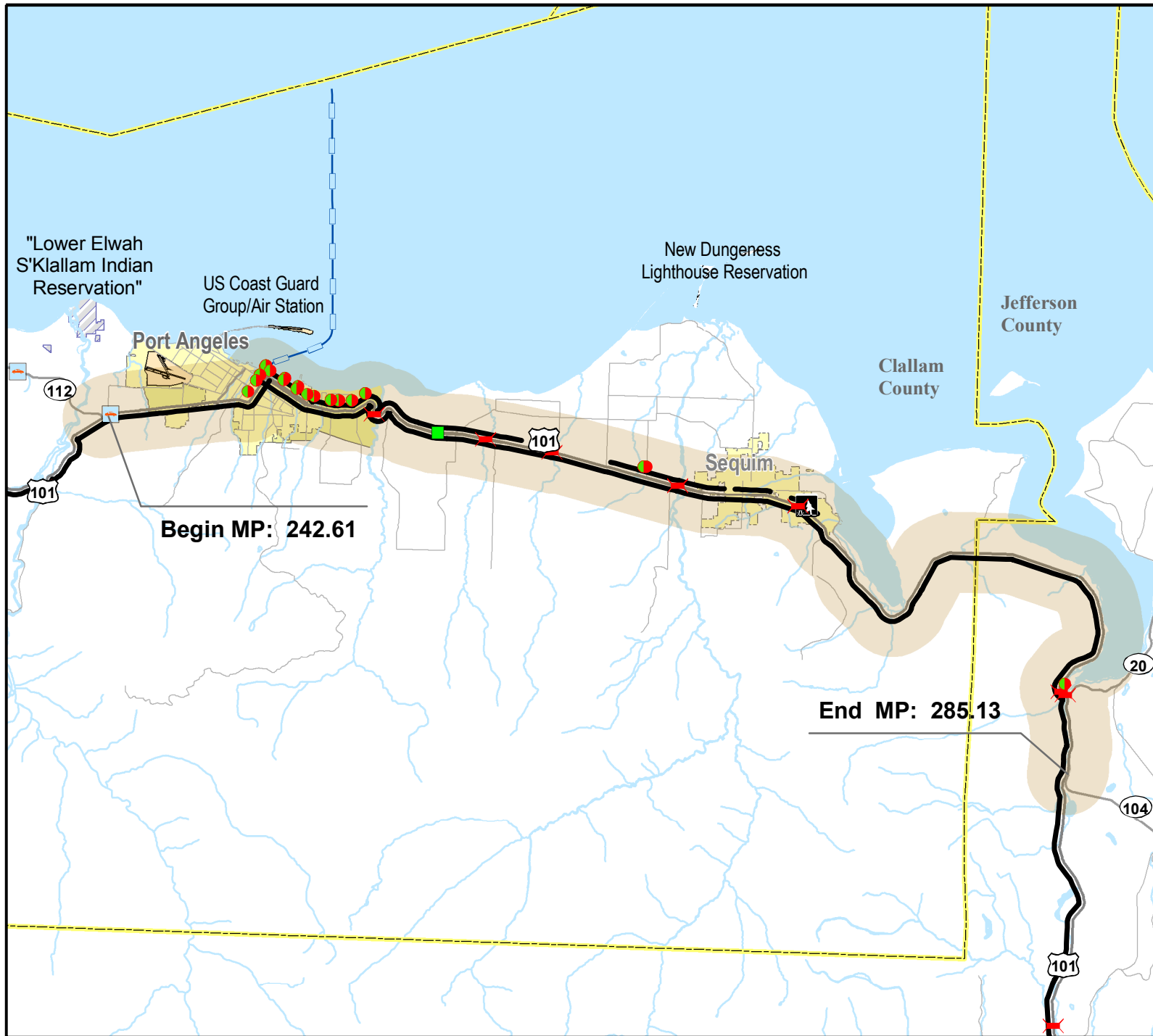
#### **Railroad Crossings:**

There are no at-grade rail crossings within this route segment.

#### **Asset Other:**

None Identified.

# HSP Congested Corridor Analysis Assets



- Corridor Location
- Assets**
- Signalized Intersection
- At Grade Railroad Crossings
- Bridge
- Weigh Stations
- Rest Area Sites
- Ferry Terminal
- Park and Ride
- Corridor Pavement Type**
- HMA
- BST
- PCCP
- Other Features**
- U.S. Interstate
- U.S. Highway
- State Route
- Local Roads
- Ferry Route
- Railroad
- Military Reservation
- Tribal Lands
- City Limits
- Urban Area
- Airports
- County Line

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### **USAGE**

#### **General Origin and Destination Travel Characteristics:**

A significant retirement community lives in the City of Sequim and travels to South Kitsap & greater Seattle urban area for medical related trips. A nearby 1998 Hood Canal Bridge O/D study showed 61% of weekend traffic was for leisure travel. Over half of the trips were generated in South Kitsap County and greater Seattle urban area. One third of weekday trips were work related. 22% of the total weekday trips carried people to work in South Kitsap & greater Seattle urban area.

#### **Snow/ice Issues:**

There are no sections within this corridor which present a problem for normal snow/ice control.

#### **Annual Average Daily Traffic:**

Ranges from 8,000 to 36,000.

#### **Significant Seasonal Average Annual Daily Traffic Changes:**

January traffic volume is approximately 48% lower than annual average with July and August approximately 16% to 17% higher than annual average.

#### **General Description of Major Average Annual Daily Traffic Locations:**

US 101 in Port Angeles reached 36,000 annual average daily traffic (AADT) east of the Port Angeles couplet in 2004. US 101 from Sequim East Corporate Limit to SR 20 with 11,000 to 15,000 Annual Average Daily Traffic (AADT) volumes in 2004.

#### **Freight:**

**Freight Classification:** T2

**Yearly Tonnage:** 4M to 10M

**Truck Percentage of Annual Average Daily Traffic:** 12.25% to 16.85%

#### **Additional Usage Comments:**

The Olympic Discovery Trail - a recreational and commuter oriented hiking, biking, and riding trail - is proposed to connect from Port Townsend to Forks, ultimately following the US 101 Loop.

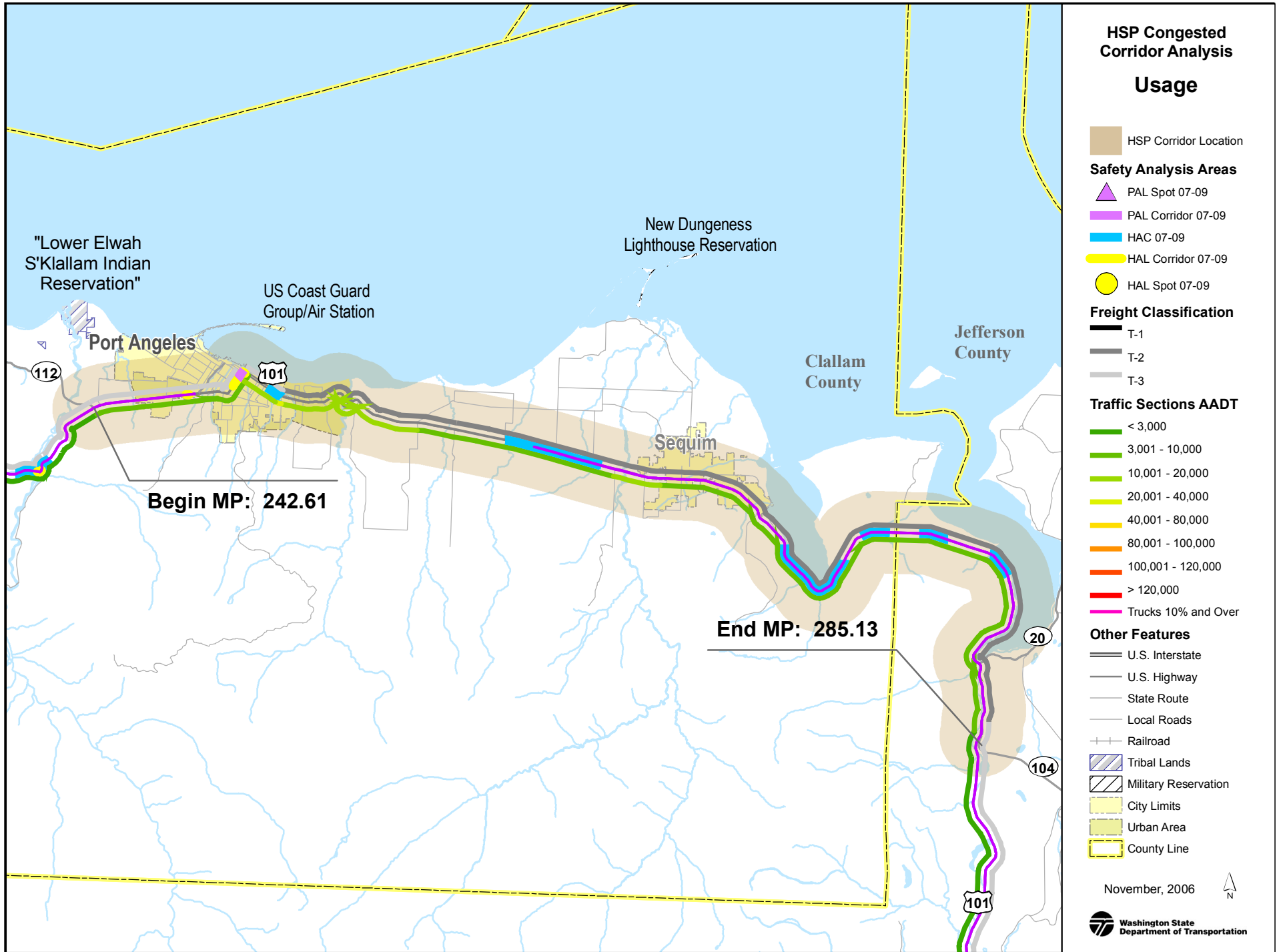
**Average Annual Societal Cost of All Collisions:** Approximately \$26.67M

#### **Collisions:**

**Severe No of Collisions:** 47

**Less Severe No of Collisions:** 1,289

**List Data Years:** 2003 to 2005



"Lower Elwah S'Klallam Indian Reservation"

US Coast Guard Group/Air Station

New Dungeness Lighthouse Reservation

Port Angeles

Sequim

Jefferson County

Clallam County

Begin MP: 242.61

End MP: 285.13

112

101

20

104

101

## ***NEEDS AND STRATEGIES***

### **Preservation**

#### **Pavement Condition and Needs:**

Preserve transportation infrastructure to achieve the lowest life cycle cost and prevent failure. Pavements should be programmed targeting the lowest life cycle cost per the Washington State Pavement Management System "due" date. This is the point in a pavement's life cycle where optimum pavement life has been achieved and the least cost to resurface is obtained. Pavements that have past this point typically incur more costs to rehabilitate. Existing safety features shall be restored to provide basic design level standards.

#### **Pavement Management Strategies:**

Reduce the backlog of pavement preservation needs that have gone beyond the point of economical resurfacing (lowest lifecycle cost). Existing hot mix asphalt (HMA or ACP) has an average life of 16.5 years in Western Washington. When the last pavement cycle approaches the due date or exceeds the average life cycle, paving with bituminous surface treatment (BST) to extend the life or surfacing with HMA will be necessary. No Pavers in CIPP, but there are climbing/passing lanes programmed.

#### **Structures Condition and Needs:**

Preserve transportation infrastructure to achieve the lowest life cycle cost and prevent failure. (This may include ramps and locally owned structures if any exist.)

#### **Structures Management Strategies:**

There is no proposal in bridge's 20-year plan for this segment of US 101.

#### **Additional Condition and Needs:**

Preserve transportation infrastructure such as electronic/mechanical systems, major drainage, safety rest area refurbishment, traffic control systems, unstable slopes, weight facilities.

#### **Additional Management Strategies:**

Constructing bottleneck and chokepoint solutions and highway system plan solutions address unstable slopes by assuming retaining wall costs in the vicinity of the unstable slope (10 ft high for the length of the deficiency).

### **Improvement**

#### **Mobility Condition and Needs:**

Slow moving heavy vehicles cause platooning of passenger vehicles along the existing 2-lane facility, especially on grades steeper than 3% for over one-half mile in length.

#### **Mobility Management Strategies:**

Near term strategies are to construct climbing/passing lanes approximately 4 miles apart in both directions to increase passing opportunities and decrease vehicle platooning. Long term strategies are to widen to a 4-lane divided rural freeway with interchanges at major crossroads.

#### **Safety Condition and Needs:**

Reduce and prevent deaths and the frequency and severity of disabling injuries, and reduce the societal costs of accidents (Focus on the rate of severity and frequency). This US 101 corridor experiences 32% rear ends, 17% single vehicle run off the road, 22% T-Bone, 4% mainline opposite direction, and 25% other. Under 23 United States Code-Section 409, this data cannot be used in discovery or as evidence at trial in any action for damages against the WSDOT or the State of Washington. This disclaimer is for all accident data mentioned in this report.

#### **Safety Management Strategies:**

Constructing bottleneck and chokepoint solutions and highway system plan conceptual solutions should reduce these kind of accidents. A 30% reduction in all accidents was assumed as a placeholder in the bottleneck and chokepoint solutions. A programmed safety project, US 101/Corriea Rd Vic. to Zaccardo Rd, MP 270.85 to MP 271.85, will provide slope flattening.

#### **Environmental Condition and Needs:**

Reduce impacts by addressing noise reduction, air quality, stormwater, wetland mitigation, chronic environmental deficiencies, and fish barriers. This US 101 corridor has fish barriers, leaking underground storage tanks, and may cover an area with

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threatened and endangered species.

### **Environmental Management Strategies:**

A programmed environmental project, US 101/Chicken Coop Creek - Fish Passage, will remove a fish barrier. Fish passage barriers: Culverts that have been identified as fish passage barriers that will be impacted by the construction of highway projects within this corridor will be corrected. LUST: Suspected contaminated sites will be subject to initial site assessments, preliminary site investigation and/or detailed site investigations as appropriate during project development. Threatened and Endangered Species: Biological assessments will be performed on projects in this corridor to determine the effects on plants and wildlife. Mitigating measures will be suggested where appropriate.

### **Restrictions:**

There are none identified.

### **50-Year Configuration:**

A Port Angeles Alternative Route south of the core business district from SR 117 Vicinity to Deer Park-Buchanan Drive Vicinity.

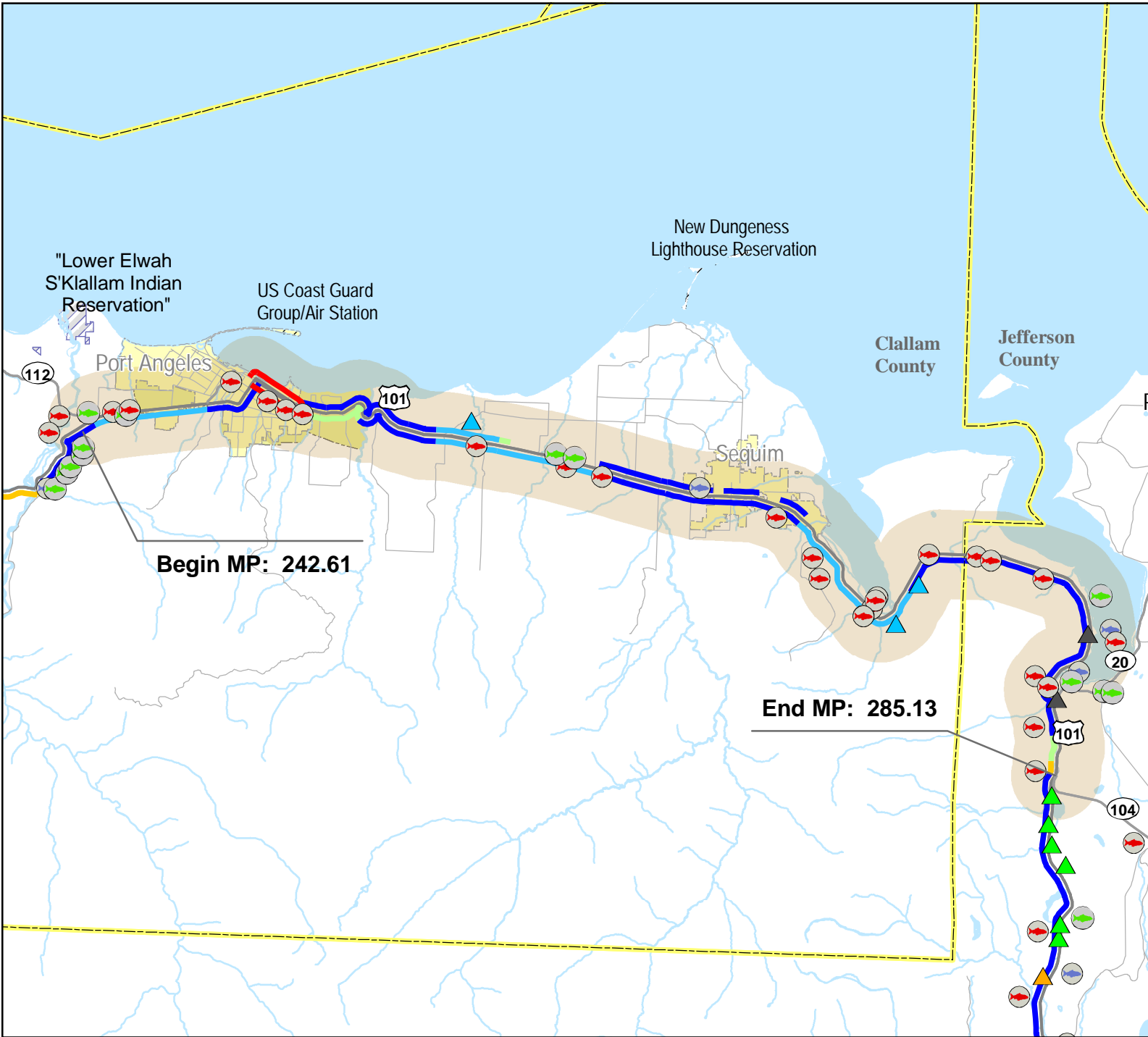
Interchanges and frontage roads between Port Angeles and Sequim to remove at-grade, high-speed, intersections on the existing multilane divided highway.

A 4 to 5 lane full or partial control divided highway (5th lane being climbing lane locations) beginning at the Dungeness River West of Sequim and ending at SR 104. Interchanges at major intersections with frontage roads connecting minor intersections and private access points to the major interchanges.

The Jamestown S'Klallam Tribe have future development plans in the Blyn Village. Planned developments include a 10,533 square foot social services building, a 2,700 square foot fire station, and two casino hotels on the south side of US 101. One of the hotels would be west of Corriea Road and the other east of the Seven Cedars Casino entrance road. The east hotel would host family recreation and an aquadome linked to a series of lakes. A recreational vehicle resort is also planned with spaces for 120 to 140 units, 130 to 140 hillside cabins, a dining facility, and small conference center. A community center and dental clinic are proposed on the north side of US 101.

There is a Miller Peninsula Future State Park proposed north of US 101 between Sequim Bay and Discovery Bay that will also be a major recreational destination in this vicinity.

# HSP Congested Corridor Analysis Needs



- HSP Corridor Location
- Bridge Replacement Priority**
- Replacement
- Seismic
- Special
- Scour
- Painting
- Miscellaneous
- Bridge Deck
- Other Bridge Issues**
- 2 Lane BW Narrow Bridge
- Restricted Bridge
- Posted Bridge
- Vert. Clearance 15.5' Or Less
- Fish Barriers**
- Require Repair
- Little Gain
- Undetermined
- Unstable Slope**
- Debris Flow
- Erosion
- Landslide
- Rockfall
- Settlement
- Paving Due**
- Past Due
- 2005 - 2007
- 2008 - 2009
- 2010 - 2011
- 2012 - 2026
- U.S. Interstate
- U.S. Highway
- State Route
- Local Roads
- Railroad
- Military Reservation
- Tribal Lands
- City Limits
- Urban Area
- County Line

## ***TIERED PROPOSED SOLUTIONS***

### **Minimum Fix**

#### **Description:**

There are two 2003 Bottleneck and Chokepoint Solutions proposed in this corridor segment with three funded and programmed projects addressing locations likely to drop below 70% of the posted speed due to slow moving heavy vehicles.

Access management and signal coordination along mainline US 101. Replace six signal systems and create right in right out access with continuous sidewalks from Race Street to Brook Avenue, MP 248.75 to MP 250.64

Access management and signal coordination along Port Angeles Couplet. Replace two signal systems and provide continuous sidewalks between Golf Course Road and Race Street, MP 249.65 to MP 250.55

An additional increasing passing lane is proposed between SR 20 Wye Connection and E Uncas Road S., MP 282.64 to MP 283.81. This additional lane, in conjunction with the funded projects, will provide passing lane opportunities approximately 4 to 10 miles apart for improving overall speed along the corridor between Sequim and SR 104.

Accommodating the extension of the Olympic Discovery Trail within highway right-of-way may also be considered.

**Delay Reduction:** None identified.

**Collision Reduction:** None identified.

**Deficient Concrete Lane Miles:** None identified.

**Total Estimate Cost:** \$20.575 million total costs in 2005 dollars.

#### **Cost Estimate Explanation:**

Signal replacement costs are included in the access management conceptual solutions because of probable saltwater corrosion. Removal of three fish barriers are also included in the cost (2 on mainline and 1 on the Port Angeles couplet).

The highway system plan conceptual solutions between Sequim and SR 104 (intermittent truck climbing/passing lanes) are programmed for funding.

#### **Minimum Fix Benefits:**

The passing lane project(s) will reduce congestion delay in areas that will have a congestion index ratio exceeding 6 rural over a 20 year period in the HSP.

### **Moderate Fix**

#### **Description:**

The current Unconstrained 20-Year Washington State Highway System Plan (HSP) proposes: Widen from 2/3 lanes to 4 lanes from MP 242.83 to MP 244.09 (Laird Rd to Reddick Rd). Widen to 4 lanes or alternate route pending Port Angeles Study (Reddick to SR 117 or further). Deer Park and Buchanan Road Undercrossing at MP 253.02 per PRTPO priority (bridge leaving right in-right out access). New 50 stall park and ride lot at Deer Park or O'Brien Road. Widen from 2 lanes to 4 lanes, interchange (between Shore Road and Kitchen-DickRds, MP 257.03 to MP 260.05 . Finish West Side of Sequim Bypass)

Widen from 2 lanes to 4 lanes between Dungeness River to Sequim Ave, MP 262.35 to MP 264.56 (East Side of Sequim Bypass).

New 50 stall park and ride lot near River Road Interchange, MP 263.05. New Sequim Transit Center (with parking). This work may already be done. New 50 stall park and ride lot near Sequim Avenue I/C, MP 264.56

Intermittent truck climbing/passing lanes between Sequim and SR 104. These strategies are programmed for funding.

Improve Simdars half diamond interchange in Sequim (MP 266.12 Vic. with WB off and eastbound on only) to include full movements. The Jamestown S'Klallam 2003 Transportation Plan proposes a full interchange at Woods/Blyn (MP 271.22) and two partial interchanges at Corriea Road (MP 270.59) and East Sequim Bay (MP 272.27). Because of rural interchange spacing requirements (minimum 2 mile rural spacing undercrossing to undercrossing) WSDOT only supports the full interchange conceptual solution at this time (plus one partial I/C later). This Blyn overcrossing is a phase 1 solution in the Tribe's plan.

**Delay Reduction:** None identified.

**Collisions Reduction:** None identified.

**Deficient Concrete Lane Miles:** None identified.

**Total Estimate Cost:** None identified.

#### **Cost Estimate Explanation:**

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The Deer Park and Simdars proposals include economic benefits that have not been through our benefit/cost process. The Jamestown S'Klallam Tribe proposed phase 1 interchange in Blyn would cost ~\$17.659 million with 2005 benefits of \$3.964 million for a B/C ratio of 0.29. The proposed partial interchanges on either side of the phase 1 interchange do not appear to meet WSDOT design spacing criteria.

### **Moderate Fix Benefits:**

Benefits for a Deer Park Undercrossing, completing the Simdars Interchange, and Jamestown S'Klallam Tribe phase 1 Interchange in Blyn include economic benefits not measured using mainline congestion delay and safety benefit cost analysis worksheets.

### **Maximum Fix**

#### **Description:**

Widen US 101 from a 2/3 lane facility to a 4 lane divided facility with interchanges at major intersections between SR 112 and SR 104, excluding Port Angeles developed core business district. This work includes completing Sequim Bypass by widening US 101 from 2-lanes to a 4-lane facility between the Dungeness River Bridge and the City of Sequim East Corporate Limit. Continue widening mainline US 101 to the east and then south to SR 104 as traffic volumes increase.

**Delays Reduction:** None identified.

**Collisions Reduction:** None identified.

**Deficient Concrete Lane Miles:** None identified.

**Total Estimate Cost:** None identified.

#### **Cost Estimate Explanation:**

The conceptual solutions in the maximum fix have not yet been through our benefit/cost process.

#### **Maximum Fix Benefits:**

None identified.

#### **Off-System Solutions:**

The Olympic Discovery Trail is an off-system, non-motorized solution that proposes to connect from Port Townsend to Forks, and ultimately follow the US 101 Loop.

#### **Special Studies/Reports:**

SR 104 EIS: US 101 to Kingston Preliminary Draft EIS, dated May 2003.

The Washington Coastal Corridor, US 101 CMP, revised March 1997.

Jamestown S'Klallam Transportation Plan 2003.

US 101 Port Angeles Alternative Study, Report of Progress to Date, dated February 2000.

#### **Required Studies**

A US 101 Traffic Circulation and Access Plan (Deer Park Road to River Road) is proposed for \$500,000. This study would supplement the US 101 Safety Corridor Work by analyzing traffic circulation patterns and access issues. The limits of this study would be MP 253.10 to MP 263.05.

A US 101 Traffic Circulation and Access Plan (SR 112 to Deer Park Road) is proposed for \$1,500,000. Modify the discontinued US 101 Port Angeles Alternative Study that was suspended due to passage of I-695 in 1999. The new study area would be MP 242.61 to MP 253.10.

#### **Start/Completion Date of Study:**

No funding at this time (Begin Deer Park to River Road in 2007-2011 and other in 2017-2026).

#### **Expected Results**

The purpose of the studies are to document transportation needs and deficiencies, and identify potential alternatives for enhancing the long-term 20-year transportation characteristics of US 101. The study will assess the existing highway capacity, safety, and access conditions and future needs.

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### Funded Projects within Corridor Limits

Project No	Title
300070P	US 101/Peabody Street Intersection - Signal (State Contribution to City of Port Angeles)
310107B	US 101/Shore Rd to Kitchen Rd - Widening
310187A	US 101/Northeast Peninsula - Rest Area
310101F	US 101/Dawley Road Vic. to Blyn Highway - Climbing Lane
310155B	US 101/Corriea Rd Vic. to Zaccardo Rd - Slope Flattening
310161D	US 101/Chicken Coop Creek - Fish Passage
310166B	US 101/Blyn Vic. - Passing Lanes
310102F	US 101/Gardiner Vicinity - Climbing Lane

### Additional Comments:

The nearby existing 2-lane Sequim Bypass from the Dungeness River Bridge to Simdars Interchange Vicinity will exceed a congestion index of "10" or LOS "D/E" within 20 years with a segment between the Dungeness River and River Road Interchange (First I/C in Sequim) dropping below 70% of the posted speed.

### Data Sources and Contacts used:

Washington State Highway System Plan: 2003-2022, dated February 2002

GIS Environmental and Transportation Workbench

Capital Improvement and Preservation Program

Measures, Markers and Mileposts, Basic Pavement Types and Ratings Summary (The Gray Notebook).