SLATER ROAD /I-5 INTERCHANGE IMPROVEMENT PROJECT

Application for FASTLANE Funding

PROJECT SUMMARY TABLE

Project Name	Slater Road/I-5 Interchange Improvements
Was a FASTLANE application for this project submitted previously?	NO
If yes, what was the name of the project in the previous application?	N/A
Previously Incurred Project Cost	$1.1 million
Future Eligible Project Cost	$22.05 million
Total Project Cost	$23.15 million
FASTLANE Request	$13.23 million
Total Federal Funding (including FASTLANE)	$13.23 million
Are matching funds restricted to a specific project component? If so, which one?	NO
Is the project or a portion of the project currently located on National Highway Freight Network?	YES
Is the project or a portion of the project located on the NHS? • Does the project add capacity to the Interstate system? • Is the project in a national scenic area?	YES YES NO
Do the project components include a railway-highway grade crossing or grade separation project? • If so, please include the grade crossing ID.	NO N/A
Do the project components include an intermodal or freight rail project, or freight project within the boundaries of a public or private freight rail, water (including ports), or intermodal facility?	NO
If answered yes to either of the two component questions above, how much of requested	N/A

FASTLANE funds will be spent on each of these projects components?	
State(s) in which project is located	Washington
Small or large project	SMALL
Urbanized Area in which project is located, if applicable	Bellingham
Population of Urbanized Area	114,000
Project currently programmed in the: • WSDOT Fairhaven to Slater Road Interstate 5 Master Plan Project included in the long-range plans of: • City of Ferndale • Lummi Nation • City of Bellingham • Whatcom County • Port of Bellingham • Whatcom COG	See opposite

Table of Contents

I. PROJECT DESCRIPTION 1
Project Size 5
FASTLANE Elements 5
National/Regional Significance 5
Expected Users 6
Transportation Challenges and How Addressed 6
Key Before and After Data 7
II. PROJECT LOCATION 7
Urban or Rural Classification 8
III. PROJECT PARTIES 8
Grant Recipient 8
Other Affected Public and Private Parties 9
V. SOURCES and USES of ALL PROJECT FUNDS 10
VI. MERIT CRITERIA 10
PRIMARY REVIEW CRITERIA 10
a. Economic Outcomes 10
Ramp and Intersection Conditions 12
a. Mobility Outcomes 13
Non-motorized Users 14
Workforce Opportunities 14
a. Safety Outcomes 14
b. Community and Environmental Outcomes 15
OTHER REVIEW CRITERIA 16
a. Partnership and Innovation 16
b. Cost Share 16
VII. LARGE/SMALL PROJECT REQUIREMENTS 16
VIII. COST EFFECTIVENESS 17
Economic Benefits 17
User Delay Benefits 18
Operating Costs 18
IX. PROJECT READINESS 18

Technical Feasibility 18
Project Schedule 20
Required Approvals 20
a. Environmental Permits and Reviews 20
b. State and Local Approvals 20
c. State and Local Planning 21
d. Assessment of Project Risks and Mitigation Strategies 21
e. Right-of-Way 21
f. Environmental 21
Costs and Funding 22

I. PROJECT DESCRIPTION

The Slater Road/Interstate 5 (I-5) Interchange (Exit 260 - MP 259.71 to MP 260.56) is a congestion relief and economic development project located at the southern limits of the City of Ferndale in Whatcom County, Washington State. The interchange has previously been identified as deficient in the *City of Ferndale Main Street Master Plan, Planned Action EIS (June 2011)* and as part of the WSDOT *Fairhaven to Slater Interstate-5 Master Plan (November 2008*).

Accelerating regional growth has increasing traffic congestion, and decreasing mobility, through and near to the Slater Road/(I-5) Interchange.. These circumstances have created a need to relieve this congestion to support future growth, while maintaining safe and acceptable levels of mobility on both local and state transportation networks. The Slater Road/I-5 Interchange Improvement Project (hereinafter "Interchange Project") will alleviate this congestion; improve the safety, efficiency, and reliability of the movement of freight and people along and off of I-5; and provide long-term improved mobility and safety within the Slater Road corridor. The Interchange Project will also help establish a transportation corridor that supports the completion of and better connectivity within the local road network in the vicinity of the Interchange.

The Slater Road/I-5 Interchange Corridor from Rural Avenue on the west to Pacific Highway on the east (see location map) is heavily used by freight and passenger vehicles accessing I-5 and travelling to and from the Lummi Nation, areas of Whatcom County, and the cities of Ferndale and Bellingham. Slater Road west of the Interchange forms the north boundary of the Lummi Nation. The Slater Road/I-5 Interchange is within the city limits of Ferndale on the west side of I-5, and partly within the city of Bellingham on the east side, although most of the immediate area is currently lightly developed or rural in character (see aerial map overlays).

According to the 2010 US Census, the Slater Road/I-5 Interchange is the boundary between Urban and Rural census designations. However, only the northeast quadrant of the Interchange Project is within the Bellingham Urbanized Area. Census mapping indicates that the northwest, southwest, and southeast quadrants of the Interchange Project are designated RURAL. In addition, as per the 2010 Census, the Bellingham Urbanized Area is only 114,000 population. Both these factors indicate a RURAL designation for FASTLANE grant purposes.

In 2014, WSDOT constructed two compact roundabouts at the Slater Road ramp intersections to <u>temporarily</u> improve the level of service (LOS). These roundabouts were considered an interim improvement and were not constructed to meet current design standards, and do not improve current deficiencies such as drainage, non-motorized conditions, and lighting. These interim improvements were also not sufficient to accommodate future planned growth in the area. Remaining inadequate access, circulation, and design conditions must be alleviated to accommodate the planned growth for the region.

By 2038, these two interim roundabouts and current terminal intersections, and a separate Pacific Highway roundabout immediately east of the northbound ramps, will degrade to LOS F. This will cause undesirable delays and also adversely impact Slater Road/I-5 Interchange operations,

as well as operations on nearby roads and intersections. This future congestion is also forecast to adversely impact I-5 mainline operations.

In early 2014, a preliminary study of the Interchange area was conducted with participation by the Lummi Nation and WSDOT. In the fall of 2014, an Interstate Justification Report study support team was formed and a formal IJR process was begun. As early 2016, the Project purpose and need was established, over a dozen additional alternatives were developed, screening criteria was identified, and alternatives were narrowed.

Project stakeholders include the Lummi Nation, City of Ferndale, Port of Bellingham, Whatcom County, Washington State Department of Transportation (WSDOT), and FHWA. In addition, there is broad support from several jurisdictions and other decision makers, and the significant oil and natural gas refineries that depend on Slater Road and its interchange with I-5 for its workers and suppliers to access their businesses.

The purpose and need of the Interchange Project is:

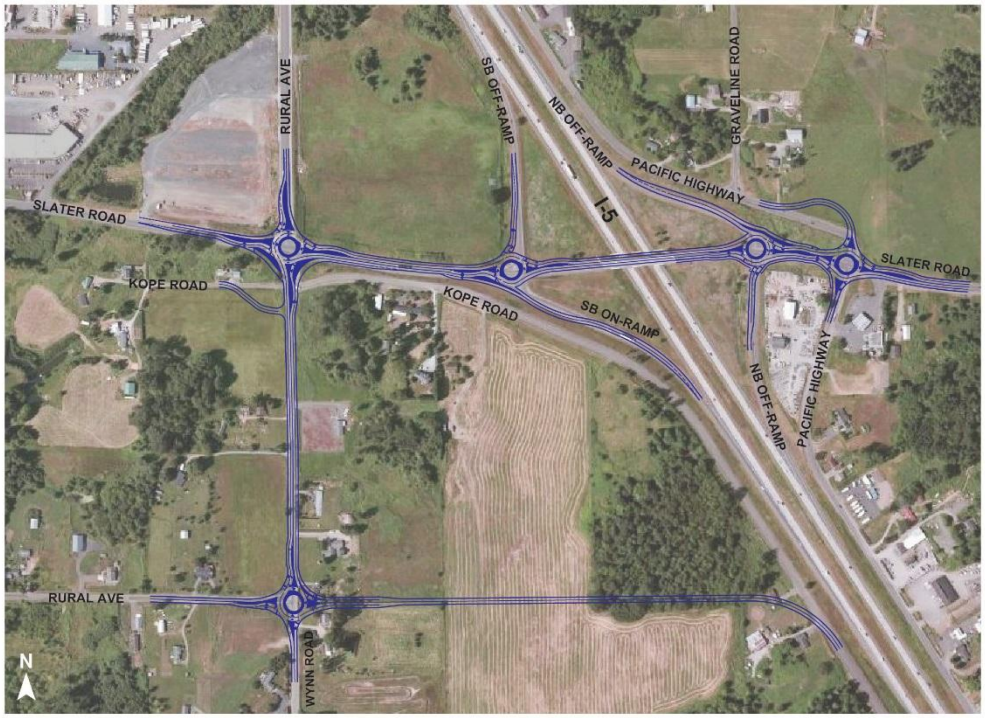
- Increase safety and relieve congestion by accommodating the increase in traffic volume expected at the Slater Road/I-5 Interchange ramp terminals and closely spaced intersections.
- Design and develop safety and congestion improvements consistent with the standards and issues identified in WSDOT's Fairhaven to Slater Interstate-5 Master Plan (November 2008) and the City of Ferndale Main Street Master Plan Planned Action EIS (June 2011)."

Through the analysis completed as part of project planning and preliminary engineering, the following package of improvements was determined to be necessary to eliminate forecasted future congestion on I-5 at Exit 260, through the Interchange, and on Slater Road.

- Widen the existing Interchange bridge deck over the highway to meet current WSDOT standards.
- Provide a 10 foot wide bicycle/pedestrian sidewalk along the bridge deck.
- Widen and upgrade I-5 north and southbound ramps from single lane to 2-3 lanes.
- Upgrade the two existing single lane compact ramp terminal roundabouts to full roundabouts (2-3 lanes).
- Upgrade the existing Pacific Highway compact roundabout east of and proximate to the northbound ramp roundabout to a two-lane roundabout.
- Build a new two-lane roundabout at the intersection of Rural Avenue and Slater Road west of the southbound ramp roundabout.
- Build a second new roundabout at Rural Avenue and Wynn Road.
- Provide for two new short road connections from Rural Avenue to Kope Road.
- Improve Slater Road and Rural Avenue as necessary to connect the foregoing project elements.

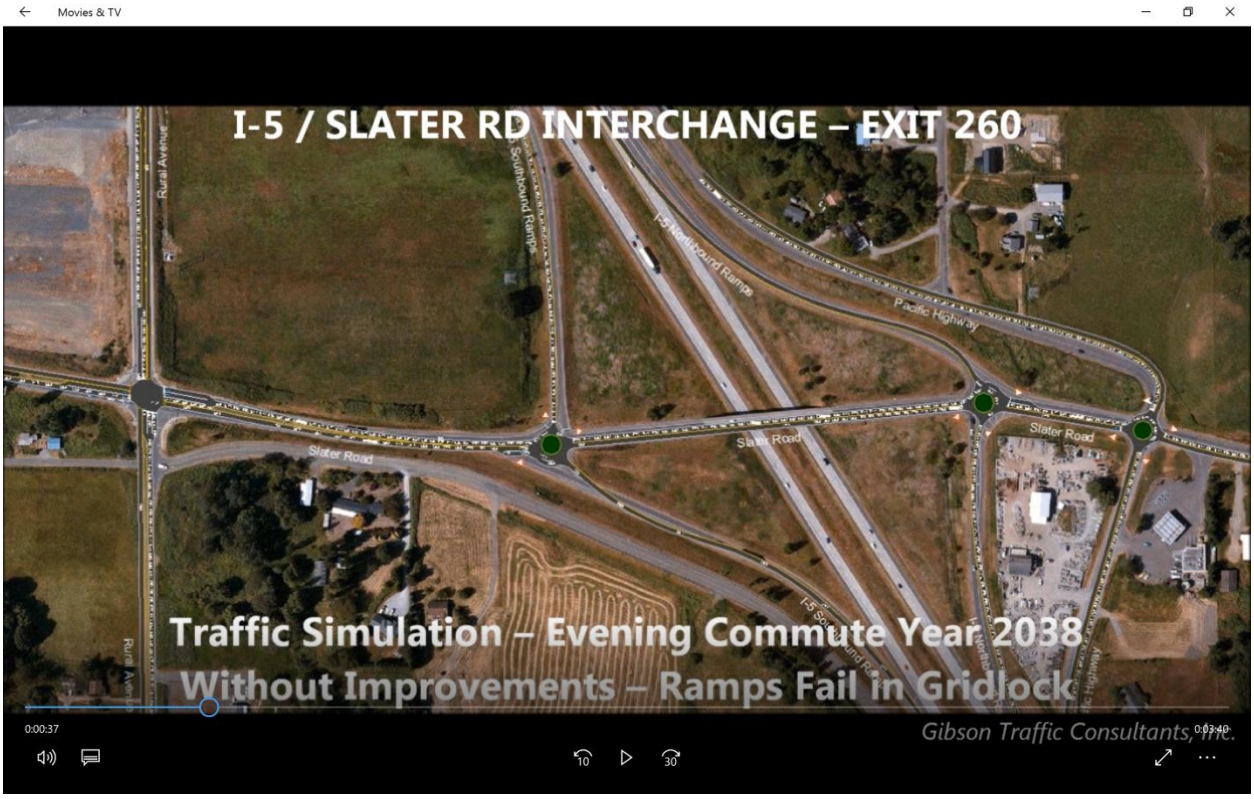
NOTE: *The Pacific Highway and Wynn Road roundabouts are necessary to relieve local congestion impacting the Interchange. The two new roadways connecting to Kope Road will allow the sections of Kope Road nearest to the southwest ramp to be closed. The ramp and Interchange will function more successfully as a result.*

Based on modeling scenarios, roundabout interchanges provide noticeable reductions in control delays, which directly affect the amount of time that drivers sit in traffic. In addition to reducing delay, roundabouts can handle more than four legs of traffic efficiently when a frontage road is present. Expected advantages of double roundabout interchanges include crash reductions (approximately 20 to 70 percent fewer fatal injury crashes) and delay reductions when operating below capacity. The annual savings in delay are considerable at higher average daily traffic levels, which better justifies the economic benefits of a double roundabout interchange.



Engineered Slater Rd/I-5 Interchange Improvement

For more visual information on the extent and functioning of the new Interchange, please see the Project website – http://www.lummi-nsn.org/website/index2.html**.** An animation showing how the Interchange will look and operate in 2038 is available for playing or downloading. Two screenshots from the animation are included below.


Movies & TV
I-5 / SLATER RD INTERCHANGE – EXIT 260
Rural Avenue
Southbound Ramps
I-5 Northbound Ramps
Pacific Highway
Slater Road
Slater Road
Slater Road
Traffic Simulation – Evening Commute Year 2038
Without Improvements – Ramps Fail in Gridlock
Gibson Traffic Consultants, Inc.
0:00:37
0:03:40

Movies & TV
I-5 / SLATER ROAD
INTERCHANGE IMPROVEMENTS
DESIGN VISUALIZATION
0:03:18
0:00:59

Project Size

The Interchange Project will cost a total of $23.15 million. This estimate is based on completed preliminary engineering (cost of this already completed preliminary engineering included in this cost estimate). This amount is well under the minimum ($100 million for Washington State) for being categorized under FASTLANE as a "Large" project. Therefore, this FASTLANE request is classified as a SMALL project, albeit one that well exceeds the $5 million minimum for Small Project requests

FASTLANE Elements

FASTLANE funding can be used for up to 60% of future eligible project costs. The Lummi Nation has secured the support of Washington's State's *Connecting Washington Investments* program for the 40% balance needed. This State program does NOT include any federally-sourced funds, and thus can be used for the full 40% match based on future eligible project costs. This formula translates to an $8.82 million match from this State of Washington program, and a $13.23 million FASTLANE grant request.

- FASTLANE funding will be applied to meet the significant portion of direct construction costs of the Interchange Project. Planning and preliminary engineering are complete.
- Washington's *Connecting Washington Investments* Program will pay for permitting (including NEPA), final design and engineering, and for the balance of construction costs not met by FASTLANE, including development of a new roundabout on Rural Avenue/Wynn Road south of Slater Road and a new roadway connecting this new roundabout to Kope Road (Kope Road is effectively an I-5 frontage road).

National/Regional Significance

- The Slater Road Interchange is located on I-5, the primary freight route along the entire Pacific Coast extending from Canada to Mexico. I-5 is on the National Highway Freight Network and carries over 8,500 trucks per day to and from the Canadian border crossing 15 miles north of this interchange. In the Northwest Washington/Bellingham region, the Slater Road/I-5 Interchange provides key access to Slater Road, which is one of only two direct accesses from I-5 to the Lummi Nation Reservation (the other being Marine Drive to the south).
- The Slater Road/I-5 Interchange is also part of the regional surface system that provides access via Slater Road to the cities of Ferndale and Bellingham, the Cherry Point Industrial Area, the Fisherman's Cove commercial fishing facility, and surrounding productive agricultural lands.
- The Cherry Point Industrial area, located on the shore of the Strait of Georgia northwest of Ferndale, is the home of both the British Petroleum and Phillips 66 refineries as well as Alcoa's Intalco Works aluminum smelter. About 2,000 people are employed at Cherry Point.

Expected Users

The Interchange Project will accommodate both freight and passenger vehicle movements. In addition, Interchange Project improvements will provide safe and adequate facilities for bicyclists and pedestrians where none now exist.

Transportation Challenges and How Addressed

Whatcom County's population has grown more than 150 percent since I-5 was built in the 1960's. The county population (which includes the Lummi Nation and the cities of Ferndale and Bellingham) is expected to increase by another 52 percent by 2035. The number of people driving I-5 will continue to increase, as will congestion and the potential for collisions.

- 52% population increase in Whatcom County by 2035.
- 55% increase in local traffic (within Whatcom County), by 2035.
- 115% increase in regional traffic on I-5 by 2035.
- 275% increase in truck traffic through Whatcom County on I-5 by 2035.
- Severe congestion will occur within the next 10 years and worsen by 2035 if no improvements are made.

The Interchange Project aims to address safety concerns and relieve congestion at the Exit 260 ramp terminals and at closely spaced intersections; and accommodate the increase in traffic volume expected from traffic exiting and entering I-5, particularly added traffic resulting for planned commercial development at Slater Road and Rural Avenue, including a full service freight and passenger vehicle fueling station.

- I-5 is near capacity during morning and evening rush hours. Drivers can experience up to 15 to 30 minutes of delay.
- On- and off-ramps and connecting local streets are congested.
- The majority of collisions on I-5 occur on or near the most congested off-ramps.
- I-5 does not meet current federal design standards in many locations.
- Traffic volumes are increasing at a faster rate than population growth.
- Through traffic competes with local drivers for limited space on I-5.

The Interchange Project, as described in this FASTLANE application, was specifically designed to alleviate these current problems and maintain acceptable LOS and safety through mid-century. The development of full roundabouts will reduce traffic congestion and resulting delays, as will the widening of the intervening roadways, the north and southbound ramps, and the Slater Road highway overpass bridge. The associated closure of the Kope Road frontage road where it is closest to the Interchange will also contribute to reduced congestion and delays.

Key Before and After Data

The benefit-cost analysis (BCA), conducted for the Interchange Project in compliance with US DOT FASTLANE requirements, indicates that:

- Using the required 7% discount rate, the present value of benefits attributable to this project add up to $28.6 million and the present value of costs, net of reduced maintenance expenditures, add up to $18.2 million. The net benefits are $10.4 million and the benefit-cost ratio is 1.57
- Using the alternative 3% discount rate, the present value of benefits attributable to this project add up to $61.4 million and the present value of costs, net of reduced maintenance expenditures, add up to $19.9 million. The net benefits are $41.5 million and the benefit-cost ratio is 3.08.

See the *Cost Effectiveness* section of this application for more information.

II. PROJECT LOCATION

The Lummi Nation is located some 15 miles south of the US/Canada border, in the northwest corner of Washington State. Lummi tribal lands are comprised of two upland peninsulas stretching into the waters of the Strait of Georgia and Hale's Passage/Bellingham Bay, on the coastal area called the Samish Sea, the waters around the San Juan Islands. The Lummi Reservation covers 20,500 acres, 8,000 of which are tidelands. The current enrolled Lummi population is 4,929, with the majority living on the Reservation or in the nearby cities of Bellingham or Ferndale. The Interchange Project is within Washington's 2nd Congressional District.

Slater Road forms the north boundary of the Reservation. Slater Road accesses the Reservation, Whatcom County rural and agricultural areas, the south end of the city of Ferndale, the north end of the city of Bellingham, the Cherry Point Heavy Industrial area, the Fisherman's Cove commercial fishing harbor, and the Lummi Island Ferry Terminal.

The Interchange Project (Exit 260 – MP 259.71 to 260.56) is located immediately northeast of the Reservation between the cities of Ferndale and Bellingham in a section of rural Whatcom County, Washington. The Reservation is southwest of the Interchange.

Urban or Rural Classification

According to the 2010 US Census, the Interchange is the boundary between Urban and Rural Census designations. However, only the northeast quadrant of the Interchange Project is within the Census-designated Bellingham Urbanized Area. Census mapping indicates that the northwest, southwest, and southeast quadrants of the Interchange Project are designated as rural. Thus, the majority of the Interchange Project on which FASTLANE funds will be expended is deemed rural.

In addition, the Bellingham Urbanized Area has only 114,000 population as per the 2010 Census. According to FASTLANE criteria, a Census-designated urbanized area has to exceed 200,000 population for this grant to be placed in the "urban" category.

Both these factors indicate a RURAL designation for FASTLANE grant purposes. Therefore, the Interchange Project would qualify for the 25% rural set-aside under FASTLANE.

III. PROJECT PARTIES

Grant Recipient

The Lummi Nation's Lummi Indian Business Council (LIBC) will be the recipient of this FASTLANE grant for the Interchange Project. The LIBC is the duly elected governing body of the Lummi Tribe of the Lummi Indian Reservation by authority of the Constitution and By-Laws of the Lummi Nation as approved on April 10, 1970 by the Assistant Commissioner of Indian Affairs. The Lummi Nation became self-governing

under congressional legislation in 1994. The political and government-to-government relations of the Lummi Nation are managed by the LIBC, eleven (11) members of the community who are elected to three-year staggered terms through public elections by the community at large (currently 4,483 enrolled members).

LIBC will provide for grant administration and project management, and will contract for all final engineering, permitting, construction, and other project requirements. The Lummi Commercial Company, a duly incorporated tribal business, previously provided funding for project planning and preliminary engineering. Planning and preliminary engineering is complete.

Other Affected Public and Private Parties

The other key entity providing funding for this project is the State of Washington through its *Connecting Washington Investments* program. This State program does NOT include any federally-sourced funds and thus can be used for the full 40% match based on future eligible project costs.

The Lummi Reservation is within Whatcom County, as are the cities of Ferndale and Bellingham. The jurisdictional advisory committee for this Interchange Project includes these endorsing jurisdictions: City of Ferndale (located north of the Interchange Project), the City of Bellingham (located south of the Project), Whatcom County, Whatcom Council of Governments (WCOG), and WSDOT. The Office of Senator Maria Cantwell, plus private interests, are also in support. WCOG has designated the Interchange Project as the highest priority regional transportation need within the County.

Written endorsements and other documents supporting this FASTLANE application are available on the Interchange Project website – http://www.lummi-nsn.org/website/index2.html.

V. SOURCES and USES of ALL PROJECT FUNDS

Table A: Interchange Project Activities

Construction Total	**$19,171,614.66**
Construction Engineering (10%)	$1,763,718.00
Preliminary Engineering (12%)	$2,116,461.60
R/W - Not Required	$0.00
Environmental and Construction Permits	$100,000.00
TOTAL COST	**$23,151,794.26**

Table B: Interchange Project Details

	Lummi Nation	WA State	FASTLANE	Total
Prior Costs				
Previously Expended (Planning and Preliminary Engineering)	*$1,100,000*	*$0*	*$0*	*$1,100,000*
Current Costs				
Engineering		$2,116,462		$2,116,462
Environmental and Construction Permitting		$100,000		$100,000
Right of Way Acquisition		$0		$0
Construction Engineering and Administration		$1,763,718		$1,763,718
Construction Costs (Includes Contingencies)		$5,200,000	$13,971,615	$19,171,615
Funding				
Committed/Expected for Future Eligible Cost	$0	$9,180,180	$13,971,615	$23,151,794
% of Future Eligible Cost	0%	40%	60%	
% of Total Cost	5%	38%	58%	$24,251,794

NOTES to Preceding Tables

- No restrictions attached to specific funding sources.
- No prior or pending Federal investments.
- No pending Federal funding requests.
- WA State funding is exclusively committed to this project.
- Project is a highway project under FASTLANE criteria.

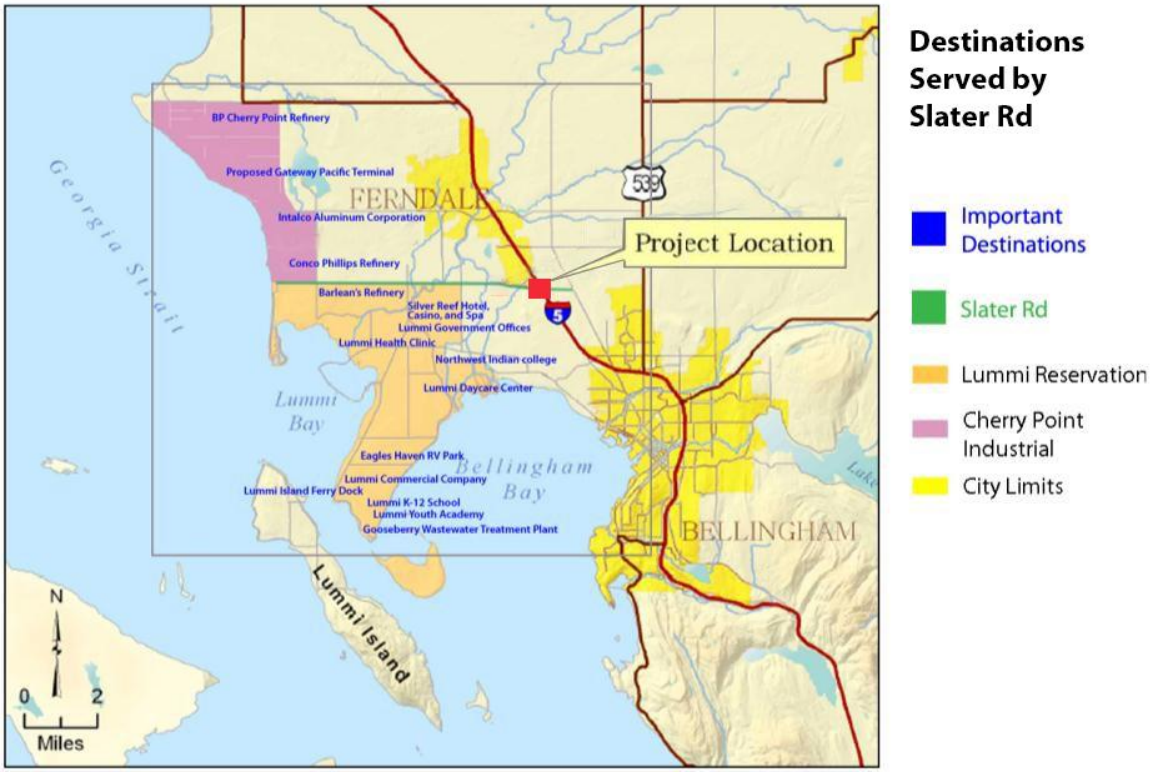
VI. MERIT CRITERIA

PRIMARY REVIEW CRITERIA

a. Economic Outcomes

- The Interchange Project will have immediate benefits for economic development in the vicinity of the Interchange, and for access to employment and industry.
- Current Employment and Freight Generators

- On the Lummi Reservation, employment generators include Silver Reef Hotel, Casino and Spa, Lummi Health Clinic, Northwest Indian College, Lummi Government Offices, Lummi Commercial Company, Lummi Island Ferry, and the Fisherman's Cove Harbor. North of the Reservation, industrial employment comes from the BP Cherry Point Refinery, Conoco Phillips Refinery and Intalco Aluminum.
- The following map – *Destinations Served by Slater Road* - illustrates the location of these and other existing industrial and employment centers west of I-5. As can be seen, Slater Road is the primary and most direct access for most of these centers, and a key part of access to the Gooseberry Point/Fisherman's Cove community. Access to all these foregoing employment generators will be increasingly impaired by existing and projected Interchange conditions, unless improvements are made.

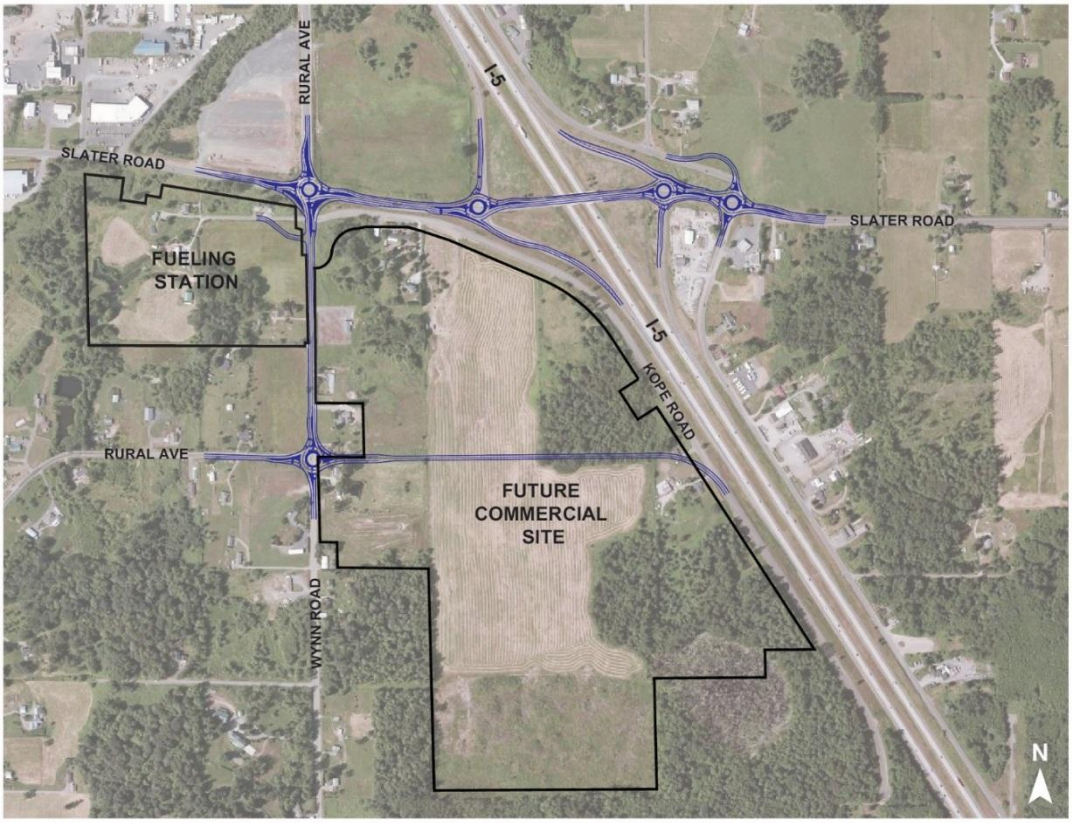


Future Employment and Freight Generators

The following map illustrates proposed development in the immediate vicinity of the Slater Road/I-5 Interchange. The Lummi Nation is developing a plan for these 160 acres, which are Lummi Nation Trust Lands. This includes plans to build a full service truck stop and passenger vehicle fueling station, with a convenience store and a drive-through fast food restaurant, at the southwest corner of Slater Road and Rural Avenue. In

addition, the Nation is planning more commercial, service industry, and institutional development on this Trust land south of Slater Road between Rural Avenue and the immediate west side of I-5 and Kope Road (an I-5 frontage road). This overall Lummi Nation development plan will consist of 715,000 square feet of mixed uses and 340 hotel rooms. Potential mixed uses include high-turnover sit-down restaurant, professional offices, Tribal museum, and a retail shopping center.

Once developed, these 160 acres are anticipated to generate 3,354 total external trips, 2,644 new trips, and 710 pass-by trips during PM peak hours. Eight percent of these trips will be generated by freight vehicles, adding to the approximate 20 percent of the traffic using the Interchange that is currently freight vehicles (according to recent studies done by Whatcom County). Current and proposed ramp and intersections conditions will be impacted by these developments, as well as from growth in current businesses and industries.



Future Westside Lummi Development Project

Ramp and Intersection Conditions

The Interchange Project will benefit the Reservation, surrounding cities, and rural lands by ensuring rapid ingress and egress in all conditions through this one of just two primary area access roads to these communities. Area workers will be able to access employment

reliably, goods will shipped two and from area industries efficiently, and area residents can access necessary services and businesses, including emergency services.

The existing Level of Service (LOS) analysis shows that the intersection of Slater Road at Rural Avenue operates at LOS B, but the remaining study intersections operate at LOS F. The intersection of Slater Road at Rural Avenue operates at LOS B since it is a signalized intersection with channelization for most movements. It is important to note that the existing queue length on the northbound off-ramp identified in the analysis is approximately 650 feet (the ramp has approximately 1,200 feet of storage available).

The future build-out ramp volumes for the PM peak-hour are based on the turning movements used for the intersection level of service analysis, and are estimated to be approximately 19% greater than the existing peak hour volumes.

All of the study intersections are anticipated to operate at LOS F with severe delays under the build-out conditions. Additionally, it is assumed that the queue length on the northbound off-ramp will extend beyond the 1,200 foot ramp based on the increase in delay, especially since the queue length was not able to be calculated by the software due to the volumes and delay. The preferred alternative to provide adequate capacity for the future build-out conditions are full 2-lane roundabouts.

NOTE: The new extension of Rural Avenue/Wynn Road to Kope Road, although routed through the Nation's planned commercial site development, is NOT for the benefit of that future project. The extension allows part of Kope Road to be closed to reduce significant current and future conflicts with Interchange ramp traffic.

Table C: Level of Service Summary

Intersection	2013 Existing Conditions		Future Build-Out Conditions	
	LOS	Delay	LOS	Delay
Slater Rd at Rural Ave.	B	13.7 sec	F	320.9 sec
Slater Rd at I-5 SB Ramps	F	85.1 sec	F	1,000 sec +
Slater Rd at I-5 NB Ramps	F	262.4 sec	F	1,000 sec +
Slater Rd at Pacific Ave.	F	313.0 sec	F	1,000 sec +

b. Mobility Outcomes

According to the 2010 US Census, 74 percent of Lummi workers drive to work alone, and 14 percent carpool. Among those who commuted, it took an average of 21 minutes to get to work. Traffic on Slater Road has been growing at 2.5 percent per year and is expected to continue growing at that rate. For each afternoon peak hour in 2018, vehicles would experience a total of 778 hours of additional delay compared to a no-build scenario. Estimating 250 peak hours per year, this amounts to 194,441 hours per year of additional delay, starting in 2018.

The Interchange Project will better connect Lummi Reservation commuters to employment opportunities, health services, and schools in the cities of Ferndale and Bellingham; and improve access from those cities and from surrounding Whatcom County to services and employment on the Reservation such as the tribal casino, the Fisherman's Cove fishing harbor, the tribal college, etc.(see earlier *Destination* map).

Non-motorized Users

According to WSDOT's *Fairhaven-Slater I-5 Master Plan*, there are only two dedicated non-motorized highway crossings in this entire I-5 corridor. Six of the nine interchanges in this corridor have sidewalks, but only one has a designated bike lane.

The Interchange Project will include a 10-foot-wide combined bicycle/pedestrian sidewalk on the Interchange deck connecting to sidewalks and bike lanes on Slater Road at both ends.

Workforce Opportunities

- The planned 160-acre Lummi commercial development of the west side of I-5 and south of Slater Road will provide additional employment opportunities for Lummi citizens and Reservation residents, as well as residents of Whatcom County, Ferndale, and Bellingham. On the Lummi Reservation, there are significant low-income, disabled and elderly populations that will benefit from increased job opportunities and from the general economic improvement that will be unlocked by this development. Statistics derived from the 2010 Census follow:
- Fifty percent of the population 16 and over were employed; **43 percent were not currently in the labor force**
- The **median income of households in Lummi was $49,026. 17 percent of households had income below $15,000** a year.
- **Twenty-four percent of people were in poverty.** An estimated 34 percent of related children under 18 were below the poverty level, compared with 16 percent of people 65 years old and over. An estimated 18 percent of all families and 38 percent of families with a female householder and no husband present had incomes below the poverty level.
- For the civilian non-institutionalized population, **19 percent reported a disability**.
- The median age was 39.8 years. An estimated 25 percent of the population was under 18 years and **14 percent was 65 years and older**.

c. Safety Outcomes

The Interchange Project is necessary due to existing and worsening safety and operational problems. The Interchange Project will improve the existing and future operation of northbound and southbound ramps and two adjacent intersections, including reducing the existing and future queue impacts on the ramps.

The several planning, traffic, and engineering studies conducted for this Project demonstrated that the northbound and southbound Interstate-5 ramp terminals at Slater Road, and the adjacent (east side of I-5) Slater Road/Pacific Avenue intersection currently operate at LOS F. In addition, the 95th percentile queue on the northbound off-ramp is anticipated to impact the I-5 northbound mainline volumes.

Construction of a new roundabouts as part of the Interchange Project at the nearby (west side of I-5) Slater Road/Rural Avenue and at Rural Avenue/Wynn Road will avoid the similar problems to those currently experienced on the eastside..

d. Community and Environmental Outcomes

- Slater Road is an important regional east-west corridor that provides access to areas between and through the Lummi Reservation and the cities of Bellingham and Ferndale. Slater Road through the Slater Road/I-5 Interchange is the primary access to the Lummi Reservation. The Interchange Project is necessary to maintain acceptable roadway operations to sustain access to these communities for goods and services, including efficient delivery of goods through surface transportation freight, as no other efficiently accessible connections to I-5 currently exist.
- The Interchange Project will help sustain existing jobs, and also support creation of new jobs as an outcome of the planned new Lummi truck fueling station and other future commercial development in the southwest quadrant of the Interchange (see narrative and map under *Economic Outcomes* above).
- The proposed Interchange improvements will lessen the environmental impacts – pollution, noise - of the I-5 mainline by reducing the impacts of off-ramp queues and improving the operation of the local intersections. Some minor wetlands are impacted by the new Interchange design (see map below). These impacts will be fully mitigated as part of the Interchange project.

Interchange Project Wetland Mitigation

OTHER REVIEW CRITERIA

a. Partnership and Innovation

- This Interchange Project is being helmed by the Lummi Nation through its Lummi Indian Business Council (LIBC) on behalf of the neighboring cities of Bellingham and Ferndale, Whatcom County, Whatcom Council of Governments, and WSDOT.

b. Cost Share

- The Lummi Nation's Lummi Commercial Company has funded ($1.1 million) and completed all necessary planning and preliminary engineering for the Interchange Project.
- The State of Washington through its Connecting Washington Investments program has committed $8.83 million toward future eligible project costs.

VII. LARGE/SMALL PROJECT REQUIREMENTS

The Interchange Project improvements that are subject to this request for funding assistance from the FASTLANE grant program are estimated to cost $23,150,000. $1.1 million of this amount

was previously expended to produce now completed planning and preliminary engineering tasks. $22.05 million is required to complete the project (termed "future eligible project costs").

Planning/PE (previously expended)	$1.1 M
PS&E	$1.9 M
Right-of-Way Acquisition	$0.2 M
Construction, incl. construction contingencies	$19.95 M
TOTAL:	**$23.15 M**

NOTE: *The minimum project value for a "one-state" Large Project for the State of Washington is $100 million. Therefore, the Interchange Project is a SMALL Project under FASTLANE, and would be considered under the 10% of total FASTLANE funding reserved for Small Projects.*

VIII. COST EFFECTIVENESS

The full BCA, as produced by EcoNW for this Interchange Project, is supplied on the project website for this FASTLANE application. A summary of this analysis follows:

Table D: BCA Summary for Proposed Interchange Project Improvements

Slater Road Interchange Benefit-Cost Analysis				
Total Present Values (2016-2038)	7% Discount Rate		3% Discount Rate	
Total Costs	**$**	**(18,234,986)**	**$**	**(19,921,675)**
Construction Costs	$	(19,517,682)	$	(21,405,163)
Maintenance Costs	$	1,282,697	$	1,483,488
Total Benefits	**$**	**28,591,227**	**$**	**61,441,529**
User Delay Benefits	$	28,591,227	$	61,441,529
Net Economic Benefits	**$**	**10,356,241**	**$**	**41,519,854**
Benefit Cost Ratio		**1.57**		**3.08**

Economic Benefits

The volume to capacity for the Slater Road/I-5 Interchange will go from over 4.0 in the current scenario to less than 1.0 with the proposed improvements. That is a 400% decrease in delay with the improvements. This analysis examined only the benefits directly associated with reduced delay due to improvements to the interchange.

The economic benefits reported here do not include the economic development impacts that would accrue to the local area if the road were improved. The Interchange Project will benefit the area by ensuring rapid ingress and egress through one of two primary area access roads in all conditions meaning that area workers can get to employment reliably, that goods can be shipped to and from area industries, and that area residents can access necessary services and businesses, including emergency services.

User Delay Benefits

For each afternoon peak hour, in 2018, vehicles using the Interchange and adjacent roadways would experience a total of 778 hours of additional delay compared to the no-build scenario. Estimating 250 peak hours per year, this amounts to 194,441 hours per year of additional delay, starting in 2018.

To get from hours of benefit to dollars, federal guidance for TIGER grant applicants was used: $12.90 per hour for autos and $24.90 for trucks. Twenty percent of the affected traffic are freight vehicles, based on traffic counts provided by Whatcom County, for a weighted average value of time of $15.62 in 2016 dollars.

The present value, in 2016, of user-delay benefits is $28.6 million when discounted at the required, private real discount rate of 7% and $61.4 million when discounted at the alternative, public real discount rate of 3%.

Operating Costs

When the project is completed, maintenance costs will be lower, especially in the near term. In addition, an estimated $5,000 per year in maintenance costs directly related to mowing, striping, and storm system cleaning would be saved. The present value in 2016 of the difference in maintenance costs with and without the improvement is $1.283 million at a 7% discount rate and $1.483 million at a 3% discount rate.

IX. PROJECT READINESS

Technical Feasibility

Between 2013 and the present, the Lummi Nation has led local and regional efforts to assess effective access improvements to and from I-5 to support planned economic development in the region. These efforts included forming a stakeholder and study support group to collaboratively define the needs and improvements on Slater Road in the vicinity of the Interchange, the local road network, and the Interchange area itself.

The study support team included FHWA, WSDOT, Whatcom County, the Lummi Nation, City of Ferndale, City of Bellingham, Port of Bellingham, and the Whatcom Council of Governments (WCOG). This work included traffic analysis, developing alternatives, developing probable costs, and conducting environmental screening. The group evaluated and has selected the preliminary preferred alternative (Alternative D) for advancement to Environmental Documentation and design phase for NEPA/SEPA.

In a 2-year period, over a dozen alternatives were identified and evaluated for their benefits to I-5, Slater Road, and the local road network. The project team and stakeholder group developed evaluation and screening criteria to assess the benefits and impacts of each alternative in the following categories:

- Design Guidance Compatibility
- Limited Access Control

- Right-of-Way Impacts
- Constructability
- Traffic Operations
- Safety
- Multi-modal Opportunities
- Consistency with Long Range Plans
- Local Road Network Connectivity
- Design Compatibility
- Noise
- Wetland/Stream Impacts
- Hazardous Site/Materials
- Cultural/historical/archeological Resource Impacts
- Cost
- Operations and Maintenance
- Economic Development

The Project's Technical Team developed preliminary designs for each alternative and their associated footprint, right of way need, limited access control impacts, wetland/stream impacts, cost estimates, traffic analysis benefit, safety benefits, noise impacts, and investigated the other screening criteria. Discipline studies, including a Wetland Delineation report have been initiated to inform the environmental process and documentation for NEPA and SEPA. Right-of-way for the project will come from existing public road rights of way owned by WSDOT, Whatcom County, City of Ferndale and the Lummi Nation. Private property acquisition is not needed to implement the project.

This group evaluation process identified and (Alternative D) as the solution to carry forward in environmental documentation as the preliminary preferred alternative. This alternative is endorsed by FHWA, WSDOT and the other stakeholders. Currently, the Project Team is advancing the design of Alternative D and conducting the discipline reports to complete NEPA/SEPA in a documented Categorical Exclusion in 2017.

Alternative D is the project described in this grant application for FASTLANE funding.

Project Schedule

	SEPT 2014 – DEC 2016	2017				2018				2019			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Planning and Environmental													
Stakeholder Collaboration													
Alternatives Development													
Preliminary Engineering													
Environmental Screening													
Costs Evaluation													
Alternative Selection													
Environmental Documentation (NEPA/SEPA)													
Final Design and Construction Documents													
Environmental and Construction Permits													
Construction													

Required Approvals

a. Environmental Permits and Reviews

The following environmental permits and approvals will be obtained as part of final PS&E for the Interchange Project, as per the schedule above.

- SEPA Review, Expanded Environmental Checklist
- NEPA Review, Documented Categorical Exclusion
- Clean Water Act (Section 404)

b. State and Local Approvals

The State of Washington is providing non-Federal match in the amount of $8.82 million through its *Connecting Washington Investments* Program. The following state and local permits and approvals will be obtained as part of final PS&E for the Interchange Project, as per the schedule above.

- Washington Department of Fish and Wildlife: Hydraulic Project Approval
- City of Ferndale and Whatcom County Critical Area Review

- NPDES Construction Stormwater General Permit
- Washington Department of Ecology: 401 Water Quality Certification

c. State and Local Planning

The Interchange Project is included in planning documents produced and adopted by the following jurisdictions:

- Washington Department of Transportation (WSDOT) – WSDOT Fairhaven to Slater Master Plan (2008)
- WSDOT – Bakerview to Grandview Subarea Plan (2016)
- Lummi Nation Development Plans (2016)
- City of Ferndale – Comprehensive Plan, Transportation Element (2012)
- City of Ferndale – Main Street Master Plan Planned Action EIS (2011)
- City of Bellingham – Comprehensive Plan (2006)
- Whatcom County – Comprehensive Pan
- Port of Bellingham – Bellingham International Airport Master Plan (2004)

d. Assessment of Project Risks and Mitigation Strategies

The areas of potential major risks identified for the Interchange Project are related to right-of-way acquisition, environmental documentation and permitting, and project costs and funding availability.

Right-of-Way

There's little to no risk of delay or additional cost related to right-of-way acquisition. As discussed in other sections of this grant application, the additional right-of -way beyond the existing road rights-of way is being provided by the Lummi Nation, the project proponent. FHWA and WSDOT have already endorsed the project solution and support the work to be done in the Slater Road/I-5 Interchange area. All local jurisdictions have been involved in Project planning and preliminary engineering and support the Project improvements to the local road network.

Environmental

The environmental risks on this Project are related to the environmental impacts and mitigation and documentation. While a complete environmental study covering the discipline areas is not yet complete, the Project Team has conducted the preliminary assessment on each element including:

- Transportation – Project will benefit all modes including freight, cars, pedestrians, bicycles, and transit.
- Land Use, including Acquisitions and Displacements – None required.
- Noise – Limited receptors.
- Ecosystem Resources including Wetlands – Completed wetland delineation and preliminary impacts and mitigation opportunities on site are available.

- Water Resources – Project creates opportunity to increase stormwater runoff treatment where little exists today.
- Cultural Resources – Lummi Nation has no recorded sites in the Project area
- Air – Air quality will be improved by reducing congestion
- Geology and Soils – Geotechnical investigation in process
- Hazardous Materials- No recorded sites in Project area impacts
- Social and Community – Eight stakeholder meetings conducted and one public open house conducted in 2016.
- Visual Resources – Not initiated

Based on the initial findings, the environmental documentation process has limited risk of delay to the project. Early and continuous consultation with the regulatory agencies at the state and federal level begin in early 2017 thru completion of the environmental documentation and permitting process.

Costs and Funding

- The total costs for this Project have been estimated based on 3D model of the preliminary design. These costs include a 10% contingency and are inclusive of all known costs to the Project.
- The Lummi Nation and other stakeholders have the capability to augment Project funding as needed should additional or increased costs to the project be identified. To manage this risk, the Project Proponent and Project Team will continue to update component costs and costs to complete on a quarterly basis though the completion of construction. Should additional costs be identified beyond the costs/funding for the Project, the team will collaborate and fill the gap.
- WSDOT has adopted a Least Cost Planning, Practical Solutions and Practical Design process for projects receiving state funds. One of the key reasons the Project's Alternative D was selected was because of lower cost. In cooperation with WSDOT, this Project will be evaluated to determine if there are additional cost savings that can be realized without impacting the Project benefits.