

TABLE OF CONTENTS

Granite Falls Bridge #102 Replacement (Snohomish County) Washington

<u>SECTION</u>	<u>PAGE</u>
A. Project Description	1
B. Project Location	6
C. Project Parties	6
D. Grant Funds, Sources and Uses of Project Funds	8
1. Future Eligible Costs	
2. Funding Sources (Local and Federal)	
3. Project Budget	
4. Use of NSFHP Grant Request	
E. Cost-Effectiveness (BCA)	9
F. Project Readiness	11
1. Technical Feasibility	
2. Project Schedule	
3. Required Approvals	
a. NEPA	
b. Other Agency Approvals/Permits	
c. Environmental Studies	
d. WSDOT Environmental Review/Approval	
e. Public Engagement	
f. State and Local Planning and Approvals	
4. Assessment of Project Risks and Mitigation Strategies	
G. Merit Criteria	20
1. Economic Outcomes	
2. Mobility Outcomes	
3. Safety Outcomes	
4. Community and Environmental Outcomes	
H. Other Review Criteria	24
1. Partnerships and Innovation	
2. Cost Share	
I. Attachments	25

NARRATIVE

Granite Falls Bridge #102 Replacement (Snohomish County) Washington

A. Project Description

Granite Falls Bridge #102 is located on Mountain Loop Highway in East Snohomish County, WA. This is a scenic road heavily used by thousands of visitors to the Mount Baker-Snoqualmie National Forest, truck drivers hauling thousands of tons of construction materials that support economic growth in the Greater Puget Sound area and by local Granite Falls' adults and children making their way to work and school (See Attachment–Maps).

Strategic Importance and National Freight System's "Last Mile"

Granite Falls Bridge #102 is of strategic importance to Snohomish County and the Puget Sound area because it is a direct connection between resource materials and a T-2 freight corridor that moves 4 to 10 million tons of construction materials per year. This bridge completes the "Last Mile" on State Routes 9 and 92 to the national freight system. See WSDOT page: [Truck Freight Economic Corridors WSDOT PSRC](#).

The Granite Falls Bridge #102 project is part of a larger Snohomish County program to increase freight mobility and capacity through the area and it is the next logical project after a significant federal/local investment on the Granite Falls Alternate Route (GFAR) (See Attachment–Maps).

Should the bridge fail, or need to be closed for maintenance, the detour route is 94 miles on a route that is closed during the winter months, a portion of which is built to minimal forest service standards. The detour is approximately three hours long. This alternative route results in lost time, lost value, higher rate of diesel-related emissions and increased safety conflicts on the detour route (See Attachment–Maps).

The project proposes to replace an 82 year old structure utilizing a construction type, hinged steel truss, which is no longer approved by the American Society of Civil Engineers. Due to its construction type, it is not feasible or reasonable to renovate the structure to bring it up to current standards. It has been designated by the Washington State Department of Transportation as being structurally deficient



Granite Falls Bridge #102 –Narrow Bridge Width

and has an overall Sufficiency Rating below 50 on a 100 point scale and is determined to be fracture critical. It presents serious safety problems, most importantly its width as a large truck and another large vehicle can barely pass each other, even at reduced speed limits. In the event of a side swipe or other deflective incident the bridge railings are neither high nor strong enough to keep even a light vehicle from breaking through and into the gorge 90 feet below. The bridge has average daily traffic (ADT) of 4,816. Buses serving the Granite Falls School District make fourteen round trips (28 individual crossings) per day during the school year.

Problem Statement

Granite Fall Bridge #102 was first recommended for replacement in the 2012 Snohomish County Public Works Annual Bridge Report due to the following:

Current Transportation Challenge

The existing bridge is not wide enough for two trucks. Trucks larger than FHWA Class 5 and/or school buses, FHWA Class 4, need to wait on either end of the bridge for similarly sized vehicles to pass in the opposite direction. This is particularly problematic because the bridge is heavily used by trucks in the mining and timber industries. Traffic counts from 2015, the most recent complete information available, indicate that these classes of vehicles comprise over 13% of bridge traffic during peak hours. Moreover, the obsolete geometry of the bridge requires significant speed reductions, i.e., the posted speed limit on both bridge approaches is 45 mph while the bridge itself is posted at 35 mph; when a heavy truck passes any vehicle on the bridge the effective speed is significantly less than the posted speed for safety reasons. Construction materials are constantly being transported on the bridge from the local mines and timberlands to the Greater Puget Sound area. In 2015, there was an average of 564/day heavy trucks that crossed the bridge. Also, the bridge is a school bus route. The Granite Falls School District provides transportation for students on the Mountain Loop Highway year round. There are 218 students picked up in the morning and 185 driven home in the afternoon with a total of 28 daily trips across the bridge. The bridge is only 20 feet wide from face-of-curb to face-of-curb. This narrow width makes it challenging even for two sedans to pass each other. The Granite Falls Bridge is a bottleneck.

Bridge Strategic Value (Preventive Measure)

The condition of the existing bridge is not reliable in the long term. The bridge is eighty-two years old and coming close to the end of its useful life. The structure is a hinged steel truss which eliminates the possibility of widening the bridge. This type of bridge is no longer approved for construction. The existing structure is rated structurally deficient and is fracture critical (has a sufficiency rating of 49). With this in mind, we know it is only a matter of time before the existing structure can no longer support traffic. If the current bridge was to fail, the detour route is 94 miles on a route that is closed during the winter months and a portion of it is built to minimal forest service standards. The detour is approximately three hours long.

Granite Falls Bridge #102 provides a link between construction resources (sand, gravel, rock and timber) and the construction industry in the Greater Puget Sound Metropolitan area for both public and private construction. For example, Granite Falls Bridge #102 provides an economic connection between Green Mountain Mine (a local quarry) and the Boeing Company in Everett, WA. Green Mountain Mine, one of the quarries in the vicinity of the project footprint, provided aggregate-rock, gravel and sand for contractors working on the 1.3 million square foot Boeing facility. Construction of Boeing's 777X wing plant began in the Fall of 2014. The building was the largest single structure under construction in Washington State. At its peak, the construction employed 1,200 people, and consumed 31,000 tons of steel and 170,000 tons of concrete.

From an economic perspective, this project aligns with the North Stillaguamish Valley Economic Development Plan supported by the Office of Senator Maria Cantwell, City of Arlington and the Town of Darrington. Specific goal alignment:

- 1.1 Build highway and arterial infrastructure critical for economic development
- 2.1 Support and grow existing businesses in the Stillaguamish Valley
- 2.7 Stabilize natural resource industries in the Stillaguamish Valley and continue to grow value-added activities
- 2.8 Continue to strengthen the Stillaguamish Valley's sustainable tourism assets and supporting services
- 6.3 Advance the quality and sustainability of natural resource-based employment in timber and mining

https://www.economicalliancesc.org/wp-content/uploads/2015/07/N_Stillily_Valley_ERS_2015.pdf.

If not replaced, the poor condition of the Granite Falls Bridge #102 will threaten future transportation network efficiency, mobility of goods, accessibility and mobility of people and economic



Boeing's 1.3-million-square-foot 777X wing plant in Everett, WA (Puget Sound Business Journal)

growth. This project provides local residents with a reliable and safe connection to employment, higher education institutions and other essential services such as major hospitals.

Granite Falls Bridge #102 Replacement project also provides access to recreational parks. This bridge is on the Mountain Loop Highway, one of the main access routes to Mount Baker-Snoqualmie National Forest and the Boulder River Wilderness. Tourism is economic development. Visitors in Washington State spent \$19.5 billion in 2014; accounting for \$1.7 billion in tax revenues and created 163,450 jobs. Snohomish County visitors spent \$992 million; accounting for \$31.2 million in tax revenues and created 10,340 jobs. The Mountain Loop Highway is featured in many outdoor publications and focuses on the recreational opportunities in the national forest such as hiking, fishing, snowshoeing, mountain climbing, and camping. Much of the County's outdoor recreational opportunities are in this area.

Mountain Loop Highway is an east-west alternate route to SR530. Mountain Loop Highway was used as a secondary detour route in March of 2014 after the SR530 Landslide (Presidential Disaster Declaration) to access the Town of Darrington via the Granite Falls Bridge #102.

Solution to Problem Statement

The project consists of replacing the existing Granite Falls Bridge #102 with a new bridge and removing the existing bridge. The proposed Granite Falls Bridge #102 Replacement project will fulfill its purpose and need by:

Transportation

The proposed bridge will be 30' wide face-of-curb to face-of-curb. The new structure will be wide enough for construction trucks and large vehicles to fit concurrently without having to wait on either end of the bridge. The bridge will also include 5 foot sidewalks on both sides.

Bridge Strategic Value

The proposed bridge will be designed and built to current engineering design standards. The life expectancy of the new structure is 75 years. Hence, the bridge will become a reliable economic link between local construction material sources and the Greater Seattle Metropolitan Area for decades. The new Granite Falls Bridge #102 will improve long term efficiency, reliability and costs in the movement of workers and goods.

FASTLANE Grant funds will be applied towards the construction phase of the proposed Granite Falls Bridge #102 replacement and the removal of the existing bridge. This bridge is difficult to fund with grant funding sources other than FASTLANE, because of the high construction cost estimate (\$23.6 Million). The amount being requested is 60% of the estimated construction cost or \$14.1 Million. The County is matching 40% of construction costs. Additionally, the project design and right of way phases are fully funded with County funds (See Attachment-Preliminary Project Cost Estimate).

The Granite Falls Bridge #102 Replacement project connects with and complements, but has independent utility from, an earlier project on the same freight corridor; the Granite Falls Alternate Route (GFAR, later named Quarry Road). This project was completed in 2011 and was administratively reviewed and accepted by WSDOT in 2012. The Granite Falls Alternate Route Project had substantial federal funding, approximately \$8 Million. Federal fund sources included ARRA, Demonstration, Discretionary and STP. In addition, the project had substantial state support through the Freight Mobility Strategic Investment Board (FMSIB) and private funding of over \$1 Million from quarry operators dependent on the bridge for product delivery.

Expected Project Users

a. Average Daily Traffic (ADT)

Documented traffic counts have shown that the bridge has varying degrees of use depending on the time, day, and month of year. On average there are 4,816 trips per day. Peak daily trip counts reach 6,734. In 2015, there was an average of 588 heavy vehicle trips per day on the bridge. This equates to approximately \$70M/year of raw construction materials being transported on the Granite Falls Bridge #102 (See Attachment-Traffic Data).

b. Granite Falls School District Students

The Granite Falls School District provides transportation for students on the Mountain Loop Highway year round. There are 218 students picked up in the morning and 185 driven home in the afternoon with a total of 28 daily trips across the bridge. The existing bridge is only 20 feet wide from curb to curb; the new bridge will be 30 feet curb to curb.

c. Local-Area Residents

According to the 2010 US Census Data, there are approximately 3,400 residents in Granite Falls and 1,347 residents in the Town of Darrington. Residents, truck drivers and tourists perceive a safety concern due to the narrow bridge.

d. Mining and Timber Industries

As of 2015, there were 571 workers in the Granite Falls and Darrington areas that commute in from the outside. The 3,695 workers living in the areas commute elsewhere for work. Only 164 live and work in the area. Local residents are not those who are employed in the mining, forestry and wood products manufacturing industries. According to the Washington State Employment Security Office, the quarries utilizing the crossing at Granite Falls employ over 250 employees with average wages of over \$57,000/year; their annual payroll is over \$14.5 Million

e. Emergency Services

In 2014, the Snohomish County Sheriff's Office responded to 1,294 emergency service calls from Granite Falls to the Town of Darrington on the Mountain Loop Highway.

The Snohomish County Sheriff's Search and Rescue Team responded to 173 missions (30% of their total) during 2013 – 2015 on the Mountain Loop Highway with over 2300 vehicle trips across Granite Falls Bridge #102. There were 1,513 volunteer responses to the 173 MLH missions and a total of 11,695 hours spent by Sheriff's Office personnel and members of Snohomish County Volunteer Search & Rescue. Of the 173 missions, hundreds of lost and injured citizens were rescued and 10 bodies were recovered.

Granite Falls Fire District 17 has five grids east of Bridge #102 which constitutes five square miles of their 38.5 square mile district. The response area continues east on the Mountain Loop Highway to the bottom of Sand Hill; however, they also provide coverage in the outlying area in conjunction with Robe Valley Fire District 23. They average 165 fire and aid calls per year.

f. Tourism

Mountain Loop Highway is one of the main routes to the Mt. Baker-Snoqualmie National Forest –one of the most visited National Forests in the country, according to the U.S. Forest Service website <http://www.fs.usda.gov/mbs/>. There were approximately 1.9M visits in Mt. Baker - Snoqualmie National Forest during fiscal year 2005. Included in the site visit estimate are 291,400 Wilderness site visits. Use of the Mountain Loop Highway by recreational users is growing by 2-5% per year. This creates additional congestion and potential conflict at the bottleneck at the Granite Falls Bridge #102.

B. Project Location

Granite Falls Bridge #102 is located approximately 1.5 miles east of the City of Granite Falls, Washington, at the coordinates of 48°06'12" N, 121°57'12"W, in the County of Snohomish, and carries Mountain Loop Highway traffic over the South Fork Stillaguamish River.

In accordance with the 2010 Census data, the bridge is located in an *Urbanized Cluster* (approximately 3,400 residents). Therefore, under the Nationally Significant Freight and Highway Program (NSFHP), the project is considered rural (See Attachment-Maps). This bridge provides direct access to the Mountain Loop Scenic Byway and the Mount Baker-Snoqualmie National Forest (See Attachment-Maps). It is a key through-route for transport of construction materials including timber, sand, gravel and aggregate resources critical to the Puget Sound Region via a T-2 freight route on the Granite Falls Alternate Route (GFAR) (See Attachment-Maps).

This highway is used for recreational opportunities and tourism, and for residents in the rural townships of Verlot, Robe Valley, and Silverton. If the current 82 year old bridge was to fail, the effects would be devastating to residents and to the local economy as the detour route is 94 miles long and take approximately three hours one way. In the winter months, the portion of the Mountain Loop Highway which leads to the Town of Darrington and Oso is closed and part of it is built to minimal forest service standards. This same highway was used for local residents as a secondary detour after the SR530 Landslide (Presidential Disaster Declaration) to access the Town of Darrington.

C. Project Parties

1. Local - Snohomish County

Snohomish County's Public Works Department employs approximately 600 employees and is responsible for the development and maintenance of the County's transportation system, disposal of solid waste generated within all of Snohomish County and control and management of surface water quantity and quality. The Roads Division is responsible for approximately 1,600 miles of road and 201 bridges.

Recent Awards: [Snohomish County Public Works Awards](#)

- 2015 Build Washington Construction Excellence
- 2015 American Public Works Association – Ray Morse Award
- 2015 American Public Works Association (National and State)

Snohomish County will work directly with the Washington State Department of Transportation (WSDOT) through their Local Programs Office for administration of FASTLANE funds. Snohomish County has Certification Acceptance (CA) to manage Federal Highway Administration funds. Public Works staff is experienced at working with stimulus funds including ARRA.

2. State - Washington State

Washington State Department of Transportation (WDOT),

Northwest Region HQ Office - Local Programs Office
15700 Dayton Avenue North, Shoreline, WA 98133

3. Regional - Metropolitan Planning Organization

Puget Sound Regional Office (PSRC)
1011 Western Avenue, Suite 500, Seattle, WA 98104-1035

4. Additional Stakeholders

Cemex USA (Aggregates/Quarry)	Frontier Communications/Comcast Cable
United States Forest Service (USFS)	Puget Sound Regional Council
Snohomish County Public Utility District	Washington Dept. of Fish and Wildlife
Washington Dept. of Natural Resources	Washington Dept. of Transportation

5. Quarries/Mines/Timber

Snohomish County contacted three Quarry Businesses: 1) Lee Langley, Iron Mountain Quarry, 20800 North Gun Club Road, Granite Falls, WA, 98252 425-486-3346; 2) Jason Lian, Plant Superintendent, and Leon Syrdykl, District Manager, CEMEX, 22022 Mountain Loop Highway, Granite Falls, WA 98252 (360) 691-3542; and 3) Annette with Aggregates West, company who was permitted to use the Green Mountain Mine, 26709 Mountain Loop Highway, Granite Falls, WA 98252 (360) 966-3641. All of the companies were helpful in assisting us with delivery information including tonnage, trips and locations.

Discussions with quarry operators and the USFS indicate projected increased activity in the mining and timber industries that transport building materials over the bridge. Freight traffic on the bridge is expected to increase as mines southwest of the bridge are closed due to declining material and urban growth pressure. Similarly, much of the land along the Mountain Loop Highway is owned by private timber companies. As with aggregates, the private timber owners are expecting future growth which is associated with the growth in the Puget Sound region. Both industries are strategically located to provide primary building materials to the I-5 corridor.

Quarry customers and destinations include The Port of Everett, including Naval Station Everett, WSDOT, BNSF, multiple local jurisdictions and private businesses building capital projects at various destinations throughout the greater Puget Sound area. For example, the Boeing 777X wing plant was receiving a truck from these quarries every six minutes during construction of the foundation. Aggregate products typically comprise approximately 60%, by volume, of the material in any large commercial building.

Due to the nature of what they produce and the cost of transport, these quarries cannot economically ship their product more than 50-75 miles. There is no viable alternative, over the long or even medium term, for shipping aggregate products to the Puget Sound Region; the only truck accessible detour requires a 188 mile round trip which is not sustainable for more than approximately four weeks before it is more effective for the quarries to temporarily shut down. The crossing at Granite Falls is truly an economic lifeline for the success of the Region. PSRC information visit: <http://www.psrc.org/transportation/t2040>

Conversely, there are very few quarries within the 50-75 mile radius to make up the difference over the long term. Thus, the cost of aggregate products for the region can reasonably be expected to increase with the loss of the Granite Falls operations for a protracted period of time.

According to the Washington State Department of Natural Resources, on average, each Washington resident uses about 13.5 tons of aggregate per year. Demand can be linked to projected population growth. The cost of transport for aggregate doubles every 25 miles traveled by truck from the mine source. In 2010, Washington State had 955 permitted mines.

Equally significant is the relationship between the Granite Falls area products and the national defense related facilities within the same geographic boundaries: Naval Station Everett, Whidbey Island Naval Air station and the Port of Everett. Mineral aggregate products from this area have been approved for use as Class I Railroad ballast as well as more commonly identified building materials. The region’s military goods movement system consists of the Strategic Highway Network (STRAHNET), Strategic Rail Corridor Network (STRACNET), military bases, and sea ports of embarkation (Transportation 2040 Map D-8 <http://www.psrc.org/assets/10539/T2040Update2014AppendixD.pdf?processed=true>). Both projects, Granite Falls Bridge #102 Replacement and GFAR are efficiently connected to STRAHNET via SR92. Products from the Granite Falls quarries, are used by national defense related facilities such as Naval Station Everett and Naval Air Station Whidbey Island.

D. Grant Funds, Sources and Uses of Project Funds

1. Future Eligible Costs

Snohomish County is using local funds for all design and environmental mitigation activities. This request of \$14.1 M in NSFHP (FASTLANE) grant funds is for the project construction phase (only).

Granite Fall Bridge #102 Replacement Project Cost Estimate (2017 dollars)

Project Item	Cost Estimate	Eligible Costs	FASTLANE Request (60%)	Local Funding
Design Costs	\$1.4	\$0	\$0.0	\$1.4
Right-of-Way	\$0.1	\$0	\$0.0	\$0.1
Bridge and Roadway Construction	\$16.0	\$16	\$9.6	\$6.4
Environmental Mitigation	\$0.1	\$0	\$0.0	\$0.1
Construction Engineering	\$2.2	\$2.2	\$1.3	\$0.9
Contingency	\$4.3	\$3.9	\$2.4	\$1.9
Mobilization	\$1.5	\$1.5	\$0.9	\$0.6
Total	\$25.5	\$23.6	\$14.1	\$11.4

2. Funding Sources (Local and Federal)

We will be utilizing a minimum of 60% (\$14.1M in NSFHP) and a maximum of 80% (\$18.8M) of federal dollars to fund construction of this bridge replacement project. Local match will be from the Snohomish County Road Fund which is secured funding. In 2015, Snohomish County applied for USDOT TIGER and scored very well – the application passed all the technical reviews and was forwarded to the United States Secretary of Transportation as a “highly recommended” project. Snohomish County intends submit a TIGER grant application in 2016. (See Application Website for 2015 TIGER Application www.snohomishcountywa.gov/3028.)

3. Project Budget

Snohomish County is requesting 60% of eligible costs (construction phase only) as shown in Section D1 above. All costs associated with design, right of way and environmental mitigation are being paid for by County Road Fund.

4. Use of NSFHP Grant Request

Snohomish County is requesting \$14.1 Million in FASTLANE funds, 60% of the total construction cost estimate, including Construction Engineering (CE). The 40% local match will be funded by County Road Fund (CRF) and available upon award of FASTLANE funding (See Attachment-County Road Fund Balance).

a. Prior Investment

The County has spent \$850,000 in local funds coordinating the interdisciplinary project development, including the 30% design, the current status of implementation.

b. Historic Investment – Freight Corridor

The Granite Falls Bridge #102 Replacement project connects with and complements, but has independent utility from, an earlier project on the same freight corridor, the Granite Falls Alternate Route (GFAR). This project was completed in 2011 and administratively reviewed and accepted by WSDOT in 2012. The Granite Falls Alternate Route Project had substantial federal funding, approximately \$8 Million. Federal fund sources included ARRA, Demonstration, Discretionary and STP. In addition, the project had substantial state support through the Freight Mobility Strategic Investment Board and private funding of over \$1 Million from quarry operators dependent on the bridge for product delivery. The project is now called Quarry Road and routes the 1200 +/-day heavy trucks around rather than through the community of Granite Falls. The Granite Falls Bridge #102 Replacement Project will be aligned to intersect with Quarry Road such that truck traffic in both directions can safely maintain optimum operating speeds to and from the quarries while allowing private and other small vehicles to travel as well (See Attachment-GFAR STIP).

E. Cost Effectiveness (BCA)

Analyzing benefits and costs for the Granite Falls Bridge #102 Replacement presents unique challenges as the project is preventive rather than corrective in nature. The BCA relies on consultation with subject matter experts primarily in the fields of structural engineering and environmental analysis to project what is reasonably likely to happen to identify changes from the project baseline. The value of the benefits and costs of these changes is based on basic

literature research produced by credible agencies such as the US Department of Labor, US Environmental Protection Agency, Washington State Department of Employment Security and the Washington State Department of Transportation among others. Every effort has been made to keep the analysis as simple, straightforward and transparent as possible. The assumption parameters were developed in consultation with the Freight Policy Institute at Washington State University. The planning horizon was established as 2040; this is consistent with the horizon used by the Metropolitan Planning Organization in its transportation planning document Transportation 2040. This is appropriate because the project is a regionally significant capacity improvement within the context of that document and the benefits will accrue to that region. It is important to establish that benefits that accrue to the Puget Sound Region accrue to the nation as well. The region is one of the largest and most rapidly growing in the United States. It is a major international gateway and home to numerous military installations as well the regional headquarters of many federal agencies including but not limited to the Federal Transit Administration, Federal Aviation Administration, US Dept. of Commerce and the US Dept. of Labor. It is also the headquarters of the Seattle District of the US Army Corps of Engineers.

The existing bridge creates a bottleneck and is not wide enough for two trucks to pass. This causes traffic delays and congestion. Trucks need to wait on either end of the bridge to allow for a large vehicle to pass in the opposite direction. This is particularly problematic because the bridge is heavily used by trucks in the mining and timber industries. Construction materials are constantly being transported on the bridge from the local mines and timberlands to the Greater Puget Sound area. The eastern bridge approach profile causes vehicles, especially loaded heavy trucks, to bottom out at the bridge superstructure. Based on summer 2015 peak hour traffic counts, there is an average of 588 heavy vehicles (trucks and buses) per day that cross the bridge.

The Granite Falls School District provides transportation for students on the Mountain Loop Highway year round. There are 218 students picked up in the morning and 185 driven home in the afternoon with a total of 28 daily trips across the bridge.

The Comprehensive Plan specifically acknowledges that freight mobility is a pivotal factor in the County's ability to stay economically competitive in the regional marketplace. It goes on to note that the transportation industry is emphasizing just-in-time delivery of products, thereby relying on the transportation system to function so as to provide a reliable flow of goods. This is an important consideration given that the majority of freight traffic on the Granite Falls Bridge transports mineral aggregates. In such instances, these products are being delivered directly to the work site. In constrained urban work areas there is no room for stockpiling. Thus, the freight transportation system fills two functions: 1) product delivery and 2) that of a mobile "on-deck area" where availability is timed to coincide with that material just installed. Reliable and predictable delivery of construction materials is a critical factor. Thus, replacement of the bridge was specifically identified in the County Transportation Needs Report in 2013, shortly after completion of the Granite Falls Alternate Route Project.

The Benefit/Cost Ratio for this project is estimated to be 1.21. Detailed assumptions are included on the spreadsheet (See Attachment-BCA).

F. Project Readiness

1. Technical Feasibility

Snohomish County has assessed the technical feasibility of the Granite Falls Bridge #102 Replacement project by conducting early planning design activities. These activities include an Alternative Creation Workshop and the completion of a Type, Size, and Location Study Report (TS&L Report). See TS&L Report on Application Website www.snohomishcountywa.gov/3028.

The TS&L Report includes investigation and documentation on:

- Existing Conditions
- Roadway Geometrics and Alignment
- Surface Water Management
- Utilities
- Alternative Constructability Analysis
- Code Design Requirements
- Right-of-Way and Easements
- Environmental
- Geotechnical Design Recommendations
- Alternative Cost Comparison

The following information demonstrates the technical feasibility of the Granite Falls Bridge #102 Replacement project:

Project Item Completed	Expertise Level Applicable to Item
<p>Alternative Creation Workshop</p> <p>This was a two-day intensive workshop that developed and evaluated feasible alternatives for the replacement bridge and road alignment.</p> <p>Evaluation/selection criteria were established to eliminate the least desirable alternatives and select three alternatives for further evaluation. Workshop participants were chosen for their experience and expertise in key subjects. These subjects include geotechnical and foundation engineering, roadway design, bridge design, bridge construction, previous project background and knowledge, and environmental impact understanding.</p>	<p>Participants:</p> <p>Snohomish County: Projects Planning Director, County Bridge Engineer, Bridge Supervisor, Bridge Project Manager, Geotechnical Supervisor, Environmental Sr. Planner.</p> <p>AECOM: Sr. Structural Designer/Sr. Structural Project Manager, Sr. Structural Design Engineers with differing experience backgrounds to provide insight into numerous and widely-varied bridge alternatives, Sr. Civil Designer/Sr. Project Manager.</p> <p>Shannon & Wilson: Geotechnical Firm Manager/Sr. Geotechnical Engineer, Sr. Geotechnical Engineer with rock expertise, Sr. Geotechnical Engineer with broad-range project background, including Project Mgmt.</p> <p>William Ott and Associates: Expert in Construction Engineering & Construction Management.</p> <p>Approximately 520 years of experience overall.</p>

Project Item Completed	Expertise Level Applicable to Item
<p>Granite Falls Bridge #102 Type, Size, and Location Study</p> <p>This Study built upon the Alternative Creation Workshop by researching design criteria and analyzing applicability, <i>constructability</i>, and comparative construction and life cycle costs of three leading alternatives identified in the Workshop. In addition, rock mapping and rock coring was done to evaluate subsurface rock integrity and its capacity to support various proposed bridge foundation types.</p>	<p>Participants:</p> <p>AECOM: Sr. Structural Designer/Sr. Structural Project Manager, Sr. Structural Design Engineers with differing experience backgrounds to provide insight into numerous and widely-varied bridge alternatives, Sr. Civil Designer/Sr. Project Manager.</p> <p>Shannon & Wilson: Geotechnical Firm manager/Sr. Geotechnical Engineer, Sr. Geotechnical Engineer with rock expertise, Sr. Geotechnical Engineer with broad-range project background, including Project Management.</p> <p>William Ott and Associates: Expert in Construction Engineering & Construction Management.</p>

Project Item Completed	Expertise Level Applicable to Item
<p>30% Preliminary Plans - A separate element of the Granite Falls Bridge #102 Type, Size, and Location Study</p> <p>30% Plans were developed for the proposed bridge replacement project in order to initiate the design phase of the alternative that was chosen in the Type, Size, and Location Study. The 30% plans move beyond the TS&L Study by beginning the engineering design for grading, alignment, drainage, retaining walls, slope protection, site stabilization and erosion protection; the plans also continue to move the structural design forward by applying specific engineering parameters to the foundations and to the proposed structure.</p>	<p>Participants:</p> <p>AECOM: Sr. Structural Designer/Sr. Structural Project Manager, Sr. Structural Design Engineers with differing experience backgrounds to provide insight into numerous and widely-varied bridge alternatives, Sr. Civil Designer/Sr. Project Manager.</p> <p>Shannon & Wilson: Geotechnical Firm manager/Sr. Geotechnical Engineer, Sr. Geotechnical Engineer with rock expertise, Sr. Geotechnical Engineer with broad-range project background, including Project Management.</p> <p>William Ott and Associates: Expert in Construction Engineering & Construction Management.</p>

Detailed Statement of Work

a. Proposed Bridge Characteristics

The replacement bridge will be a three-span concrete girder bridge with a total length of 406 feet, consisting of a span arrangement of 113 feet – 180 feet – 113 feet. This span

arrangement will require five girders, which will be a standard WSDOT girder known as a WF83PTG. The girders will be fabricated offsite and shipped to the site. The girders will require post tensioning prior to the final deck placement. The total structural depth of the bridge is about 7.5 feet. The five-girder superstructure will provide structural redundancy. The completed bridge deck will have a large 6,680-foot radius, and the girders are planned to be straight. The bridge deck overhangs will vary in length to account for the roadway curvature.

Bridge abutments (Piers 1 and 4) can be founded on shallow spread footings, bearing on bedrock. An alternative abutment could be short stub abutments found on top of MSE walls. The abutments could be either a stub type abutment with an overhanging end diaphragm, or an L-type abutment. Piers 2 and 3 will be five-foot-diameter columns founded on drilled shafts. Nine-foot-diameter drilled shafts have been assumed for the study. The nine-foot drilled shafts provide the required stiffness difference between the columns and the shafts, which will force a column hinge during a design-level seismic event. Approaches to reducing the drilled shaft diameter can be addressed in final design with the goal to reduce the drilled shaft diameter to eight feet. These interior piers are required to be skewed relative to the baseline. The skew allows the piers to better follow the natural ground contours. Even with the skew, the columns at Pier 2 are expected to be of different lengths. A reduced-moment section in the shorter column has been used to achieve the column stiffness symmetry desired for good seismic performance. The abutments will require a 30-degree skew relative to the base line in order to keep all of the Span 1 and Span 3 girder lengths equal. The left side of the south abutment will require a curtain wall to meet a proposed approach wall. A 20-foot-long wing wall will be sufficient at all corners of the bridge, except for the Pier 4 right side, where a curtain wall will be used to meet a proposed approach wall.

This bridge design will require two expansion joints and ten bridge bearings. Utilities, such as the water line, will be installed below the bridge deck, between the girders. Sleeves will be used to allow utility passage through the abutment backwall and diaphragms. During final design, the County will determine if any portion of the bridge would be painted with pigmented sealer.

Construction stages include:

1. Clear, grub, and excavate for foundation. Hand excavation of some rock will be required.
2. Install work platforms (trestles) near Piers 2 and 3.
3. Construct drilled shafts, columns, and cross beams for Piers 2 and 3.
4. Construct abutments for Piers 1 and 4.
5. Set girders for Spans 1 and 3. Girders will cantilever over the Pier 2 and 3 cross beams.
6. Place diaphragms and deck for Spans 1 and 3.
7. Using cranes stationed on the newly constructed Spans 1 and 3, drop Span 2 girders into place.
8. Apply Stage 1 post tensioning for total bridge length.
9. Place remaining diaphragms and Span 2 deck.

10. Apply Stage 2 post tensioning for total bridge length.
11. Complete superstructure sidewalks, barriers, and railings.

The long-term maintenance of this bridge type is expected to be minimal.

The design of the Granite Falls Bridge #102 Replacement is past 30% complete and advancing towards 60% completion. For 30% bridge design plans, see Application Website www.snohomishcountywa.gov/3028.

b. Existing Bridge Characteristics

Granite Falls Bridge #102 was built in 1934; the trusses and 20' wide floor system were designed for an H-15 (15-ton) Live Load plus a 30% impact factor. Today, each loaded quarry truck crossing the bridge weighs more than 50 tons (3.5 times the original design load). As the size of the loads increased over the years, the number of loads also increased dramatically. Today, approximately 588 heavy trucks cross the bridge each work day; on weekends, the number of vehicle crossings often increases although the average weight per load is lessened.

The existing Granite Falls Bridge #102 is rated Structurally Deficient (SD) due to a deteriorated deck condition, and is fracture critical (Sufficiency Rating is 49.11.) The 20 foot curb-to-curb deck width is considered inadequate for the bridge to be able to handle its normal traffic load of 4,816 ADT (Average Daily Trips) with peak daily trip counts reaching 6,734.

Demolition of the existing bridge was estimated at \$630,000 (2012 dollars). The demolition of the existing bridge could be accomplished in the following manner:

1. Mid-Span Removal
 - a. Close Roadway
 - b. Mobilize two 150T Cranes
 - c. Lift Midspan Segment onto new bridge
 - d. Transport Midspan Segment to Adjacent Staging
 - e. Remove Concrete Deck and Disassemble Steel
2. Approach Removal
 - a. Demo Concrete Deck and Steel Girders in place
3. Pier Removal
 1. Use Concrete Munchers and Concrete Breakers to Remove Pier

2. Project Schedule

a. Obligation

The county is requesting \$14.1 Million in FASTLANE funds, 60% of the total construction cost estimate, including Construction Engineering (CE). The 40% local match will be available for project implementation upon award of FASTLANE funding. Obligation date is scheduled for September of 2017 (See Attachment-Project Schedule).

b. Project Start

The project construction phase can start after NEPA completion and construction funds have been obligated. The project is scheduled over two construction seasons and is scheduled to be completed in November of 2019.

c. Right of Way

Right of Way appraisals are now complete. For project schedule see Application Website www.snohomishcountywa.gov/3028. The Right of Way phase is simplified by the fact that there is only one parcel which needs to be acquired from the Washington Department of Fish and Wildlife (WDFW). Negotiation and purchase of this single parcel is expected to be complete by August 2016. Additionally, an easement for crossing waters from the Washington State Department of Natural Resources (WSDNR) is needed. Snohomish County has been in continuous communication with these two agencies and no issues are anticipated.

As part of the property negotiations with WDFW, the project plans include an access road to accommodate maintenance of the nearby fish ladder as well as a parking lot for the public to access the fish ladder via a trail.

All utility owners have been notified about the proposed project. Utilities within the project footprint include Snohomish County Public Utility District (SCPUD), Frontier Communications (telephone) and Comcast Cable.

Summary of Project Key Milestones

Task	Month/Year
ROW Phase	August 2016
Approaching 60% PS&E Bridge Design	October 2016
Final Review 60% PS&E Bridge Design	January 2017
90% PS&E Bridge Design	May 2017
100% PS&E Bridge Design	July 2017
Final PS&E	July 2017
NEPA	August 2017
Obligate FASTLANE Funds	September 2017
Construction Bid Award	October 2017
Notice to Proceed	December 2017
Start Construction	January 2018
Complete Construction	November 2019

A detailed schedule has been attached. (See Attachment–Project Schedule).

3. Required Approvals

a. NEPA

Snohomish County Public Works anticipates that all environmental review and permits required for this bridge replacement project will be obtained by August 2017. No major environmental impacts are anticipated by the construction of this replacement bridge. The proposed alignment is adjacent and parallel to the existing bridge. The existing bridge will remain open during construction which eliminates the need for a temporary bridge or lengthy detour.

Due to its longer length and height above the river, the replacement bridge will require minimal clearing and grading. The proposed bridge is 90 feet above the South Fork Stillaguamish River and will not require any in-water work. The area immediately adjacent to the bridge is undeveloped. There are no structures that would be impacted. A portion of the proposed alignment has been previously disturbed by the existing road shoulder, a parking lot and an access road for a WDFW fish ladder.



Looking downstream at Bridge 102 and the South Fork Stillaguamish River.

Snohomish County Public Works includes an in-house Environmental Services team of biologists and environmental planners with extensive expertise in all phases of environmental permitting and critical area mitigation design and implementation. The department also has access to on-call consultants to assist with permitting and mitigation design, if needed. Based on previous experience with similar bridge replacements in the County, permitting for this bridge project is expected to be completed in approximately twelve to fourteen months.

b. Other Agency Approval/Permits Required

The bridge replacement will potentially require the Federal, State and Local permits listed below.

Federal Permits and Approvals:

National Environmental Policy Act (NEPA)

- A Documented Categorical Exclusion (DCE) Checklist (formerly called Environmental Classification Summary (ECS) would be submitted for approval by Washington State Department of Transportation (WSDOT) and Federal Highway Administration (FHWA) when funding becomes available. The County assumes this project is a Documented Categorical Exclusion (DCE). The duration of this process is typically twelve months long.

Section 106 National Historic Preservation Act/Washington State Archaeological Laws

- A cultural review and a Historic American Engineering Record (HAER) report were completed in 2005. These studies concluded that the bridge meets the criteria to be eligible for the National Register of Historic Places. Further study may be needed to determine if additional mitigation would be required for removal of the bridge structure. Consultation with the Department of Archaeology and Historic Preservation would begin when funding becomes available.

Section 4F Evaluation

- A 4F Evaluation will be required for this project. The bridge has been determined eligible for listing on the National Registry of Historic Places. The proposed bridge alignment will impact a small informal parking lot and a portion of a trail which accesses a fish ladder maintained by the Washington Department of Fish and Wildlife (WDFW). The fish ladder is approximately 360 feet downstream of the bridge on the South Fork Stillaguamish River. The parking lot and a portion of the trail will be replaced as part of the new bridge construction. There are several alternative alignments available to replace and improve this public access. The County has coordinated with the WDFW during the preliminary design phase and is in the process of acquiring right-of-way from WDFW for the proposed bridge alignment. The final design of the parking lot and trail access will be determined in consultation with WDFW.

Corps of Engineers Section 404 Permit

- There are several small wetlands adjacent to the highway in the vicinity of the bridge. These may be impacted by the realignment and would require a Corps permit if impacted. Mitigation for these impacts will occur on-site or within the watershed. The county currently has a Water Resources Development Act (WRDA) agreement with the Corp of Engineers to expedite permits.



Looking south at the bridge approach from the sidewalk on Bridge 102.

Endangered Species Act

- A Section 7 (Endangered Species Act) consultation will be required. A Biological Assessment will be prepared.

State and Local Permits and Approvals:

- Hydraulic Project Approval (HPA)
A Hydraulic Project Approval will be required for the proposed bridge. The proposed bridge is 90 feet above the South Fork Stillaguamish River.
- State Environmental Policy Act (SEPA):
A SEPA Checklist and Determination of Non-significance (DNS) were issued in April 2014 based on the preliminary design. An updated SEPA Checklist will be issued based on the preferred alignment and design. Public outreach, including a public meeting, newsletter and updated website is planned for 2016-2017 to inform the local community of the project.
- Shoreline Substantial Development Permit
The bridge crosses the South Fork Stillaguamish River and will require a Shoreline Substantial Development Permit. However, because the proposed bridge is 90 feet above the ordinary high water little or no impacts to the river are expected. Stormwater drainage facilities will be integrated into the design to minimize impacts to the river. There will be no in-water construction.
- Snohomish County Critical Area Regulations
The proposed bridge will comply with all Snohomish County Critical Area Regulations. Mitigation will be required for the loss of trees and other vegetation within the buffer of the river and potential impacts to the wetlands and small streams draining into the river. Mitigation for these impacts will occur on site or within the watershed.
- Land Disturbing Activity Permit
A Land Disturbing Activity Permit (Clearing and Grading permit) will be issued in-house by Snohomish County Public Works.

c. Environmental Studies

A web site for this project is currently available to the public on Snohomish County's web pages. This site is updated as new information becomes available. Existing environmental information can be found on the site. A link to the web site is found here: <http://snohomishcountywa.gov/DocumentCenter/Home/View/5785>

A Critical Area Study will be completed by Snohomish County for this project. This study will describe impacts to wetlands, streams, steep slopes and other critical areas associated with the bridge replacement. The study will include proposed mitigation for these impacts. Mitigation for impacts to critical areas will occur close to the project site or within the same watershed. A preliminary map of potential impacts to critical areas is available on the web site in the Type Size Location Study (page 412).

Snohomish County Public Works will also prepare a Biological Assessment for this project. In this document, Public Works will determine the potential effects of construction activities associated with replacing Bridge 102 on species listed and proposed for protection under the Endangered Species Act.

A Geotechnical Report will also be prepared for this project which will describe the geology and soils of the project area.

d. WSDOT Approvals

Consultation and approval for all aspects of this project, including NEPA, will be coordinated with the Washington State Department of Transportation

e. Public Engagement

A Size, Type and Location Study was conducted in 2011-2012 to compare potential alignments and bridge types. At the conclusion of the study a newsletter was issued (2013) describing potential solutions to replacing the bridge.

A SEPA Environmental Checklist and Determination of Non-significance (DNS) were issued April 11, 2014 based on the preferred alignment. Public notification of the SEPA Checklist (available on Application Website www.snohomishcountywa.gov/3028) was mailed to all adjacent landowners, interested parties and posted on the County's website. The County received several comment letters from agencies and one citizen. A newsletter article was published in the Everett Herald in 2015 describing the proposed bridge replacement project.

An updated communication plan is being developed by the County. A public meeting and newsletter are planned in 2016 to inform the local residents of the progress of the project and timeline for construction including updates on the project website.

f. State and Local Planning and Approvals

The Granite Falls Bridge #102 project is identified in the County's Six Year Transportation Improvement Program adopted by County Council. The proposed project is specifically included in the Transportation Element of the Snohomish County GMA Comprehensive Plan (Comp Plan). Because of its connection with the Granite Falls Alternate Route (GFAR) Project, it is implicitly included in Transportation 2040 (T2040, ID#1950), Appendix J, the Regional Freight Strategy, the Metropolitan Transportation System (MTS), and on the Washington State Truck Freight Corridors Map contained in the Washington State Freight Mobility Plan. The Granite Falls Bridge #102 Replacement project proposed in this application is designed and aligned to intersect with the GFAR Project to efficiently move heavy trucks around the community, intercept with SR 92 (a T-2 freight corridor) and channel freight materials to the Puget Sound Metro Area.

Upon notification of FASTLANE Grant award, Snohomish County will submit the required documentation (TIPNEW) to the Metropolitan Planning Organization.

The project is supported by Congresswoman DelBene and Senators Cantwell and Murray (See Attachment-Support Letters).

4. Project Risks and Mitigation Strategies

Snohomish County Public Works Department has assembled a project preliminary risk register. It includes external and internal factors. Risks are identified as positive (strength or opportunity) and negative (weaknesses or threat).

Project preliminary risk register

Type of Risk	Project Risk	Risk Mitigation
Negative (Weakness)	Construction Traffic Impacts to local roads	Early and frequent community outreach to inform local residents, business owners and tourists about project construction
Positive (Strength)	Underground utilities	The pier foundations and proposed bridge abutments will be driven into bedrock. Low likelihood of presence of utilities or cultural resources.
Positive (Strength)	Traffic Detours	The existing bridge will remain in place and open to traffic until the new bridge is completed.
Negative (Threat)	Opposition to existing bridge removal (cultural/historic preservation)	Plan A: Early collaboration with the public, local historic organizations and tribes Plan B: Postpone the existing bridge removal to another project phase. This would have no impacts to the new bridge structure.

G. Merit Criteria

1. Economic Outcomes

Construction of the bridge identified in this application will contribute to the economic competitiveness of the United States over the medium- to long-term and ensure preservation of good paying jobs. It is helpful to understand the context of this bridge and its major economic characteristics in a regional framework. The Puget Sound Regional Council has identified that construction aggregates, the primary output of this area, constitute the largest single product moved by truck in the Central Puget Sound Region. The most recent data available indicate that in 2010 volume of this commodity totaled 35 Million tons. By 2035 this tonnage is projected to increase to approximately 42 million tons. Please see Figure 4 of Appendix J, Transportation 2040. The quarries served by this bridge account for four million tons of that trade and transport; this is expected to increase as permits for aggregate mining become more difficult and expensive to obtain. According to the Washington State Employment Security Office, the quarries utilizing the crossing at Granite Falls employ over 250 employees with average wages of over \$57,000/year; their annual payroll is over \$14.5 Million. Due to the nature of what they produce and the cost of transport, these quarries cannot economically ship their product more than 50-75 miles. There is no viable alternative, over the long or even medium term, for shipping aggregate products to the Puget Sound Region. The only truck accessible detour requires a 188 mile round trip which is not sustainable for more than approximately four weeks before it is more effective for the quarries to temporarily shut down. The crossing at Granite Falls is truly an economic

lifeline for the economic success of the Region. PSRC information visit:
<http://www.psrc.org/transportation/t2040>

Conversely, there are no other quarries within the 50-75 mile radius to make up the difference over the long term. Thus, the cost of aggregate products for the region can reasonably be expected to increase with the loss of the Granite Falls operations for a protracted period of time.

While heavy trucks account for approximately one-third of the traffic on average, a reliable crossing at the current location benefits general traffic as well. The importance of a reliable crossing to the Granite Falls School District has already been discussed. In addition, this is the most direct route to employment opportunities, tourism activities, vocational and academic training and social services.

There is an average of 564 truck trips per day transporting construction materials on this bridge. This equates to approximately \$70M/year of raw construction materials being transported on the Granite Falls Bridge #102.

2. Mobility Outcomes

Increase freight capacity by reducing barriers to freight movement. The existing bridge is not wide enough for two trucks. Trucks larger than FHWA Class 5 and/or school buses, FHWA Class 4, need to wait on either end of the bridge for similarly sized vehicles to pass in the opposite direction. This is particularly problematic because the bridge is heavily used by trucks in the mining and timber industries. Traffic counts from 2015, the most recent complete information available, indicate that these classes of vehicles comprise over 13% of bridge traffic during peak hours. Moreover, the obsolete geometry of the bridge requires significant speed reductions, i.e., the posted speed limit on both bridge approaches is 45 mph while the approaches and the bridge are posted at 35 mph; when a heavy truck passes any vehicle on the bridge the effective speed is significantly less than the posted speed for safety reasons. The Granite Falls Bridge is a bottleneck. The new bridge's geometry and vertical profile will improve conditions to accommodate trucks.

Mitigate the impact on local communities of increasing freight movement. Discussions with quarry operators and the USFS indicate projected increased activity in the mining and timber industries that transport building materials over the bridge. Quarry customers and destinations include The Port of Everett, including Naval Station Everett, WSDOT, BNSF and various building supply destinations. For example, the Boeing 777X wing plant was receiving a truck from these quarries every six minutes during construction of the foundation. Aggregate products typically comprise approximately 60%, by volume, of the material in any large commercial building.

Freight traffic on the bridge is expected to increase as mines southwest of the bridge are closed due to declining material availability and urban growth pressure. The Urban Growth Boundary for Granite Falls extends almost to the bridge; Granite Falls UGA is the fastest growing community in Snohomish County based on population, employment and housing units. Similarly, much of the land along the Mountain Loop Highway is owned by private timber companies. As with aggregates, the private timber owners are expecting future growth which is

associated with the growth in the Puget Sound region. Both industries are strategically located to provide primary building materials to the I-5 corridor.

The replacement of Granite Falls Bridge # 102 will improve the movement of freight within Snohomish County and into the Greater Puget Sound Region by providing a more efficient connection to SR 92, a T2 Highway connecting to SR 9, a Highway of Statewide Significance, which is also on the National Highway System. The principal freight being transported consists of construction materials (sand, gravel, rock and timber) that are prime, fundamental, products in the construction industry. Improved access to state highways provides statewide and, indeed, national benefits, including those of national defense and international trade.

Mineral aggregate products from the quarries benefitting from the project distribute as far north as Mt. Vernon, as far west as Whidbey Island and as far south as Seattle. Multiple destinations within those points are of significant benefit to the state directly and to international trade; these include: the City of Seattle itself, the state's financial center and one of the fastest growing major cities in the country; the Port of Seattle, a major international gateway; the Port of Everett, with heavy barge (un)loading facilities and; Boeing – Everett, the largest manufacturing facility in the state. For these reasons, SR 92, including the Alternate Route, is identified on the WSDOT Freight and Goods Transportation System. [WSDOT WA State Freight Mobility Plan](#)

Both SR 92 and SR 9 are identified by FMSIB as Strategic Freight Corridors (See Attachment-Maps).

Concurrently, use of the Mountain Loop Highway by recreational users is growing by 2-5% per year. This creates additional congestion and potential conflict at the bottleneck at the Granite Falls Bridge.

The narrow bridge width presents a challenge for the Granite Falls School District which provides transportation for students on the Mountain Loop Highway year round. There are a total of 28 daily school bus trips across the bridge.

3. Safety Outcomes

The Granite Falls Bridge #102 has been designated by the Washington State Department of Transportation as being structurally deficient and has an overall Sufficiency Rating below 50 on a 100 point scale and is determined to be fracture critical. It presents serious safety problems, particularly because of its narrow width: a large truck and another large vehicle can barely pass each other at reduced speed limits. In the event of a side swipe or other deflective incident the bridge railings are neither high nor strong enough to keep the lighter vehicle from braking through and into the gorge 90 feet below.

Currently, the lanes are only slightly wider than 9 feet. In addition to the obvious collision potential, this geometry means that even a modest accident has the potential to close the bridge until it is cleared. Thus, there is no access for emergency vehicles beyond the bridge that meets response standards; the detour route is 94 miles on a route that is closed during the winter months and a portion of it is built to minimal forest service standards. The detour is approximately three hours long.

The existing structure is, by urban standards, a low volume and, hence, a low incident facility. Thus, the safety improvements associated with this application are preventive, rather than corrective in nature. As has been noted, the current structure does not meet current design standards for either accident prevention or incident impact mitigation. The fact that there have been no serious incidents is largely attributed to the fact that users are generally familiar with the bridge. For example, the one truck at a time characteristic is self-monitored. However, regional projections assume that both industrial and personal traffic will increase steadily through 2040. Local data already demonstrates that the Granite Falls area is one of the most rapidly growing in Snohomish County. Thus, the familiarity that has helped keep the accident rate down will decrease while the opportunity for accidents increases. This trend has two major potential types of implications: on the structure and off the structure.

Comparing the existing and proposed structure simply stated: a minor incident on the proposed structure is easily a major incident on the existing structure. Barring a catastrophic, head-on collision between two large vehicles on the proposed structure the incident could be quickly cleared at least sufficiently to resume traffic flow for personal and moderate sized vehicles; significant damage to the structure is unlikely. In the case of a side swipe incident, the most likely, the deflected vehicle would be safely captured by the shoulder buffer, higher curb and bridge railing. On the current structure, a serious deflection would easily result in the lighter vehicle being completely thrown through the railing and into the river ninety feet below.

Off the bridge, the potential impacts appear less dramatic but have serious implications nonetheless. As has been described, a serious accident on the bridge could close the bridge, at least to heavy truck traffic for one day, more if there was structural damage. A lane for personal vehicles could be cleared relatively easily. However – what is not accounted for in the data is what kind of vehicles larger than personal cars would be permissible. For example, information from the Snohomish County Sheriff’s Office indicates that emergency vehicles, including Search & Rescue used the bridge over 900 times. Granite Falls Fire District 17 is also stationed on the near side of the bridge. They respond to an average of 165 incidents across the bridge annually. What is not accounted for or available in these statistics is what vehicle types comprised these trips and whether they would be able to move the appropriate equipment across the river in essential response time. The proposed project eliminates this issue.

4. Community and Environmental Outcomes

Snohomish County is making government operations more environmentally and economically sustainable. Through a combination of policy development, adjustments to existing programs and processes, and projects that produce results, the County is working across departments and agencies to implement change. We have a Sustainable Operations Action Plan, an Environmentally Preferable Purchasing Policy and monitor our Benchmark Progress Reports.

Snohomish County Public Works operates in a sustainable manner that allows new solutions to be developed in environmentally and socially responsible ways, while striving to deliver services and infrastructure which citizens expect, with the best economic choice in the long run. Granite Falls Bridge #102 Replacement project will follow environmentally sustainable design and construction best practices. The proposed project implements this approach.

The proposed structure will be designed to current seismic standards. This ensures it stays open, even following a major seismic event and thus prevents the detour situation previously described. The environmental benefit to this approach is that diesel emission related air quality impacts remain at minimum levels as trucks will continue to use the most energy efficient route. Maintaining air quality is major environmental benefit. This same analysis applies to serious incidents on the bridge. Even a serious collision would only close the bridge for one day and would not inflict long term structural damage; again, this ensures availability of the most energy efficient route to market. Comparing this situation to the current structure, serious collisions would be cleared more slowly due to geometry and load bearing capacity. Structural damage is highly likely and repairs are difficult and time consuming to implement because of the structural type and multiple potential failure points. The current alignment is not environmentally friendly. It does not avoid or protect wetlands or wildlife habitat. The NEPA evaluation is underway. Critical habitat, including wetlands, has been mapped along with potential cultural resources; avoidance, protective and mitigation measures have been developed. These measures have been incorporated into the design and cost estimate to ensure their long term viability.

H. Other Review Criteria

1. Partnerships and Innovation

Letters of support received to date are attached (See Attachment-Letters of Support). Additional letters of support from U.S. Congresswoman Susan DelBene, U.S. Senator Maria Cantwell, and U.S. Senator Patty Murray will be provided directly to USDOT and uploaded to the Application Website www.snohomishcountywa.gov/3028.

The project proposed in this application is innovative in its project development processes, in the fact that it builds upon, complements and completes prior Stimulus (ARRA) funded projects and will manage the project's integrity throughout its life cycle.

The project development process is based upon context sensitive design. Three technically viable construction types and locations were developed and peer reviewed by expert structural engineers in consultation with geo-technical and constructability analyses. A rigorous life-cycle analysis was applied to each alternative. Concurrently, substantial research was undertaken in the disciplines of public perception, biology, historic preservation and archaeology. The findings of this research were incorporated into the final analysis through a weighted matrix process in a workshop environment including private as well as county staff. It is important to note that the preferred alternative was not the least expensive but the option that was rated the most effective at implementing the issues identified in the decision matrix. The result; the proposed alignment, structure type and mitigation commitments incorporates non-technical context considerations.

The project is also significant in that it builds upon and completes an effort initiated in 2009 using early stimulus funding. In 2009 Snohomish County helped the community of Granite Falls design, fund and construct the Granite Falls Alternate Route project. This project is now complete; it routes heavy truck traffic around rather than through the community on a facility that is safer as well as less disruptive to the community. In fact, downtown Granite Falls is experiencing something of a renaissance as heavy trucks are no longer traversing its main

thoroughfare. Substantial Congressional and State support was also made available to supplement the ARRA funds and is discussed previously in this application. The Granite Falls Bridge #102 Replacement project proposed in this application is designed and aligned to intersect with the Granite Falls Alternate Route Project to efficiently move heavy trucks efficiently around the community to intercept with SR 92 and channel them towards the Puget Sound Metro Area.

Finally, when the new structure is constructed, it will be added to the Snohomish County Public Works Department Asset Management System which is planned for implementation in the Summer of 2015. This system will employ GIS technology to map and track the condition of critical structures. It will also integrate rigorous maintenance standards and records with historical and environmental information on an asset specific rather than program general basis.

2. Cost Share

Snohomish County is aggressively pursuing funding opportunities for the construction phase of the Granite Falls Bridge #102 Replacement Project. In April 2016, a Freight Mobility Strategic Investment Board (FMSIB) application was submitted with \$2.5M request. This program is State funded. Total FMSIB funds available for Washington State are estimated at \$10M in 2016-2019 and \$20M in 2019-2021. The FMSIB opportunity is a timely and critical counterbalance to the lack of other non-federal funding assistance. The Highway Bridge Program, administered by Bridge Replacement Advisory Committee (BRAC), is not an option. Due to funding limitations on that program, BRAC will only accept applications for bridge with Sufficiency Ratings (SR) of less than 40; the SR for the Granite Falls Bridge is 41. This SR does not mean that the investment should not be made; the SR does not consider operational efficiency, only load bearing capacity.

Snohomish County is aggressively pursuing two federal funding sources for the majority of funding for this project. Applications are due in April of this year; 1) FASTLANE – this component of the FAST Act is the first dedicated freight funding source identified in national transportation acts. Consistent with the Regional Freight Strategy findings and concerns, a significant portion FFY 2016 funding for this program is set aside for small and/or rural project projects and 2) TIGER – this project was submitted in 2015 and scored very well – the application passed all the technical reviews and was forwarded to the United States Secretary of Transportation as a “highly recommended” project. Snohomish County is updating and resubmitting this project. In 2009, a TIGER application was also submitted for this project.

I. Attachments