Granite Falls Bridge #102 Replacement
Snohomish County, WA

2018 USDOT BUILD Grant Application
July 12, 2018

The Honorable Elaine L. Chao  
Secretary, U.S. Department of Transportation  
1200 New Jersey Ave SE  
Washington, DC 20590

Dear Secretary Chao:

Snohomish County Department of Public Works is respectfully submitting a 2018 BUILD application for Granite Falls Bridge #102 Replacement project (Snohomish County, WA).

The proposed bridge will replace the current bridge which provides direct access to the Mount Baker-Snoqualmie National Forest and the Mountain Loop Highway in east Snohomish County, WA. In addition to recreation and tourism, this is a key through-route for transport of construction resources including aggregates, sand, gravel and timber resources critical to the Puget Sound Region via a T-2 freight route.

Conservatively, we estimate over $864 Million in economic benefit in the Puget Sound area has been carried over the bridge by just one quarry in the last decade. The economic benefits will extend well into the future because the replacement bridge will be designed to have a life span of 80 years.

The current bridge was constructed in 1934 and has been rated structurally deficient and fracture critical. The existing bridge is not wide enough for construction trucks and large vehicles to fit concurrently and one must wait at the end of the bridge while the other large vehicle passes in the opposite direction. This is particularly problematic because the bridge is used by heavy trucks and school buses.

If this bridge were to fail, the detour route is 94 miles on a route that is closed six to seven months of the year due to the snow and was only built to minimal forest service standards. This detour would have impacts at both the local and the regional level. 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 growth.

If awarded, Snohomish County will be the sole recipient of this grant. Nonetheless, we have the support of multiple local and state agencies including the Washington State Department of Transportation, Puget Sound Regional Council, the US Forest Service, and the City of Granite Falls to name a few. We respectfully submit this application for your consideration.

Sincerely,

Steven E. Thomesen, P.E., Director  
Snohomish County Public Works
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Project Description</td>
<td>1</td>
</tr>
<tr>
<td>ii. Project Location</td>
<td>8</td>
</tr>
<tr>
<td>iii. Grant Funds and Sources/Use of Project Funds</td>
<td>9</td>
</tr>
<tr>
<td>A. Project Costs</td>
<td>9</td>
</tr>
<tr>
<td>B. Source and Amount of Eligible Project Costs</td>
<td>9</td>
</tr>
<tr>
<td>C. Non-Federal Fund Documentation of Commitment</td>
<td>9</td>
</tr>
<tr>
<td>D. Non-Federal Match Source Information for Federal Funds</td>
<td>9</td>
</tr>
<tr>
<td>E. Budget</td>
<td>9</td>
</tr>
<tr>
<td>iv. Merit Criteria</td>
<td>10</td>
</tr>
<tr>
<td>a. Safety</td>
<td>10</td>
</tr>
<tr>
<td>b. State of Good Repair</td>
<td>11</td>
</tr>
<tr>
<td>c. Economic Competitiveness</td>
<td>12</td>
</tr>
<tr>
<td>d. Environmental Protection</td>
<td>13</td>
</tr>
<tr>
<td>e. Quality of Life</td>
<td>14</td>
</tr>
<tr>
<td>f. Innovation</td>
<td>14</td>
</tr>
<tr>
<td>i. Innovative Technologies</td>
<td>14</td>
</tr>
<tr>
<td>ii. Innovative Project Delivery</td>
<td>15</td>
</tr>
<tr>
<td>iii. Innovative Financing</td>
<td>15</td>
</tr>
<tr>
<td>g. Partnership</td>
<td>16</td>
</tr>
<tr>
<td>h. Non-Federal Revenue for Transportation Infrastructure Investment</td>
<td>19</td>
</tr>
<tr>
<td>v. Project Readiness</td>
<td>20</td>
</tr>
<tr>
<td>a. Technical Feasibility</td>
<td>20</td>
</tr>
<tr>
<td>b. Project Schedule</td>
<td>22</td>
</tr>
<tr>
<td>1. Obligation of BUILD Funds</td>
<td>22</td>
</tr>
<tr>
<td>2. Construction Readiness and Funds Expended Deadline</td>
<td>22</td>
</tr>
<tr>
<td>3. Right-of-Way Acquisition/Readiness</td>
<td>23</td>
</tr>
<tr>
<td>c. Required Approvals</td>
<td>23</td>
</tr>
<tr>
<td>1. Environmental Permits and Reviews</td>
<td>23</td>
</tr>
<tr>
<td>A. NEPA</td>
<td>24</td>
</tr>
<tr>
<td>B. Other Permits/Agency Approvals</td>
<td>24</td>
</tr>
<tr>
<td>C. Environmental Studies/Project Impacts</td>
<td>25</td>
</tr>
<tr>
<td>D. WSDOT Environmental Compliance</td>
<td>25</td>
</tr>
<tr>
<td>E. Public Education/Outreach</td>
<td>25</td>
</tr>
<tr>
<td>2. State and Local Approvals (STIP)</td>
<td>26</td>
</tr>
<tr>
<td>3. Federal Transportation Requirement for Local Planning</td>
<td>27</td>
</tr>
<tr>
<td>d. Assessment of Project Risks and Mitigation Strategies</td>
<td>27</td>
</tr>
<tr>
<td>vi. Benefit Cost Analysis</td>
<td>28</td>
</tr>
<tr>
<td>vii. Federal Wage Certification</td>
<td>28</td>
</tr>
</tbody>
</table>
NARRATIVE
Granite Falls Bridge #102 Replacement (Snohomish County) Washington

Attachments: Bridge #102 Funding Webpage

i. PROJECT DESCRIPTION

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

The bridge is of strategic importance to Snohomish County and the Puget Sound area because it is a direct connection between designated mineral resource lands, and a T-2 freight corridor that moves 4 to 10 million tons of construction materials per year. It’s estimated that just one quarry, which utilizes Bridge #102, provides an estimated $80M in economic benefit to the Puget Sound area in construction aggregates each year; and over $800M during the last decade. Mineral resource lands are designated under Snohomish County’s Comprehensive Plan, and are an important supply source of construction materials for the Puget Sound Region. The bridge is also the gateway/egress to/from the Mount Baker-Snoqualmie National Forest (MBS); the forest is an extremely popular recreation area but is also home to several timber sales which contribute to the economic building boom in the Seattle Metro and surrounding areas. Thus, Granite Falls Bridge #102 is a key component for transport of these materials, and plays a vital role in both the local and regional economies. It is also the “Last Mile” connection between the MBS to State Route 9, a National Highway System (NHS), and State Route 92; both highways are on the national freight system. (Please see Attachments: MAPS 1 and 2 – VICINITY).

Should the bridge fail, or need to be closed for heavy maintenance or incident response, the detour route is 94 miles on a route that is closed six to seven months a year due to snow, and a portion of it 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. (Please see Attachment: MAP 3–DETOUR).
Purpose and Need
Granite Falls Bridge #102 was first recommended for replacement in the 2012 Snohomish County Public Works Annual Bridge Report due to the following:

Transportation Challenge I – Insufficient in Serving Current Needs
The existing bridge was constructed in 1934 to support the timber and logging industry during a time when logs were transported one-by-one on trucks. Although the structure is over eighty years old it is actually the third version of the bridge. Significantly, each replacement was in response to changing economics, including levels and types of usage that it served. Since the opening of the current structure, design technology has evolved, new industries, such as aggregate mining, recreational uses and tourism have emerged, and new economic demands in the region have increased.

Most critically, Bridge #102 is functionally obsolete. First, the travelled way is only 20 feet wide from face-of-curb to face-of-curb. Class 8 trucks, or a truck and school bus, need to wait on either end of the bridge for similarly sized vehicles to pass in the opposite direction. Second, the sidewalks on either side are not ADA compliant and are too narrow to accommodate non-motorized transportation such as bicycles and pedestrians. Finally, the construction methodology, hinged steel truss, is no longer accepted by Federal Highways; thus, none of the foregoing problems can be eliminated by simply widening the bridge.

Transportation Challenge II – Functional Obsolescence is increasing in the face of a changing economy and demographics
The gateway to the Mt. Baker-Snoqualmie National Forest (MBS) that the bridge represents is located less than two hours away from the Seattle Metropolitan area. It is one of the most closely situated National Forests with Wilderness areas (Boulder River) to a major metropolitan area. (Please see Attachment: MAP 7–WILDERNESS). Concurrently, the Seattle Metro area is one of the fastest growing in the United States. The average age of new residents is under 40 with above-average incomes. Recent studies (2016) by the State of Washington Recreation Conservation Office indicate that recreational opportunities that are available in MBS are consistent with the top ten most popular outdoor activities in the state with day hiking and backpacking leading the way. Concurrent studies indicate that over 40% of the state population participated in these same activities. The fact that this district of MBS also contains wilderness has been shown to add small percentages to these same numbers. Thus, while heavy truck traffic remains fairly constant at 600+ vehicles per weekday, personal and service traffic has escalated to over 4,000 vehicles per day all week and as much as 6,000+ over the weekend during the summer.
The bridge is also on a school bus route. The Granite Falls School District provides transportation for students on the Mountain Loop Highway year-round. According to the District, there are approximately 150 students picked up in the morning and 144 driven home in the afternoon with an average of 34 daily school bus trips across the bridge on school days. The population of the Granite Falls urbanized areas is expected to increase substantially between now and the planning horizon, 2035, which will result in additional school bus usage of the bridge.

Finally, it is important to note that, based on data provided by the Snohomish County Sheriff’s Office, Search & Rescue (SAR) calls on the Mountain Loop Highway, which the bridge accesses account for 25% of all S&R calls in the County. Closure or failure of the bridge would essentially land lock these missions if they occur in the winter months due to closure of Barlow Pass during that time.

Transportation Challenge III - Functional Obsolescence is Jeopardizing the USFS Mission in the Mount Baker Snoqualmie National Forest

The phrase, "Caring for the Land and Serving People," captures the Forest Service mission. As set forth in law, the mission is to achieve quality land management under the sustainable multiple-use management concept to meet the diverse needs of people. As noted earlier, the bridge is the gateway to popular recreation activities near the Seattle Metro area. While it is presently serving the increasing use levels it is inhibiting expanded accessibility and other forms of outdoor recreation. For example, it has been noted above that the current facility does not support expansion of mountain biking due to the narrow sidewalks and narrow shoulders at each end. Mountain biking is a growing outdoor activity. Another example is the Scenic Byway status. The Mountain Loop Highway was designated as a Scenic Byway in 1991 but has since been dropped from the list due to several factors. Neither the bridge, nor the highway can be considered for national Scenic Byway status due to the geometrics of the bridge and the roadway. Scenic Byways have an attraction component unique to themselves and offer the additional benefit of opening the highway to people with disabilities. For this and other reasons Snohomish County and management of the MBS Forest Service have formed a partnership to study further uses and improvements to the Mountain Loop Highway and subsequently to pursue mutually beneficial capital projects that make the highway more usable for people of all ages and abilities. The Mountain Loop Highway begins at Bridge #102.

Project Details

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

A. Transportation

The proposed bridge will have two 12-foot lanes, two 5-food shoulders, and two 5-foot-6-inch sidewalks which means the new structure will be wide enough for construction trucks and large vehicles to fit concurrently without having to wait.
B. 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.

BUILD 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 BUILD. Because of the high construction cost estimate, replacement is the only option for federal assistance as the structural type is no longer accepted as discussed earlier, thus precluding renovation. Also, the mandates of the Washington State Growth Management Act compel the County to prioritize County transportation funding on transportation improvements in the unincorporated urban area over those in the rural area. The impact is that less than 5% of transportation funding for the next six years will go to projects in the rural area. This means that funding for many roadway projects that are critical for rural economic development, such as the Granite Falls Bridge #102, must depend on outside funding sources. (See Attachment: Map 6 – Census for Rural Designation). The amount being requested is 80% of the estimated construction cost of $22 Million, or an approximate total of $17.6 Million (see Section iii. for project costs and budget). The project design is fully funded with County funds. MAP-21 eliminated the Highway Bridge Program as a stand-alone funding source for bridges. Instead, bridges located on the Interstate or the National Highway System are eligible for funding under the National Highway Performance Program. In Washington State, a local Bridge Advisory Committee (BRAC) recommends projects for WSDOT Local Programs Director approval. In 2017, BRAC awarded 37 bridge replacement grants. The BRAC funds ranged from $1 to $12 Million with the average award of $3.5 Million. More information on BRAC funding is available at: WSDOT Bridge Funding (BRAC)

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 (American Recovery & Reinvestment Act), 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
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 4,801 vehicle trips/day. Peak daily trip counts reach 5,116 and over 6,700 in the summer months. In 2017, there was an average of 629 heavy vehicle trips, including heavy trucks and school buses, per day on the bridge. Based on information from current, long term permits, this traffic provides at least $86.4M/year in building material that is destined for the Seattle Metropolitan area. (Please see Attachment – TrafficData).
Granite Falls School District Students
The Granite Falls School District provides transportation for students on the Mountain Loop Highway year round. There are 150 students picked up in the morning and 144 driven home in the afternoon with a total of 34 daily school bus trips across the bridge.

Local-area Residents
According to the 2010 Census, there are approximately 3,525 residents in Granite Falls and 1,385 residents in the Town of Darrington. Residents, truck drivers, bus drivers and tourists perceive a safety concern due to the narrow bridge. Snohomish County is one of the fastest growing counties in the United States. It is expected that the county will see a population increase of 250,000, or 33%, in the next 20 years. To put this in perspective, the increase in population that the county must accommodate is roughly the same size as St. Petersburg, Florida, or Buffalo, New York.

Mining and Timber Industries
In 2015, there were an estimated 1,069 workers in the Granite Falls and Darrington areas that commute in from the outside, and 3,679 workers living in the rural areas that commute elsewhere for work. Only 254 live and work in the area*. According to the Washington State Employment Security Department, in 2017, the quarries and logging-related operations utilizing the crossing at Granite Falls employed over 260 workers with average wages of over $62,000/year; their annual payroll was over $16.4 Million***(U.S. Census Bureau; Longitudinal Employer-Household Dynamics, OnTheMap **Employment Security Department, U.S. Bureau of Labor Statistics; Quarterly Census of Employment and Wages)

Emergency Services – Fire and Search and Rescue (SAR)
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.

Snohomish County Sheriff’s Office Search and Rescue (SAR) Unit’s use of the Granite Falls Bridge #102 on the Mountain Loop Highway:

- In the five-year period of 2013-2017, SAR responded to 290 missions using the Mountain Loop Highway (MLH) between Granite Falls and Darrington. These 290 missions equaled 25% of their total 1,142 missions during that time period.
- Responses to the 290 MLH missions required an estimated total of 4,322 round trips, including 580 by Sheriff’s SAR personnel and 3,742 by volunteers. A survey of volunteer responders revealed that on an average mission, the percentage of them driving alone using their personal vehicle was 80% for a total of 3,742 round trips over Bridge #102. (2013-2016 reports used an estimated 60%-statistics for those years have been adjusted.)
- Over the five years, there were 2,339 responses to the 290 MLH missions by members of Snohomish County Volunteer SAR, many of whom responded multiple times. Their 15,190 response hours equaled 89% of the total 17,033 MLH mission hours.
Recently retired Snohomish County Sheriff’s Office Sgt. Danny Wikstrom offered the following remarks regarding the use of the Mountain Loop Highway. He was at the helm of the SAR and Air Ops Unit for more than twenty years:

“It is my opinion that the vast majority of emergency SAR, Fire and Law Enforcement responses in the Darrington USFS District require the use of the Mt. Loop Highway between Granite Falls and Darrington. In particular, the Mt. Loop Highway route between Granite Falls to Barlow Pass which sees the greatest amount of activity, including hiking, climbing, camping, and sightseeing. The large volume of visitors to these areas generate the highest volumes of calls for emergency services, in contrast to other areas of the Darrington USFS District that do not use the Mt. Loop for access.”

“I consider the Mt. Loop to be a vital lifeline for citizenry that experience the need for emergency services within the National Forest. Without the ability to rapidly access the many varied trailheads along the Mountain Loop Highway, we would be extremely limited in our ability to provide lifesaving services to those in sometimes desperate need of assistance.” Retired SAR Sergeant Danny Wikstrom
Tourism
Supporting growing tourism and recreational use is economic development. Visitors in Washington State spent $21.4 Billion in 2016, accounting for $1 Billion in tax revenues and created 177,000 jobs. Snohomish County visitors spent $1.04 Billion, creating 10,850 jobs. The Mountain Loop Highway is very popular and featured in many outdoor publications and focuses on the recreational opportunities in the national forest such as hiking, fishing, snowshoeing, whitewater rafting, mountain climbing and camping. Much of the County’s outdoor recreational opportunities are in this area.

Mountain Loop Highway is one of the main routes to and through the Mt. Baker-Snoqualmie National Forest (MBS) – one of the most visited National Forests in the country, according to the U.S. Forest Service website http://www.fs.usda.gov/mbs/. According to the 2017 update of the State of Washington Recreation & Conservation Office update to the state recreation plan, seven of the top-10 outdoor recreation activities in Washington are available at location accessed by the Mountain Loop Highway. These include: walking in a park or trail-setting (84%), visiting rivers or streams (66%), gathering or collecting things in a nature setting (54%), day-hiking (53%), sightseeing at a scenic or wilderness area (51%), wildlife or nature viewing (50%), and swimming/wading at a freshwater beach (50%).

In 2014, the Verlot Public Service Center, located 9.8 miles East of Bridge #102, was the most visited public information site in Snohomish County. In 2015, the US Forest Service collected data at trailheads immediately off the Mountain Loop Highway or that are served by the Mountain Loop Highway, and reported that there were 61,566 visitors. 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.

Prior Investment
Granite Falls Alternate Route (GFAR)
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 (Please see Attachment: Map 4). This project was completed in 2011 and administratively reviewed and accepted by WSDOT in 2012. GFAR 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 approximately 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.
Investment by Snohomish County and multiple funding partners in the Granite Falls area has been extensive. Over $31 million dollars has been spent in the past two decades on the transportation infrastructure serving Granite Falls from Granite Falls Bridge #102 to SR 92. These investments include over $25.53 Million on GFAR (Quarry Road). A roundabout was also constructed along Quarry Road where Jordan Road and Engebretson Road join it for an additional $2.38 Million. Approximately $2.57 Million was invested on rehabilitation of the existing Bridge #102 to help extend its useful life. As noted earlier, the County has spent $3.8 Million in local funds coordinating the interdisciplinary project development, including completion of the 30% design.

ii. 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.

Granite Falls Bridge #102 is a rural transportation project that is vital for its contribution to major freight corridors and as a necessary connection between rural communities. This bridge provides direct access to the Mountain Loop (state) Byway and the Mount Baker-Snoqualmie (MBS) National Forest. It is a key through-route for transport of construction materials including timber, gravel and aggregate resources critical to the Puget Sound Region via a T-2 freight route on the Granite Falls Alternate Route (GFAR) (Please see Attachment: Map 4 - GFAR).

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 84 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 is closed and part of it is built to minimal forest service standards. (Please see Attachment: Map 3 - DETOUR). This same highway was used for local residents as a secondary detour after the SR530 Landslide (March 2014 Presidential Disaster Declaration) to access the Town of Darrington.
iii. **GRANT FUNDS AND SOURCES / USES OF PROJECT FUNDS**

**A. Project Costs:**
Snohomish County is requesting $17.6 Million (80% of total construction cost) in BUILD federal dollars to fund construction of this bridge replacement project. In 2015-2017, Snohomish County applied for TIGER/BUILD and scored very well. The application passed all of the technical reviews and was forwarded to the United States Secretary of Transportation as a “highly recommended” project.

The County has spent approximately $3.8 Million in local funds coordinating the interdisciplinary project development, including completion of the 30% design.

**Granite Falls Bridge #102 Replacement Project Cost Estimate**

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<tr>
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</thead>
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**B. Source and Amount of Eligible Costs:**
As noted in the table above, the total estimated project cost is $25.9M, with the eligible construction phase portion being approximately $22M. For this $22M construction phase, our BUILD request is for 80% ($17.6M), and our local match is 20% ($3.8M).

**C. Non-Federal Fund Documentation of Commitment:**
Please see Attachment: Funding Letter.

**D. Non-Federal Match Source Information for Federal Funds:**
Snohomish County Road Fund as referenced in the Funding Commitment Letter attached. As shown in the table below, 70% of our County TIP is non-federal.

| 2018-2023 County TIP (in $1000s) |
|-------------------------------|----------------|
| Federal                       | Non-Federal   |
| $65,800                       | $150,972      |
| 30%                           | 70%           |
| Total                         |               |
| $216,772                      |
| 100%                          |

**E. Budget:**
Please see a more detailed budget in Attachment: Estimate.
iv. MERIT CRITERIA

a. Safety
Due to its rural location, the existing structure is presently a low volume and, hence, a low incident facility. 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/bus-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 with the roadway and the bridge that has helped keep the accident rate manageable will decrease while the opportunity for accidents increases. This trend has two major potential types of implications: on the structure and off.

Comparing the existing and proposed structures, simply stated: a minor incident on the proposed structure is easily a major incident on the existing structure and vice versa. 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 itself 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. It important to note that Washington State’s Highway Safety Plan identifies three major contributors to incident risk on a rural two lane major arterial: 1) run-off the road; 2) lane encroachment resulting in head on collision and; 3) rear-end collisions due to abrupt stopping. All three characteristics are present in the current geometry of the Granite Falls Bridge.

Off the bridge, the potential impacts appear less dramatic but have serious implications nonetheless. In addition to the incident response situations described above, the bridge structure is defined as “fracture critical”. This means that a fracture in one or more of the members may require a full closure of the structure which would be devastating to residents and to the local economy as the detour route is 94 miles long and takes approximately three hours one way. (Please see Attachment: Map 3 - DETOUR). In the winter months, the portion of the Mountain Loop Highway which leads to the Town of Darrington is closed and part of it is built to minimal forest service standards. As has been described, a serious accident on the present bridge could close the bridge, at least to heavy truck traffic for one day, more if there was structural damage which is a real possibility on the current structure. While a lane for personal vehicles could be cleared relatively easily, this does not account for 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; the District responds to an average of 165 incidents across the bridge annually. What is not 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 by providing a geometry that is designed to keep the structure open under almost all circumstances.
b. **State of Good Repair**

The project is consistent with relevant plans to maintain transportation facilities or systems in a state of good repair and address current and projected vulnerabilities. Snohomish County Public Works Department is responsible for over 200 bridges including Granite Falls. Only four remain to be rehabilitated or replaced to meet current standards. As noted earlier in this application the project constitutes the final link between major resource areas to the east for strategic building materials and the state and interstate systems through which these materials are delivered. It aligns the structure with the Granite Falls Alternate Route project (Please see Attachment: Map 4 - GFAR) which connects with these systems to maintain reliability and travel time. The current structure cannot be retrofitted to correct width, stress or seismic criteria due to its structural type and age. It is important to note that this project is the final connection to the regional freight system; the connection at Granite Falls is considered a Regionally Significant Project in the Metropolitan Transportation System and the Regional Freight Strategy. The critical nature of this link and regional policy support can be found in Transportation 2040, Appendix J, which is the regional transportation plan for the Puget Sound Region, prepared and adopted by the Puget Sound Regional Council, the Metropolitan Planning Organization. (Please see Attachment: Map 1 – VICINITY).

Replacement of the current bridge with a structure meeting 21st Century standards will improve resiliency of the transportation system and reduce annual maintenance costs. More detail is contained elsewhere in this application but in summary, the current structure is: a) not seismically adequate; b) inadequate for the volume and type of traffic; c) totally inadequate for pedestrian and bicycle access and therefore, non-ADA compliant. Moreover, the concrete deck has a high salt content and is nearing the end of its useful life. If the bridge is not replaced the deck will need to be completely replaced within the next ten years at an approximate cost of $2.5M; this is a current (2018) estimate.

From a maintenance perspective, because of the geometry/design the Road Maintenance Division spends an average of $5,000/year repairing truck damage to the curb and guard rails. In addition, the following average annual maintenance costs in 2018 dollars will be avoided: a) pressure washing - $8,000; b) grind/repair deck surface - $8,000; c) apply/sweep sand - $7,000 and; d) repair/replace expansion joints - $2,000/yr. Total average maintenance costs avoided total over $600,000 (2018) given that the proposed structure will not need any of the foregoing for twenty years.

Regarding deck replacement and expansion joint replacement, it is important to note that, while the replacements can be done one lane at a time, this will add dramatically to the increasing bottleneck created by current traffic levels; the 94 mile detour identified elsewhere in this application is not a practical option.

With award of the BUILD grant, the project will be fully capitalized and construction can be initiated per the Schedule of this application. The new bridge will be incorporated into Snohomish County’s Asset Management system to be inspected and maintained per standard engineering practice and as prescribed by federal regulations. (Please see Attachment: SCHEDULE).
c. **Economic Competitiveness**

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 resource 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, the volume of this commodity totaled 35 Million tons. By 2035 this tonnage is projected to increase to approximately 42 million tons. The quarries served by this bridge account for 10 – 15% of that trade and transport. This is projected to increase as permits for mining within a competitive distance from major metropolitan areas become more difficult and expensive to obtain due to encroachment from residential development and/or the depletion of resources. The quarries using this bridge are advantageously insulated from those limitations. First, new or renewed permits have been issued for 26 years for those quarries using the bridge. Second, these quarries have been designated Mineral Resource lands consistent with the Washington State Growth Management Act; as such, encroachment by incompatible uses is prohibited under the County’s Comprehensive Plan. In addition to mineral resources, management of the Mount Baker-Snoqualmie National Forest has written in support of replacing the bridge in anticipation of the South Fork Stillaguamish Vegetation Management Project which will thin over 5,000 acres of timberland over a ten year period. Access/egress via the Granite Falls Bridge is the preferred and most cost efficient route. According to the Washington State Employment Security Department, in 2017, the quarries and logging-related operations utilizing the crossing at Granite Falls employed over 260 workers with average wages of over $62,000/year; their annual payroll was over $16.4 Million. Replacement of the bridge will ensure adequate, efficient transport capacity for the foreseeable future for a metropolitan area with $36B worth of construction underway or permitted. The crossing at Granite Falls is truly an economic lifeline for the economic success of the Region.
While heavy trucks account for approximately one-third of the traffic on average, a reliable crossing at the current location benefits recreational traffic as well. The importance of a reliable crossing to the Granite Falls School District has already been discussed. In addition, a recent (2017) analysis of the Mount-Baker Snoqualmie National Forest estimated that the non-extraction component of the Forest’s operation contributed 1400 full time jobs and over $60 Million to local economies.

d. Environmental Protection

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, including continued coordination and collaboration with local tribes, to implement change. We have a Sustainable Operations Action Plan, an Environmentally Preferable Purchasing Policy and monitor our Benchmark and 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 a 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 for the proposed project 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 with inclusion to prevent debris from falling into the river. Storm water run-off from the present structure is currently unmanaged; the new structure will capture storm water run-off and dispose of it according to current codes. The location of the project, in a National Forest and over a river, requires consultation with multiple agencies; this process has been initiated and will result in environmentally sustaining features and actions being incorporated into the design and construction.
e. **Quality of Life**

The project, as described in the application will create a safer and more non-motor friendly crossing at this location. This is important as access to the Mt. Baker – Snoqualmie National Forest and the nearby Washington State Department of Fish and Wildlife facility is also completed on foot and by bicycle. The project will contain ADA compliant sidewalks as opposed to the existing structure and will include widened shoulders and a pedestrian lookout to improve safety between motorized and non-motorized users. This will improve non-motorized access to the City of Granite Falls as well. It is important to note that mass transit service for this part of Snohomish County terminates at Granite Falls and there is no plan to extend service to the dispersed population on the far side. People wishing to, or having no alternative to, using mass transit will have a safe opportunity to cross the bridge.

From a larger perspective, the project will contribute to the regional quality of life for the long term, by providing access to the recreation opportunities discussed in this application.

f. **Innovation**

The project, as described in the application, will provide a safer and a more user friendly crossing for non-motorized users at this location. This is important as access to the Mt. Baker – Snoqualmie National Forest and the nearby Washington State Department of Fish and Wildlife facility by foot and by bicycle is encouraged. The project will contain ADA compliant sidewalks as opposed to the existing structure and will include widened shoulders and a pedestrian lookout to improve safety between motorized and non-motorized users. This will improve non-motorized access to the City of Granite Falls as well. It is important to note that mass transit service for this part of Snohomish County terminates at Granite Falls and there is no plan to extend service to the dispersed population on the far side. People wishing to, or having no alternative to, using mass transit will have a safe opportunity to cross the bridge.

i. **Innovative Technologies**

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. In addition, the proposed bridge design implements several innovative design methods which either mitigate environmental impact, or reduce the use of construction material. Conduit will be installed under the bridge for future broadband and high speed network deployment.

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.
Some innovative design methods used in the preferred alternative include, but are not limited to:

- 3-dimensional rock bolting to reduce the amount of rock excavation next to the river
- Long span alternative to remove intermediate foundations off the steep rock slopes
- Octagonal shaped spread footings to fit skew of the site and reduce rock excavation next to river
- Use of Grade 80 reinforcement bars to reduce the amount of steel in the footings
- Designing for the user experience by including pedestrian lookouts on both sides of the Bridge

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 of 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 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. 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.

ii. Innovative Project Delivery
The project includes two delivery innovations that will expedite implementation without significantly disrupting the uses of the bridge and connecting highway: 1) by the time of project implementation, design will be completed and all required permits will be in-hand to initiate construction as soon as external (weather) conditions permit; and 2) the existing bridge will remain open during construction so that economic activities that benefit County businesses and the Mount Baker-Snoqualmie and National Forest will remain in operation.

iii. Innovative Financing
As noted elsewhere in this application, a principal attraction generating use of the bridge is the access to Wilderness which, by definition, is isolated and thereby has few potential contributors that can be specifically identified. However, because replacement of the structure benefits the National Forest and its mission to provide for recreational as well as commercial uses, County and forest management are discussing possible partnerships to jointly pursue resources for funding this and other infrastructure improvements. The
Federal Lands Access Program (FLAP) is currently funding a feasibility analysis for the entire Mountain Loop Highway, Granite Falls to Darrington, to identify improvements that support the increasing usage and support the local economies’ expansion into other basic industries such as tourism. Four capital projects have been mutually identified to be submitted for FLAP assistance at the next call for projects.

g. Partnership
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 over 1600 miles of road and over 200 bridges.

Awards:
- 2018 Graphics Award for 2016 Public Works Annual Report
- 2015 Build Washington Construction Excellence
- 2015 American Public Works Association (National and Washington State Level)
- 2013 County Engineer of the Year

Snohomish County will work directly with the Washington State Department of Transportation (WSDOT) through their Local Programs Office for administration of BUILD 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.

Washington State
Washington State Department of Transportation (WSDOT)
Northwest Region HQ Office, Local Programs Office
15700 Dayton Avenue North, Shoreline, WA 98133

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

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

Quarries/Mines/Timber
Snohomish County contacted three Quarry Businesses: 1) CADMAN - 22022 Mountain Loop Highway, Granite Falls, WA 98252 (360) 691-3542, 2) Wetland Creations Inc, PO Box 627, Monroe, WA 98272 (360) 805-5283 and 3) Iron Mountain Quarry, 20800 Wayside Mine Road, Granite Falls, WA, 98252 (360) 691-4996.
Discussions with quarry operators and the USFS indicate a projected increase in 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 Metropolitan 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: Transportation 2040 | Puget Sound Regional Council

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). 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.

**Letters of Support**

**United State Government**
- Senator Maria Cantwell
- Congresswoman Suzan DelBene
- Senator Patty Murray (Will be sent separate)
- United States Forest Service, Local Program

**Washington State/Regional**
- Washington Department of Transportation
- Puget Sound Regional Council

**Local Government**
- City of Arlington
- City of Darrington
- City of Granite Falls
- Economic Alliance of Snohomish County
- Granite Falls Fire District
- Granite Falls School District Transportation
- Snohomish County Sheriff’s Office

**Local Quarry**
- CADMAN Quarry (will be sent separate)

Please See Attachment: Support Letters.
h. Non-Federal Revenue for Transportation Infrastructure Investment

The BUILD program is the only viable option for funding a project of this size in this location. Locally, capital transportation projects are funded and administered through the Transportation and Environmental Services Division of the Snohomish County Public Works Department. Funding sources for this department are established through the Washington Administrative Code (WAC). The amount of local funds from these sources for capital projects has remained relatively fixed for several years. At present a significant portion of this funding is expended as match to support current state and federal grants and loans; these comprise approximately 40% of the total Transportation Capital Budget. The balance is programmed for projects that support ADA compliance, major maintenance and capacity projects. Regarding the last - Snohomish County is compelled, under state law, to allocate transportation capital resources consistent with the State Growth Management Act (GMA). A principal mandate of GMA is to make capital transportation investments that maintain levels of service within the unincorporated Urban Growth boundaries surrounding existing incorporated municipalities to constrain untimely encroachment on rural lands. Snohomish County is the fastest growing county in the State of Washington and one of the fastest growing in the United States. GMA has been effective in containing most of this growth within Urban Growth Areas but demand for capacity improvement funding is so great that only 5% of the capital transportation budget is available for major projects in the unincorporated county.

Regionally, the situation is similar. The County pursues approximately half of its capital transportation funding through the Metropolitan Transportation Organization (MPO), in the county’s case the Puget Sound Regional Council (PSRC). PSRC competitively distributes approximately $90 Million biennially in CMAQ and STP funding. However, less than 5% of this funding is available exclusively to rural projects. Projects such as the Granite Falls Bridge do not compete well. Awards greater than $10 Million are rare and they are not bankable; they must be spent within specific planning horizons.

Statewide, Granite Falls Bridge only qualifies for three programs. The Highway Bridge Program has been fairly fixed – between $50-60 Million Statewide, biennially. Snohomish County has been successful in pursuing assistance through this program but awards are typically in the $3-5 Million range. Another source, the County Road Administration Board (CRAB), is programmed out through 2023-2024 and can make only $1-1.5 Million available biennially to even the largest counties. The final source, the Freight Mobility Strategic Investment Board (FMSIB) has shown some interest in the project but their application process entails being accepted on to a six-year candidate project list made up predominately of large port and railroad projects.

Historically, Snohomish County has applied to the BUILD (formerly TIGER) program four times with increasing levels of interest shown by project evaluators. In 2015 an application was made to FMSIB but was not approved to be put on the list because other funding was uncertain. In 2016 an application was made through FASTLANE but was deemed ineligible during the application process. We are again presenting this to the BUILD program in the hope that we can replace the bridge with a structure that meets the future needs of existing businesses, the increased population and the recreational needs of the Mount Baker Snoqualmie National Forest as discussed elsewhere in this application.
v. PROJECT READINESS

a. Technical Feasibility
Snohomish County completed early planning and design for the Granite Falls Bridge #102 Replacement project. Early planning activities included conducting an Alternative Creation Workshop and the completion of a Type, Size, and Location Study Report (TS&L Report). To continue moving the Bridge #102 design forward, Snohomish County followed the TS&L with Phase I Design, consisting of final bridge type comparison selection, design-level geotechnical investigation, and solid 30% design plans. The Design Review Memorandum, 30% plans, Geotechnical Report and the Drainage Report are available for review on the Application Website www.snohomishcountywa.gov/3028.

The TS&L Report
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 Recommendation
- Alternative Cost Comparison

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

Proposed Bridge Characteristics
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. At this time the proposed bridge characteristics include:

The replacement bridge will be wider and longer than the existing structure to meet current bridge standards. Bridge #102 will be replaced by a two-span steel plate girder bridge, 351 feet in total length (span lengths of 88 feet and 263 feet, measured south to north), with three piers. The new bridge section will have a total width of 45 feet (two 12 foot lanes, two 5 foot shoulders, and two 5.5 foot sidewalks on either side of the bridge) and will accommodate the horizontal curvature of the roadway using straight girders, which minimize the girder pick weights.

The end span steel plate girder segment will start at Pier 1 and cantilever out past the intermediate pier (Pier 2) 48 feet. The main span (Span 2) drop-in girder consists of two segments that are at-grade field spliced on-site just prior to erection. The superstructure depth, measured from top of bridge deck to the top of bottom flange, is 10 feet 6 inches.

The bridge span arrangement is not balanced and if unrestrained, the end of the girders at Pier 1 will want to lift off their bearings once the Span 2 girder segments are erected. This differs from the other concrete alternatives, whereby the girders have sufficient weight to prevent uplift from occurring at Pier 1. Therefore, a temporary hold-down assembly is required to transfer the uplift forces directly to the substructure elements of Pier 1. From a permanent perspective, to avoid the
need of a mechanical hold-down assembly and a potential maintenance concern, the Pier 1 end
diaphragm will be cast integrally around the steel girders and with the abutment stem wall and
spread footing. Thermal expansion and contraction displacements in the longitudinal direction of
the bridge will be designed to be accommodated at Pier 2 and Pier 3.

The steel plate girders were made to act composite with the cast-in-place concrete deck. Unlike
the other alternatives, this option provides continuity along the full length of the bridge under
dead loads, superimposed dead loads, and live loads.

The long-term maintenance of this bridge type is expected to be minimal. Typically the steel
members of this new bridge design would require more maintenance to uphold durability,
however the steel members of the new Bridge #102 would be metalized prior to painting.
Metalizing refers to a thermal spray coating of zinc aluminum alloys directly onto steel surfaces
that aids in corrosion protection. The paint system would provide 25 to 30 years of service life
and metalizing would provide another 50 years of service life. The combination of the two would
yield a lifecycle that will outlive the design life of the structure.

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. Currently,
approximately 629 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 functionally obsolete, structurally deficient 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 $1.3 Million (2018 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  
   a. Use Concrete Munchers and Concrete Breakers to Remove Pier  

b. **Project Schedule**  

Please see Attachment: - SCHEDULE. It is available, as is all other pertinent information, on our Funding Website: [https://snohomishcountywa.gov/3028](https://snohomishcountywa.gov/3028)  

**Schedule Milestones**  

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<tr>
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<td>Final Review 60% PS&amp;E Bridge Design</td>
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</tr>
<tr>
<td>Complete Construction</td>
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1. **Obligation of BUILD Funds**  
As noted in the schedule milestones, Snohomish County expects obligation of BUILD funds to occur prior to September 2020 and will not be an issue for the required September 2020 obligation deadline.

2. **Construction Readiness and Funds Expended Deadline**  
As previously described, a significant amount of work has been invested into this project. Several studies have been done including a Type, Size, and Location Study. The design stage has surpassed the 30% phase, and could be approaching 60% as early as June of 2019, pending the award of this BUILD grant. The construction completion date of December 2022 is far before the required completion of the 2025 expenditure year.
3. **Right-of-Way Acquisition/Readiness**

All necessary right-of-way has been acquired and all documents have been recorded. Should any unforeseen additional right-of-way be needed as the design phase approaches 60%, our project schedule accounts for this with an expected right-of-way phase completion date of April, 2020. 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.

c. **Required Approvals**

1. **Environmental Permitting and Approvals**

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 require minimal 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 Washington State Department of Fish and Wildlife fish ladder.

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, critical area mitigation design and implementation. The department also has access to on-call consultants to assist with permitting and mitigation design. 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.
The bridge replacement will potentially require the Federal, State and Local permits listed below.

A. **NEPA Federal Permits and Approvals**:
   - National Environmental Policy Act (NEPA)
     A Documented Categorical Exclusion (DCE) Checklist (formerly called Environmental Classification Summary) 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.

B. **Other Permits/Agency Approvals**
   - Section 106 National Historic Preservation Act/WA State Archaeological Laws
     A cultural Resource Inventory of the bridge was completed in 2005. A Historic American Engineering Record (HAER) report was completed in 2008. 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 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 has acquired 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.
   - Endangered Species Act
     A Section 7 (Endangered Species Act) consultation will be required. A Biological Assessment will be prepared.
C. **Environmental Studies/Project Impacts**

A Documented Categorical Exclusion (DCE) Checklist (formerly called Environmental Classification Summary) 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.

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.

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) was 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 including public meetings and newsletters to inform the local residents of the progress of the project and timeline for construction including updates on the project website. The County continues to coordinate and communicate with local tribes.

2. **State and Local Approvals – Environmental**
   - **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)**
     Preliminary environmental review of the project area has been completed. A SEPA Environmental Checklist was issued in 2014 for the first phase of this project: Acquisition of Right-of-Way. This phase has been completed and the needed right-of-way has been acquired.

   - **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 minimal 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.

   - **WSDOT – Washington State Department of Transportation**
     Consultation and approval for all aspects of this project, including NEPA, will be coordinated with WSDOT. A WSDOT Letter of Support is attached.
3. **Federal Transportation Requirements for Local Planning**

The Granite Falls Bridge #102 project is identified in the County’s current Six Year Transportation Improvement Program adopted by County Council. (Please see Attachment: COUNTYTIP). 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 BUILD Grant award, Snohomish County will submit the required documentation (TIPNEW) to the Metropolitan Planning Organization (Puget Sound Regional Council). They have provided a letter of support. Please see Attachment: Support Letters. The project is supported by Congresswoman DelBene and Senators Cantwell and Murray. Please see Attachment: Support Letters. Also available on our Project Funding website [www.snohomishcountywa.gov/3028](http://www.snohomishcountywa.gov/3028).

d. **Assessment of 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).

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

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 Department of Commerce and the US Department of Labor. It is also the headquarters of the Seattle District of the US Army Corps of Engineers.

The Benefit/Cost Ratio for this project is estimated to be 1.7. Detailed assumptions are included on the spreadsheet (please see Attachment: BCA) which is also available on Application Website: www.snohomishcountywa.gov/3028

vii. FEDERAL WAGE RATE CERTIFICATION

Please see Attachment: WAGECERT which is also available on Application Website www.snohomishcountywa.gov/3028