# Planning and Combination (Planning and Acquisition) Project Proposal

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| **Project Number** | **15-1056** |
| **Project Name** | **Meadowdale Beach Park Barrier Removal** |
| **Sponsor** | **Snohomish County** |

**List all related projects previously funded or reviewed by RCO:**

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| Project # or Name | Status | Status of Prior Phase Deliverables and Relationship to Current Proposal? |
| **69-182** | **Completed** | **HUD administered grant for acquisition of this property** |

1. **Project Location.**

This project is located in the near-shore of Puget Sound at the northern end of Browns Bay within Watershed Resource Inventory Area (WRIA) 8 Lake Washington-Cedar-Sammamish Watershed at the mouth of Lund’s Gulch Creek. The site is situated south of Mukilteo, west of City of Lynnwood preserved parkland in the upper Lund’s Gulch area, lying predominantly within unincorporated Snohomish County with a small area of park owned property located within the City of Edmonds. Two figures are attached in PRISM; Figure 1: Vicinity Map and Planning Area Map.

1. **Brief Project Summary.**

This Planning project includes preparing preliminary design deliverables of improvements focused on enhancing rearing habitat for non-natal juvenile Chinook (threatened), coho, and chum salmon; cutthroat trout and other fish species for a future restoration project. The design will include removing approximately130 linear feet of hard armored rock railroad embankment, installing a four-span bridge, creating nearly one acre of tidal marsh pocket estuary, connecting a small freshwater wetland to the creek, enhancing and restoring approximately one acre of nearshore and stream riparian buffers along 1050' of shoreline, and restoring sediment delivery that will support approximately one acre of delta formation. The bridge opening will dissipate flood waters and enable a widened creek meander that will be dynamic over time creating essential habitat.

Note: The scope of the Feasibility Study that commenced in October 2014 is currently being expanded to include additional geotechnical and railroad analysis to gain better understanding of constructability issues prior to initiating design. The final study is estimated to be completed by early fall. A copy will be provided to the grant manager upon completion.

1. **Problems Statement.** 
   1. **Describe the problem including the source and scale.**

The railroad embankment and the narrow culverted opening for Lund’s Gulch Creek on the Puget Sound shoreline and the upstream confinement of the lower reaches of the creek impair the ecological processes and habitats in the area. The concrete box culvert is 6’ x 6’ x 50’ long and provides the route for the creek as well as pedestrian access to the beach via steel grating placed above a 2-foot deep by 4-foot wide channel for the creek.

The culvert is significantly undersized for the creek and during high flow conditions a wide portion of the lower park is flooded. High flow events also commonly cause the deposition of several cubic yards of sediment at the upstream end of the box culvert. This material restricts the movement of fish into and out of the creek. The sediment also deposits on adjacent park recreational areas.

The current conditions do not allow for a natural estuary to establish upstream of the railroad embankment, although the elevations and creek size are sufficient to support one. Instead of supporting a wider creek delta and estuarine area, the creek is narrowly constricted in order to flow through the concrete channel of the box culvert. Waterward of the railroad embankment is a large delta fan. This area forms a semi-protected pocket estuary which is a habitat type known to be utilized by higher densities of juvenile Chinook than other nearshore habitats (Beamer et al. 2006). The upper portion of the estuary is bisected by the railroad embankment and confined to a narrow channel in the box culvert and upstream of it. This transitional area between the lower creek and the estuary can provide additional habitat and improved prey production to promote juvenile salmon survival and growth.

In the lowermost 300 feet of Lund’s Gulch Creek (surveyed in 2009), the creek is confined by rock (approximately 64 meters) and logs parallel to the bank. This bank armoring was installed with several small wood structures for habitat purposes in approximately 2001. Currently, the instream log structures are perched and do not function as anticipated when installed for reconstruction. At the same time total wood quantity declined from 40 to 24 pieces between 2001 and 2009. However, the existing wood structures appear to create partial barriers at some flows as flows go under and over the wood. The reach provides some pockets of gravel, some cover along the banks, and a series of small pools (19% of area). At the upstream end of this reach, the creek is unconstrained and the absence of an established high flow berm allows the creek to overtop its left bank and flood across the park lawn area. Part of the proposed restoration would be to address the problems in this reach by re-meandering or re-routing the creek.

In the next 500 ft upstream (i.e., from 300 ft to 800 ft from culvert), the creek is wider and contains a series of riffles and pools. More wood structures were placed in this reach. These structures create some pool habitat. The proposed restoration includes enhancing habitat in this reach by adding wood to the existing structures.

The current conditions reduce the quantity and quality of habitat for salmon. Juvenile Chinook, coho, and chum were documented in the lower 650 feet of the creek in a study by Beamer et al. (2013). Since the creek does not provide habitat for Chinook spawning, this indicates that juvenile Chinook from other river systems migrate to and use the limited habitat available, much as they use small “pocket estuaries” in other Puget Sound locations (Beamer et al. 2006). The proposed restoration will improve habitat in the estuary and lower stream reaches. This can be expected to increase juvenile Chinook utilization of the creek and the suitability of the habitats once the fish enter the creek. The project will also benefit coho and chum salmon who spawn and rear in the creek.

* 1. **List the fish resources present at the site and targeted by your** **project.**

Several species of salmonids utilize Lund’s Gulch Creek including Chinook, coho, chum, steelhead, and sea-run cutthroat trout. Salmon spawning ground surveys document coho and chum salmon spawning each year. Salmon return data collected by community volunteers since 1997 indicate that in some years more than 100 adult coho or chum would return to the creek; however, most recently the numbers have been lower (Uusitalo pers. comm.). The last time more than approximately 100 coho adults returned was 2001 with numbers ranging between 2 and more than 35. Chum adult’s numbers have been higher, but ranging between approximately 15 and more than 75 since 2008. Coho and chum spawning occurs in the lower portions of the creek and in years when higher numbers of adults return the spawning occurs over a wider area.

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| --- | --- | --- | --- |
| Species | Life History Present (egg, juvenile, adult) | Current Population Trend (decline, stable, rising) | Endangered Species Act Coverage (Y/N) |
| Chinook | Juvenile | Inconclusive | Y |
| Coho | Egg, juvenile, adult | Unk | N |
| Chum | Egg, juvenile, adult | Unk | N |
| Cutthroat trout | All life stages |  | N |

Sea-run cutthroat trout also spawn and rear in the Lund’s Gulch Creek system. Pfeifer (1979) documented sea-run cutthroat trout throughout Lund’s Gulch Creek, including headwater areas outside of the park. Pfeifer (1979) also referenced Don Hendricks (WDFW) observation of a single steelhead adult in Lund’s Gulch Creek (in 1978?)

Juvenile salmon distributions in the lower 200 m (656 ft) of Lund’s Gulch Creek were surveyed in 2013 as part of a regional study of juvenile Chinook salmon utilization of streams other than where they originated as fry (i.e., non-natal streams) (Beamer et al. 2013). The study documented the presence of juvenile chinook, coho, and chum salmon, as well as cutthroat trout.

Other fish species documented in the creek are starry flounder and sculpins (Pfeifer 1979, Adopt A Stream Foundation 2013). Starry flounder are entering the lower creek from the Puget Sound shoreline. Sculpin distributions in the creek are generally restricted to the lower reaches of Lund’s Gulch Creek due to partial barriers inadvertently created by vertical drops downstream of log structures installed for restoration (Lantz et al. 2014).

* 1. **Describe the limiting factors, and limiting life stages (by fish species) that your project expects to address.**

The proposed restoration will address the following habitat limiting factors in Lund’s Gulch Creek:

* Loss of estuarine connectivity
* Disrupted sediment processes
* Loss of channel complexity
* Lack of wide corridor of riparian vegetation
* Lack of resilience to climate change

The proposed restoration will address limitations to the natural transition between the creek and estuary. Currently, the upper estuary is confined and limited. Bank armoring and the box culvert make this the narrowest part of the creek and prevent estuarine habitats to develop and function properly. This limits the opportunity for juvenile coho and chum salmon and cutthroat trout from the creek to out-migrate through a natural transition from fresh to salt water. For juvenile Chinook rearing in the marine nearshore, the loss of estuarine connectivity limits the available rearing habitat both in the pocket estuary and as the fish may move into the lower creek reaches.

Currently, sediment transport is a significant problem in Lund’s Gulch Creek. Due to the undersize box culvert and a transition in creek slope, large quantities of gravel and cobble accumulation upstream of and within the box culvert. This restricts fish access into and out of the creek. The sediment is deposited both within the stream channel and on the adjacent park areas. Periodically after high flow events during the winter, the sediment gets removed from the stream system and stockpiled elsewhere in the park. This affects fish habitat, fish passage, and water quality during the removal.

The confinement of the lower creek also tends to funnel sediments to the box culvert area. As a result, the lower reach encounters bed scour and that is problematic for fish resources in the creek. The proposed restoration of the lower creek can be expected to improve egg survival by widening and meandering the creek to lessen confinement and scour during high flow events. This restoration will also add channel complexity to the lower reach. The future restoration will remeander the lower creek and add instream wood. The anticipated remeander will widen the creek route that has been constricted by riprap and logs placed parallel to the bank to stabilize the banks. These structures have reduced bankfull width by approximately 50% (10 to 15 ft). The stream route will be determined during the proposed design work but is expected to partially remain in the current alignment to maintain benefits of existing riparian vegetation and instream wood structures. The future restored stream will include placement of new instream log jams and repair of existing small log jams (3-5 logs).

The riparian zone along the creek is generally in good condition. A relatively wide corridor of trees and shrubs occurs along much of the creek. However, near the creek mouth the riparian corridor is much narrower. The creek riparian vegetation buffer may be widened and conifer density increased, particularly in the upper end of the restoration area above where the creek will flow into the restored estuary. The riparian zone will provide short-term and long-term large wood recruitment to the creek.

Also along the lower reach there is an opportunity to enhance the density and composition of the riparian corridor. This will provide more shade to the stream, organic material input to fuel the food web, terrestrial insects for fish to eat, and over time more wood recruitment to provide instream cover.

The culvert and lower creek configuration also results in the area not being resilient to sea level rise and higher flow events associated with climate change. The problems of the undersized box culvert will be exacerbated with projected future changes to sea level rise and potentially more extreme flood events within the watershed.

1. **Project Goals and Objectives.** 
   1. **What are your project’s goals?**

The goal for this project is to prepare preliminary design deliverables within the two-year time frame that address all of the objectives stated below that will meet the overarching goal for salmon stated as follows:

* Restore the natural connectivity and instream habitats between Lund’s Gulch Creek and Puget Sound; restore sediment delivery processes to the shoreline areas and enhance rearing habitat for non-natal juvenile Chinook, coho, cutthroat, and chum salmon.
  1. **What are your project’s objectives?**

The objective for this current proposal includes the following objectives that will be realized in a future restoration project:

* .
* Restore the Lund’s Gulch Creek estuary upstream of the railroad embankment by removing approximately 130 lf of rock embankment and existing box culvert and replacing with a four-span bridge by 2019.
* Restore and enhance the lower reaches of Lund’s Gulch Creek by remeandering or rerouting the creek in lowermost 300 feet, as well as supplementing instream wood structures (in lowermost 800 feet) to improve performance and habitat by 2019.
* Enhance the riparian vegetation along the creek, estuary, and nearshore by expanding width of corridor and species composition by 2021.

Restore sediment delivery processes to the shoreline that are vital to delta formation and habitat by 2019 by removal of the existing barrier (approx. 130 lf of railroad embankment) by 2019.

Reconnect the existing freshwater wetland located north of the creek to the creek by removal of the path and fill by 2019.

* 1. **What are the assumptions and constraints that could impact whether you achieve your objectives?**

One constraint to the project fully functioning as intended is the development in the upper watershed. The Park boundary encompasses much of the ravine bordering the lowermost 1 mile of the creek. The Park area is extensively vegetated and largely intact. The next ¾ mile is well vegetated, but the surrounding watershed has been largely developed for residential housing.

The upper watershed development has caused flooding problems which were the focus of a Drainage Needs Report by Snohomish County Surface Water Management (2002). The development has also resulted in large quantities of sediment and water moving through the creek system. The proposed restoration includes an analysis of sediment sources in the ravine and incorporation of the upper watershed conditions in a hydraulic model. This information will be used to properly size the trestle bridge opening at the mouth of the creek and design the instream restoration features in the lower creek. Snohomish County continues to implement projects from the Drainage Needs Report and recently chose Puget Sound Drainages as a priority location for additional water quality facilities planning (Frank Leonetti, pers. comm.). During this grant submittal process a large step towards preserving additional woodlands in the upper watershed was realized by City of Lynnwood purchasing 13 acres in addition to their 77 acres just east of the park property.

This project can only be realized with the removal of the railroad embankment and replacement with a bridge structure. Therefore, project acceptance by BNSF is essential, along with an executed agreement between BNSF and Snohomish County outlining risk, indemnification and maintenance responsibilities. The county has taken very critical steps to communicate with BNSF and to follow their development project process. The design engineers hired to prepare the conceptual designs for the feasibility study have worked extensively with BNSF and are aware of all the design and operation requirements. The railroad engineers hired for the next phase of design will also have to meet strict experience requirements and demonstrate their knowledge and ability of working with BNSF during the interview process prior to awarding them the design contract. The Land Owner Acknowledgement Form was signed by Richard Wagner, BNSF Manager of Public Projects NW Division at our meeting in June 2015 when the County presented the project to BNSF. The signed form is attached in PRISM. The meeting had a favorable outcome with Mr. Wagner providing suggestions on means and methods of addressing, in the initial conceptual submittal, some of BNSF’s primary concerns regarding maintaining normal operation during construction. BNSF has a vested interest in this project due to the public safety concern present at this site, environmental awareness perception, and concern over the long term sustainability of the existing culvert. The County anticipates that BNSF will support the project moving forward provided the County follows the approval process (Outline attached in PRISM) and meets BNSF operation and maintenance requirements.

This project is a very costly project to implement due to the railroad component. Constructability is challenging due to site constraints including steep slopes/bluffs, shoreline restrictions and ingress/egress into the site all contributing to higher costs. This project however has overwhelming support within the County, and among the community and stakeholders. Budgets for both Parks and Surface Water Management include future year design and construction funding allocation. In addition, grants will be sought and due to the uniqueness of this project as one of the only locations along Puget Sound where sediment delivery is available for improved habitat grant funding has a likely potential. Stakeholders and the Community are also anticipated to participate at various levels.

Permitting may also represent a challenge for the mobilization and temporary construction necessary for installing the bridge. The proposed final project is anticipated on being very beneficial in the long term to species and habitats of concern relating to the various permits. A pre-preliminary meeting has been held with several agencies and there was consensus regarding the value of this project and that it was the temporary impacts that would be a more sensitive issue. This project proposes to work with permitting agencies throughout design to address concerns prior to submittal for permits.

1. **Project Details. *Please answer the questions below and all pertinent supplemental questions at the end of the application form*.**
   1. **Provide a narrative description of your proposed project.**

This Planning project includes preparation of preliminary design deliverables for future creation and restoration of estuarine and freshwater habitat and enhancement and restoration of riparian and freshwater marsh buffers. Boundary and topographical survey, along with geotechnical exploration, cultural assessment survey, critical area study and required final biological studies are included as well. The design includes replacing 130 linear feet of the hard armored rock railroad embankment with four-span bridge that will enable establishment/restoration of a tidal marsh estuary upland of the railroad embankment providing saltwater/freshwater connectivity that resembles pre-railroad era. The widened creek meander provided by the bridge opening will eliminate barriers to fish movement while improving floodwater dissipation. Gravels transported downstream from the feeder bluffs will be able to more naturally replenish the beach with a more dynamic delta formation due to the significantly larger opening. . The future restoration will remeander the lower creek and add instream wood. The anticipated remeander will widen the creek route that has been constricted by riprap and logs placed parallel to the bank to stabilize the banks. These structures have reduced bankfull width by approximately 50% (10 to 15 ft). The stream route will be determined during the proposed design work but is expected to partially remain in the current alignment to maintain benefits of existing riparian vegetation and instream wood structures. The future restored stream will include placement of new instream log jams and repair of existing small log jams (3-5 logs). The creek riparian vegetation buffer may be widened and conifer density increased, particularly in the upper end of the restoration area above where the creek will flow into the restored estuary. The riparian zone will provide short-term and long-term large wood recruitment to the creek.

Connecting the freshwater marsh in the northern portion of the project to the creek and enhancing the vegetated buffer is another aspect of the design. **Provide a scope of work.**

**Task 1 Project Management:** Includes overseeing all the subconsultants and ensuring that the project deliverable requirements are met in accordance with the agreement. Coordination with the county, permitting agencies, and keeping the project on time and budget are also part of this task. **Due:** Notice to Proceed to 12/31

**Task 2: Survey**: Boundary and topographic survey of project area, critical area boundaries, stream cross-sections, and detailed railroad survey as there are no railroad record drawings. . **Due: May 2016.Task 3: Investigative Phase:** Geotechnical investigation including borings for bridge pilings and test pits for estuary area. Cultural resource investigation will run concurrently. Critical area delineation and biological assays as needed. **Due: May 2016Task 4: Data Analysis: Assimilating** data from investigative studies and providing input for design. **Due: August 2016**

**Task 5: Preliminary Design Drawings:** Drawings in digital format incorporating existing site survey, critical areas, structural bridge design, habitat restoration and stream buffer enhancement plans, profiles and cross-sections. Temporary construction elements required to build bridge will also be shown. All proposed construction will be detailed at a 60% level.

**Due:** **12/31/17**

**Task 6: BNSF Coordination:** Includes submittal of drawings at 30% and 60% and incorporating review comments from conceptual and 30% review. **Due: NTP through 12/31/17.**

Note**:** See detailed BNSF process outline attached in PRISM

**Task 7: Prepare Design Report**: Explanation of project purpose as it relates to salmon including specific habitat restoration goals and objectives, design considerations and preliminary analyses.

**Due: 12/31/17**

**Task 8: Construction Quantities and Preliminary Cost Estimate:** Estimate quantities and prepare cost estimate based on level of detail provided on preliminary design drawings. **Due: 12/31/17**

**Task 9: SRFB Grant Project Deliverables**: Includes assimilating the preliminary design report, drawings, and engineering cost estimate and appendices into submittal package to meet SRFB requirements.

**Due: 12/31/17**

Note: The larger scope of this project is outside the scope of this agreement but includes final design is anticipated to follow preliminary design without delay and includes obtaining and incorporating stakeholder input, permit submittal, final design drawings, specifications, bid documents and final cost estimate.

* 1. **Explain how you determined your cost estimates**.

The cost estimate, attached in PRISM is based on information obtained from the consultant team performing and preparing the Feasibility Study. The consultant team is diverse and representative of the disciplines relevant to this project, and team members provided estimated costs for tasks associated with their particular area of expertise including geotechnical, structural/railroad, habitat restoration, and park elements. Survey, project management and study costs are based on Project Manager’s past project experience. Preliminary design costs are approximately 62% of the final design which is commensurate with the complexity of the project and the preliminary design deliverables that will be in accordance with Manual 18. Final design costs, which are not part of this current proposal, are based on 15 % of the projected construction cost plus 30 percent contingency, which is the best professional judgement of the consultant team based on the complexity of the project. Additionally, design costs were informed by consultation with Chelan County, who has direct experience designing and implementing a project that involved passage under the BNSF railroad. The BNSF consultation expense is based in part on costs incurred by Chelan County during their design process as well as information obtained during our meeting with BNSF. **How have lessons learned from completed projects or monitoring studies informed your project?**

Our understanding of the potential benefits from this type of project has improved recently as a result of monitoring studies that highlight the use and importance of non-natal streams (and specifically Lund’s Gulch Creek) by juvenile Chinook salmon (Beamer et al. 2013), the importance of Puget Sound pocket estuary habitat as important rearing areas (Beamer et al. 2005), and conclusions from Tetra Tech that effectiveness of floodplain restoration are highly beneficial. By replacing a narrow 6 foot culvert with a wide trestle span, in combination with riparian planting and channel restoration, more benefits will accrue (than culvert replacement alone) due to the channel’s ability to meander, create multiple complex habitats, and sustainably transport sediment, wood, and all flow ranges. This is a unique project in part because it entails a type of restoration that has not been implemented along Puget Sound shoreline especially in WRIA 8 where the BNSF railroad limits restoration opportunities and will benefit future projects of similar type when they occur. Additionally, the completed Lower White Pine Reconnection Project on Nason Creek in Chelan County informed the design costs submitted in this proposal.

1. **If your project includes an assessment or inventory** *Not Applicable.*
2. **If your project includes developing a design:**
   1. **Will your project be designed by a licensed professional engineer?** Yes
3. **Will you apply for permits as part of this project’s scope?** No
4. **If your project includes a fish passage or screening design**: *Not Applicable*
5. **Context within the Local Recovery Plan.**
   1. **Discuss how this project fits within your regional recovery plan and/or local lead entity’s strategy to restore or protect salmonid habitat**

The WRIA 8 Chinook Conservation Strategy acknowledges the importance of marine nearshore habitats in the success of Chinook salmon and recommended staying current with emerging information to appropriately develop restoration actions. The reconnection and enhancement of the mouths of small streams was specifically listed as a recommended type of restoration for WRIA 8 Chinook. More recent research published by the Skagit River System Cooperative further documents how juvenile Chinook salmon are utilizing these habitats. Beamer et al. (2006) expands upon his earlier work to further document how juvenile Chinook utilize pocket estuaries in higher densities than adjacent nearshore areas, suggesting preferential use of these habitats. More recently, Beamer et al. (2013) documented juvenile Chinook salmon utilizing the lower reaches of non-natal creeks (i.e., moving back into freshwater habitats) for extended rearing time periods.

Estuary and marine nearshore projects are identified as Tier 1 priorities for WRIA 8. The proposed project is identified in the action list as project number M228 with medium benefits to Chinook and medium feasibility. The project is identified on the WRIA 8 3-Year Work Plan. It is also entered into the Habitat Work Schedule.

* 1. **Explain why it is important to do this project now instead of later.**

The proposed project provides a key opportunity to improve habitat conditions for juvenile Chinook salmon who have migrated out of their natal rivers. The importance of doing the project now is based on the need to advance restoration through a proper balance of river and nearshore projects. This project is one of only a few opportunities in the estuary and marine nearshore of WRIA 8 that is ready to move forward in the coming years. The timing is right because the project has momentum and support through the participation and outreach conducted during the feasibility study. At this time, the project is fully supported within the County and BNSF is willing to participate in project development as it advances. Public safety concerns resulting from the often impassable culvert and lack of sufficient ADA access also warrant project implementation at this time. Finally, the proposed project provides an opportunity to address the impacts of major infrastructure on one of the only creeks between the Lake Washington and Snohomish River systems that provides nearshore, estuary, and lower creek rearing opportunities for juvenile salmon. Five species of salmonids have been documented in Lund’s Gulch Creek, including non-natal Chinook salmon. The restored habitats are anticipated to provide important rearing opportunities to support Chinook life history diversity to improve the population’s viability. The uniqueness of the opportunity increases the importance of the benefits to salmon that the proposed future restoration would provide. Rail traffic is only anticipated to increase in the future based on current trends making this project urgent in light of the difficulty of constructing with increased train traffic. If successful, this project could be an impetus for additional shoreline projects of similar nature that should be implemented sooner than later if dealing with railroad along the shoreline.

* 1. **If your project is a part of a larger overall project or strategy, describe the goal of the overall strategy, explain individual sequencing steps, and which of these steps is included in this application for funding.**

The proposed project is not part of a larger overall project, but it would make significant progress towards a regional strategy for other restoration projects on Puget Sound shorelines bordered by the railroad. The proposed project could be the first (or one of the first) in Puget Sound to restore a creek mouth and estuary by constructing a trestle bridge under the railroad. This would add to an emerging portfolio of project types occurring along the railroad that reflects process-based objectives, sustainability, and fish life history requirements.

1. **Project Proponents and Partners.** 
   1. **Describe your experience managing this type of project.** The Feasibility Study which precedes this project has been a great success at utilizing and merging county interdepartmental expertise and experience. Snohomish County Park’s staff teamed with Surface Water Management staff and with Marine Resources Committee to address this long-standing problem. The team includes the following:

* *Logan Daniels, Parks Engineer*, Project Manager. Licensed Professional Engineer. 25 years experience. Lead role of design and construction management of parks projects; design specialty of surface water modeling. Lead over NPDES permit for Parks.
* *Dave Lucas, Snohomish County River Engineer*.  Licensed Professional Engineer. 14 years experience.  Lead role in floodplain management and engineering projects with a restoration and habitat focus.
* *Kathleen Herrmann, Snohomish County Marine Resources Program Manager*.  Lead role in working to implement collaborative marine and nearshore restoration projects. 12 years experience.
* *Frank Leonetti, Snohomish County Senior Habitat Specialist*.  Assistance in data synthesis and reporting.  20 years experience.
* *Sharon Swan, Principal Park Planner. Certified Professional* Soil Scientist. Conducts Long Range and Fiscal Planning for Capital Projects.
* *James Yap, Park Planning Supervisor*, Registered Landscape Architect, 30 years experience. Manages Capital Project Division; Oversees landscape architecture elements of projects
* Snohomish County, with support from the Marine Resources Committee (MRC), has successfully led a large scale restoration project which includes two main components:  I) Howarth Park Beach Restoration; and II) Restoration of three Beaches at a) Powder Mill Gulch Creek; b) Narbeck, Merrill and Ring Creeks; and c) Glennwood Creek. These Puget Sound nearshore beach nourishment projects are all located along the railroad impounded shoreline in WRIA7 between Mukilteo and Everett in Snohomish County.   The primary species supported by these nearshore habitats are Chinook Salmon, Pacific Sand Lance, and Surf Smelt.
  1. **List all landowner names.** 
     + 1. Snohomish County owns the following Worksites identified in PRISM: 27040500200200, 27040500200100, 00500900000500 and adjacent public road right of way that may be encroached upon for freshwater wetland connection to Lund’s Gulch.
       2. Burlington Northern Santa Fe Railroad owns the following Worksite identified in PRISM: BNSF Right of Way.
  2. **List project partners and their roles and contributions to the project.**

. Surface Water Management a division of Snohomish County Public Works has included allocation of monies for the design in their proposed budget to the Executive and County Council currently under review. Marine Resources will continue to fund Surface Water Management staff time devoted to this project and BNSF will be a project partner because they are an underlying land owner.

* 1. **Stakeholder Outreach.**

Two stakeholder meetings were held for organizations/agencies including City of Lynnwood, City of Edmonds, Adopt-a-Stream, Brackets Landing Foundation, Operation Lifesaver, Inc., Picnic Point/Meadowdale/Seaview Elementary Schools, Puget Sound Partnership, Nature Conservancy, Boy Scouts/Girl Scouts, and Washington Water Trails ; and two separate meetings were held for the community. The meetings were held in December 2014 to present the project and receive input on the evaluation criteria and in April and May 2015 to receive feedback on the conceptual alternatives. The meetings were well attended with overwhelming support of the project. Three stakeholder letters of support are attached in PRISM. In addition, the County Parks website includes current information on the feasibility project as it progresses and there has not been any negative feedback. Outreach is via a half-mile radius mailing, website postings, Friends of Meadowdale Facebook page, and local newspapers. Postings as well as interpretation at public meetings were also provided in Korean for the second round of public meetings.

Barriers other than funding

*Burlington Northern Santa Fe (BNSF) Property Ownership* – A portion of this project is located within BNSF right-of-way. BNSF will be required to provide project authorization to all permitting agencies for any work within their right-of-way. In addition, BNSF will require a right-of-way permit negotiated and signed with the County which will be subject to their review and approval of all construction documents impacting their right-of-way. This project is possible only with the work proposed on BNSF property. To address this concern, the RFQ for the Feasibility Study required a competent BNSF approved consultant to provide design alternatives that would meet BNSF’s requirements. TKDA has designed hundreds of bridges for BNSF. They have extensive experience delivering replacement projects that require short work windows in order to minimize downtime, which is applicable to this section of BNSF railroad. In addition, Shannon and Wilson was selected as the geotechnical consultant. Shannon and Wilson also has a long-standing good relationship with BNSF and has been able to provide the support needed for TKDA to provide designs that meet BNSF’s guidelines including construction requirements and operation windows. A meeting was held in June 2015 to present the final preferred alternative to BNSF. The Landowner Acknowledgement Form was executed by the BNSF representative and the process and timeline for project approval was provided. This process is attached in PRISM. The RFQ process for this design project will contain similar language to procure a consultant that can ensure the preliminary and final construction plans and specifications meet all BNSF requirements for approval. Finally, the site as it exists presents a safety issue which should compel BNSF to support much needed improvements.

*Archaeological Risks* – There are always unknown risks when ground disturbance is proposed. The Feasibility Study included a background literature search to assess potential for cultural resources at the site (archaeological, historical and tribal sites). The memo concluded there are no known archaeological, historical sites or tribal traditional cultural properties recorded in the park. In addition, the site has had several land disturbing activities including construction of the railroad, construction of the Meadowdale Clubhouse and associated below ground swimming pool. An archaeological/cultural resources survey will be conducted by a qualified individual during investigative phase of this project.

*Environmental Risks* – A Phase 1 Environmental Assessment was conducted under the scope of work for the Feasibility Study and concluded that the presence of the railroad tracks represents a Recognized Environmental Condition (REC); no Controlled Recognized Environmental Conditions (CRECs) and no Historical Recognized Environmental Conditions (HRECs). Additional environmental concerns may be identified, if present, during the SEPA process, design investigative work or future construction. Contingency funds are inherent to the design and construction cost estimates for addressing any unanticipated issues that may affect design or construction within reason. Environmental concerns that surface may be able to be addressed by requiring specific methods and protocols be followed during construction; and therefore, will be addressed in the future prepared technical specifications and bid documents.

Public Safety Concerns

The existing conditions are considered the public safety concern at this location. People are known to go up the embankment and cross the tracks just to get the beach when the culvert (tunnel) is impassable, which is a considerable portion of the year. This particular location along the tracks does not provide a great amount of site distance for a train to stop in the event there is something or someone on the tracks, increasing the likelihood of a collision and or derailment. Building this project is the best means for addressing the safety concerns. The multi-span bridge will allow pedestrians to access the beach via the end abutment while the creek is free to meander the width of the span and the gravels have adequate room to deposit without impacting beach access for the public. The elevation of the pedestrian walkway is proposed to be higher than the existing providing greater probability of year-round access. A representative from Operation Lifesaver was invited and attended the December 2014 meeting and reinforced the concern and expressed only positive feedback for the proposed project.

### Response to Site Visit Comments

# Draft Application / Site Visit REVIEW PANEL comments

**Date: 4/29/15 Project Site Visit?**  **Yes**  **No Review Panel Member(s): Pat Powers and Steve Toth**

1. **Recommended improvements to make this a technically sound project according to the SRFB’s criteria:**

**COMMENT:**

A letter from BNSF noting their commitment to proceed with the project.

**RESPONSE:**

The Land Owner Acknowledgement Form was signed by Richard Wagner, BNSF Manager of Public Projects NW Division at our meeting in June 2015 when the County presented the project to BNSF. The signed form is attached in PRISM. The meeting had a favorable outcome with Mr. Wagner providing suggestions on means and methods of addressing, in the initial conceptual submittal anticipated fall of 2015, one of BNSF’s primary concerns regarding maintaining normal operation during construction. BNSF has a vested interest in this project due to the public safety concern present at this site, public perception and sustainability issues for the culvert.

**COMMENT:**

The design costs seem very high. The main fish benefit is from the bridge placement that allows for expansion of the estuary area and formation of a more natural nearshore area. This bridge placement appears to be contingent on a formal commitment with BNSF. What role will BNSF play in the development and review of preliminary and final designs?

**RESPONSE:**

An outline of BNSF’s approval process is attached in PRISM. BNSF will have a significant role during preliminary and final design process focusing on the bridge design. BNSF had no comments at the preliminary meeting regarding any of the habitat improvements; and the proposed restoration and habitat improvements pose no new conditions that aren’t currently experienced in the existing shoreline environment for the railroad. An agreement will be required between BNSF and Snohomish County prior to construction. This process will be initiated prior to commencing preliminary design with an initial submittal scheduled in early fall or sooner. Examples of agreement language have already been requested and will be forwarded to County Risk and PA’s office for initial comment once received. While this process is anticipated to have some challenges, this project will undoubtedly benefit both parties.

**COMMENT:**

Please justify the $660,000 item for bridge design. What are the tasks which result in this cost? Also, for the $75,000 for the survey?

**RESPONSE:**

The final design costs for the bridge are based on 15 percent of a projected construction cost plus 30 percent contingency. The tasks include preparation of 30%, 60%, 90% and final construction plans, technical specifications, structural analysis and detailed cost estimate. Construction plans, specifications, structural analysis and cost estimate will also include design of temporary structures, i.e. a low-speed shoo-fly or embankment for rail mobilization. Additional tasks include coordination with BNSF, preparing submittals and response to comments to accommodate BNSF process.

Survey tasks include title research, establishment of horizontal and vertical control, conducting a boundary, topographic and existing features survey; incorporating the alignment and elevation (top and toe of slope) of the railroad, as no as-builts are available; surveying critical area boundary flagging and stream channel centerline and cross-sections. A good quality survey is the basis of every successful project.

**COMMENT:**

What new information is needed in addition to the feasibility study?

**RESPONSE:**

The scope of the feasibility study is fairly comprehensive from a sediment, habitat, hydrologic, hydraulic, and coastal standpoint; but is currently being expanded to include additional geotechnical and railroad analysis to gain better understanding of constructability issues prior to initiating design. The additional information will include on-site discussion with a railroad contractor that has already provided preliminary input on rail and barge mobilization; additional geotechnical evaluation of the existing access road for small equipment mobilization, and analysis of a low-speed shoo-fly for continued BNSF operation and reduce risks associated with working within BNSF work windows of 6 hours or less.

**COMMENT:**

One of the fish benefits listed is for coho. What are the summer rearing conditions in terms of flow and water temperature in Lund’s Gulch Creek?

**RESPONSE**

Lund’s Gulch Creek supports multiple species of salmonids. There are not water quality data for the stream. It is a perennial stream providing suitable flows and temperatures for spring and summer rearing. A survey by Adopt-A-Stream characterized the riparian cover as being in the highest category throughout the lowest mile of the creek.

**COMMENT:**

Please provide more information on the potential relocation or remeandering of the lower 300 feet of Lund's Gulch Creek. Will the width of the riparian area and the type of forest along the creek be sufficient to provide for a long-term source of large wood, or will wood have to be periodically added to promote better habitat conditions?

**RESPONSE:**

The future restoration will remeander the lower creek and add instream wood. The anticipated remeander will widen the creek route that has been constricted by riprap and logs placed parallel to the bank to stabilize the banks. These structures have reduced bankfull width by approximately 50% (10 to 15 ft). The stream route will be determined during the proposed design work but is expected to partially remain in the current alignment to maintain benefits of existing riparian vegetation and instream wood structures. The future restored stream will include placement of new instream log jams and repair of existing small log jams (3-5 logs). Currently, the instream log structures are perched and do not function as anticipated when constructed for restoration in approximately 2001. The creek riparian vegetation buffer may be widened and conifer density increased, particularly in the upper end of the restoration area above where the creek will flow into the restored estuary. The riparian zone will provide short-term and long-term large wood recruitment to the creek.

**COMMENT:**

Urban streams generally have flashier runoff with greater flow and sediment transport than natural streams due to the increased amount of impervious area in the basin. Are there actions that can be taken in the upper basin area or in the stream corridor to reduce the impacts of the increased runoff and sediment inputs?

**RESPONSE:**

One of the most recent actions that will have a positive impact on the watershed was the acquisition of 13 acres upstream of the project by the City of Lynnwood using Snohomish County Conservation Futures funding to add to their already 77 acres of preserved open space adjacent to the park boundary.

In regards to existing impervious surface, there is also a Snohomish County Strategic Initiative that is focused on Puget Sound Drainages which includes Lund’s Gulch Creek sub-basin to identify additional stormwater facilities that could be installed or retrofitted to address flow and water quality.

Finally, the Phase 1 NPDES permit requires code updates to include low impact development design as a first priority. Low impact development will aid in reducing runoff volumes and duration of future developments.

**COMMENT:**

What are the water quality conditions in Lund's Gulch Creek?

**RESPONSE:**

Snohomish County does not conduct routine sampling to assess water quality conditions in Lund’s Gulch creek. Lund’s Gulch Creek is a perennial providing suitable flows and temperatures for spring and summer rearing. A survey by Adopt-A-Stream characterized the riparian cover as being in the highest category throughout the lowest mile of the creek providing for lower temperatures. From a pollutant load, the creek travels through considerable open space where contributing runoff is filtered through vegetation. Developments upstream of the open space depending when constructed are required to treat runoff prior to discharging.

1. **Missing Pre-application information.**

**COMMENT:**

For a final design proposal there should be conceptual level plans available to review. Specifically, a bridge opening identified that supports restoration of habitat-forming processes.

**RESPONSE:**

Conceptual level plans prepared as part of the Feasibility Study are attached in PRISM. The bridge opening is shown as 2-40’ spans with 25’ abutments at each end. These conceptual plans were vetted by both community and agency/organization stakeholders, as well as presented at a pre-preliminary design permitting meeting.

While the county is committed to moving forward with final design through permitting, the proposal has been revised to a “Preliminary Design Deliverables Planning Project” to better ensure success at meeting all grant requirements.

1. **General Comments**

**COMMENT:**

The overall restoration plan seems to have good benefits for fish, but the costs for construction and design are very high (about $10 million in total). It is unclear whether the costs are too high relative to the benefits provided by the project.

**RESPONSE:**

The proposed project provides an opportunity to address the impacts of major infrastructure on one of the only creeks between the Lake Washington and Snohomish River systems that provides nearshore, estuary, and lower creek rearing opportunities for juvenile salmon. Five species of salmonids have been documented in Lund’s Gulch Creek, including non-natal Chinook salmon. Converting the railroad crossing from an earthen embankment to a trestle bridge is a significant engineering project, but the restored habitats are anticipated to provide important rearing opportunities to support Chinook life history diversity to improve the population’s viability. The uniqueness of the opportunity increases the importance of the benefits to salmon that the proposed future restoration would provide.

**COMMENT:**

The project sponsor is encouraged to contact Chelan County Natural Resources Department to learn from their experiences working with BNSF in the replacement of culverts with bridges in Nason Creek (Nason Creek Lower White Pine Floodplain Reconnection Assessment - Project No. 09-1472).

**RESPONSE:**

County representatives, as well as the Feasibility Study consultant attended the Salmon Recovery Conference in May where Mike Kaputa, Director Chelan County Natural Resources Department presented the Nason Creek project, specifically addressing challenges of working with BNSF. A follow-up conversation was also conducted by the county’s consultant. The outcome of both discussions primarily confirmed some of the known challenges faced by this project including working with BNSF standard agreements in regards to Risk and Indemnification; but also provided a better understanding of how operation and maintenance costs/fees may be assessed by BNSF for this project. One of the major differences for that project is that it was on a less active BNSF line.

**Post-Application REVIEW PANEL comments**

**Date:** 10/1/15 **Project Status:** NMI

**Review Panel Member(s):** Full Panel

1. **If the project is a POC,Form identify the SRFB criteria used to determine the status of the project:**
2. **If the project is a POC, identify the changes that would make this a technically sound project:**
3. **If the project is Conditioned, the following language will be added to the project agreement:**
4. **General comments:**

The Review Panel still has concerns about the project budget and feels the Sponsor needs to further justify the costs. The design costs seem to be high by a magnitude of 10 when compared to other large construction projects. For projects of this nature (high construction costs), justification of design costs using a percentage of the construction costs may not be appropriate. Please note that cost was a concern when the project design was proposed as final at a cost of $1,125,000 and now a Preliminary Design is proposed at a cost of $1,550,000.

RESPONSE

Minor edits were made under “Explain how you determined your cost estimate” and “How have lessons learned from completed projects or monitoring studies informed your project?” but the majority of the explanation/response is below:

Please note that the $1,550,000 is the final design cost, notthe preliminary design cost. This is illustrated in the cost estimate spreadsheet in the column titled “**Overall Project Final Design**.” The adjacent column titled “**Preliminary Design for Grant**” shows the preliminary costs of $974,000. Snohomish County requests $250,000 from the SRFB with the remainder to be provided by the County as match. However, the majority of the cost is not reported in PRISM and is identified as an amount that will be provided by the County. This particular proposal is for preliminary design only. However, full design costs were provided in the application to illustrate that the County has performed due diligence at understanding the full scope necessary to take the project from preliminary design all the way to permitting and final design. Providing the final design cost puts the preliminary design cost into perspective, and was suggested by our SRFB grant manager. We anticipate having a greater percentage completed for the preliminary design deliverables than typical of a less complex project that doesn’t involve a high volume rail line and coordination, approvals and agreements with BNSF. Working with a major transcontinental railroad like BNSF has specific cost issues that are significant and unavoidable. The higher construction cost is not driven by the hard cost of a structure (i.e. the bridge), but instead reflects the complexity of installing improvements on an active high volume rail line that is located in a shoreline environment with limited construction access. This condition requires design of additional features, in this case a rail line bypass (“shoofly”), and other construction mobilization structures such as a temporary pier, and other considerations. Therefore, estimating design costs as a fraction of total estimated construction is reasonable for this project as design includes providing plans and specifications for these temporary structures necessary to bypass rail traffic, and bring equipment and materials into the site in order to install the bridge while meeting BNSF’s operation requirements. The costs have been prepared by consultants well versed in railroad design and Puget Sound nearshore habitat restoration design, the feasibility study included meetings with BNSF and the permitting agencies which also aided in understanding overall project costs. This project is somewhat similar in scope to the SRFB funded Chelan County project at Nason Creek (Nason Creek Lower White Pine Stream Restoration project), but is on a much higher volume rail line. Earlier SRFB comments requested that we talk to the Chelan County project manager, Mike Kaputa, which we did following his presentation at the 2015 Salmon Recovery Conference which we attended. A follow-up phone conversation revealed that the Nason Creek project had a design, permitting and construction management cost of approximately two million dollars which seemed to correlate well to our estimates for this project.