MEMORANDUM

TO: The Honorable Jack Louws, Whatcom County Executive, and Honorable Members of the Whatcom County Council

THROUGH: Jon Hutchings, Director

FROM: Gary S. Stoyka, Natural Resources Program Manager

DATE: May 8, 2018

RE: May 15, 2018 Council Surface Water Work Session

Please refer to the proposed agenda below for the next Surface Water Work Session. Additional supporting documents may be distributed at or before the meeting.

AGENDA

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Council Action Requested</th>
<th>Background Information Attached</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:30 AM – 10:45 AM</td>
<td>Floodplains by Design Update</td>
<td>Discussion</td>
<td>Pre - Application</td>
</tr>
<tr>
<td>10:45 AM – 11:15 AM</td>
<td>Water Planning Update</td>
<td>Discussion</td>
<td>Proposed 5-year Implementation Plan</td>
</tr>
<tr>
<td>11:15 AM – 12:00 PM</td>
<td>Planning Unit Update</td>
<td>Discussion</td>
<td>None</td>
</tr>
</tbody>
</table>

If you have questions, please feel free to call me at (360) 778-6218.

cc: Mike McFarlane, Joe Rutan, Paula Harris, John Wolpers, Mike Donahue
    Beth Bushaw, Jeff Hegedus, John Thompson, Kraig Olason, Erika Douglas
    Tyler Schroeder, Josh Fleischmann, Karen Frakes, Jennifer Schneider, Jill Nixon
    Sue Blake, Roland Middleton, Dana Brown-Davis, Atina Casas, Cathy Craver
    George Boggs, Ryan Ericson, Lonni Cummings, Kristi Felbinger, Mark Personius
Pre-Application for a 2019-2021 Floodplains by Design Project Grant

Floodplains by Design (FbD) pre-proposals will be evaluated by Ecology flood team staff and the FbD Management Team. The top applications best meeting the objectives of the FbD program will be invited to submit full proposals via Ecology’s EAGL (Ecology Application for Grants and Loans) Process. Announcement of the projects invited to submit full applications will be made by mid-March, 2018. More information on the grant program processes and requirements can be found in the Floodplains by Design Funding Guidelines available at this link: https://fortress.wa.gov/ecy/publications/SummaryPages/1506019.html

Pre-Applications must be submitted using this form, in PDF format. All attachments must be submitted as a single PDF file. Use at least an 11 point font size.

Deadline: 5:00 pm, February 16, 2018.
Send pre-applications to: Adam Sant at Adam.Sant@ecy.wa.gov
With the subject line: 2019-2021 FbD Project Pre-Application

Project Title: The Nooksack River: Floodplains That Work

Organization/Jurisdiction Name: Whatcom County Flood Control Zone District
Address: 322 N. Commercial Street, Suite 120
City, State, Zip Code: Bellingham, WA 98225
Contact Name: Paula Harris, P.E.
Contact Phone: (360) 778-6285
Contact Email: pharris@co.whatcom.wa.us
Project Location: County(ies) Whatcom
WRIA(s): #1
Congressional District(s): District 1
Legislative District(s): District 42
Major Watershed: Nooksack
River Mile(s): Varies
Lat/Long or GPS coordinates, if available: Varies

Has this project been submitted for funding to other grant programs? Describe.

The WCFCZD requested assistance from the USACE for rehabilitation of the Lynden Levee under the PL 84-99 Program following the Thanksgiving 2017 flood; the WCFCZD also requested the USACE include the culvert work associated with the Lynden Levee Improvement as a betterment. The USACE is still completing their preliminary investigation report and it is not known at this time whether the culvert work will be approved.
Pre-Application: 2019-2021 Floodplains by Design Grant Funding

1. **Short Description of Project (250 words or less):**
   Please describe the overall goals for this floodplain area that is the focus of your proposal. Include in the description all major components of the project or activity. Also, indicate if this funding is for a phase of a larger project that in total will take more than 3 years to complete.

   *The Project or Phase proposed should be completed in 2-3 years.*

   **Answer question 1 here:**

   The Nooksack River: Floodplains That Work Project is the result of improved relationship and trust building among multiple interests through an integrated management approach (CFHMP update). Starting in 2017, the project builds on previous efforts resulting in a broadly-supported suite of actions. Phase I of the project includes four reaches of the mainstem from the confluence of the Forks downstream to the lower Nooksack River near Ferndale, and furthers other efforts upstream. Phase I includes six components (Figure 1) with the common goal of reducing flood hazards, recovering salmon populations and improving the resiliency of floodplain agriculture and communities. The project seeks to continue trust building across interests while addressing broadly supported early actions identified through previous planning processes, and lays groundwork for future integrated flood hazard reduction and salmon habitat restoration projects that benefit agricultural lands and at-risk communities. Specific components are:

   1) Ferndale Levee Improvement – Preliminary design  
      Benefits: critical infrastructure flood hazard reduction, riparian improvements, recreation

   2) Lynden Levee Improvement – Final design  
      Benefits: critical infrastructure flood hazard reduction, habitat improvements

   3) Reach 4 Levee Reconfiguration – Land acquisition  
      Benefits: flood hazard reduction, restoration of habitat-forming processes

   4) Jones Creek Debris Flow Mitigation – Land acquisition  
      Benefits: public life and safety, critical infrastructure protection

   5) Glacier-Gallup Creek Alluvial Fan Restoration – Preliminary design, easement acquisition  
      Benefits: public life and safety, critical infrastructure flood hazard reduction, restoration of habitat-forming processes

   6) Agricultural Program Support  
      Benefits: development and integration of agriculture objectives with flood hazard reduction, fish habitat, water quality and in-stream flow objectives
2. **Detailed Description of Primary Project Benefits - Flood Risk Reduction and Floodplain Ecosystem Protection (limit 3 pages):**

Pre-Proposals will be evaluated on the strength of the following elements:

a. Evidence of flood hazard reduction - How the project will reduce the magnitude or frequency of flood damage to people, structures or infrastructure.

b. Evidence of benefit to natural floodplain function – what are the ecological benefits of the project, its significance and up/downstream effects, and the ability of the solution to address the overall need in the project area or watershed.

c. *For Puget Sound projects,* show how the project contributes to the restoration and protection of Puget Sound and how the proposed activities or strategies are consistent with the Puget Sound Partnership Action Agenda.

d. Explain other benefits the project will provide (agriculture benefit, water quality improvements, recreation, public access, etc.), and community/stakeholder support.

e. Describe how your project accounts for expected future changes to hydrology, sediment regimes, sea level rise, or water supply resulting from other floodplain management efforts, land use changes, extreme weather events, or other causes.

f. *Is the project consistent with existing flood management or habitat plans? (if yes, also complete the table in question 3: Give plan name, version, involved entities and author, location in document of project or consistent activity/category)*

g. Show that funds will be spent in timely manner & provide a reasonable budget appropriate to the project scope. If applicable, describe how your project leverages existing investments (match).

See Next Page for Answer to Question 2
Answer to Question 2 (3 pages):

The Phase I Project will result in significant flood risk reduction, ecosystem improvement, and an improved understanding of how best to craft projects that protect and enhance agricultural resiliency in the floodplain. This project is the result of and consistent with nine existing plans as detailed in Question 3. The ‘current strategy’ described below for each reach is based on the Draft Nooksack Watershed Vision and Implementation Strategies developed for Floodplains by Design in 2015. Several of the components are also described in the WRIA1 Local Integrating Organization’s (LIO) 2016 Near-Term Actions submittal (December 2015) and received further vetting through that process. The specific components are described below.

Reach 1: Ferndale Levee Improvements/Setback Design (Figure 2)

This project is in Reach 1, where the current strategy is to modify infrastructure to address critical flood and fish concerns. Two levee segments along the right (west) bank of the river (Ferndale Levee and Treatment Plant Levee) provide flood protection to the City of Ferndale’s water treatment and wastewater treatment plants and to the Public Utility District No. 1 of Whatcom County water treatment facility. The value of the three treatment plants is estimated to be in the range of $25 to $30 million; additional infrastructure behind the levees includes: public roads, parks, private residences and farmland. Currently, flooding negatively affects the public, Lummi Nation, and private infrastructure westward to Lummi Bay. Both levee segments are active in the USACE PL 84-99 Program and improvement projects for both are included in the SWIF capital project list to address deficiencies and reduce risk. Along most of their length, these levees are high enough to prevent flooding during the 100-year flood event, but the lower 1100 feet of the Ferndale Levee is subject to overtopping during events as frequent as a 10- to 25-year flood. In addition, portions of the levee are very narrow, have very steep side slopes, and are likely to have slope stability issues in a prolonged flood event. Riparian vegetation is virtually non-existent along the length of the Ferndale Levee, which results in a highly degraded system for salmon and other species utilizing this reach. The Treatment Plant Levee is built on top of Ferndale Road for a portion of its length, but then transitions to an un-engineered berm and in places, a sandbag berm.

This project proposal includes preliminary design of improvements to both the Ferndale and Treatment Plant Levees (approximately 6300 ft of levee), including widening and re-aligning the levees to run under Ferndale Road, raising the level of protection to the treatment facilities and surrounding land uses and infrastructure to a 100-year level (considering potential flow increases associated with anticipated climate change) and re-establishing or enhancing riparian vegetation riverward of the new levees. Within the City of Ferndale a shared use trail will be incorporated into the new levee/road section to connect the Centennial Rivewalk in the downtown area to the trail system in Phillips 66 Sports Complex and Pioneer Park. The new roadway section will include improved stormwater treatment and storm drainage and other safety improvements. Preliminary (60%) design drawings, construction cost estimate, and a riparian planting plan will be produced during the 2019-21 biennium and subsequent construction funding will be sought.

This project was initially identified in the Lower Nooksack River 1999 CFHMP and has been developed further through the SWIF planning process and current integrated management approach; these processes included significant stakeholder involvement.

Reach 3: Lynden Levee/Culvert Improvements (Figure 3)

This project is in Reach 3 where the current strategy is to maintain the existing levee system and create designed overflow levee segments and maintain natural overflow locations to make flooding predictable, while identifying opportunities to improve floodplain connectivity and habitat and reduce fish stranding. The Lynden Levee provides flood protection to the City of Lynden’s wastewater treatment plant as well as approximately 500 acres of agricultural land and a public roadway. The City estimates the value of their infrastructure behind the levee at $35 million. Currently two culverts run under the levee just downstream of the treatment plant facilities and are identified by the USACE as deficiencies because they do not have flap gates. The levee in this location is narrow with steep side slopes and is subject to overtopping during relatively frequent (approximately 5-year flood) events. The levee overtopped in November of 2015 and again in 2017 damaging the levee side slopes. A small drainage channel that outlets through one of the culverts runs adjacent to a treatment plant settling pond just landward of the levee. Only a small strip of land separates the drainage from the pond and erosion of this strip of land was observed after the November 2015 floods.

This area presents opportunities for significant flood risk reduction to both infrastructure and agricultural lands as well as potential ecosystem improvements. This project component includes evaluation of conceptual design alternatives for improving the levee and culverts. The conceptual alternatives will evaluate the potential to: replace the two culverts with one larger, fish-passable and flap gated culvert; widen the levee crest; flatten the levee side slopes; and modify the crest elevation to shift overtopping downstream, away from the treatment plant culverts and onto areas more suitable for overtopping. Additional improvements that will be considered include relocating the drainage into a forested area west of the current channel to reduce the potential for breaching of the strip of land between the creek and the pond and to increase the quantity and quality of off-channel rearing habitat for salmon.

The proposal for this site has two phases and requires two biennia to implement. Phase 1 is proposed for the 2019-2021 biennium and
includes evaluation of alternative conceptual design layouts, hydrologic and hydraulic analyses as needed to support the alternatives analysis and design, and a preliminary and final design and cost estimate for the preferred alternative. Phase 2 will be proposed for future funding and includes construction.

Reach 4 Levee Reconfiguration (Figure 4)

This project is in Reach 4, where the current strategy is to set limits on channel migration that ultimately will restore floodplain processes while preventing a right bank avulsion into developed areas of Deming and Nugent’s Corner. Near the town of Deming, the 1999 CFHMP identified extreme channel migration as the driver for flood control expenditures as several of the levees significantly constrain the river, increasing the potential for levee damage and failure, and limiting habitat and habitat-forming processes. The levee constriction may also increase the channel’s residence time against a glacial terrace to the south increasing the potential for landslides. Historic landslides have blocked the river, resulting in levee failures and changes in the river’s flow path impacting water quality, salmon and salmon habitat. Through the SWIF process, a detailed geomorphic analysis of the existing levee system between the confluence of the North and South Forks downstream to the Mt Baker Highway (SR 542) crossing was conducted, and three alternative levee configurations were identified. All three alternatives include realigning and setting back two segments where the levee significantly constrains the river to less than half of the historical channel migration width. These locations have been subject to frequent and costly levee repairs. The geomorphic and economic analyses conducted through the SWIF supported the 1999 CFHMP recommendation to remove these constraints.

Currently, there is a unique and time-sensitive opportunity to acquire several of the key properties needed to reconfigure the levee at these constraints. Long-time residents adjacent to the river have reached a point in their lives where they are considering selling all or portions of their properties. This is an opportunity that may not come along again for decades and if the land is not acquired and placed into public ownership, future levee reconfiguration, including setback, is extremely unlikely. The diking district commissioners support the landowners’ decisions regarding their lands including a decision to move them to public ownership.

While the SWIF included the evaluation of three alternatives for reconfiguring the levee, the SWIF interagency coordination team did not select one as a preferred alternative, as they recognized the need for further work with the affected landowners to determine an actual project footprint. This project component includes acquisition of lands considered crucial to enabling future levee reconfiguration that could potentially reconnect as much as 140 acres of floodplain and restore habitat-forming processes to benefit ESA-listed Chinook, steelhead, and bull trout, while also significantly reducing levee repair costs and making the system more resilient to changes in flows and sedimentation associated with climate change.

South Fork Reach: Jones Creek Debris Flow Mitigation (Figure 5)

This project is in the South Fork Reach where the main flood strategy is to reduce the potential for future losses on alluvial fans and protect transportation infrastructure and human life and safety. The focus for fish is in the mainstem South Fork Nooksack River. Jones Creek originates on Stewart Mountain and flows across its alluvial fan through the town of Acme before entering the South Fork Nooksack River. The town was settled over a century ago, and has been subject to debris flows from Jones Creek throughout its history. Heightened awareness of the hazard resulted after a debris flow in 1983. In the early 1990’s, an assessment of the Jones Creek hazard was conducted as part of the Nooksack River CFHMP planning process. In 2004, a more in-depth analysis included trenching across the fan to develop a better understanding of the frequency and magnitude of potential debris flows, modeling and mapping of a 500-year debris flow, and identification of debris flow mitigation strategies. A 500-year debris flow was selected in this analysis due to the potential for loss of life and significant harm to the town.

This work produced a debris flow hazard map that has been used since for land use regulation and identification of high-risk properties to target for acquisition. In addition to numerous residential properties and agricultural lands, three County roads and the Acme Elementary School would be impacted by a large debris flow. In 2008 and 2009, the FCZD acquired two of the highest-risk properties using a combination of FEMA hazard mitigation and local funding. Another small debris flood occurred in 2009, and the FCZD re-evaluated the mapping to confirm it is still applicable and reviewed the mitigation strategies to develop a preferred approach. This approach includes acquisition of properties within debris flow hazard Zones 1 and 2 and construction of a setback deflection berm to prevent debris flows from flowing through the developed areas of Acme. This project is a critical component of the overall strategy as it shows commitment of the community to address critical issues pertinent to the small rural towns and communities that often lack support and resources as well as the fish and agricultural interests addressed in other project components. Continuing to secure the support through meaningful actions in the floodplain of the small communities is a critical component to being able to implement a multiple-objective capital program in the Nooksack.

The properties in Zone 1 have already been acquired. This project component is for acquisition of additional properties within Zone 2; the hazard in Zone 2 is characterized as subject to flow depths up to 8 feet, flow velocities up to 12 ft/sec, and boulder diameters up to 2 feet. Acquisition of these parcels will immediately reduce risk to people and infrastructure and will be needed for the future construction of the deflection berm. The berm will be setback from the creek to minimize impacts and provide for storage of deposited
sediment and debris. The FCZD is initiating detailed design of the berm in 2018 with local funding, and is working with key landowners to secure the needed easements.

**North Fork Reach: Glacier-Gallup Creek Alluvial Fan Restoration (Figure 6)**

This project is in North Fork Reach, where the current strategy is to identify opportunities to setback or remove levees and restore channel migration zone processes to address critical flood and fish concerns. The town of Glacier is located on the Gallup Creek alluvial fan and is also subject to flooding from Glacier Creek during large floods. As part of the 1999 CFHMP process, an analysis of these two creeks was performed in the early 1990’s. In addition to residential and commercial properties in the town, there is risk to State Route (SR) 542 and a Puget Sound Energy battery storage facility intended to provide backup power. After the highway was damaged in the early 1960’s, WSDOT constructed a levee on the left bank of Glacier Creek to prevent overflows into Gallup Creek. The alluvial fan includes contributions from both creeks. Since then, the levee has been subject to ongoing damage and currently the riprap face is compromised. Constriction of the channel migration zone has also exacerbated sedimentation upstream of the highway, severely degraded fish habitat utilized by Chinook, steelhead and bulltrout, and increased risk to USFS historic structures along the right back of Glacier Creek.

WSDOT identified this site as a chronic environmental deficiency and conducted a feasibility study of alternatives to address the risk to SR 542. The study recommended reconstructing a much longer bridge that will span both creeks and the alluvial fan migration area between them. This will address the chronic sedimentation issues at both bridges and protect the highway during large floods. Their preferred alternative includes removing the Glacier Creek Levee and constructing a new levee along the left bank of Gallup Creek to protect the town; this will reconnect the channel migration zones of Gallup and Glacier Creek and restore natural creek processes which form and maintain habitats used by ESA-listed Chinook, steelhead, and bulltrout and other salmon including coho and pinks. WSDOT is proceeding with the bridge design but has requested the FCZD assist with the levee work. WSDOT has already acquired and removed the Glacier Creek Motel which sat between the two creeks and reconstructed the bridge over Gallup Creek in 2010. The Glacier Water District’s main water line also crosses the creeks at the two bridges. The cost to replace the water line over the new Gallup bridge was appreciable for the small district and the cost to replace the line over the proposed bridge over Glacier Creek and the channel migration zone will be a hardship to their ratepayers. With the new bridge and water line in place, the community of Glacier will also be much more resilient in light of expected flow and sedimentation changes associated with climate change.

This project component includes preliminary (60%) design of the levee reconfigurations and funding to support the Glacier Water District in designing a replacement water line over the new WSDOT bridge. Easement acquisition and structure relocation could also be included depending on the results of the feasibility work to be completed in 2018-19.

**Agricultural Program Support**

Building off the successes and relationships formed during the SWIF, the FCZD initiated the Floodplain Integrated Planning (FLIP) process last year to update the CFHMP consistent with a broader set of local interests. The agriculture community is participating directly in this process through representatives of diking districts, subzones, the FCZD Advisory Committee and Watershed Improvement Districts (WIDs). The WIDs are also funding a consultant to help represent the agricultural interests.

In addition to the challenges of farming in the floodplain, farmers are also grappling to find solutions that work for them and their other community members related to water quality, instream flows and water rights, drainage, and salmon habitat. Representatives from each of the six WID Boards comprise the Ag Water Board (AWB). The AWB has been working to secure funding for a pilot project to develop solutions across all of these interests.

This project component will include funding to:

- support the farmers and their consultant in participating in the FLIP planning process
- develop an on-the-ground early action pilot project supported by the FLIP steering committee and the WRIA #1 Watershed Management Board
- create broadly-supported educational videos on environmental issues associated with agriculture and steps the agricultural sector is taking or needs help to take for success.
3. **Table: Is your project Consistent with existing Management or Recovery Plans?**

Projects shall be consistent with existing floodplain management or habitat recovery plans. Applicants need to demonstrate that project is consistent with the sequencing of local work plans and priorities, and aligned with watershed recovery work. (Elements of the project may have been developed through more than one planning process. Please identify the planning process used for each major element if they are not from a common plan.)

**Using the template provided below,** please describe how the project is consistent with flood risk reduction plans, salmon or habitat recovery plans, Local Integrated Plans, or other related planning processes. To reference multiple plans, please add columns as needed.

<table>
<thead>
<tr>
<th>Plan Title &amp; Date/Version:</th>
<th><strong>See attached table</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan Category:</td>
<td></td>
</tr>
<tr>
<td>(Flood Management, Habitat, Salmon Recovery, Hazard Mitigation, etc)</td>
<td></td>
</tr>
<tr>
<td>Weblink:</td>
<td></td>
</tr>
<tr>
<td>Author(s):</td>
<td></td>
</tr>
<tr>
<td>Entities involved:</td>
<td></td>
</tr>
<tr>
<td>Location of consistent activity/category (chapter, table, action #, etc)</td>
<td></td>
</tr>
<tr>
<td>Other Comments/Description:</td>
<td></td>
</tr>
</tbody>
</table>

4. **Is your project in a Puget Sound Partnership Priority Floodplain?**

*(Deschutes, Dungeness, Duwamish/Green, Elwha, Hood Canal, Lake Washington, Lower Skagit, Nisqually, Nooksack, Puyallup, Sauk, Skokomish, Skykomish, Snohomish, Snoqualmie, Stillaguamish, Upper Skagit)*

Answer question 3 here:

☐ No

☑ Yes (& name) Nooksack

5. **Attachment – Maps**

Attach these 2 required maps to your application:

- Vicinity map – location of project within watershed.
- Site map – with project actions identified and flow direction indicated

You may attach up to 5 maps, if needed. (Ex: if part of a larger body of work, submit a map of proposed project in relation to reach-/corridor-scale activities completed and planned.)
6. **Attachment – Support Letters:**
   Where flood control authorities, Tribal Nations, local governments, lead entities, Local Integrating Organizations, key stakeholders or decision-makers representing floodplain interests (including salmon, water quality, agricultural, recreational interests) located within the river reach or affected by the project have provided letters of support for this project and its outcomes. If your project impacts agriculture, please submit letters of support from agricultural interests.

7. **Attachment -- SCOPE OF WORK:**
   Please attach a Scope of Work and schedule. If your proposal is a phase of a larger project that in total will take more than 3 years, please place this proposal in the context of the overall project and provide preliminary cost estimates to complete the project. Do not exceed 2 pages for this attachment.

See Next Page for Scope of Work
Scope of Work (2 pages)

The following scopes of work represent the best current estimate of the work to be completed if funding is received. If additional funding is secured or opportunities change, additional work or acquisition in these areas may be substituted as long as they are consistent with the overall effort in the project area and receive local and Ecology concurrence.

Reach 1: Ferndale Levee Improvements/Setback Design

The current scope of this task includes advancing the conceptual design of improvements to the Ferndale and Treatment Plant Levees to provide greater flood protection and enhance riparian habitat on the riverward side of the levees. The work will include reviewing and refining the conceptual design in conjunction with the City of Ferndale and the PUD and advancing it to a preliminary (60%) design level. Specific subtasks will include:

1. Review of concept design and potential alternatives and selection of final layout
2. Hydraulic analysis and evaluation of flood impacts for existing and anticipated future flows resulting from climate change, and potential mitigation measures. If needed, this may include coordination with FEMA to obtain a Conditional Letter of Map Revision (CLOMR)
3. Field survey and preparation of base mapping
4. Traffic analysis to investigate potential impacts of traffic on pedestrian access/trail system
5. Geotechnical investigation to support levee and pavement designs and potential retaining wall
6. Evaluation of stormwater impacts, conceptual layout of revised stormwater drainage and possible treatment facilities
7. Selection of roadway design standard and preliminary 30% design drawings including layout, right-of-way, utility relocation and riparian re-establishment plan and development of a preliminary 30% cost estimate
8. Initiation of permitting process to obtain feedback from regulatory agencies on 30% design
9. Refinement of design to develop preliminary 60% design drawings and cost estimate, including details on levee, potential retaining wall and/or scour protection, and roadway geometry and trail; and development of 60% level specification package
11. Preparation of basis of design report
12. Coordination with City of Ferndale and PUD and other key stakeholders throughout the design process

This work is the first phase of design for the project; the project is anticipated to take three biennia to fully implement. The total project cost including construction is currently estimated at $8 million.

Reach 3: Lynden Levee/Culvert Improvement

The current scope of this task includes alternatives identification and analysis, preliminary design (30% and 60%), and final design. Specific subtasks include:

1. Identification of alternative culvert and stream layouts and levee profile modifications
2. Hydraulic analysis and evaluation of flood impacts and potential mitigation measures. If needed, this may include coordination with FEMA to obtain a Conditional Letter of Map Revision (CLOMR)
3. Hydrologic analysis of tributary drainages and hydraulic design of the culvert
4. Fish habitat inventory and wetland delineation and assessment of potential impacts
5. Field survey and preparation of base mapping
6. Geotechnical investigation to support levee, culvert and headwall designs
7. Evaluation of impacts of the alternatives and selection of preferred design
8. Mitigation plan development
9. Preliminary design (30%) drawings and development of preliminary (30%) cost estimate
10. Initiation of permitting process to obtain feedback from regulatory agencies on preliminary design
11. Refinement of design to develop preliminary 60% design drawings and cost estimate, including details on levee, culvert and headwall, flood gate and potential channel relocation and associated mitigation; and development of 60% level specification package
12. Preparation of basis of design report
13. Easement acquisition
14. Completion of final (100%) design, specification package, and cost estimate
15. Coordination with City of Lynden, LE Subzone and other key stakeholders throughout the design process

This work is the first phase of a two phase project. Funding for construction will be requested in the next biennium.

**Reach 4 Levee Reconfiguration – Land Acquisition**

The current scope of this task includes all the subtasks necessary to complete acquisition of lands and easements within Reach 4. Specific subtasks include:

1. Appraisals
2. Landowner coordination and negotiations
3. Survey and preparation of legal descriptions to support subdivisions and easements
4. Environmental site assessments
5. Relocation assistance, if applicable
6. Title review and clean up
7. Property subdivision
8. Acquisition of land and easements

This project is land acquisition phase for a future project that will span several biennia.

**Jones Creek Debris Flow Mitigation – Land Acquisition**

The current scope of this task is identical to the scope of the previous task with a different targeted geographical area, the Jones Creek alluvial fan. This project is the land acquisition phase for a future project that is anticipated for construction in 2021; preliminary design is being initiated by the FCZD in 2018.

**Glacier-Gallup Creek Flood Mitigation**

The scope of this task includes:

1. Preliminary (60%) design to reconfigure or remove the existing Glacier Creek levee and construct a new setback levee on Gallup Creek; includes development of preliminary 60% drawings, cost estimate, specifications, and basis of design report
2. Funding for the Glacier Water District to perform design work to relocate their water main over the new bridge being designed by WSDOT
3. Acquisition of easements
4. Possible structure removal or relocation

A feasibility analysis is being initiated by the FCZD in 2018 to further refine the project concept. This project is being developed in collaboration with WSDOT in anticipation of their 2024 construction of the new Glacier Creek highway bridge.

**Agricultural Program Support**

This task is to provide support for agricultural representation in the integrated floodplain planning process to update the Nooksack River CFHMP in a manner that integrates flood, fish and farm interests. Funding will support:

1. A consultant who has been retained by the Ag Water Board to represent agricultural interest and participate in the FLIP process
2. Stipends for farmers to attend FLIP Team meetings
3. Incorporating the floodplain component into a drainage-based management pilot project within a portion of the floodplain to integrate not only the flood, fish and farm interests but also water quality and in-stream flow considerations. This work is critical to building trust amongst partners and creating a package of projects and programs that could serve as a template for developing integrated solutions to diverse water resources issues that extend beyond the floodplain
4. Potential implementation of an early-action item developed in the drainage-based management pilot project
5. Creation of broadly supported educational videos on environmental issues associated with agriculture and steps the agricultural sector is taking or needs help to take in order to achieve mutually beneficial goals.
8. **Budget** (add rows for more tasks as needed).

<table>
<thead>
<tr>
<th>Task</th>
<th>Funding Requested from Floodplains by Design</th>
<th>Other Funding for Project** (20% of Total Cost Minimum)</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task 1--Administration</td>
<td>$40,000</td>
<td>$10,000</td>
<td>$50,000</td>
</tr>
<tr>
<td>Task 2: Ferndale Levee Improvement Design</td>
<td>$640,000</td>
<td>$160,000</td>
<td>$800,000</td>
</tr>
<tr>
<td>Task 3: Lynden Levee Improvement Design</td>
<td>$320,000</td>
<td>$80,000</td>
<td>$400,000</td>
</tr>
<tr>
<td>Task 4: Reach 4 Levee Reconfiguration</td>
<td>$2,220,000</td>
<td>$555,000</td>
<td>$2,775,000</td>
</tr>
<tr>
<td>Task 5: Jones Creek Debris Flow Mitigation</td>
<td>$812,000</td>
<td>$203,000</td>
<td>$1,015,000</td>
</tr>
<tr>
<td>Task 6: Glacier-Gallup Alluvial Fan Restoration</td>
<td>$200,000</td>
<td>$50,000</td>
<td>$250,000</td>
</tr>
<tr>
<td>Task 7: Agricultural Program Support</td>
<td>$600,000</td>
<td>$150,000</td>
<td>$750,000</td>
</tr>
<tr>
<td>Total</td>
<td>$4,832,000</td>
<td>$1,208,000</td>
<td>$6,040,000</td>
</tr>
</tbody>
</table>

**Other sources of funding dedicated to this project. Insert narrative below that details who the funding entity is (e.g. FEMA), what the source of funding or grant type is (e.g. Hazard Mitigation Grant Program), and whether it has been received, or applied for but not yet received. **Match must be at least 20% of Total Project cost.**

The majority of 20% match for this project will be provided from the Whatcom County Flood Control Zone District (WCFCZD) fund, with contributions from the special districts involved in the last two project components. The Glacier Water District will contribute towards the design of their new water line under Task 6. For Task 7, contributions will be provided by Watershed Improvement Districts for the integrated planning piece. For the early-action project under Task 7, contributions will be sought from the special district(s) within which the project lies, which could include diking or drainage district, watershed improvement district or flood control subzones.

9. The Floodplains by Design program encourages using our funds to leverage additional funds for your project. In this section please list any other funds that are contributing to this project which are not used to meet the 20% match requirement above. For example a Salmon Recovery Funding Board grant that will pay for restoration activity associated with this project.
<table>
<thead>
<tr>
<th>Action (describe the portion of the FbD project or related action)</th>
<th>Fund Source (e.g. FEMA, SRFB, etc.)</th>
<th>Type of funding (e.g. HMGP)</th>
<th>Timing (choose in-hand or applied for)</th>
<th>Amount in whole dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated flood planning - relates to Ag Program Support</td>
<td>EPA</td>
<td>NEP</td>
<td>In-hand - funding alternatives analysis, engineering design and plan development</td>
<td>$ 750,000</td>
</tr>
<tr>
<td>Integrated flood planning - relates to Ag Program Support</td>
<td>RCO/SRFB</td>
<td>State Salmon Recovery funds</td>
<td>In-hand - funding habitat assessment</td>
<td>$ 237,000</td>
</tr>
<tr>
<td>Integrated flood planning - relates to Ag Program Support</td>
<td>NOAA</td>
<td>Coastal and Marine Habitat Restoration Program</td>
<td>In-hand - funding geomorphic assessment</td>
<td>$ 150,000</td>
</tr>
<tr>
<td>Integrated flood planning - relates to Ag Program Support</td>
<td>USACE</td>
<td>Silver Jackets Inter-agency Non-Structural Program</td>
<td>In-hand - funding benefit-cost analysis</td>
<td>$ 75,000</td>
</tr>
<tr>
<td>Glacier-Gallup Alluvial Fan Restoration/ Chronic Environmental Deficiency</td>
<td>WSDOT</td>
<td>State Transportation project funding</td>
<td>In-hand – DEM from drone LiDAR and sonar bathymetry; Preliminary Hydraulic Design report (hydrologic model, geomorphic assessment, 2D hydraulic model)</td>
<td>$ 114,400</td>
</tr>
<tr>
<td>Glacier-Gallup Alluvial Fan Restoration/ Chronic Environmental Deficiency</td>
<td>FHWA</td>
<td>Resilience and Durability to Extreme Weather Research Deployment Pilots</td>
<td>WSDOT led submission of letter of interest; study would use Glacier Creek as case study for sediment transport modeling</td>
<td>$ 75,000</td>
</tr>
</tbody>
</table>
Pre-Application for a 2019-2021 Floodplains by Design Project Grant

Certification

I certify to the best of my knowledge that the information provided above is true and correct and that I am legally authorized to sign and submit this information on behalf of the organization applying for this grant.

[Signature]

Date

Paula J. Harris, P.E., River and Flood Manager

Printed Name and Title

Whatcom County Flood Control Zone District

Name of Organization Applying for Grant
Attached Tables
### Question 3 Table: Attachment: Existing Plans

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan Category:</td>
<td>Flood management</td>
<td>Flood management integrated with salmon recovery</td>
<td>Recovery plan for Chinook and other salmonids</td>
<td>Salmon habitat assessment</td>
<td>Flood management</td>
<td>Flood management</td>
<td>Flood management</td>
<td>Chronic environmental deficiency project</td>
</tr>
<tr>
<td>Entities involved:</td>
<td>WFCZD, impacted cities, diking districts</td>
<td>WFCZD</td>
<td>WFCZD 1 SRB</td>
<td>WDFW, Lummi Nation, WDFW</td>
<td>WCFCZD, Lummi Nation - Natural Resource Department</td>
<td>WCFCZD, Acme‐VanZandt Subzone</td>
<td>WCFCZD</td>
<td>WSDOT</td>
</tr>
<tr>
<td>Location of consistent activity/category</td>
<td>Ferndale Levee: pp. 43-44, 56-57; Lynden Levee: pp. 44-45, 56-57; Reach 4: p. 52, 58; Glacier: pp. 53-54</td>
<td>Ferndale: Reach 1 section; Lynden: Reach 2-3 sections; Reach 4 sections</td>
<td>Glacier/Gallup: p. 184, Section 5.1.6.2; Reach 4: p. 194, Section 5.1.6.13.1; Lynden Levee: p. 196, Section 5.1.6.15</td>
<td>p. 5-4, actions 1 and 2</td>
<td>p. 5-1, section 5.2, actions 1 and 2</td>
<td>p. 59, section 5.2, last bullet; p. 61, section 5.3, bullets 2, 3 and 5</td>
<td>Alternative 3, pp. 4-5, p. 37</td>
<td></td>
</tr>
<tr>
<td>Other comments/Description:</td>
<td>Additional technical studies supporting the Reach 4 project can be found at: <a href="https://www.whatcomcounty.us/DocumentCenter/View/2363">https://www.whatcomcounty.us/DocumentCenter/View/2363</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Describes habitat targets for all salmonids and specific recovery targets for ESA-listed Chinook salmon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Defines habitat condition and restoration needs in the Nooksack lower mainstem, estuary and nearshore</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Due to large file sizes, some of the document links in this table may take time to download.
Figures
Figure 1
Project Component Vicinity Map

Nooksack River: Floodplains that Work
2019 - 2021 Biennium
Reconstruct 1.2 miles of substandard levee under Ferndale Road; provide reliable 100-year flood protection.

Elevate roadway to eliminate gap in protection. (Protection to treatment plant is currently provided by large sand bags.)

Install supplemental riparian plantings waterward of levee.

Install riparian plantings waterward of the levee.

Trail to connect Ferndale’s Centennial Riverwalk Park to Pioneer Park and Phillips 66 Sports Complex.

Nooksack River: Floodplains that Work
2019 - 2021 Biennium

Figure 2
Ferndale Levee Improvement
City of Lynden

Nooksack River: Floodplains that Work
2019 - 2021 Biennium

Existing ditch to remain. South end to be re-routed into new combined habitat channel.

Existing culverts (without flood gates) to be removed

Realign eastern habitat channel and connect to new culvert with flood gate.

Lynden Levee/Culvert Improvements

Figure 3

Public Works Department
River & Flood Division
322 North Commercial, Suite 120
Bellingham, WA 98225-4042
P: (360) 778-6230  F: (360) 778-6231
Figure 4
Reach 4 Levee Reconfiguration
Alternative #2 from SWIF Planning Process

Nooksack River: Floodplains that Work
2019 - 2021 Biennium

Levee constructed in 2017 with FbD funding

Proposed levee removal
Existing levee to be maintained
Newly constructed levee

Side channels and avulsion paths
Proposed alternative levee alignment
Proposed levee removal
Existing levee to be maintained
Newly constructed levee
Approximate proposed berm alignment

Proposed deflection berm

**Nooksack River: Floodplains that Work**  
2019 - 2021 Biennium

**Figure 5**  
Jones Creek Debris Flow Mitigation
Existing lower left and right bank levees to be removed

Existing 2010 Gallup Creek bridge to remain

Existing lower left bank levee to be removed

Existing Glacier Creek bridge to be replaced

Existing upper left bank levee (Glacier Levee PL84-99) to be removed

Remove road prism fill and elevate highway on piers

Figure 6

Glacier-Gallup Alluvial Fan Restoration
WSDOT SR542 Preferred Alternative (#3)

Nooksack River: Floodplains that Work
2019 - 2021 Biennium

Community of Glacier

VAUGHN AV

COAL CREEK RD

FOREST ST

BOURNE ST

To Mt. Baker

To Bellingham

Public Works Department
River & Flood Division
322 North Commercial, Suite 120
Bellingham, WA 98225-4042
P: (360) 778-6230  F: (360) 778-6231
Support Letters
January 30, 2018

Representative Vince Buys  
P.O. Box 40600  
Olympia, WA 98504-0600

Dear Rep. Buys,

Whatcom County’s Ag Water Board (AWB) requests your support of a Floodplains by Design grant proposal submitted by Whatcom County. This updated proposal has many improvements over the proposal submitted, but not funded, last year. It specifically carves out a place for farmers to be involved in designing and implementing flood management projects and supports their time and efforts to do so. The AWB provides support for some of this involvement but has not been able to fully fund the need to ensure that farmers’ voices are fully involved.

The 2018 proposal also is improved by tightening the County’s focus on flood management rather than use of the Flood Fund for numerous other water related projects. The creation of a Lake Whatcom Stormwater Utility takes significant pressure off the Flood Fund budget and makes the program more consistent with its original purpose. We will note, however, that Whatcom County’s use of the Flood Fund provides support for many other beneficial programs for farmers. It may not be as clear as we would desire but we are actively involved with the County in programs like the Pollution Identification and Prevention program and watershed planning which are funded from the Flood Fund. If not from there, it would require an increased operating budget or a new tax or assessment.

The AWB represents all six of the Watershed Improvement Districts (WIDs) within Whatcom County. The purpose of the AWB is to provide a forum for coordinating the actions of individual WIDs relating to addressing water supply, water quality, drainage, flood management, and other issues affecting agricultural landowners in Whatcom County.

Each WID is an irrigation district which was formed Chapter 87.03 RCW by the local agricultural community in order to have a local organization that could implement local priorities and resources, especially those that impact land and water. The six WIDs comprise almost 70,000 acres within Whatcom County.

If the project is funded this year AWB will be coordinating farmer involvement to ensure that the implementation of the proposed projects align with farmer’s flood management needs. We believe that restoring habitat and managing flood risks on our land are fully compatible goals and we will be diligent in pursuing both of them.

Sincerely,

Scott Bedlington, President  
Ag Water Board
February 2, 2018

Paula J. Harris
River and Flood Manager
Whatcom County
322 N Commercial St, Ste. 120
Bellingham, WA 98225

Dear Paula:

As commissioners of Whatcom County Diking District #2 (DD#2) we are writing to express our support for the Floodplains by Design project proposal put forth by the Whatcom County Flood Control Zone District (FCZD).

We have participated actively throughout the System-Wide Improvement Framework (SWIF) planning process and have gained a better understanding of the impacts of the existing levee system within our district on both flood and fish concerns. We also recognize the need to work with landowners to ensure that any proposed changes to the levee system can be supported locally by the people most affected by a proposed project, and consistent with dike district and US Army Corps flood management regulations. We support the FCZD’s efforts to pursue funding for acquisition of lands and/or easements to enable a future setback, with the understanding that acquisition process is voluntary and must be supported by the landowners involved.

We believe the FCZD’s proposed project will contribute to maintaining reliable flood protection for public and private infrastructure, homes, agriculture, business, and Tribal interests in Whatcom County and are pleased to show our support for the project.

Sincerely,

Diking District #2 Commissioners:

________________________
Gene Aarstol, Chairman

________________________
Harry Williams, Vice Chairman

________________________
Arthur Anderson, Secretary/Treasurer
To Whom It May Concern:

The City of Ferndale wishes to express support for the Lower Nooksack River: Floodplains That Work project as proposed by Whatcom County Flood Control Zone District for the Floodplains by Design Grant Funding.

The City of Ferndale is the local sponsor of the Ferndale Levee and was involved in the Whatcom County System Wide Improvement Framework for the Nooksack River levee system planning process (2013-2016).

Rehabilitation of the Ferndale Levee (Ferndale Levee Improvements/Setback Design), including raising the levee to 100 year protection level, is on the City’s Stormwater Capital Improvements Program list. It is an important project for the City as both our Water and Wastewater Treatment Plants are located behind the levee and their protection are vital to our community. Unfortunately, lack of funding has prevented the project from moving forward.

The City appreciates the opportunity to work with Whatcom County and apply for the Floodplains by Design Grant Funding; this funding would allow us to design a levee project that is beneficial to the citizens of Ferndale and not only provides flood control and protection but also provide benefits for recreation and riparian habitat.

Thank you for your consideration.
Please contact Kevin Renz at 360.685.2376 if you have any questions.

Sincerely,

[Signature]

Jon Mutchler
Mayor

[Signature]

Greg Young
City Administrator

Cc: Paula Harris, River and Flood Manager, Whatcom County
Kevin Renz, Public Works Director, City of Ferndale
Bo Westford, Public Works Supervisor, City of Ferndale
Paul Knippel, Stormwater Technician, City of Ferndale
February 8, 2018

Paula J. Harris, P.E.
River & Flood Manager
322 N. Commercial St., Suite 120
Bellingham, WA 98225

Dear Paula:

The Whatcom County Flood Control Zone District Advisory Committee (FCZDAC) would like to express its support for the Nooksack River: Floodplains That Work– Phase 1 project proposal for Floodplains by Design.

The six components of the proposal will work together to integrate flood hazard management and habitat restoration, while at the same time protecting infrastructure and agricultural land along the Nooksack River. The project components are consistent with the Nooksack River vision developed in 2015 for Floodplains by Design and will be the first step in implementing the capital plan within the recently completed System-wide Improvement Framework (SWIF).

While the FCZDAC supports the approach to integrate flood, fish and farm interests, implementation of reach-scale projects within the Nooksack basin will only be possible with the addition of outside funding. We hope this proposal will be successful and the first step in a longer-term partnership with the State in creating a more resilient and productive floodplain along the Nooksack River.

Sincerely,

Jeff DeJong
Chair, Whatcom County Flood Control Zone District Advisory Committee
February 12, 2018

Whatcom County Public Works
River and Flood Division/FCZD
322 N. Commercial Street, Suite 120
Bellingham, Washington 98225

Attention: Paula J. (Cooper) Harris, PE
River and Flood Manager

Subject: Letter of Support – Glacier-Gallup Creek Flood Mitigation,
Floodplains By Design

Dear Ms. Harris;

Please accept this letter as Glacier Water District’s support for the Glacier-Gallup Creek Flood Mitigation
grant application for work to correct compromised levees and the systemic erosion and flow problems
related to this two-creek bridge alluvial system, long recognized as a chronic environmental deficiency
by WSDOT in the 1990’s. Now that construction of the first state highway bridge over Gallup Creek has
been completed, the time has come for comprehensive design work to begin to address multiple
environmental, transportation and public safety goals. While environmental efforts have been tightly
focused on the protection of critical fish populations, this phase of the bridge project now includes flood
management elements to keep the state route open in a reliable and efficient manner long-term, while
protecting our vital county community.

SR 542 is the sole, heavily traveled transportation route that traverses Whatcom County from the I-5
corridor to Mt. Baker and scenic Mt. Shuksan, both rating high among the state’s landmark destinations.
This historic, small unincorporated county community is situated at the gateway to USFS Mt. Baker-
Snoqualmie National Forest. And in this area, state and international travelers begin to ascend toward
some of the most scenic, rugged terrain and rain forests of the west Cascade Range. Glacier provides
support and essential services to both residents and large numbers of travelers and recreational visitors
year-round. While the state and county work to improve the functions of the two-bridge system,
Glacier Water District must reliably meet the continuous needs of the resident and traveling public.

The community and Glacier Water District were significantly impacted by collateral expenses and
infrastructure loss during construction of the first part of this project. Given that the next bridge span
Whatcom County Public Works
River and Flood Division
Letter of Support – Glacier-Gallup Creek Flood Mitigation
February 12, 2018
Page 2

will be many times longer than the first, we face substantially higher costs related to the construction bypass, and much more infrastructure loss. We appreciate the state’s consideration of the community’s situation as we must carry burdens related to the completion of this state project. Engineering at this stage will offer practical plans for both logistics during the bypass/construction period and for the replacement water line on the new bridge span. Good planning now should help to minimize construction delays, service interruptions, and avoid unnecessary related difficulties.

The District appreciates Whatcom County River and Flood Division/FCZD’s willingness to coordinate this multi-agency effort that will incorporate Floodplains By Design’s public safety elements. We look forward to working together as the project moves forward with consideration for both flood protection and the wellbeing of the community.

Glacier Water District stands ready to support this grant application, and to participate in the coordinated effort as plans develop, including local public outreach.

Sincerely,

James Evangelista, Chair
Board of Commissioners
Glacier Water District
Feb 5, 2018

Paula J. Harris, P.E.
River & Flood Manager
322 N. Commercial St., Suite 120
Bellingham, WA 98225

Dear Paula:

The City of Lynden would like to express its support for the Whatcom County Flood Control Zone District Proposal for the “Nooksack River: Floodplains that Work.”

The City of Lynden Public Works Department has worked diligently with Whatcom County to develop the System-Wide Improvement Framework plan, and has appreciated the County’s commitment to working with local jurisdictions to develop mutually beneficial solutions that promote and preserve critical public infrastructure, agricultural land, and fish habitat along the Nooksack River. In the case of our City, the proposed Lynden Levee/Culvert Improvement project will provide valuable protection to our municipal wastewater treatment plant and water treatment plant settling pond, which currently serve a population of over 13,000 residents.

This proposed “Floodplains That Work” project will benefit the citizens of Lynden as well as all of Whatcom County, and we’re pleased to offer our support for your proposal.

Sincerely,

Gary Bode, Mayor Pro Tem
City of Lynden
November 9, 2017

Jon Hutchings, Public Works Director
322 North Commercial St., Suite 210
Bellingham, WA 98225

Dear Mr. Hutchings,

Mount Baker School District strongly supports the proposal to build a berm along Jones Creek in Acme. This berm would provide significant protection from debris flows for the children attending Acme Elementary School, and other Acme residents. Acme Elementary School currently has over 200 students in grades K-6.

Mount Baker School District appreciates the current efforts of Whatcom County to plan and coordinate emergency response with the school district and local fire districts. While it is vital to prepare for emergencies, the best preparation is to prevent the emergencies from happening in the first place. We appreciate the efforts that Whatcom County has made to study Jones Creek and to prepare plans to protect Acme from debris flows. We urge you now to take the next and most important step – building a berm. Please let us know of anything that we can do to help bring this project to completion.

Sincerely,

Trish Hart, School Board President
Russ Pfeiffer-Hoyt, School Board Member
Nancy Workman, School Board Member

Brian Kelly, School Board Member
Karen Reich, School Board Member
Charles Burleigh, Superintendent
February 12, 2018

Ms. Paula Harris
River and Flood Division
Whatcom County Public Works Administration
322 N. Commercial Street, Suite 210
Bellingham, WA 98225

RE: Floodplains by Design Grant Funding Proposal 2019 – 2021

Dear Ms. Harris:

Public Utility District No. 1 of Whatcom County ("Whatcom PUD") supports the Whatcom County Flood Control’s (WCFCZD) Floodplains by Design Grant Proposal for the 2019 – 2021 biennium.

Whatcom PUD continues to support the City of Ferndale and the WCFCZD in their efforts to improve the Ferndale Levee and reduce risk to the critical infrastructure behind it.

Whatcom PUD recognizes that this particular project not only benefits the citizens of Ferndale in terms of flood protection, recreation, and potential riparian habitat, but is also critically important for the protection of Whatcom PUD physical infrastructure, including the PUD’s water intake pumping and treatment facilities located on the bank of the Nooksack River and adjacent land next to the City’s water treatment facilities.

Whatcom PUD supports the City of Ferndale, working in coordination with Whatcom County and the WCFCZD, in its application for the Floodplains by Design grant funding. We want to thank you and the WCFCZD for all the work you do in protection of our community’s assets in the implementation of this vital program.

Please contact me at (360) 384-4288 ext. 12 with any questions regarding Whatcom PUD’s interest in and support for the grant funding and the projects the funding will support.

Sincerely,

Stephan Jilk
General Manager
Public Utility District No. 1 of Whatcom County
February 8, 2018

Paula J Harris, PE
River and Flood Manager
Whatcom County River & Flood Division
322 N Commercial Street, Suite 110
Bellingham, WA 98225

SUBJECT: WDFW Support for Whatcom County Flood Control Zone District’s application to FbD, Nooksack River: Floodplains That Work

Whomever it may concern,

I work as a representative of the Washington Department of Fish and Wildlife as the local Habitat Biologist for WRIA 1 (Nooksack River Drainage and independent tributaries to Whatcom County marine waters). I would like to lend my support for the Whatcom County Flood Control Zone District’s grant proposal being submitted to Floodplains by Design. This proposal offers a wide variety of activities that will inform habitat restoration decisions moving forward, provide increased flood protection to vital infrastructure and public services, promote viable agriculture in the floodplain and acquire key flood-prone properties that will protect and preserve mature riparian areas.

The projects being proposed through this grant application promote a shift in thinking as it relates to the Nooksack River system and its associated floodplain. With the listing of several ESA fish species, pressures from economic development, the farming heritage within the county and potential changes in hydrology as a result of climate change; there is a need to look at the system more holistically and optimize appropriate areas for their most beneficial use, including conservation and habitat restoration. The projects proposed address some of the most glaring infrastructure needs and deficiencies related to the Nooksack River levee system through design of levee enhancements at the Ferndale water treatment and wastewater plants as well as addressing unknown culvert conditions and fish passability issues near the Lynden Water treatment plant. Areas that have been routinely flooded and are costly to protect and maintain have been assessed and are in the process of determining an appropriate pathway forward instead of maintaining the status quo. Through in-depth analysis of the existing levee system several areas have been identified where repetitive flood loss and costly levee maintenance coincide with
locations where the river system has been constrained, in a geomorphic perspective, with levee systems placed too close to the river. Through the series of land acquisitions and feasibility studies proposed as part of this grant application, the Whatcom County Flood Control Zone District will be able to more appropriately identify and move forward on options that will help to recover natural processes, enhance aquatic and riparian habitats, ensure protection and aid in the recovery of ESA listed species.

I have been involved with the Whatcom County SWIF process (Army Corp PL84-99 recertification) and am currently on an inter-agency team working towards Floodplain Integration Planning (FLIP). These planning and management processes have brought together a wide array of stakeholders from different backgrounds and perspectives to help create better levee and floodplain systems. I am continually impressed with the Whatcom County Flood Control Zone District’s ability to bring together such a broad group of stakeholders affected by the outcomes of these processes and the level of participation and engagement that they are able to maintain. I believe the success of these planning efforts is directly related to the thoughtfulness and inclusion of local perspective that the Flood Control Zone District staff help to foster and maintain throughout these planning efforts. I would expect the same level of commitment and inclusion as these projects move forward.

Respectfully

Joel Ingram  
WRIA 1 Habitat Biologist  
WA Dept of Fish and Wildlife
WRIA 1 Watershed Management Board
2018-2023 Implementation Plan and Funding Strategy
Introduction

The WRIA 1 Watershed Management Board¹ (WRIA 1 Board) directed its Management Team to propose an integrated multi-year implementation plan, budget and funding strategy to advance WRIA 1 program and plan priorities and strategies that are a function of the WRIA 1 Board. Currently, the three primary program functions of the WRIA 1 Board are the WRIA 1 Watershed Management Project, the WRIA 1 Salmon Recovery Program, and coordination of the Whatcom Local Integrating Organization. The proposed multi-year plan spans a five-year timeframe and integrates actions from the existing WRIA 1 programs described below and, consistent with the WRIA 1 Watershed Management Board December 2016 Interlocal Agreement, begins to integrate other natural resource management efforts that are inextricably linked.

WRIA 1 Watershed Management Project

The WRIA 1 Watershed Management Project foundation is the 2005 WRIA 1 Watershed Management Plan (WRIA 1 WMP). The WRIA 1 WMP includes the WRIA 1 Instream Flow Selection and Adoption Action Plan (ISF Action Plan) and the over-arching WRIA 1 Long Term Monitoring Plan. Also associated with the WRIA 1 WMP are the WRIA 1 Detailed Implementation Plan and the Lower Nooksack Strategy, which is a subset of implementation actions in the WRIA 1 WMP and Detailed Implementation Plan. The WRIA 1 Watershed Management Project studies and documents are found at the project website, which is wria1project.whatcomcounty.org/.

WRIA 1 Salmon Recovery Program

The WRIA 1 Salmon Recovery Program includes the 2005 WRIA 1 Salmonid Recovery Plan and associated implementation documents (restoration strategy, SRFB/PSAR restoration priorities, 4-year work plan, Nooksack Chinook monitoring and adaptive management framework). The WRIA 1 Salmonid Recovery Plan identifies recovery goals for North/Middle Fork Nooksack early Chinook and South Fork Nooksack early Chinook, both independent populations essential for recovery of the Endangered Species Act-listed Puget Sound Chinook, limiting factors, and management actions; the WRIA 1 Salmonid Recovery Plan serves as the Nooksack chapter of the Puget Sound Chinook Recovery Plan. Additional functions of the WRIA 1 Salmon Recovery Program include coordinating the local element of the annual salmon recovery funding grant process and submitting an approved project list for state Salmon Recovery Funding Board consideration, updating annual habitat restoration strategy documents, and coordinating implementation of key actions in the WRIA 1 Salmonid Recovery Plan. The WRIA 1 Salmon Recovery Program plans and background information are found at the project website, which is salmonwria1.org/.

Whatcom Local Integrating Organization

The WRIA 1 Board serves as the Whatcom Local Integrating Organization (LIO), which is one of nine LIOs recognized by the Puget Sound Partnership. The purpose of the Whatcom LIO is to coordinate local recovery actions that will support Puget Sound recovery, maintain a point of contact for Puget Sound Action Agenda implementation, and provide local feedback to Puget Sound recovery strategies. A Whatcom LIO Ecosystem Recovery Plan was drafted under the framework provided by the Puget Sound Partnership. The LIO plan builds from and integrates existing local plans and programs. The June 30, 2017, Draft Whatcom LIO Ecosystem Recovery Plan will be adaptively managed and updated to reflect the WRIA

¹ WRIA 1 Watershed Management Board name was established with the execution of the December 2016 Interlocal Agreement that consolidated the WRIA 1 Salmon Recovery Board and WRIA 1 Watershed Joint Board and their associated programs, roles and responsibilities under a single Interlocal Agreement.
1 Watershed Management Board Five-Year Implementation Plan. Information related to the Whatcom Local Integrating Organization is found at WRIA1project.whatcomcounty.org/Get-Involved/Whatcom-Local-Integrating-Organization-(LIO)/109.aspx.

**Relationship of WRIA 1 Watershed Management Board 2018-2023 Implementation Plan to Other Programs**

The WRIA 1 Watershed Management Board multi-year plan is a subset of actions from existing WRIA 1 programs and plans (Figure 1). It also includes complementary actions implemented through other programs and processes linked to the WRIA 1 Board’s structure through staff teams and work groups (Figure 2). The complementary actions are consistent with the WRIA 1 Board’s purpose outlined in the 2016 Interlocal Agreement to coordinate and integrate other natural resource management actions. These efforts all fall under the categories of water quality, water quantity, floodplains, salmon recovery, and stormwater.

The 2018-2023 WRIA 1 Watershed Management Board Implementation Plan and actions implementing strategies will be used to update the June 2017 Draft Whatcom LIO Plan, which is the document that more broadly incorporates existing WRIA 1 plans and strategies².

Figure 1. Linkage between 2018-2023 WRIA 1 Implementation Plan and Other WRIA 1 Plans

---

² The Draft Whatcom LIO Plan was prepared in accordance with planning grants to local integrating organizations around Puget Sound to develop local ecosystem recovery plans that will support Puget Sound recovery. It conforms to the framework developed to meet the interests of the Puget Sound Partnership.
WRIA 1 2018-2023 Implementation Plan and Funding Strategy Format

The 2018-2023 WRIA 1 Watershed Management Board’s multi-year plan is intended as a five-year integrated strategy for implementing and sequencing actions that address water quality, water quantity, floodplains, salmon recovery, and stormwater. It is anticipated that the actions implemented in the 2018-2023 plan will also support negotiation of water rights among the affected parties.

While the 2018-2023 plan identifies “management leads” for individual strategies, the overall intent is that implementation of the strategies is within the overall structure and decision-making process of the WRIA 1 Watershed Management structure (Figure 2). Implementation of the multi-year plan is intended to proceed under the structure and decision-making process of the WRIA 1 Watershed Management structure.

The level of detail is greatest for the first two years of the strategy, which include ongoing programs and actions carried over from previous WRIA 1 Joint Board and WRIA 1 Salmon Recovery Board work plans. Plan status will be reviewed annually, and the plan updated as needed. Following is a description of the plan sections:

Section I: Narrative

The first section of the strategic plan is a narrative that provides a description of each strategy and the management lead for overseeing implementation of the strategy. Under each strategy is a list of the general tasks, anticipated milestones, and estimated budgets necessary to implement the strategy. Many of the tasks listed under a strategy are interdependent with or support tasks in other strategies. These dependencies are referenced in the narrative and are shown on the timeline that is in Section II of the work plan (Note-to be added).

Section II: Timeline (Note- To be added)

Section II is an overall timeline for the full five-year work plan and funding strategy. The timeline shows scheduled tasks and where there are tasks that are dependent on or supporting other tasks. As with the overall 2018-2023 plan, the level of detail in the timeline is greatest for the first two years. The timeline will be reviewed annually and adjusted as needed.

Section III: Technical Appendices (Note- To be added)

The technical appendices will include the highest level work plans for actions that are implemented under the WRIA 1 Watershed Management Board’s 2018-2023 Implementation Plan and Funding Strategy, where applicable.
Figure 2. WRIA1 Watershed Management Board Structure (Source: 2016 WRIA 1 Interlocal Agreement clarified to reflect Ex-Officio representation)

**County Council**
- City Councils
- Tribal Councils
- PUD No. 1 Commission
- WDFW

**Planning Unit/County Advisory Committee(s)**

**State and Federal Agencies’ Engagement**

**WRIA 1 Watershed Management Board**
- Local Government Caucus
  - Blaine, Bellingham, Everson, Ferndale, Lynden, Nooksack, Sumas, Whatcom County, PUD No. 1
  - Ex-Officio Member Ag Water Board
    - (Ex-Officio member does not sit on the WRIA 1 Board)
- Salmon Co-Manager Caucus
  - Lummi Nation, Nooksack Indian Tribe, Washington Department of Fish and Wildlife

**Ag Water Board/Watershed Improvement Districts**
- (AWB is Ex-Officio Member of Local Govt. Caucus)

**WRIA 1 Management Team**
- (Composed of designated representatives of the WRIA 1 Watershed Management Board Entities: Whatcom County, Bellingham, PUD No. 1, Small Cities Representative, Lummi Nation, Nooksack Tribe, Washington Dept. of Fish and Wildlife)

**Work Groups and Staff Teams inform or provide technical support and recommendations to the WRIA 1 Management Team**

- Ad Hoc Work Groups
- LIO Staff Team
- Salmon Staff Team
- Watershed Staff Team

**WRIA 1 Management Team provides administrative decision-making and makes recommendations to the WRIA 1 Watershed Management Board**

**Ad Hoc Work Groups - Examples of Ad Hoc Work Groups that link to the multi-year WRIA 1 Watershed Management Board Implementation Plan include Whatcom Clean Water Program, Whatcom Water Supply Work Group, Flood Integration Planning Team**

**LIO, Salmon, and Watershed Staff Teams – These are staff teams that are involved in implementation of WRIA 1 plans and support the WRIA 1 Management Team and WRIA 1 Watershed Management Board as technical staff.**
SECTION I - NARRATIVE

Strategies, Tasks, and 2018-2020¹ Budget Estimates (Years 1-2)

The Strategies listed below are intended to be implemented simultaneously under the framework of the WRIA 1 Watershed Management Board. The Strategies are inextricably linked, and, in many cases, tasks between strategies are interdependent. While there is not a stand-alone strategy for instream flow negotiations, implementing the strategies and tasks as outlined in this document will support resolution of instream flows, habitat, and water quality issues in an integrated manner that will lead to and could support negotiated water right agreements among the affected parties.

The approach for implementing each of the Strategies includes a Management Lead that is responsible for overseeing the Strategy’s implementation progress and reporting back to the WRIA 1 Management Team and WRIA 1 Watershed Management Board. Management Leads may designate or contract with task leads, where appropriate.

Section II of the WRIA 1 Watershed Management Board Implementation Plan is a more detailed timeline of Strategies, Tasks, and Subtasks, which visually conveys the dependencies among strategies and tasks.

Strategy 1: Develop and Implement a WRIA 1 Integrated Monitoring Program with Centralized Data Management.

Description: The WRIA 1 Watershed Management Plan includes a draft WRIA 1 Long Term Monitoring Plan (LTMP) that has not been fully implemented; further, salmon recovery monitoring needs were not fully developed. The Nooksack Chinook Monitoring and Adaptive Management framework was developed in 2014 and 2015 and needs to be integrated into the LTMP. The intent of the WRIA 1 LTMP was to have a comprehensive monitoring approach with a central location for data management. This Strategy is to update and implement the WRIA 1 LTMP in a manner that integrates priority monitoring elements of WRIA 1 programs, with quality assurance/quality control to ensure data quality and centralized data storage so that it is easily accessible to all entities.

Total Strategy 1 Budget through 2020: $

Management Lead:

Work Products: Updated WRIA 1 Long Term Monitoring Plan; Centralized Data Management; Funding Strategy; Cooperative Monitoring Agreements

Task 1: Coordinate with WRIA 1 Staff Teams and entities involved in monitoring to identify and update monitoring needs across WRIA 1 programs including water quality, water quantity including instream flow and water use, habitat, land use, and program and project effectiveness. Identification of monitoring needs should incorporate broad scoping of indicators, data products, protocols, and analysis steps. Coordinate Staff Teams through

¹ Budget estimates after 2020 will be identified as part of developing a long-term funding strategy for priority actions.
Tasks 2-4 for purposes of completing an update to the 2007 version of the WRIA 1 Long Term Monitoring Program.

Timeline: January – December 2018

Task 2: **Identify key management questions and establish priorities for WRIA 1 Integrated Monitoring Program** based on review and discussion of the updated monitoring needs and in consideration of Strategies 2-5.

Timeline: January – December 2018

Task 3: **Establish and implement a centralized data management approach** that provides an easily accessible data storage mechanism so entities working on plans, tools, and/or management solutions know what data exists and have access to it. Implementing a centralized data management approach will also include identifying options and selecting a preferred option for long-term management of data under this Strategy. The preferred option will be presented to the WRIA 1 Watershed Management Board for approval to implement.

Timeline: April 2018 – December 2020

Task 4: **Identify funding needs for long-term integrated monitoring and data management**. This task needs to be done in conjunction with other Strategies requiring long-term funding.

Timeline: April– December 2018

Task 5: **Update the WRIA 1 Long Term Monitoring Plan** with outcomes of Tasks 1-4. The updated plan will include implementation schedule and process for integrating outcomes into adaptive management or WRIA 1 programs and plans.

Timeline: December 2018

Task 6: **Cooperative Monitoring Agreements**. Facilitate and enter into agreements with leads for monitoring elements and protocols identified.

Timeline: April– December 2019

**Strategy 2: Ground Water Model(s) and Technical Support.**

Description: A coupled groundwater/surface water model that primarily covers the LENS study area was initiated as a multi-phase implementation item in 2014 under the WRIA 1 Watershed Joint Board. The construction of the groundwater model, which is the final phase, will be completed late 2018. The additional needs associated with the groundwater model include receiving and operating the model, which are reflected in the tasks outlined below, and expanding it to other areas of WRIA 1 such as the South Fork Nooksack Watershed where a groundwater model has been proposed by Nooksack Tribe in partnership with USGS.

**Total Strategy 2 Budget through 2020:** $

**Management Lead:**

**Work Products:** Operation of WRIA 1 groundwater model; Options for expanding groundwater model
This is a working draft - tasks, budgets, and timelines associated with each of the strategies are still being developed, refined, and/or clarified.

**Strategy 3: Regional (WRIA-Wide) Water Supply Plan**

Description: This strategy was originally identified in the 2010 Lower Nooksack Strategy but not implemented due to lack of funding support. Nonetheless, there remains a need for a WRIA 1-wide water supply plan that establishes a framework to address water supply needs beyond the WADOH regulatory framework of the Whatcom County Coordinated Water System Plan (CWSP) and that is consistent with the geographic extent of proposed approaches to settle water rights. Under this Strategy, the regional water supply plan will integrate the 2017 updated CWSP with other out-of-stream and instream water needs, in context with land use economic, and ecosystem recovery.

**Total Strategy 3 Budget through 2020: $**

**Management Lead:**

**Work Product:** Regional Water Supply Plan

**Task 1:** **Coordinate technical work groups** for drafting, feedback, and review of water supply plan components. Review of plan components will be coordinated through the WRIA 1 framework. Development of components involving habitat, instream flow, or water quality will include coordination with related Staff Teams, Work Groups, or other technical staff.

**Timeline:** 2018-2020

**Task 2:** **Consolidate and quantify water availability, water use, and water supply needs for out of stream needs** (current and projected) including evaluating water right data base for
opportunities. This task is anticipated to focus initially in pilot areas for Strategy 4 (Drainage Based Management Planning). Review of information will be coordinated with WRIA 1 Staff Teams.

Task 3: **Consolidate and quantify instream water needs and other factors associated with instream needs as appropriate.** Identify monitoring priorities and data gaps to incorporate in Strategy 1. This task is anticipated to initially focus in pilot areas for Strategy 4 (Drainage Based Management Planning). Review of information will be coordinated with WRIA 1 Staff Teams.

Timeline:

Task 4: **Identify and support water supply and management research, facilitate data collection, and close data gaps.** This includes identifying priority needs for monitoring effectiveness of water supply management approaches and solutions. This task will be done in conjunction with Strategies 1 and 4.

Timeline: December 2018

Task 5: **Identify, evaluate, and support solutions for meeting water supply needs.** This task will be done in coordination and collaboration with entities evaluating solutions in related plans and studies (e.g., Drought Plan, grants addressing water supply, etc.), and technical staff and work groups identifying and coordinating solutions for geographic areas and in conjunction with Strategies 4 and 6 Drainage Based Management Planning and WRIA 1 Watershed Management Plan, respectively. Gaps in solutions will be identified, where applicable.

Timeline:

Task 6: **Provide water supply information for connecting water availability to land use and habitat.** The outcomes of Tasks 2-5 will be used to improve connections between where water is available and existing land use. Information will be coordinated with Strategies 4 and 5, and will be used to integrate water supply needs into other planning efforts (e.g., Comprehensive Plans, Integrated Floodplain Planning, and other watershed-scale plans).

Timeline:

Task 7: **Draft and Final WRIA 1 Water Supply Plan** that consolidates information from Tasks 2-6 into a WRIA 1 Water Supply Plan that includes instream and out of stream water needs and identifies ranges of solutions. Review and feedback on the draft plan will be coordinated with technical staff, work groups, and other interested parties prior to a final plan. Partnerships with WWIN, WSU, WCD and others will be used for sharing information and to support outreach related to water supply planning.

Timeline:

**Strategy 4: Drainage Based Management Planning**

Description: Drainage-based management planning (DBMP) is a recommendation in the WRIA 1 Watershed Management Plan. The concept is a planning approach scaled to the drainage level and that will consider five elements – water quality, water supply, instream flow, fish habitat, and
accountability. Under this approach, targets for each of the elements will be developed and agreed to among the affected parties. A pilot area will be identified for implementing the DBMP approach. Based on effectiveness of the approach in the pilot area, additional sub-basins will be identified to continue the DBMP. This Strategy is inextricably linked to all of the Strategies in this 2018-2023 implementation plan and is expected to involve identifying and coordinating with a sub-lead for each sub-basin.

Total Strategy 4 Budget through 2020: $ 

Management Lead: 

Work Products: Data synthesis and analysis technical memo; subbasin goals for water supply, water quality, instream flows, and habitat; Implementation Plan and Agreements for Drainage Based Management Planning

Task 1: Select pilot sub-basin and establish planning team for drainage-based management planning in coordination with technical staff and other affected parties. Subbasin selection should take into consideration- among other factors- sub-basin level data availability, efforts underway to address water quality, water use, and habitat issues, and a mechanism in place at the sub-basin level for purposes of coordinating this Strategy 4.

Timeline: June 2018- August 2018

Task 2: Coordinate with technical staff and reviewers to synthesize and analyze available data, identify data gaps, establish sub-basin goals and identify management strategies and actions for water supply, water quality, instream flows, and habitat using information collected, synthesized, and coordinated under Strategy 1, Strategy 3, and Strategy 5. Actions identified will include early implementation actions. To the extent available, information generated should use the completed groundwater model (Strategy 2).

Timeline:

Task 3: Implement and monitor early actions while the full implementation schedule is developed, and the sub-basin goals and solutions are finalized and approved as a sub-basin plan and appended to the WRIA 1 Regional Water Supply Plan and WRIA 1 Watershed Management Plan.

Timeline:

Task 4: Finalize pilot sub-basin plan and agreements through a process that includes technical review, stakeholder review, and approvals under the WRIA 1 framework. The final sub-basin plan implementation schedule and agreements will be appended to the WRIA 1 Water Supply Plan and WRIA 1 Watershed Management Plan.

Timeline:

Task 5: Repeat Tasks 1-4 in other sub-basins, adaptively managing the process or approach based on lessons learned from the pilots.

Timeline:

Strategy 5: Salmon Recovery Plan Implementation
Description: This Strategy reflects the function of the WRIA 1 Watershed Management Board under the December 2016 Interlocal Agreement, which is to facilitate implementation and adaptive management of the WRIA 1 Salmonid Recovery Plan and associated implementation documents, serve as the Lead Entity for WRIA 1, coordinate participation in Puget Sound salmon recovery efforts, and coordinate the development, implementation and adaptive management of WRIA 1 watershed chapters of recovery plans for ESA listed salmonids and other salmonid species as warranted.

Total Strategy 5 Budget through 2020: $

Management Lead:

Work Products: Annual Update of WRIA 1 Salmonid Recovery Plan Implementation Status; WRIA 1 Chinook Monitoring and Adaptive Management Plan update; WRIA 1 Salmonid Recovery Plan update; annual grant round and associated habitat project list

Task 1: Update the WRIA 1 Salmonid Recovery Plan and implement associated monitoring and adaptive management tasks. This includes evaluating and updating status of trends of Chinook and other populations, evaluating and updating limiting factors, reviewing status of salmon recovery plan early actions, coordinating and implementing effectiveness monitoring, facilitating data review, collection and closing data gaps, working with co-managers on hatchery needs, and preparing an addendum/update to the 2005 WRIA 1 Salmonid Recovery Plan. This task is strongly linked to Strategy 1.

Timeline: June 2018-2021

Task 2: Coordinate, support and implement salmon recovery actions in WRIA 1. This includes coordinating implementation of Chinook restoration and protection projects in priority geographic areas identified in the Salmon Recovery Program restoration strategies and the regionally required 4 year project list, supporting implementation of restoration and protection projects in the lower Mainstem tributaries and coastal streams and nearshore and estuarine areas, coordinating and supporting WRIA 1-wide fish passage prioritization and implementation, and coordinating and supporting other priority salmon recovery actions, as well as addressing barriers to implementation.

Timeline: June 2018-June2020

Task 3: Coordinate, support, and implement WRIA 1 Salmon Recovery Program including coordinating completion of grant deliverables associated with the lead entity operating grant such as preparing/updating 4 year project list, updating projects in the Washington State Habitat Work Schedule, coordinating Salmon Recovery Funding Board (SRFB) and Puget Sound Acquisition and Restoration (PSAR) annual grant processes. Additional coordination under this task includes outreach associated with the WRIA 1 Salmon Recovery Program. This task also includes technical staff support related to salmon and habitat information needs for Strategies 1-4 and 6-7.

Timeline:
Strategy 6: WRIA 1 Watershed Management Plan Update

Description: This strategy reflects the function of the WRIA 1 Watershed Management Board under the December 2016 Interlocal Agreement, which is to facilitate implementation and adaptive management of the WRIA 1 Watershed Management Plan-Phase 1.

Total Strategy 6 Budget through 2020: $

Management Lead:

Work Product: Streamflow Restoration Act (ESSB 6091) Update of the WRIA 1 Watershed Management Plan-Phase 1

Task 1: Update the WRIA 1 Watershed Management Plan-Phase 1 to address the 2018 Streamflow Restoration Act (ESSB 6091) The update will be prepared and approved using the WRIA 1 Planning Unit and WRIA 1 Watershed Management Board approved process for Developing and Approving Streamflow Restoration Act (ESSB 6091) Update of WRIA 1 Watershed Management Plan diagram.

Timeline: February 2019

Strategy 7: Whatcom Local Integrating Organization Coordination and Adaptive Management

Description: This strategy reflects the function of the WRIA 1 Watershed Management Board under the December 2016 Interlocal Agreement, which is to coordinate planning, implementation, monitoring and adaptive management of ecosystem recovery actions, and function as the Local Integrating Organization and a partner in the Puget Sound Partnership in representing WRIA 1 goals and priorities.

Total Strategy 7 Budget through 2020: $

Management Lead:

Work Products: Update Whatcom LIO Ecosystem Recovery Plan to reflect outcomes, priorities, and other actions associated with implementing Strategies 1-6; grant deliverables associated with coordinating Whatcom LIO

Task 1: Coordinate and support functions of the Whatcom Local Integrating Organization including tasks and deliverables associated with the scope of work that is developed in association with the annual coordination grant administered by the Puget Sound Partnership.

Timeline:

Task 2: Update and adaptively manage the Whatcom LIO Ecosystem Recovery Plan to reflect the local priorities and actions identified through Strategies 1-6.

Timeline:

Strategy 8: WRIA 1 Watershed Management Board Implementation and Administration

Description: Administer and implement Strategies 1-7 under the framework of the WRIA 1 Watershed Management Board.

Total Strategy 8 Budget through 2020:
Management Lead:

Task 1: Manage and oversee the 2018-2023 WRIA 1 Watershed Management Board Implementation Plan. Each of the Strategies identifies a Management Lead that is responsible for overseeing and managing the implementation of the Strategy, which includes identifying and/or contracting with task leads as appropriate. This task is to ensure the overall continued implementation of the Strategies as approved by the WRIA 1 Watershed Management Board and includes but is not limited to:

- Identifying and addressing barriers to implementation as they arise and, as needed, frame and schedule for discussion, resolution, and/or direction to the WRIA 1 Management Team and WRIA 1 Watershed Management Board.
- Providing annual review of status of Implementation Plan and presenting to WRIA 1 Management Team and WRIA 1 Watershed Management Board with recommendations for modifications, where applicable or desired.
- Supporting WRIA 1 Watershed Management Board function and operation including providing organizational support to the Local Government Caucus, and upon request, the Co-Manager Caucus.

Timeline:

Task 2: Program coordination associated with the WRIA 1 framework including providing meeting support for WRIA 1 Watershed Management Board, WRIA 1 Management Team, and work groups, staff teams, and/or technical teams as identified to implement Strategies under the 2018-2023 WRIA 1 Watershed Management Board Implementation Plan.

Timeline:

Task 3: Organize, collaborate, and/or conduct outreach associated with the Strategies outlined in the 2018-2023 WRIA 1 Watershed Management Board Implementation Plan. This includes:

- Maintain and update WRIA 1 website
- Develop integrated outreach strategy.
- Coordinate and collaborate with Whatcom Watersheds Information Network to advance and disseminate WRIA 1 program information as appropriate including participating in planning for speakers, conferences, forums, mailings, and other events.
- Coordinating and collaborating with WRIA 1 Watershed Management Board entities, LIO participants, and others as appropriate to support outreach consistent with topics in the WRIA 1 Watershed Management Plan, WRIA 1 Salmonid Recovery Plan, and draft Whatcom LIO Ecosystem Recovery Plan.
- Implement outreach specific to the Strategies outlined in the 2018-2023 WRIA 1 Watershed Management Board Implementation Plan to inform the community of program status, obtain feedback and input, and to engage the community in implementation actions.

Timeline: