

Floodplain Integrated Planning (FLIP) Progress Update

November 2022

We are at the one-year anniversary of the floods that impacted so many of us in Whatcom County. Some folks are still out of their homes as the recovery continues. Living in a valley with a river as dynamic as the Nooksack has always carried risks for flooding. Over the years, farmers, property owners, and government officials have put in place levees,

berms, structures, and ditches to try to reduce the frequency and intensity of these large winter floods. However, the floodwaters always seem to find a way to get out of the river's banks and flow into places where we'd rather it didn't go. We've also learned over the years that we can't fix one problem if it just creates another problem for someone else. That's why back in 2017 Whatcom County initiated the Floodplain Integrated Planning (FLIP) process to develop a new integrated flood hazard management plan for the Nooksack River. Our goal is to achieve flood risk reduction, support salmon recovery, and maintain a vibrant agricultural economy. The plan includes immediate actions as well as long-term projects. For more information on FLIP look towards the end of this newsletter.

DRAFT FLIP Mission Statement

Develop a broadly-supported integrated floodplain management plan for the Nooksack River that will reduce risk to public safety, property, and infrastructure, and support healthy ecosystems and sustainable agriculture and fisheries that lead to viable communities now and into the future.

FLIP work has continued to move forward despite snowstorms, COVID, the February 2020 flood, and then the major floods of November 2021. Significant flood response and recovery following the devastating floods of 2021 brought renewed interest, focus and urgency in floodplain management and flood risk reduction activities and an awareness of the need for regular updates to FLIP partners. This newsletter represents the start of quarterly FLIP updates and will cover actions from 2020 to the present.

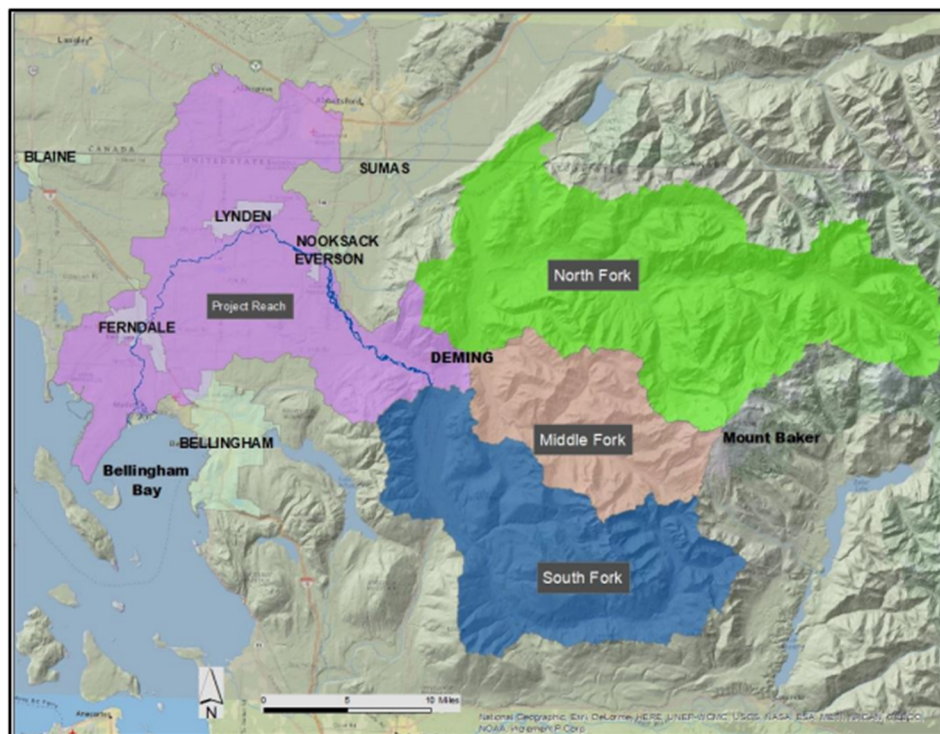
Highlights

- Potential suites of actions to address the damaging impacts of the 2021 flood events and advancement of a "flow split" strategy were outcomes of two Flow Split reach team meetings in 2022.
- A new buy-out and elevation program (with approximately 100 homeowners expressing interest) has been developed. Grant proposals seeking over \$40 million have been submitted.
- The [Nooksack side channel enhancement pilot](#) project was completed near the location where high flows overtop the riverbank at Everson, initiating the flow split, in preparation for the 2022-23 flood season. The river accessed this side channel during a minor flood in the first week of November 2022.

- Early action work in Reach 2 between Lynden and I-5 includes a flood gate installed in Duffner Ditch, a tributary to Bertrand Creek (in 2021), and a larger integrated project in design for the Cougar Creek system.
- Technical work and virtual field trips were completed in preparation for a Reach 1 design charrette launch. This meeting is currently on hold.
- The flooding of 2021 resulted in 9 damaged levees needing repair, taxing the limited staff capacity within Whatcom County's River and Flood Division. Two new staff positions have been created (though there are currently 3 vacancies) and the Division was reorganized to maximize efficiency.
- The FLIP Steering Committee added three new representatives: Dale Buys (representing small upriver cities), Michael Cerbone (representing Ferndale) and Mary Huff (representing the Washington State Department of Ecology). Mary Huff is participating in a supportive rather than decision-making role.

System-wide and Reach Team Updates

For the purposes of developing an integrated, comprehensive flood hazard management plan the Nooksack River has been divided up into 5 reaches for more intensive work. Additional work for the North, South and Middle Forks will also be developed as part of the plan. Developing a shared and systemwide technical understanding of how the river functions was the first step and several reports, models and assessments are completed. Taking this technical body of work and then convening focused "reach teams" allows for inclusive work with communities to develop solutions that serve their needs while remaining cognizant of potential upstream or downstream impacts to others.



System-wide Work

The Nooksack River is a geologically young, dynamic and powerful system. Changes and work in one area may have impacts or consequences in another part of the system that are important to understand. To this end, work continues to update and calibrate a comprehensive hydraulic model and develop new hydrologic inputs for the Nooksack tributaries and Sumas River that feed into the model. These models can be used to show how flows and flooding are affected by different actions and different combinations of actions. An updated model, calibrated to accurately replicate major flooding that occurred in 2020 and 2021, is expected early in 2023.

Work is also underway to bring the floodplain cities of Ferndale, Everson, Nooksack, Lynden, and Sumas and others together with Whatcom County to reach a high-level agreement on how to approach the flow split. The goal is to establish decision-making norms as potential actions are brought forward for consideration.

Reach 1 (Bellingham Bay to I-5):

Significant technical work has been completed for this reach.

- Modeling to understand the complex interactions related to sediment deposition, tidal influence, and backwater flooding in this area
- Inclusion of climate drivers to account for sea level rise, increased river flows and subsequent changes in sediment deposition

The 2021 flood damage to the Marine Drive levee, isolation of the Lummi Reservation and enterprises, loss of access by residents to Lummi Island, and impacts in Ferndale further emphasized the importance of developing a long-term plan for this area.

Lummi Nation is working with Whatcom County to advance the Slater Road elevation project.

Reach 2 (I-5 to Guide-Meridian)

A Reach 2 design charrette and follow up meeting were held in 2020. These resulted in both immediate actions and a structure for actions to develop a long-term plan. Strategies for this reach include:

- Levee modifications and between-levee habitat improvements
- Tributary and floodplain corridor improvements
- Ferndale development impacts reduction
- Incentive program – landowner incentive program implemented through Drainage-Based Management process (rather than FLIP)

The Reach 2 Team started with Cougar Creek as the first tributary for which to identify habitat and floodplain improvements. Within a few months the team was able to identify a range of actions within sub-reaches of the creek and agree on an early action project that includes improving fish passage (and drainage) by replacing a flood gate where the creek passes through the Neevel Levee to the river, installing large wood in the channel downstream of the gate, and

slightly setting back the levee. This project is currently in final design with construction anticipated in 2023-24 if funding for construction can be secured.

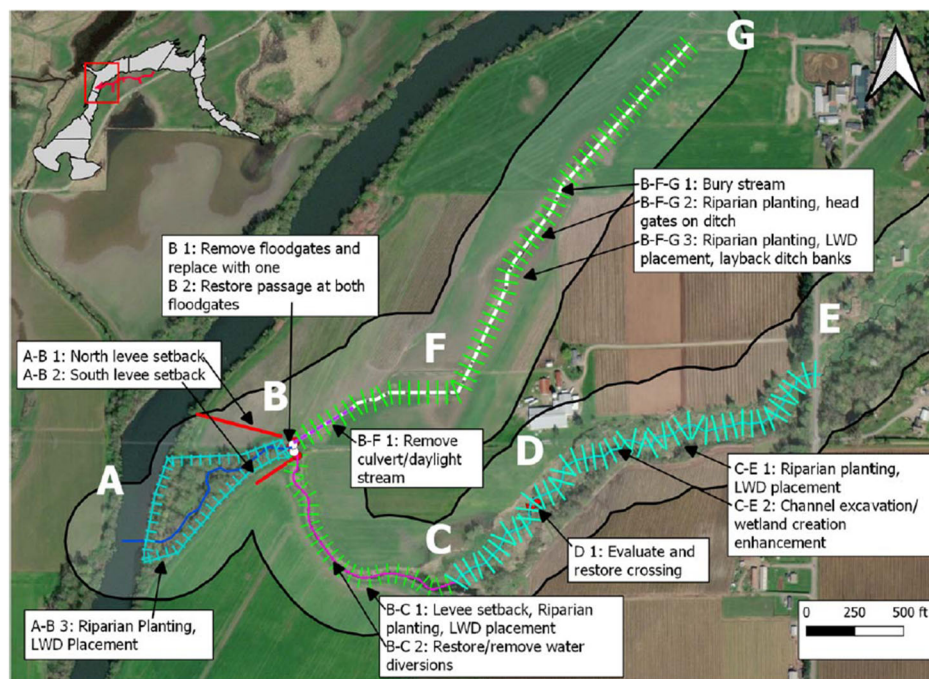


Figure 1. Overview of lower Cougar Creek reaches by restoration opportunities, located in Reach 2 of the Lower Mainstem Nooksack River. Labels refer to corresponding restoration actions shown in Table 1 below. The riparian zone of influence is represented by the black polygon buffered by 300 ft around the stream flow path, and restoration areas described in Table 1 are shown as colored hatched lines along the stream flow path.

Reach 3 (Guide-Meridian to Everson Bridge)

A Reach 3 design charrette will be held but has not yet been scheduled. The first phase of the Abbott Levee Protection and Improvement project was constructed in 2020 to address ongoing erosion risk to the levee. The second phase of the project will address the deficiencies identified by the US Army Corps of Engineers and is being developed for implementation in 2024, if current staff vacancies at Whatcom County can be filled in the near future.

Reach 4 (Everson Bridge to Deming)

A Reach 4 design charrette will be held but has not yet been scheduled.

Flow Split (Everson to Bellingham Bay and Everson-Sumas Overflow Corridor)

Following the devastating floods of 2021, the FLIP Steering Committee prioritized the issue of the flow split at Everson as the highest priority for the next design charrette. The 2021 floods made it evident that the FLIP structure needed to be modified to ensure governments that could potentially be affected by changes at the flow split were included in the management of the planning process; two representatives for the Small Cities were invited to join the Steering Committee. Additionally, a Flow Split Team was created, and representatives of the entities involved in river management throughout the lower river floodplain were invited to participate.

A Flow Split Team Design Charrette was held in April of 2022 and a follow-up discussion to summarize ongoing and planned work resulting from the charrette was held in early October 2022. Approximately 50 people participated in both events. Strategies and “buckets” of actions for this reach include:

Draft Overarching Strategies

(to Achieve FLIP Goals and Flow Split Values)

- A. Reduce flood risk in the Everson - Sumas overflow corridor without transferring risk
- B. Reduce flood risk and improve habitat throughout the mainstem floodplain

- C. Increase amount and stability of funding and strengthen cross-border collaboration

- D. Improve overall communication, engagement and education

Draft Action Buckets

(to Achieve Strategies)

#1 Improve emergency response, coordination and communication

#2 Early action projects – side channel enhancement pilot project

#3 Acquisition and elevation assistance program

#4 Technical work and flood risk reduction alternatives analysis

#5 Implement components of preferred suite of actions

#6 Land use planning/rezoning/regulation improvements

#7 Increase amount and stability of funding and strengthen cross-border collaboration

#8 Communication, education and public engagement

Technical analysis is underway to explore the extent of benefit, feasibility, cost, and other considerations associated with the following actions:

- A range of water storage options (wetland creation, increased floodplain storage, dams, etc.)
- Raising roads in the Everson-Sumas overflow corridor to slow and store floodwater
- River levee setbacks
- Buyouts and home elevations along the overflow corridor
- New berms within the overflow corridor to protect the cities of Everson, Nooksack, and Sumas
- Increased flow under the Everson Bridge

Additional details can be found on the Whatcom County website at:

<https://www.whatcomcounty.us/4028/Everson-Flow-Split-Reach>

In addition to the longer-term planning, an early action was taken in preparation for the 2022 flood season.

- The Nooksack side channel enhancement pilot project near Everson was completed in October 2022 in preparation for the 2022-2023 flood season. In early November of

2022, the river rose high enough to access this side channel increasing the river's flow capacity. Subsequent flood events will hopefully further expand the channel's capacity.



Funding

Whatcom County has been working through many different avenues and in partnership with state and federal agencies to substantially increase funding resources for the Nooksack FLIP effort. Some of these include:

- The Whatcom County Flood Control Zone District (FCZD) submitted 4 applications to the State for Hazard Mitigation Grant Program (HMGP) funding through FEMA to implement the first phase of an acquisition and home elevation assistance program. If successful, these applications could provide up to \$27M to help 70 property owners mitigate future flood damages.
- The FCZD submitted a \$10.3 million dollar application to the State Floodplains by Design program for 2023-2025 biennial funding in support of FLIP actions and activities. The proposal ranked number one in the state. If funded by the legislature, monies should become available by fall of 2023.
- The State Legislature include two budget provisos in the 2022 Supplemental budget request – a \$500,000 grant is funding the technical work for the modeling and evaluation of flood mitigation alternatives, and the Department of Commerce is providing \$1.95 million to support the water storage study, new streamflow gages, and property acquisition.

Cross Border (US-Canada) Flood Risk Reduction Efforts

The FLIP process will be coordinated with the International Initiative currently being developed by the Governor's Office and British Columbia as both countries seek solutions to reducing flood impacts. FLIP work will inform international decision-making and hopefully provide broadly supported alternatives to result in mutually beneficial solutions that achieve local goals.

- Technical staff have conducted tours on both sides of the border to better understand the situation, build or rebuild relationships, and share information
- Three levels of structure are being considered:
 - Decision-makers

- Policy group
- Technical work group - which is a continuation of the Nooksack River International Task Force (NRITF)
- The NRITF met in September and November 2022 to restart coordination efforts across the border.

Overall 2021 Flood Response and 2022 Flood Season Preparations

To assist with sharing information critical to FLIP partners, albeit outside of the direct purview of FLIP, a few highlights on work done after the 2021 flood and in preparation for the 2022-23 flood season are provided below. A more complete update from Whatcom County regarding its 2021 flood response can be found [here](#).

Response and Recovery

- Emergency repairs were completed on 6 levees damaged during the flood event. Status of repairs can be found [here](#).
- Permanent repairs are being designed and permitted for 3 levee repair and bank protection projects. Status of repairs can be found [here](#).
- To date FEMA has provided approximately \$35,000,000 in public assistance funding for road, bridge and infrastructure repairs throughout Whatcom County.
- Whatcom County Division of Emergency Management is working closely with a non-profit established soon after the floods, the [Whatcom Long Term Recovery Group](#) to support the nearly 500 households severely impacted by last year's flood.

Preparations

- Installing road closure gates at several roadways subject to high velocity/deep flood flow.
- Improving Search and Rescue capabilities including swift water rescue.
- Preplanned emergency shelter locations and logistics.
- Strengthened interagency communication and public messaging systems.
- Developed protocols for evacuations.
- Improved coordination with Canadian agencies during flood events.

Background Information

What is FLIP and who participates?

FLIP is a collaborative effort to develop an updated and integrated floodplain management plan for the Nooksack River that will reduce risk to public safety, property and infrastructure, and support and enhance viable/sustainable agricultural and fisheries economies. The resulting product will replace the 1999 Nooksack River Comprehensive Flood Hazard Management Plan and will include a list of projects and actions to implement the plan. The FLIP Team is composed of staff and representatives from over 50 organizations that represent agricultural, small city, county, salmon recovery, tribal, federal, and state interests.

What is the FLIP Steering Committee and who participates?

The FLIP Steering Committee is a small, collaborative group guiding the overall process and managing the technical work and stakeholder engagement. The Steering Committee includes representatives from Whatcom County, Lummi Nation, Nooksack Indian Tribe, Ag Water Board, and upriver and downriver cities. Also in attendance at meetings in a support role are a representative from the Washington State Department of Ecology and consultants.

What is the design charrette model?

FLIP is using a values-based planning model to engage communities within each of the four reaches of the mainstem Nooksack River as well as addressing the issue of the flow split at Everson. At each value planning workshop approximately 50-75 people are invited to spend a half day on a field trip learning and seeing issues and opportunities from a range of viewpoints. Then the same group spends a full day working through a highly structured and creative process to identify potential strategies and actions that reflect the full suite of shared values. In the following weeks after the workshop, the strategies and actions undergo further technical analysis and development before being brought back to the whole group for further consideration. Depending on the complexity of the topics and level of agreement additional meetings may be required.