

# MEMORANDUM

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**Date:** August 31, 2018  
**To:** Chehalis Basin Board Members  
**From:** Andrea McNamara Doyle, OCB Director  
**Re:** Restorative Flood Protection – Next Steps

## Issue

At the September 6, 2018 Board meeting, you will be receiving a presentation from Natural Systems Design (NSD) on the early results of the Restorative Flood Protection (RFP) feasibility evaluation pilot effort in the Newaukum River sub-basin. Staff will also be presenting some recommendations for how to move forward in light of these results. The Board will have an opportunity to discuss the results and will be asked to provide direction to staff regarding potential changes to the RFP work plan and possible new work related to channel migration zones and erosion hazards based on information learned through the pilot study.

## Background

On August 20, 2018, I sent you a memorandum summarizing the preliminary findings from NSD's feasibility evaluation pilot study in the Newaukum sub-basin (attached). By way of background, recall that the feasibility evaluation was designed to utilize more sophisticated modeling than what was available for the Programmatic Environmental Impact Statement (PEIS). In the PEIS, the RFP alternative was estimated to reduce the 100-year flood elevation by 0.4 feet in the area of Interstate 5 along the airport levee, and by ~12 percent at the Newaukum confluence.

In brief, NSD's recent pilot feasibility results have shown that peak flood flow reductions in major flood events would be about one fourth of what was originally predicted in the PEIS. The RFP approach is now estimated to reduce 100-year flood elevations near Chehalis/Centralia by 1-2 inches and by ~2.9 percent at the Newaukum confluence. NSD's pilot study results have also found that, for more frequent, low-magnitude flood events, the RFP can triple current flood storage and significantly reduce peak flows in the study area.

These pilot study findings from the Newaukum sub-basin appear to be transferrable to other parts of the Chehalis Basin where the RFP approach was considered in the PEIS.

The work by NSD on advancing the feasibility of the RFP Alternative is being done under a sole source contract with the state that includes several additional work elements beyond the Newaukum sub-basin, including work related to the Aquatic Species Restoration Plan (ASRP), Field Data Collection, Two-Dimensional Hydraulic Modeling, Transportation and Property Impacts Strategy Development, and Coordination with the Office of Chehalis Basin (OCB).

OCB works through the Recreation & Conservation Office (RCO) for the administration of all contracts related to the Chehalis Basin Strategy and is responsible for ensuring that all products developed by contractors support the Board's decision-making process or are aligned with the goals and objectives defined by the Board. With RCO, the OCB is responsible for ensuring that contracts adhere to the state's

procurement rules and procedures, including those related to sole source requirements, amendments, etc.

## **Options**

Based on the preliminary results from the Newaukum sub-basin pilot, NSD does not recommend moving to conceptual design of the RFP approach for the entire Newaukum sub-basin. OCB staff concur.

In light of the preliminary results of the pilot study, additional work to develop conceptual or preliminary designs for RFP treatments throughout the 11 mile reach of the South Fork and 21 mile reach of the North Fork Newaukum River does not appear to meet the Board's objectives of developing alternatives for large-scale flood damage reduction from major floods.

NSD is recommending a modification to the current scope of work for the RFP that they believe makes best use of available state funding to achieve the overall goals of the Chehalis Basin Strategy through a more tailored approach to addressing flood damage reduction goals. They have provided staff a preliminary outline of a program they refer to as "Community Flood Protection" (CFP). As initially envisioned, this program would entail defining areas throughout the entire Chehalis Basin where rivers are prone to significant channel migration that threaten public and private structures and land uses, assessing landowner interest in buy-outs or relocations, and estimating the size of the program that would be needed to protect landowners from these erosion hazards. This could include areas of the basin that would not be directly protected by the proposed flood retention facility. It could also include continuing with site-specific concept designs in the Newaukum.

OCB staff have been reviewing the ideas embodied in NSD's CFP concept. OCB staff have also been working to develop the OCB Floodplain/Flood Risk Reduction Manager job description for the staff position that was funded for this current biennium. A draft summary of the primary roles and responsibilities of that position is attached. This staff position is needed to help oversee, review, and perform aspects of the work related to Board's desired flood damage reduction (or "floodproofing") program. As currently envisioned, this staff position would function as a Project Manager for all technical work done by consultants as well as performing many other duties. This position will play an important role in coordinating communications about the work and results with affected groups (such as local governments) and individual landowners. The position is also expected to enhance local governments' capabilities to communicate effectively with one another and with constituents about flood risks, and allow for improved exchange of information about risks between all levels of government (*e.g.*, FEMA, state, counties & cities) and other partners and stakeholders.

In considering how to best incorporate any new work related to channel migration zones (CMZ) and flood erosion hazards on a basin-wide scale, it is important to understand that there are significant differences between the baseline CMZ information available from one jurisdiction to another. As a result of differences in Shoreline Master Programs, and other land use regulations and planning tools such as Frequently Flooded Areas within Critical Areas Ordinances, and hazards designations, this work will require consultation and careful coordination with local governments before undertaking additional work on a broader scale within the basin.

It is also important to recognize that significant differences exist between the guidance that is currently used for analyzing and delineating CMZs in the built environment versus guidance that is used for CMZ delineations in managed forestland. As a result, consultation and careful coordination with the agencies responsible for implementing existing different CMZ guidance (Ecology & DNR) will be needed before and during any work on a broader scale within the basin.

Similarly, important decisions will need to be made regarding the various types of CMZ assessments that can or should be done in particular areas: *e.g.*, broad planning level versus more targeted, detailed assessments (including choosing between multiple levels of detail based on a variety of factors). The approach selected will have significant implications for:

- How long the work takes
- How costly it is to do the work
- How useful the results will be for different purposes (*e.g.*, land use planning and/or regulation, hazard ratings, supporting FEMA programs (RiskMAP, NFIP)).

## Staff Recommendations

Staff recommends the following next steps:

1. NSD should complete a written report on results of Newaukum feasibility study.<sup>1</sup>
2. NSD should continue working on several remaining tasks within the scope of the existing contract as outlined below. Specifically, work should continue on:
  - A. With OCB staff, prioritizing locations for Two-Dimensional Hydraulic Modeling of Existing Conditions;
  - B. Coordination with OCB: Briefings & presentation materials for meetings with OCB Staff, Chehalis Basin Board, and others;
  - C. Coordinated Outreach: Coordinate with other organizations engaging with the community on related topics;
  - D. ASRP: Participation & facilitation of Science & Review Team meetings; Attendance and reporting to ASRP Steering Committee.<sup>2</sup>
3. OCB Staff should incorporate CMZ/Erosion hazard assessment work as an element of the Floodproofing Program by doing the following:
  - A. Adding oversight of CMZ/Erosion hazard assessment work as part of the roles and responsibilities of the new OCB Floodplain/Flood Risk Reduction Manager position (attached);
  - B. Consulting with staff from local government planning departments, tribal governments, Ecology & DNR, & Regional FEMA staff to develop a draft scope & budget for additional CMZ/Erosion hazard assessment work that will support the Chehalis Basin Strategy as part of the Floodproofing Program;
  - C. Evaluate amending NSD's scope to focus additional conceptual design in the Newaukum sub-basin on channel migration zone (CMZ) assessments to define specific erosion hazard areas where site-specific concept level designs would assist landowners in addressing such

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<sup>1</sup> Contract Task 5, Deliverable 5.

<sup>2</sup> Contract Tasks 2, 4, 9, 10.

- erosion hazards. Work on preliminary level design, and any related property impacts strategy or guidelines development for a model buyout relocation program, would be dependent on the results of the CMZ delineation and concept-level design work.<sup>3</sup>
- D. Providing the Board an updated outline/framework for the Floodproofing Program;
  - E. Soliciting and hiring an appropriate consultant (or team of consultants) to perform the technical work.
4. OCB Staff should work through RCO and with NSD to amend the existing contract according to the above.

## Conclusion

OCB Staff requests the Board's guidance on three overarching questions:

1. Whether you agree with the recommendation to *not* move to conceptual design of the RFP approach for the entire Newaukum sub-basin;
2. Whether you would like to proceed with a more tailored approach to addressing flood damage reduction goals that focuses on: (a) identifying channel migration zones where flood waters are likely to cause significant erosion hazards that threaten public and private structures and land uses and: (b) developing strategies to assess landowner interest in buy-outs or relocations in response to such hazards.
3. If you would like to proceed with a more tailored approach, do you have guidance or direction for how you would like OCB Staff to approach that work (*e.g.*, as part of the Floodproofing Program, through a "Community Flood Protection" program, or some other approach)?

Attachments:

- August 20, 2018, memorandum from OCB Director to Board re: preliminary findings from NSD's feasibility evaluation pilot study in the Newaukum sub-basin
- Draft OCB Floodplain/Flood Risk Reduction Manager job description

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<sup>3</sup> Contract Tasks 6, 7, 8.

# MEMORANDUM

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**Date:** August 20, 2018  
**To:** Chehalis Basin Board  
**From:** Andrea McNamara Doyle, Office of Chehalis Basin  
**Re:** Restorative Flood Protection (RFP) feasibility evaluation

## **Background**

Last biennium the Governor's Chehalis Basin Work Group recommended advancing the feasibility evaluation of the Restorative Flood Protection (RFP) approach this biennium through a pilot effort in the Newaukum River sub-basin. The RFP is one of the major flood damage reduction actions under consideration by the Chehalis Basin Board for the long-term strategy, and Natural Systems Design (NSD) is under contract to do this work. In the Programmatic Environmental Impact Statement (PEIS) Ecology completed last biennium, the RFP was shown to provide significant reduction in flood damages by moving affected homes, businesses and farms out of flood hazard areas, along with restoring more natural floodplain function. In the PEIS, it was estimated to reduce the 100-year flood elevation by 0.4 feet in the area of Interstate 5 along the airport levee. This reduction would have a minor effect on reducing flood damage along the I-5 corridor, and would not reduce the number of days I-5 was closed during a 100-year flood.

## **Preliminary Findings**

The findings from NSD's pilot feasibility evaluation in the Newaukum sub-basin utilizing more sophisticated numerical models has found that, for more frequent low magnitude flood events, the RFP can triple current flood storage and significantly reduce peak flows. However for large events such as the 2009 Newaukum River flood, the peak flood flow reduction would be about one fourth of that predicted in the PEIS. These findings appear to be transferrable to other parts of the Chehalis basin where the RFP approach was considered in the PEIS. Based on these results, NSD does not recommend moving to conceptual design of the RFP for the entire Newaukum sub-basin. NSD is recommending a modification to the scope of work for the RFP that they believe makes best use of available state funding to achieve the overall goals of the Chehalis Basin Strategy.

NSD is proposing a new approach to reducing flood damage called Community Flood Protection (CFP) that could be done under their existing contract. As part of the CFP approach, NSD would

define areas throughout the entire Chehalis Basin where rivers are prone to significant channel migration that threatens homes, farms, businesses and public infrastructure and where current and future flood risk has not been accurately delineated. They would assess landowner interest in buy-outs or relocation and estimate the magnitude of the program needed to protect landowners from the hazards of river channel migration. NSD's CFP concept emerged from the Newaukum pilot feasibility study results which showed that flood and erosion hazards are currently impacting many landowners in areas that would not be directly protected by the proposed flood retention facility. The feasibility study has also demonstrated that these hazards are increasing because of climate change.

**Next steps**

Office of Chehalis Basin staff have been evaluating results from the pilot RFP and NSD's new Community Flood Protection proposal. We have also been continuing to develop the position description for the floodplain manager position that OCB anticipates hiring this fall.

Initially, it seems the Community Flood Protection approach could inform the basin-wide floodproofing program that the Work Group recommended initiating. Significant work will occur over the next year to define the program in more detail in order to increase implementation in the next biennium.

At the September board meeting, you will be provided more details about the results of the RFP pilot feasibility study. Staff will also be providing you options and recommendations for what should move forward and who should be involved prior to the September Board meeting. It is ultimately the Board's decision on how to proceed, and we will be seeking your guidance at the September meeting.

**DRAFT – revised 8/30/18**  
**OCB Floodplain Management Specialist/Flood Risk Reduction Project Manager**  
**Primary Roles & Responsibilities**

***MAIN FOCUS***

***FLOOD RISK REDUCTION/FLOOD PROOFING INVESTMENT PROGRAM***

- Lead design of a new, comprehensive flood risk reduction investment program as part of the Chehalis Basin Strategy. Coordinate with the Chehalis Basin Board and Chehalis River Basin Flood Authority to facilitate and ensure efficient communication during development of the program. Manage early-action flood risk reduction project contracts (fiscal/grant management provided by WA State Recreation and Conservation Office [RCO]).

***COMMUNITY-SPECIFIC PROPERTY PROTECTION STRATEGIES***

- Support development of community-specific property protection strategies for the Chehalis Basin Strategy that identify areas where buildings should be acquired or retrofitted to reduce or mitigate flood damage. Such strategies would be based on local plans and policies, building on previous work in Centralia and Thurston County, and on additional analysis of areas throughout the basin where rivers are prone to significant channel migration that threaten homes, farms, businesses, and public infrastructure where current and future flood risk has not yet been adequately delineated.

***SUPPLEMENTAL DUTIES***

***TECHNICAL ASSISTANCE TO LOCAL GOVERNMENTS RE: FLOODPLAIN ORDINANCES***

- Provide scientific, technical, and policy assistance to local governments (in coordination with ECY Regional floodplain management staff, the State NFIP Coordinator, and ECY Flood Program policy lead) for improving and administering their floodplain ordinances, leading to a reduction of flood hazards and enhancement of ecosystem restoration goals. Assist in assessments of community floodplain management programs and ordinances to ensure compliance with state and federal requirements. Conduct or assist with performance audits (Community Assistance Visits, or CAVs and Community Assistance Contacts, or CACs) to ensure federal requirements for the National Flood Insurance Program (NFIP) are being upheld. Assist communities with participating in FEMA's Community Rating System (CRS), and provide technical assistance to small communities within the basin for flood permit reviews. Participate in Ecology's Southwest Regional Office (SWRO) permitting and technical assistance meetings, as appropriate.

***TECHNICAL ASSISTANCE TO COMMUNITIES AND PROPERTY OWNERS RE: FLOODPLAIN REGULATORY & FLOOD INSURANCE MATTERS***

- Provide technical assistance to local communities and property owners on floodplain regulatory and flood insurance matters. This includes providing technical assistance regarding methods to best address NFIP rate increases and engage local officials, property owners, insurance agents and others in identifying methods to lower flood insurance costs or minimize flood insurance rate increases and to obtain needed Elevation Certificates in a cost-effective, timely manner. In coordination with ECY RiskMAP coordinator, explain the FEMA map revision and restudy processes and answer community questions about FEMA mapping and flood damage insurance processes.

***COORDINATE WITH STATE AND FEDERAL PRIORITIES***

- Coordinate with ECY Regional floodplain management staff, Flood Program policy lead, State NFIP Coordinator, ECY RiskMAP coordinator, and OCB staff, to ensure Chehalis Basin Strategy flood risk reduction program consistency with state and Federal priorities. Act as a liaison with principle planning and resource management personnel in other Ecology programs or with state and federal resource agencies to ensure consistency with regulatory programs, and explore potential resources to support flood risk/flood damage reduction in the Chehalis basin.

DRAFT