

MEMORANDUM

Date: May 23, 2023
To: Chehalis Basin Board
From: Alex Dupey AICP, MIG
CC: Andrea McNamara Doyle, Office of Chehalis Basin
Re: **LAND: Next Steps**

Requested Actions

At the June 1 Board meeting, OCB staff will request direction from the Chehalis Basin Board for next steps related to the Local Action Non Dam (LAND) Alternative to further support your decision-making process on a long-term integrated strategy. OCB staff will ask for your approval to develop draft scopes of work for some or all of the following tasks, described more fully below:

- Complete a levee feasibility analysis, including coordinating with related transportation improvement projects already underway
- Refine size and locations of interrelated structural interventions to improve downstream conditions and assess feasibility
- Complete high level geotechnical analysis for the diversion/conveyance options
- Initiate cultural resources consultation with affected tribes and the Department of Archaeology & Historic Preservation
- Update the 2017 structures database created for the mainstem Chehalis River and extend it to include structures in the Skookumchuck subbasin
- Identify priority areas of at-risk structures where floodproofing and voluntary relocation services will be needed regardless of whether the LAND Structural Interventions or the FRE are constructed
- Review local jurisdiction comprehensive plans and development codes to provide technical and best practice information related to floodplain management and flood damage reduction as part of their update processes.

The Project Team has identified these tasks as the most important next steps to refine elements of LAND and support the Basin Board's desire to develop "packages" and complete a comparative analysis. The tasks identified in this memorandum will be scaled to meet the Board's schedule for developing packages and completing the comparative analysis in 2024.

Introduction

This memorandum provides an overview of recommended next steps to refine potential projects, expand on information needed to understand the scale and extent of potential programs, and further define potential policy decisions that could be implemented to reduce impacts to future development in the Chehalis Basin as part of the Preliminary Local Action Non-Dam (LAND) Alternative.

The complete Preliminary LAND Alternative recommendations are described in the memorandums, LAND summary, and presentation to the Chehalis Basin Board provided on April 6, 2023. The project team is currently developing a LAND Alternative Plan that will incorporate all project recommendations.

The recommended studies, identified below, are a subset of the complete LAND recommendations and are near-term tasks suggested by the Project Team to refine LAND. Some studies would also benefit other programs, such as the Community Flood Assistance and Resilience Program (CFAR), regardless of which flood damage reduction measures (FRE, LAND, or a combination of the two) are eventually selected by the Board to reduce flood damage to existing structures.

Recommended Studies to Refine LAND and Further Existing Program Development

The Project Team recommends completing the following studies to refine the infrastructure and program-related elements of LAND. If approved to move forward, a scope of work would be developed to clearly articulate methodology, timeline, and expected costs.

TS 1: Complete a Levee Feasibility Analysis

Need: LAND identifies a number of potential levee locations within or near urbanized areas, some of which have been identified during previous studies that have occurred in the Chehalis Basin. The current levee alignments are highly conceptual (for hydraulic modeling purposes only) and should be analyzed for feasibility and potential community impact.

Anticipated Outcomes: The levee feasibility analysis will refine the levee concept with enough detail to determine if the projects are feasible. The analysis will:

- Assess the location, height, and scale of levees to minimize impact to adjacent uses;
- Identify other locations, if applicable, where berm or levee locations should be considered;
- Identify potential impacts to existing development;
- Identify potential constructability issues or other aspects of the levee location and design that will be necessary to determine feasibility of each structure;
- Consider how LAND and the location of WSDOT's conceptual plan for protecting I-5 using levees and floodwalls could align; and

- Identify phasing, cost, and permitting considerations.

TS 1A: Coordinate with Related Transportation Improvement Projects

The levee feasibility analysis also has a direct connection to other projects already identified within local capital improvement programs. While the levee feasibility analysis will not address bridge or other road projects directly, it is important to recognize the following projects that could be affected by the outcomes of the levee feasibility analysis by refining the location and height of the potential levees. These include:

- **PJ 1.1 South Scheuber Road/West Connection.** This project is currently out to bid for design services to refine the future plans. This connection would also provide emergency access to the hospital during a catastrophic flood event. The height and location of the Fort Borst Park levee (PJ2.4) would inform the design of the bridge and approaches.
- **PJ 1.2 Pearl Street Bridge Replacement.** This project is slated to be bid by 2027. The height of the future bridge and approaches is related to the existing and potential future locations of the expanded Skookumchuck levees (PJ2.3). This is a critical north-south connection and a state highway.
- **PJ 1.3 Reynolds Road Improvements.** Reynolds Road is currently being designed to widen the road and add a center left turn lane. While this road floods regularly, it is still an essential east/west connection and could eventually connect to the future Scheuber Road bridge that would provide emergency access to the hospital. Raising the road in combination with a local levee could benefit emergency access.

The Project Team recommends that OCB engage with these (and other) projects as an opportunity to improve flood resilience within the Basin as part of already programmed projects. This also provides an opportunity for OCB and local jurisdictions to identify and leverage potential additional federal funding opportunities on behalf of local jurisdictions while also providing essential emergency access routes when a catastrophic event occurs in the future.

TS 2: Complete high level geotechnical analysis for the diversion/conveyance options

Need: The diversion and conveyance options would require modifications to the floodplain to remove pinch points near the existing Mellen Street Bridge on the Chehalis River to increase conveyance and increase waterflow during an event. Additional information is needed to determine the feasibility of these options. This analysis would be used to identify fatal flaws in the potential project.

Anticipated Outcome(s): This study would identify potential issues, such as soils or other conditions that would prevent the diversion or conveyance options from being constructed as conceptualized in LAND.

If issues are identified, the geotechnical analysis would identify construction methods that would be required to address those issues, including additional costs, timing, and permitting. This study would be to identify fatal flaws only.

TS 3: Cultural resources consultation

Need: The diversion, conveyance, and levee concepts would require ground disturbance in or near areas with known cultural resources. Coordination with the Chehalis Tribe, Quinault Nation, and the Department and Archeology and Historic Preservation (DAHP) is needed to understand potential issues with the infrastructure elements. This task would include a desktop review of proposed project locations and test pits, as needed, for particularly sensitive areas. The scope of this task would be determined in coordination with the Chehalis Tribe, Quinault Nation and DAHP.

Anticipated Outcome(s): This task will provide additional clarity and expectations of any future project related to cultural resources, especially if projects identified in LAND are of particular concern to the Chehalis Tribe and Quinault Nation.

TS 4: Update structures database

Need: LAND and the FRE Draft Environmental Impact Statement rely on a database of structures created in 2017 for the mainstem of the Chehalis River. Updated information, including information about structures along the Skookumchuck River, is needed to determine the actual scale of flooding impacts under the late century 2080 flood extent. This information is important regardless of whether LAND, the FRE or a combination of the two, are advanced.

Anticipated Outcomes: The study will result in an updated and expanded database of structures identified with ground floor elevations, to the greatest degree practicable, to capture new development in addition to areas not previously evaluated, such as the upper Skookumchuck and other Chehalis tributaries. This data would be used to refine and prioritize CFAR/Safe Structures costs and implementation strategies. This information would be invaluable in prioritizing resources for CFAR/Safe Structures to identify high priority areas to focus resources and outreach.

TS 5: Refine size and locations of interrelated structural interventions to improve downstream conditions and assess feasibility

Need: The diversion, conveyance, and levee elements are designed to work together. Additional modelling and design analysis is needed to determine the most efficient size and location of the diversion and conveyance elements to minimize impacts downstream. This analysis is also needed to address permitted development activity in the vicinity of the diversion.

Anticipated Outcomes: The outcome of this technical study would be to “right size” the diversion and conveyance elements to minimize downstream impacts and also minimize the size of levees. The

analysis would include additional hydraulic modelling, assessment of the location and scale of the diversion channel and extent of conveyance improvements, and assessment of the potential impacts to existing and proposed development within the project area related to those projects.

Recommended Studies to Refine Programs and Policies

Programs

There are several recommendations that could be implemented regardless of what flood damage reduction measure option(s) is pursued. The Project Team recommends evaluating how to combine the CFAR/Safe Structures programs together to jointly address the scale of need in the basin for floodproofing and voluntary relocation of existing at-risk structures.

PR 1 Identify priority areas of at-risk structures where floodproofing and voluntary relocation services will be needed regardless of whether the LAND Structural Interventions or the FRE are constructed.

A set of data would be developed through TS4 (Update Structures Database) to identify the number of structures affected under LAND versus and/or the FRE, where there are structures that are repeatedly flooded, and recommendations to prioritize which areas CFAR/Safe Structures should focus its resources. This task would be closely coordinated with OCB staff that are developing methods to prioritize structures through the existing CFAR program.

PR 2 Identify Coordination Methods for LAND, ASRP and Resiliency Integration

The Project Team recommends beginning coordination between LAND and the ASRP, and identifying ways to improve resiliency throughout the Basin. These efforts do not require technical study at this time, but they will require identification of potential methods, appropriate staff, and advisory group members, which can occur now.

Policies

Policies related to LAND are generally focused on land use policies and technical assistance for local jurisdictions. The following studies are recommended:

PL 2.2 Review local jurisdiction comprehensive plans and development codes to provide technical and best practice information related to floodplain management and flood damage reduction as part of their update processes

Need: Code audits of existing plans are needed to identify next steps for local jurisdictions in the Basin. Existing comprehensive plans within the Basin are also within their State required update window and must be updated soon.

Previously, development code and flood mapping audits have been completed by French Wetmore, but implementation of his recommendations is incomplete. If they have not been implemented, it is important to understand why, and if there are ways to reduce potential flood damage to existing *and future development* through comprehensive plan, mapping, and development code updates. This research can also provide local jurisdictions currently updating their comprehensive plans information to include in their decision-making.

Anticipated Outcomes: Comprehensive Plan and development code audits of incorporated cities and counties with the Chehalis Basin. This technical study will also include best practice information related to floodplain management and flood damage reduction for local jurisdictions to consider when reviewing and updating their comprehensive plans and development codes.

Next Steps

Following Board discussion and direction, the project team will coordinate with the Chehalis Basin Strategy staff to determine the next steps for developing scopes of work, budget, and timeline assumptions to complete the technical studies.