

Chehalis Basin Local Actions Program • Technical Advisory Group

MEETING 2 SUMMARY

Date: Monday, November 9, 2020

Time: 1:00 – 5:00 PST

Location: Zoom online meeting

Purpose of Meeting

- Receive input on the Technical Advisory Group (TAG) Meeting 1 (October 27, 2020) and results.
- Discuss approach for defining the future floodplain (in 2080) in the near term to identify planning-level local action program elements.
- Discuss priority areas for additional modeling in the long term to support future project evaluation and design.

Meeting Notes

These meeting notes are intended to be a public record of key points, questions, and discussion topics raised during the meeting. They are not intended to be transcripts. The meeting was recorded on Zoom.

TAG Meeting 1 and November 4 Chehalis Basin Board Meeting Debrief

Jim Kramer (meeting facilitator) and Andrea McNamara Doyle (Office of Chehalis Basin [OCB]) summarized feedback on the TAG Meeting 1 process and technical information provided, as well as responses to the memos prepared for the Chehalis Basin Board (Board) that were discussed during the November 4, 2020, Chehalis Basin Board meeting.

Key takeaways included:

- The OCB Team is committed to providing additional materials and information to support the TAG as much in advance as possible, including TAG meeting summaries, meeting materials in advance, a roadmap for advisory group input to feed into Board decision-making, and information on costs for near- and long-term studies.
- The OCB Team and the Board acknowledged TAG concerns about future studies in the long term and associated costs without more information and direction from the Board. In order to develop long-term technical recommendations, TAG needs adequate time to review information, and to know how the Board plans to use information. The OCB Team will revisit the long-term approach with the TAG during meetings in late 2020 and early 2021.
- The Board approved near-term climate change recommendations to use 26% for consistency and comparison, incorporate 50% increase in analysis for future floodplain and worst-case scenario, and conduct a complementary analysis based on precipitation for tributaries.
- The Board approved the near-term erosion recommendation to use local knowledge to focus areas and existing technical information to identify high-priority erosion hazards in up to 100 miles of basin (which does not include managed forest land).
- The OCB Team will schedule time at a TAG meeting to discuss draft technical criteria to be used for the Board's outcome statement on erosion protection.

Defining the Future Floodplain: Near-term Hydraulic and Hydrologic Modeling Options

Larry Karpack (Watershed Science and Engineering) summarized information on additional near-term hydrologic and hydraulic modeling options to define the floodplain and eventually evaluate flood damages as described in the *Hydrologic and Hydraulic Modeling Options Technical Memorandum* (November 2, 2020). The modeling options are based on hydrologic and hydraulic modeling performed to inform both the State Environmental Policy Act and National Environmental Policy Act Draft Environmental Impact Statements and reflect the Board's Local Actions Program (LAP) planning assumptions: plan for 100-year flood conditions that are predicted for 2080; consider up to a 30-year implementation timeline; and design program projects to avoid making flood damage worse in other areas. The suggested approach is twofold:

- Use hydraulic models wherever they are available
 - Update hydrology to reflect climate change (26% and/or 50% increase)
- Estimate floodplain for locations without hydraulic models
 - Compile/combine best available topographic data
 - Define or estimate current FEMA Base Flood Elevations
 - Increase BFEs by some amount to account for climate change
 - Re-delineate floodplain at higher elevation

TAG members provided their input on the pros and cons of both model options for near-term actions in Jamboard ([link](#)). Jamboard comment themes included:

- Using hydraulic models to define the floodplain wherever they are available is quick and can provide information for a comparative assessment. However, existing hydraulic models may not align with the purpose and underlying assumptions or reflect climate change predictions. The results may not be meaningful or may be inaccurate, as the models may overestimate the floodplain and/or include extra areas. The modeled floodplain needs to be ground-truthed with landowners and local floodplain managers.
- Using topographic data and FEMA Base Flood Elevations (BFEs) to estimate the floodplain for tributary areas without hydraulic models is also quick and may be a good option in the very near term. However, FEMA maps can be relatively inaccurate and there are some issues with BFEs: there are several BFEs available which would need to be evaluated and Zone A areas have no BFE to start from.
- Including additional near-term options such as:
 - Use LiDAR (or other reasonable topography models) and/or BFE amendments to define tributary streams;
 - Conduct coarse-scale hydraulic modeling in basins without models; and
 - Assess various increases in WSE.

Key comments, questions, and discussion topics regarding the near-term approach included:

- Model inputs require a certain amount of historical data in order to increase certainty and reduce extrapolation. To estimate the 100-year flow at Grand Mound, the models used historical flood data from 1970-2015.
- Is rain-on-snow a significant issue in most of the watershed? Response: In the upper basin rain-on-snow is not a significant contribution but the model does take it into account for the few areas with snowpack, i.e., the Newaukum and South Fork Chehalis.

- Floodplain depth and extent has been mapped in the modeled floodplain using historical data and climate change predictions.
- Is there damage information from past flood events? Response: The HAZUS model may provide some information on recent/historic flood damages but the data is not compiled in a way to help the TAG prioritize sub-basins where additional modeling would be beneficial. FEMA damage claims would be a good place to begin this research. The OCB Team will follow-up to see what damage information is available. Other input on this topic included:
 - FEMA updated HEC-RAS for NFIP for Skookumchuck within Thurston County.
 - FEMA BFEs may be old and applying a climate change factor to a non-standardized time of when BFE flows were determined should be stated as an assumption.
 - FEMA assumptions have not always matched the community experience.
- Additional hydrologic or hydraulic models, data, or information that should be considered include a vulnerability assessment for assets in a given area to see how a suite of LAP actions might affect other areas in the basin.
- Long-term options could affect future development and flows of small tributaries in some cases; this is a possible point of collaboration between the two LAP advisory groups (TAG and the Implementation Advisory Group).
- Near-term data and analysis that shows the floodplain extent will be used to give people a sense of where the greatest development expansion opportunities are so the floodplain is protected now and in the future; it will not be used to regulate land use.
- The LiDAR model provides terrain/topography information, but it does not provide water surface elevation, or channel depth, which is important for this analysis.
- Maps that show properties and potential effects may provide helpful information, but they can also upset the public; they should be used openly but with caution. It may be more beneficial to summarize areas with potential changes instead of using a map.

The OCB Team recommends the use of the near-term approach while highlighting the uncertainty and appropriate use of the information based on the input provided by the TAG members. In particular, the caution about being property specific during this planning/feasibility phase of the work.

Potential Priorities for Additional Modeling in the Long Term

Larry Karpack reviewed the long-term options for updating and refining existing models or constructing new models of tributary systems as described in the *Hydrologic and Hydraulic Modeling Options Technical Memorandum* (November 2, 2020). The TAG evaluated the pros and cons of the long-term options in Jamboard ([link](#)). These initial responses will not be shared with the Board; they are a starting point for discussion about more specific long-term recommendations.

Key comments and discussion topics included:

- Development trends were not included in the initial tributary prioritization, but this is an important consideration.
- Long-term forestry practices could be beneficial to build into the models. For example, models that account for headwaters or upper portions of the basin that might be conserved could reflect different flood rates.

- The floodplain analysis would not be limited to the 100-year + climate change hydraulic and hydrologic model. It is an iterative process of identifying where flood damage is an issue, what modeling is necessary, and what needs to be done to address flooding and damage concerns. In some cases, bank erosion and channel migration are the main concerns, not flooding.

LAP Advisory Group Process

TAG members spent the last few minutes of the meeting providing feedback on the advisory group process in Jamboard ([link](#)). The facilitators expressed appreciation for the knowledge and diversity of the TAG and encouraged them to connect with each other between meetings. Jamboard comment themes included:

- The need for TAG meeting materials to be circulated as far in advance as possible;
- An appreciation for the diverse technical expertise of the TAG as well as a need for outreach to various additional experts;
- An appreciation for engagement opportunities, e.g., breakout groups or using Jamboard (although it causes confusion if Jamboard questions aren't worded clearly);
- Questions for TAG members would benefit from additional context and could be more open-ended.

Next Steps and Summary of Follow-Up Actions

The next Technical Advisory Group meeting is scheduled for Friday, November 13, 2020, at 8:00 AM PST. Below is a summary of follow-up actions identified during the meeting:

- Discuss technical criteria for erosion protection at TAG Meeting 3