



Technical Advisory Group Meeting #2 Meeting Report

**June 6, 2016
Puyallup Library**

The second meeting of the Technical Advisory Group (TAG) for the Farming in the Floodplain Project (FFP) was held on June 6, 2016 at the Puyallup Library. About 25 people participated, including Clear Creek area farmers and residents, a Drainage District 10 commissioner, Pierce County staff, Farming in the Floodplain Project staff, and regional technical experts. The meeting was led by PCC Farmland Trust and by ESA, the technical contractors working on the project.

Topics discussed at the meeting included flood modeling done for the proposed Clear Creek Floodplain Reconnection Project; the definition of agricultural viability; and potential work plan elements for future phases of technical work on the FFP. Discussions at the meeting are summarized below.

Flood Modeling

Chris Long and Sam Gould of Northwest Hydraulics Consultants (NHC) presented information on the Clear Creek floodplain reconnection modeling NHC performed for Pierce County Surface Water Management (SWM). NHC's role was to investigate the flooding impacts of the proposed Clear Creek Floodplain Reconnection Project at a feasibility level, focusing on large flood events. The model did not take into account the agricultural drainage system in the Clear Creek area. The model was based on the 2002 flood insurance study model build by FEMA, which NHC updated based on tide and precipitation data through 2012 and elevation data from 2010.

The model elevated three scenarios for floodplain storage (existing conditions, a levee built along the 14-foot contour, and a levee built along the 18-foot contour) and four scenarios for the outlet of Clear Creek (the existing culverts, two open culverts, one slide-gate culvert, and an open bridge) for a total of 12 scenarios. The modeling showed that flood elevations would be similar between existing conditions and the 18-foot levee under all four outlet scenarios, but the 10-year, 50-year, and 100-year flood stages would vary between the four outlet scenarios. For example, the 10-year flood stage would be up to 2 feet higher than existing conditions if there were two open culverts or an open span bridge. Water surface elevations would be higher than existing conditions with a 14-foot ring levee. For example, with the existing outlet, the water surface elevation would increase by approximately 2 feet with a 14-foot ring levee. NHC said that future modeling would include consideration of the culverts under Gay Road and would evaluate the velocity of water at the outlet of Clear Creek.

Following NHC's presentation, TAG members discussed and asked questions about the model. Questions included:

- How would areas outside of the levee footprint drain through the levee? This was not covered by the model.
- Does the modeling examine whether the tide gates are large enough? Do we know why they are six feet wide?
- How wide was the modeled bridge opening?
- Does the model tell us what the durations of peak flows would be?
- How would a well maintained drainage system affect these results? The model looked at large flood events and assumed that the drainage system was well maintained and functioning properly.
- Would it be possible to look at climate change projects in this model? NHC said it is possible, but it would make the model more complicated.
- Would a ring levee containing a smaller area than the 14-foot levee have enough storage capacity to hold floodwaters?

A Clear Creek area farmer stated that many farmers in the area are living and farming between the 14 and 18 foot contours. They are most interested in the 5- or 10-year flood stage, and the results of the modeling show that without the tide gates they will see water above 17 feet more frequently. It would be helpful to know how frequently and for what duration the fields would be underwater. NHC said that information exists in the model, but the model is not geared to speak well to smaller events so their confidence in those results is low. Another Clear Creek resident said that members of the Clear Creek Farmers Collective are concerned about saturation of soils on the outside of the levee and how long it would take that soil to dry out.

Video of NHC's presentation is available online at <http://farminginthefloodplain.org/resources/>.

Agricultural Viability

ESA staff presented a draft definition of agricultural viability. Agricultural viability can be defined as the ability of a farmer or group of farmers to:

- productively farm on a given piece of land or in a specific area,
- maintain an economically viable farm business,
- keep the land in agriculture long-term, and
- steward the land so it will remain productive into the future.

TAG members commented that regulations, access to farmland, and affordability of farmland are important factors of agricultural viability.

Potential Future Work Plan Elements

ESA staff presented a list of potential future work plan elements for the FFP. This work could be done in Phase 2 of the FFP or in the future. The potential future work plan elements presented were:

- Inventory of the drainage system in the Clear Creek area. Including:
 - Mapping of owned parcels, easement, creeks, drainage ditches and structures, and culverts
 - Current capacity of drainage features
 - Capacity if property maintained
 - Recommendations for short- and long-term solutions
- Analysis of tide gates
 - Research on how tide gates work currently and how they have worked in the past
 - Monitoring and observation of gates under various conditions
 - Modeling of current gate operations and of potential alternative operations
- Flood risk analysis
 - Research on vulnerability of River Road Levee to overtopping and breaching
 - Develop climate change prediction information specific to the area
 - Precipitation data
 - Sea level rise
 - Sediment
 - Salinity in groundwater
- Analysis of stormwater, runoff, and sediment from upstream areas of the Clear Creek Basin
- Findings and Recommendations Report
 - Conclusions, recommendations, and next steps from other technical work in Phase 2
 - Analyze what the findings tell us about various proposals for the Clear Creek area
 - Qualitative analysis of farmland impacts from the proposed Clear Creek Floodplain Reconnection Project

TAG members discussed the proposed future work plan elements. Comments and questions included:

- Will the drainage inventory look at historic information about design assumptions?
- It would be interesting to know how much volume of streamflow is projected to increase with upstream development.
- The tide gate analysis should research fish friendly tide gates.
- The Corps of Engineers has a geotechnical analysis report that should help inform the flood risk research.
- The upstream impacts analysis is important to help Clear Creek area residents understand whether trends will continue.
- How would sediment affect the proposed Clear Creek Floodplain Reconnection Project levee? Would the effectiveness of that levee decline due to sediment?

- Clear Creek area residents are worried about unknown impacts from the Clear Creek Floodplain Reconnection Project. The analysis of farmland impacts from the project should help farmers in the area understand what impact the project would have on their livelihoods.
- The Phase 2 work should include looking at ideas from other jurisdictions and what they are doing to address similar issues.
- Issues about climate change could be bigger than the scope of the FFP and should be tackled elsewhere.
- Would having the proposed Clear Creek Floodplain Reconnection Project make flood damages from overtopping of River Road Levee better or worse?
- Is research of River Road Levee the highest priority?
- For several meeting participants, technical work that would help Drainage District 10 is the highest priority.
- The drainage inventory should help the District prioritize the worst problem areas with their limited funding.
- It would be helpful to know what the options are for getting water through a proposed levee to drain the area outside of the levee. What has been done in other places?
- Getting data on the frequency and duration of flooding events from the NHC model would be helpful for the analysis of farmland impacts.