

## **Middle Fork Snoqualmie River Capital Investment Strategy Community Meeting Summary**

February 25, 2020 (6:30 – 8:30 p.m.) at the Mt. Si Senior Center in North Bend  
Sponsored by King County Flood Control District

### **In Attendance**

- Approximately 30 community members
- King County Flood Control District (FCD), Supervisor Kathy Lambert
- King County Water and Land Resources Division staff:
  - Chase Barton, Teresa Lewis, Gus Kays, Judi Radloff, Cory Zyla
- Kellogg Consulting, Tamie Kellogg, Facilitator, and Melissa Plotsky, Notetaker

### **Meeting Purpose**

- Provide an update on the Middle Fork Snoqualmie River Corridor planning process.
- Share information on existing conditions and the draft Middle Fork Snoqualmie River Capital Investment Strategy.
- Provide an opportunity to ask questions and share observations and thoughts about the river, flooding and channel migration hazards and risks, and the draft Middle Fork Snoqualmie River Capital Investment Strategy.

### **Process**

The 2-hour meeting covered:

- Open house before and after the presentation for attendees to ask questions and discuss issues one on one with project staff.
- Slideshow presentation, and two question and answer sessions with attendees.

### **Welcome and Introductions**

Tamie Kellogg welcomed everyone and reviewed the agenda. FCD Supervisor Kathy Lambert welcomed everyone and thanked community members for attending. Supervisor Lambert acknowledged the recent flooding and let attendees know that the FCD wants to hear their concerns about flooding and get their input on potential solutions to reduce risks. Supervisor Lambert let everyone know that the deadline to report flood damages resulting from the significant flood events that occurred in late January and early February was extended to March 2, 2020.

### **Presentation**

Chase Barton, Snoqualmie Basin Supervising Engineer, welcomed everyone and explained that the Middle Fork Snoqualmie River corridor planning process and the draft Capital Investment Strategy is an effort led by the FCD to reduce flood risks in communities adjacent to the river. The presentation included:

- An overview of the corridor planning process, including the corridor plan goals, summary of flood hazards and risks, and previous stakeholder and community feedback.
- An overview of the draft Middle Fork Snoqualmie River Capital Investment Strategy.
- Next steps.

## **Questions, Answers, and Comments on Existing Conditions and the Draft Capital Investment Strategy (CIS)**

*The following is a summary intended to capture the general content of the comments, questions asked, and answers provided; not a verbatim transcript.*

**1. Does the red area on the map (slide 7 in the PowerPoint dated February 25, 2020) represent the 500-year flood event?**

The red and yellow areas on the map are the regulatory channel migration zone (CMZ). The red is the severe CMZ and the yellow is the moderate CMZ. These are places that have been identified to be subject to lateral river migration hazards.

**2. Can you explain what 2D (two-dimensional) modeling is versus FEMA regulatory modeling?**

They are different mathematical tools for looking at how water travels over the landscape. The FEMA regulatory modeling in this location was conducted using a one-dimensional model that incorporates channel cross sections and pushes water down those cross sections. It is a simplified view of the river landscape. The FEMA regulatory modeling was conducted making assumptions that the levees are not present, so the Mason Thorson Ells and the Mason Thorson Extension Levees were removed in the modeling to see where the flood water would go in their absence. It is done that way because only certain types of levees—ones that are certified by the Army Corps of Engineers—are included in those regulatory models. That is the method FEMA uses for the purpose of determining flood insurance.

The two-dimensional modeling we used in this study considers more detailed topographic features in the landscape, allowing us to better understand where water is likely to go, once it gets out on the floodplain. For the purposes of better understanding where water flows under existing conditions, we used slightly different assumptions in the 2D model and included those levees.

**3. Do you consider the water that comes up from the ground in your flood modeling?**

No, the modeling we conducted does not consider ground water or stormwater. We are looking at river surface flows. We know that side channels carry water long before the levees or riverbank overtops. Our modeling does not accommodate that. Although, some of the solutions that we are proposing address those issues.

**4. The 2018 meeting notes stated that some attendees supported the idea of creating a reservoir to mitigate floodwater on public property upstream of the study area, such as U.S. Forest Service land. That strategy might serve another purpose, as well. In the City of North Bend and in the unincorporated areas, the water purveyors are water challenged right now. Instream flows are constraining the ability to pump water; groundwater is used for our tap water. If we had a reservoir that could mitigate floods, it could also serve the purpose of mitigating instream flows over the entire course of the year. Is that idea from 2018 still alive?**

There have been a handful of historical efforts to evaluate reservoirs in the Middle Fork watershed. An effort like that is not only beyond our jurisdiction it is highly unlikely for reasons varying from seismic concerns to regulatory requirements. Following the 2018 outreach efforts, we considered the concept of micro storage opportunities, such as side channel enhancement and floodplain reconnection. We found that for reducing peak flows, that type of project does not provide enough storage to make a significant difference during large flood events, so is not

viable for flood risk reduction. There is interest, however, in those kinds of projects from salmon recovery groups and the Snoqualmie Valley Preservation Alliance (SVPA), for a variety of different objectives. Absent a very large dam—which is determined to be cost-prohibitive and not feasible in this environment—we concluded you could not get enough water storage to make a difference during large floods.

5. ***When you get the cubic feet per second rate from the Tanner gauge, that doesn't necessarily tell you what the volume is. It only tells you what the rate is, because the volume is impacted by where it spreads out to, and that is different every time. Do you have any way of assessing or translating cubic feet per second into the actual volume that is moving per unit time?***

Yes. It sounds like what you are describing is that the flow near your property can have different characteristics at different times even when the gage reading at Tanner is the same. The Tanner gage measures discharge, which is a flow volume per unit time. Those of you who live near the river know that the discharge during a flood event is just one measure of that flood event. Other important metrics include what the flows were like before the flood started, what the groundwater was like before the flood started, and how long that flood persists. Does it come right up and come right back down? Or, does it go up and stay up for a long time? Those really have different impacts. So, that discharge rate at the gage is just one of the metrics.

6. ***You talked about your different models and 2D modeling. Do you think that if you ran the full hydraulic models that you would get much different outcomes? Because, that is literally a dynamic model, right? Does that differ much from the models that you are using, in terms of outflows?***

The 2D model that we used is a dynamic finite difference model. It has different elements that allow flows to go in or out in eight different directions from a cell. The FEMA regulatory modeling this area, mentioned previously, that is used to establish insurance rates, utilized cross-sections to establish the model geometry. It is a relatively simplistic view of topography. The 2D model is higher resolution and uses different resolution for cells in different parts of the landscape, and it allows for flows to travel in many different directions. In those ways, it is a relatively more informative way of understanding floodplain flows. In the channel, flow is mostly going down the channel. It is when things get out on the floodplain, or maybe the flows are following different side channels or features, that is when the modeling that we did really helps us understand the flows better.

7. ***Does it use topographic information?***

Yes. The 2D model includes topographic information.

8. ***Project B in the CIS, Channel Monitoring and Sediment Management Program - Can you explain what exactly you are monitoring and how you are monitoring?***

We survey the channel bed in cross sections and we also survey with a more comprehensive survey technique called LIDAR. This allows us to get a topographic surface of the channel bed to better understand gravel bar changes.

9. ***Project C in the CIS, Property Acquisition - What is the probability of properties being condemned or taken?***

It is highly unlikely eminent domain would be used for any of the proposed projects. We are providing a way to acquire properties at risk of severe channel migration from willing sellers.

**10. I live near the Mason Thorson Extension Levee and I know that the Army Corps of Engineers has been doing maintenance on the levee within the last ten years or so.**

The Army Corps of Engineers may have done repairs in the last 20 years, but not recently. King County has done multiple repairs. The Army Corps of Engineers recently conducted inspections as part of the Army Corp of Engineers PL 84-99 program (project D in the CIS).

We conducted these recent inspections with the Army Corps of Engineers, and they are developing a deficiency action plan that will identify the different types of maintenance and improvements that may be required for these facilities to be eligible within the PL 84-99 program. Once we get that information, we will work with the FCD to determine next steps.

**11. There are several levees along this four-mile stretch, and since the Army Corps of Engineers certified these many years ago, to my knowledge there has been no maintenance on them at all. Do you have plans in this study for maintaining them, take them out, or just let them be?**

To our knowledge, these levees were never certified. In terms of maintenance, the County has done multiple repairs on both the Mason Thorson ELLs and Mason Thorson Extension levees over the last few decades, costing about \$1.5 million. There are damages to those levees this year from the recent flood events. We are evaluating making repairs to those facilities, in the relatively near term, while we figure out whether there are other modifications to do.

**12. When levees get older, they have bigger trees in them. Some say that it is good to have those trees and others say that it is not so good.**

The Army Corp of Engineers criteria for eligibility in the PL 84-99 program, for a period, would make a levee ineligible in the program if large trees were present. Since 2014, the presence of vegetation on a levee is no longer a criteria that would make a levee ineligible to participate in the program.

**13. Project C in the CIS, Property Acquisition - How likely is it you will spend the \$8.4 million buying homes? And how would it be reallocated if nobody wants to sell?**

That money has not been authorized by the FCD. That is an estimate of the total cost that would be required to purchase the 18 homes. The current funding is \$570,000. That is funding to cover the appraisal and negotiation process. As homeowners agree to sell their property to the County, we would go back to the FCD for parcel specific authorization to cover that acquisition.

**14. Project E in the CIS, SE Mount Si Road - The road approaching that bridge goes underwater.**

In any projects like that, we cannot change the flow conveyance without understanding what is happening on neighboring properties. We would not open the road approach and transfer flow onto a property that does not get it now. There are regulations and best management practices that the County takes to make sure that we do everything we can to not have impacts on neighboring property.

**15. Project H in the CIS, Mason Thorson Extension - If you did go forward with that type of project, would there be mechanisms in place to monitor sediment? We have had those channels open before and have had sediment deposits.**

Yes. Monitoring is an important part of our capital project process. Ongoing channel monitoring at this location will be completed as part of the Channel Monitoring and Sediment Management Program (project B in the CIS).

**16. Project J in the CIS, 428<sup>th</sup> Ave SE – Would you cut and fill?**

If you want to raise a road in the floodplain with fill, you must remove a similar amount of material someplace else at a related elevation, in a way that is hydraulically connected. The last two projects in the CIS (J and K) are related because they must be conducted at relatively the same time, so that fill for the road can be offset by the removal of fill from the flood protection facilities that no longer protect infrastructure.

**17. My understanding is that you must pay to maintain those flood protection facilities (project K in CIS). Would it make sense to just stop doing that?**

We inspect the facilities at least every two years, but we have not done a lot of maintenance to those facilities in recent years. We prioritize repair damages based on the condition of damages and the infrastructure the facilities protect.

**18. Project K is a good idea and might be a high priority. But once you do that, it is going to impact everything upstream. For instance, in terms of the sequencing of events, it being the last thing on the list does not make sense to me. It seems like it would make more sense to do it earlier because it is going to impact the Mason Thorson Extension and the Mason Thorson Ells levees and sediment all along the way. It may take out some of the sediment that you are worried about.**

We think this area is another flow constriction point in the river. We need to have a better understanding of the sediment patterns that are occurring right there. So far, we do not see a lot of immediate flood risk reduction benefits. What you keyed in on may influence channel forming processes, and if that is significant enough, it could have upstream impacts. The actual flood water impacts of making modifications here are not as likely to translate that far upstream.

**19. Project J in the CIS, 428<sup>th</sup> Ave SE - It seems that this season, even with all the work you did just north of the Middle Fork Bridge, that stretch of 428<sup>th</sup> Ave SE between the North Fork Snoqualmie River was more impacted than the length of area you are showing.**

Yes, it does go under water earlier. There is a bank protection structure to protect the North Fork Bridge. Those roads go under water sooner, which is why we are sequencing it this way. We want to address the overtopping there. We do not want to create a dry road that takes you to wet roads. We want to figure out how to get those roads elevated and drier, and then provide better access to them.

We are working with the King County Roads Service Division to look at potential modifications to the North Fork Bridge to improve conveyance through that bridge, which will lower water surface elevations upstream of the bridge, which cause that overtopping. Then, if we can, there are other materials we can take out in that vicinity for raising those roads.

**20. What elevation will 428<sup>th</sup> Ave SE be raised up to?**

The extent and elevation of the road modifications would be determined during the project design process. Part of this consideration will be working to understand what flow conditions roads can remain dry under.

**21. You didn't talk a lot about the potential for dredging the channels.**

There will not be extensive dredging of the main channel. Targeted sediment management at the two locations where we know there is sediment accumulation right now could happen as

part of those two projects in the medium term--the Mason Thorson Ells and Mason Thorson Extension levees (H and I in the CIS). Sediment management or dredging could be a component of those projects.

#### **Comments Provided at the Meeting. If Related to a Specific Question, a Number is Provided**

***#4 - There was a study in the 1960s by the Corps of Engineers that was looking at potential dam sites in the Middle Fork basin. Due to seismic concerns, it was determined that there was not really a feasible site for it.***

***#4 - It may have been the 1980s when the City of Bellevue studied Big Wood Dam, which is also in the basin. That was for water supply and to try to build a new dam anywhere is going to go over like a lead balloon.***

***#21 - In 2011, floodwaters went over 428<sup>th</sup> Ave SE. I know because it goes through our property. It moves very fast there, which would make me concerned if that flow was blocked. What is going to happen is it is going to build up and flood properties on the river side Project E in the CIS, SE Mount Si Road - There is an easement and there used to be a bridge, until logs took it out, right at the corner. It's not on your map, so you will have to extend your 4 miles to 4.5 miles. You could put a bridge there if you want to keep people from being isolated, if you can't do anything with the road down here. You own the land. And, if you constructed correctly, you won't have logs taking it out.***

#### **Additional Written Comments Provided at the Meeting or Submitted after the Meeting**

- Put more emphasis on public recreational access to the levees when you make major improvements.
- Consider a bridge from Tanner Rd to Mt Si Road.
- Curious about evaluating risk reductions at both Mason Thorson structures concurrently with evaluating PL 84-99 eligibility. Is this conflicting?
- Curious about buyouts and home elevations – is FEMA funding available?
- Seems that Project K could be done quickly and easily and could “bank” compensatory storage for Project J.
- Curious about the percent of road funding for Projects F or J.
- Home elevations – if only a small number get done each year, perhaps the money would have a bigger impact elsewhere.
- Could the gravel and cobbles in the channel be mined and thereby increase the water carrying capacity of the river and reduce the potential for channel migration?
- Stop maintaining revetments (Project K) that don't make sense while planning how to remove them.
- Worried that elevating 428<sup>th</sup> would increase water level on the river side of the road.
- Sediment hasn't been depositing recently. Last time was 2008, 2009 and 2011, but not since.
- Good work. I like the direction you are going and feel you have a good “comprehensive” strategy to address the broad range of impacts.
- This is perhaps too much money to spend on flood and channel migration issues.