King County
Raging River Channel Migration Zone
Draft Study and Map
Public Meeting Report
August 22, 2019

King County held a public meeting on the draft Raging River Channel Migration study and map on Thursday, August 22, 2019 from 6:00-8:00 p.m. at the Preston Community Center. Thirty-eight people attended the meeting, which began with an informal open house period to review the draft CMZ maps, study methods and technical information, and ask questions of project staff.

Background

The King County Department of Natural Resources and Parks (DNRP) recently completed a draft Raging River Channel Migration Zone (CMZ) study and map. The CMZ map identifies areas along the Raging River subject to channel migration hazards. The study and map were developed using information from existing studies, evaluation of historical and present conditions, field observations, Light Detection and Ranging (LiDAR) and analyses in a Geographic Information System (GIS).

The map is intended to reduce risk to the public by serving as the basis for regulating land use in CMZ areas within unincorporated King County; the map will also help property owners make land use decisions. Additionally, the CMZ study and map will inform development and implementation of the King County Flood Control District's (District) programs and projects to reduce flood risks along the Raging River. Preparation of the CMZ study and map is required by state law, specifically the Washington State Shoreline Management Program (WAC 173-26-221).

The River and Floodplain Management Section (RFMS) within the Water and Land Resources Division (WLRD) of DNRP will review comments received on the draft CMZ study and map and may revise the CMZ study and map based on comments and other information, as appropriate.

WLRD is the service provider to the District, and as such implements the District's work program, including the preparation of flood hazard studies and mapping. The final Raging River CMZ map will be adopted by King County's Department of Local Services (DLS), by amendment to the King County Channel Migration Public Rule. Public comment on the draft CMZ study and map and on the proposed amendment to the channel migration public rule is being accepted through October 6, 2019.

Meeting Summary

The formal part of the meeting began with introductions of county staff and District Board Supervisor Lambert who provided opening remarks. Jeanne Stypula, managing engineer with RFMS, provided general information about channel migration mapping in King County followed by a technical presentation by Jeremy Bunn, a licensed engineering geologist with RFMS who prepared the Raging River draft study and map. This was followed by a presentation from Steve

Bottheim, a licensed engineering geologist from King County DLS, who gave a brief overview of CMZ regulations and described the process by which the channel migration public rule will be amended to adopt the Raging River CMZ map. Jeanne Stypula and Chase Barton, a supervising engineer, also with RFMS, joined Jeremy Bunn and Steve Bottheim for the question-and-answer portion of the meeting. After the question-and-answer period, attendees were invited to talk individually with RFMS and DLS staff to learn more about the mapping process.

The PowerPoint presentation is posted on the King County website at www.kingcounty.gov/floodmaps, along with the complete *Draft Raging River Channel Migration Zone Study and Map* document.

Summary of Comments, and Questions and Answers
What follows is a summary of the questions, answers, and comments posed during the meeting.

Q=question, A=answer or response, C=comment

Q1: What does the valley wall mean?
A1: The valley wall is the edge of where the river has been moving around in recent history. The valley wall is the point at the toe of the slope that is going up the hills on either side of the river where it meets the relatively flat river bottom or valley bottom.

Q2: Did the project geologist walk entire river?
A2: Yes, the entire river was walked by the project geologist.

Q3: Will the 1991 CMZ map be shared tonight?
A3: Yes. [That information was shared later at the meeting].

Q4: Why does the study not consider the dike [the levees between the 328th Way SE bridge and the Snoqualmie River] to be a suitable barrier? What is the specific reason for excluding it?
A4: The levees failed certain criterion in the rules, code, and procedures that have been developed to map the CMZ. A structure that isn't a railroad, a sole access road, or a state highway, for example, isn't automatically considered a barrier. A barrier has to be built to modern engineering standards. The project geologist investigated the construction of the structures as best as possible, and concluded that the levees were not built to the robust standards as they would be built today. The history of levee repair efforts along the Raging River, and the bulk of the County repairs, on are in the Fall City section. The levees were not built to modern engineering standards, which is the primary reason. The levees were built in around 1938; they are more degraded, older, and probably the levee cores about which the least is known. There is a fair amount of uncertainty regarding how stout they are.

Q5: As a result of the draft map, will King County offer any protection, either to put up barriers or provide financial support for retaining walls?
A5: King County generally doesn't provide structural protection for individual property owners. The information collected is used to identify the need for flood risk reduction projects and propose capital projects where benefit can be realized by a multitude of property owners. New capital projects are proposed to the District annually for their consideration in relationship to the other flood risk needs in the county.

Q6: Will people be allowed to put in flood barriers on their property?

A6: The code allows putting in flood barriers if a house is jeopardized and it's an emergency (imminent within the next three years). The project cannot impact neighbors upstream or downstream, and the project must meet DLS permitting requirements, but it is allowed.

Q7: Was LiDAR completed for the whole valley?

A7: Yes. The 2017 LiDAR from the mouth of the river to well above the upper boundary of the study was used for this study.

Q8: How are the LiDAR maps accessed?

A8: The King County GIS center maintains LiDAR aerials and stores them in the GIS center; they are available on iMap. Also, older LiDAR data (2016) can be accessed on iMap here: https://www.kingcounty.gov/services/gis/Maps.aspx

Q9: If the study identified a property at imminent and potentially catastrophic risk of bank failure, what would be the first step to mitigate to make sure the worst case doesn't happen? Could someone [from the county] walk the site and see if there is a legitimate risk?

A9: To get a clear understanding of the extent of the mapped channel migration hazard on a specific property and what that might mean, a property owner would need to get their own geotechnical expert to consider the specific parcel area, soil properties, etc. and then consider that advice. Whatever the recommendations, property owners would want to talk with Steve Bottheim and the DLS-Permitting Division to consider options that are allowable before taking any action.

Q10: The County geologist has completed geological work but property owners have to get someone to do the same work?

A10: The study is a reach scale assessment, and there is some uncertainty in doing such a large scale analysis that cannot be addressed without conducting a site scale investigation. That is where a consultant would come in. However, a first step would be to fill out a form to request a site specific map. The staff geologist can review the map with the property owner and see if there is something to be investigated.

Q11: Is it OK to take gold out of the Raging River?

A11: The Washington State Department of Natural Resources (DNR) regulates mining; contact DNR for information.

Q12S: Since the levees were built in the 1930s there hasn't been flooding over the Dike Road. So although the levees were not built to today's standards, they have kept flood waters in the channel. Why can they not be considered barriers??

A12: The section below 328th is a continuous levee system. There are two ways the levees did not meet standards to be a defined as a complete barrier to migration that did affect the mapping.

1. To determine the erosion setback from the current channel or where it has ever been you take erosion rates measured over time and average them for that reach. Because

the channel after 1938 didn't move much, erosion rates are very low and erosion setbacks are very small.

2. The structures are there and have restrained the channel since they were built. Though they are not sufficient to be a barrier according to current CMZ mapping criteria, all areas landward of the levees are delineated as a moderate hazard. Technically any area in the Historical Migration Zone (HMZ) is a severe CMZ but because there is some reason to believe the levees have some influence on the likelihood of channel migration, everything landward was delineated as moderate.

Q13: Why not just bring the revetments up to standard?

A13: This study is the first step in considering such a situation. Understanding the type of flood and CMZ hazards is the first step to understanding how to work with the river, and what would be the most appropriate way of looking at a future rebuild of the system.

Q14: Is the County considering bringing them up to standard?

A14: A planning process to develop a capital project in this area is not currently underway. Repairs have been implemented.

Q15: But there are capital projects in the plan to try and acquire properties adjacent to the revetments and remove the revetments for fish; for example, the area below 328th bridge.

A15: The 2006 King County Flood Hazard Management Plan, and 2013 update, characterize the needs in each river basin. There are no acquisition related targets identified in this study or maps.

Follow-Up Note: Following the formal presentation, RFMS staff had an opportunity to talk with the questioner. The question about possible property acquisition near Fall City is related to the King County Land Conservation Initiative (LCI) and is not a risk reduction project. Please see the LCI website for more information: https://www.kingcounty.gov/services/environment/water-and-land/land-conservation.aspx

C16: The Twin Rivers Golf Course is being acquired by the county as mitigation.

A16: The potential Twin Rivers Golf Course acquisition is not related to the CMZ hazard and the studies.

Q17: Why isn't the revetment improved?

A17: CMZ hazard information is considered by King County to identify risks and identify potential, future capital projects; this study is first step for considering that.

Q18: A geotechnical survey was conducted on the Dike Road, how is it not known what the Dike Road is constructed of?

A18: This study didn't include gathering geotechnical borings or test pits to understand what the levee is made of and how sturdy the material is. The assessment was conducted on a reach and geomorphic scale; information on what the materials are was not gathered as part of this assessment. It would require an extensive investigation like drill cores, and that sort of a site specific investigation is beyond the scope of this mapping project.

C19: As a property owner along those eight miles of levee, common sense dictates that a geotechnical investigation should be done.

A19: Geotechnical investigations of that kind would be part of a different process. It doesn't mean it will not or cannot happen, it's just was beyond the scope of this study. RFMS staff made note of this point.

Q20: What effect will the Raging River have on Preston Park, and is there a risk of changes, or decreased land areas?

A20: Staff suggested looking at that during the open house portion of the meeting.

Q21: Are the 1936 aerial photographs, mentioned earlier, on the iMap system?

A21: Yes, but they aren't available in all locations; they might not show everywhere. If you don't see them, contact RFMS staff and they can be made available.

Q22: What would a levee repair cost on this levee?

A22: It is difficult to guess, but to rebuild the lower sections would be tens of millions of dollars.

Closing Statement: District Supervisor Lambert commented that the District was formed in 2008 and now receives $60 million a year. Prior to that there was only $3 million in the county budget for this type of work.. There is a bigger need than $60 million for projects throughout the county. Getting on the priority project list will get projects into the queue. The District Website (http://www.kingcountyfloodcontrol.org/) shows what is in the queue in our District (District 3) and in all nine Districts countywide. While individual property protection by county staff would be considered a gift of public funds, the research they did on the reach scale for this draft study and map will be very valuable for the person hired by an individual property owner. Also LiDAR has good accurate data that will help.