

To: Executive Committee, King County Flood Control District

From: Reid Brockway, Sammamish HomeOwners
Board of Directors, Washington Sensible Shorelines Association

Date: July 14, 2020

Subject: Willowmoor Floodplain Restoration Project - Dynamic Weir Analysis

This is a follow-up to a memo Reid Brockway sent to the Executive Committee dated March 8, 2019 concerning a key problem – extreme flooding of Lake Sammamish in peak inflow events – that the Willowmoor-sponsored Preliminary Dynamic Weir Analysis Technical Memorandum (DWA) did not adequately address. Subsequent to that memo an addendum to the DWA has been released, dated June, 2020. This is to convey our assessment of that addendum. The bottom line is that the treatment of the peak flooding problem is still not adequate.

In our assessment, there are various problems with this revision, but the principal one is that the analysis still misses the point. It focuses on reducing the number of days per year the average lake level is above certain elevations – 27, 28 & 29 feet NGVD. But it is primarily not average lake level that produces the damage to the lakeshore, it is peak level events, like the one in February of this year. Then the level went to over 31 feet and rose about 3 feet in four days¹. That is the problem that needs to be solved, and (as acknowledged on the second page of the Addendum) the analysis does not address it.

Other related shortcomings of this analysis are as follows:

- It does not define how far in advance of a forecast heavy rainfall event a draw-down of the lake would need to be started.
- It does not define how much extra release of water such draw-down would need to accomplish.
- It does not adequately consider what design options exist (e.g., motorized gate) for a remotely operated dynamic weir and what additional release volumes they could achieve.
- It assumes lake draw-down must be limited by constraining flow in the Sammamish River downstream of Bear Creek so as to prevent flooding of downtown Redmond and Redmond's regional water quality facility. Thus an unstated tradeoff is being made between the consequences of such flooding in Redmond and damage to lakeshore

¹ This is easily seen in lake gauge data at:
waterdata.usgs.gov/wa/nwis/uv?cb_all_62614=on&format=gif_default&period=120&site_no=12122000

properties. Measures to protect Redmond's interests, such as dredging or construction of a dyke, are not considered.

We do understand that an RFP has been issued for an independent third-party review of the DWA. However, based on review of that RFP, the key problem of peak level control will likely remain unaddressed.

The central task in that RFP, Task 1, is stated as follows:

Review Analysis and Design Elements for the King County proposal

The Consultant will review the King County alternatives to evaluate the efficacy of weir design, including remotely operated dynamic weir design, flood risk reduction, and fish habitat.

This appears to limit consideration of weir design and operation to what the County has already proposed, which we know is inadequate. Consequently the third-party review will likely conclude that a dynamic weir, as the DWA currently envisions it, is not going to do much good.

An independent assessment should require the consideration of alternative designs and an accompanying operational strategy for reducing lake level in advance of forecast high rainfall periods that achieves an objective of keeping the level from going above a specific, defined threshold. Short of that, the ongoing damage to lakeshore properties due to extreme high water and wind events will continue to occur.