To: Executive Committee, King County Flood Control District

From: Reid Brockway, Sammamish HomeOwners

Date: March 8, 2019

Subject: Willowmoor Floodplain Restoration Project

This is to highlight what I believe to be the most pressing issue concerning Sammamish River flood control and the Willowmoor project. It is a problem with a solution, achievable with active flow control via a dynamic weir.

I am a lakeshore property owner, board member of the organization Sammamish HomeOwners, whose constituents are lakeshore property owners in Sammamish, and an alternate for the Willowmoor Stakeholder Advisory Committee.

As one concerned about damage from high water levels on Lake Sammamish, it is gratifying to see that Willowmoor is at least considering active flow control via a dynamic weir. However I have studied the project's Preliminary Dynamic Weir Analysis Technical Memorandum (DWA) and find that it does not address the root problem.

Quite simply, the outflow from Bear Creek during heavy rain event periods, combined with an unrestricted outflow from the lake, will exceed the capacity of the river. As the DWA states, the capacity of the river channel is something in excess of 1500cfs[1]. The flood control project was constructed for a "design flood" of 1500cfs out of Lake Sammamish[2]. However, the DWA itself acknowledges a peak inflow into the lake of 2900cfs for a mid-winter event[3]. That water must be released or the lake will rise rapidly. And Bear Creek watershed modeling estimates a flow from the creek of ~1200cfs in a ten year event[4]. Thus the contributions from the two outflows add up to multiples of the figure that is being used to describe the capacity of the river. The DWA simply does not address this basic problem.

Three solutions seem feasible.

One is to dredge the Sammamish River to increase its capacity. Another is to buffer the water in the Bear Creek basin so as to reduce the creek's peak contribution back to something like the 300cfs it historically produced. Clearly, both are outside the scope of the Willowmoor project, but should be considered as part of a long-term solution.

The third solution is to buffer the water release from Lake Sammamish such that the lake contribution, combined with Bear Creek's, does not exceed the capacity of the river, ***but*** – and this is key – at the same time holding the lake level to below where shoreline damage occurs. The way to accomplish this is to significantly lower the lake level in advance of major storm systems by temporarily releasing more water through the Transition Zone.

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[1] Preliminary Dynamic Weir Analysis, Section 6.1, page 20

[2] CofE 1965 Sammamish River FCP Operations and Maintenance Manual, para. 1.5 b.

[3] Preliminary Dynamic Weir Analysis, Table 7

[4] Bear Creek Watershed Management Study, April 4, 2018, Table 39 and para. 5.7

So how to do that?... Not the way the current weir analysis proposes.

The weir is basically a low dam. Nothing we can do to it ***above*** its current height (sill height 26.5 ft NGVD) will increase flow from the lake. Once the lake is high enough to be over the dam we need a much bigger "hole in the dam" to rapidly drain or suppress the rise of the lake. Plus the proposed side channel could help some. But the alternatives set forth in the DWA will not be nearly enough during these high flow times, the lake will continue to be over-filled, lakeshore properties will continue to be damaged unnecessarily, and the river will flood.

When very wet storm periods occur the lake rises by feet, not inches. But for the three proposed control alternatives in the DWA the ***maximum*** benefit achievable is .12, .20, and .42 feet, respectively[5]. That is only 1½ to 5 inches and is grossly inadequate. The lake level needs to be lowered by ***feet*** in advance of major storm events in order to provide enough buffering for the capacity of the river not to be exceeded. The proposed alternatives do ***not*** solve the root problem.

We were told that this "preliminary" analysis is now intended to be the only analysis. That should be reconsidered. A real solution to handling peak water events is needed. The county may assert that it cannot take responsibility for actively managing lake level. I would argue that it cannot ***not*** accept that responsibility; this is a problem that must be solved. Flood control was the primary purpose for the Sammamish River project and that purpose has not gone away.

[5] Preliminary Dynamic Weir Analysis, Table 9