Lake Forest Park Stewardship Foundation

Helping to preserve the extraordinary natural environment of the City

Lake Ballinger Watershed Forum
Hand Delivered

March 24, 2009

Re: Technical Memoranda No.'s 1 & 2

Recommendation:

Revise Technical Memorandum No. 2 to integrate the newly proposed and/or modified solutions, discussed below, into the proposed projects for consideration by the forum. Although the same ranking system was used in this effort, the rankings should be reviewed by OTAK, Inc. and the technical advisory committees. The Forum should not take any further action until these new and/or modified projects have been evaluated.

Background:

OTAK Technical Memorandum No. 1 (TM1) states the following:

> "It can be seen from the water balance of the watershed area, as presented in the above chart, that the amounts of evapotranspiration and groundwater in the forested water balance have decreased as the watershed has changed to its present state of development. This is due to the removal of the native vegetation and soils and an increase in the amount of impervious area. Note that the amount of surface water runoff under developed conditions has significantly increased, and has resulted in about a 40 percent increase in surface water runoff entering the lake under existing conditions.
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> In numerically comparing the forested and existing land use water balances in Table 1-5, it can be seen that the largest change in flow to Lake Ballinger is the addition of 3,933 acre-feet of impervious surface runoff and the reduction of 2,134 acre-feet of evapotranspiration and 1,790 acre-feet of groundwater. This means that today Lake Ballinger receives 43 percent more total inflow than it did prior to development of the watershed and that the flow of surface water runoff into the lake is much faster—both conditions contribute to lakeshore flooding."

In light of this information it is very disappointing that only two of the high-priority projects recommended for implementation at this time deal with limiting the in-flow into Lake Ballinger when this inflow accounts for approximately 43% of additional surface water entering the lake.

Discussion:

For a variety of reasons, a number of potentially important projects that could reduce stormwater runoff and improve water quality were not addressed or were glossed over in the current draft of Technical Memorandum No. 2 (TM2).

A group of citizens in Lake Forest Park met and developed a number of additional and modified solutions to limit the stormwater runoff into the upper and lower reaches of the Lake Ballinger Watershed and to improve water quality. These recommended additional solutions have been ranked and provided to OTAK, Inc. We provided a revised Table 1, Watershed Goals, Issues, and Causes as well as revised Short Term, Mid Term, and Longer Term Potential Action tables. These solutions fall into several general categories:

1. Establish runoff reduction targets for each jurisdiction in the watershed. These rates should be expressed as a percentage of the runoff rate from mature forest. All jurisdictions, except the presently best detained, should retrofit within 6-years to meet the rate of the jurisdiction with the lowest existing runoff rate, and thereafter all jurisdictions should lower their runoff rates by 2% per year. The ultimate goal would be to reduce the rate until they reach the runoff rate of mature forest.
2. Implement uniform, mandatory LID ordinances in all jurisdictions. Use LID techniques in development and redevelopment of residential/commercial and municipal infrastructure. Provide incentives for on-site systems such as bioretention, rain gardens, vegetated swales, vegetated filter strips/buffers, infiltration trenches etc. to reduce runoff, decrease runoff temperatures, remove pollutants.
3. Improve existing stream channels in Hall and McAleer creeks. Purchase property (or work with homeowners) where flooding or erosion/degradation is occurring. Reverse stream channel degradation by terracing, removing invasive species, and planting native vegetation and trees to stabilize banks and slow flows. Increase the size of stream buffers. Where possible, create low elevation flood plains, of at least three times the stream width, to slow the velocity of stream flow at flood stage. Purchase enough properties adjacent to Hall Creek and McAleer Creek near Lake Washington to make these improvements. Install sufficient large woody debris in the streams to make the channel surface area become 50% riffle and 50% pool. Restore wetlands where practical.
4. Minimize pollution sources in the watershed. Eliminate human and pet excrement; yard runoff, including fertilizers and herbicides; road runoff, and excessive wildlife populations. Demand and facilitate action by appropriate jurisdictions to eliminate water pollution to the maximum extent possible.
5. Remove barriers to passage for salmonids, for the length of McAleer Creek to restore healthy habitat. Remove at least 21 fish-passage barriers to allow upstream passage for spawning, and fingerling migration downstream. Replace culverts where possible with bridges. Replace remaining old culverts with fish-friendly culverts. See Culvert Project on Wilcox property at 17012 35th Ave. NE in Lake Forest Park.
6. Purchase enough properties around Lake Ballinger within 100-year floodplain area and replace with native vegetation, trees to create additional stormwater detention and widespread infiltration using larger absorptive buffers and wetlands. Allow for increased lake levels above the present storm elevations, to allow for adequate detention. Convert area to open space/recreation.
7. Construct additional regional infiltration facilities above Lake Ballinger in advance outwash soils.

8. Use education and incentives to minimize nutrient contribution to waters in the watershed. Encourage homeowners, local groups, and businesses to use natural alternatives to fertilizer, and then only the minimum amount necessary. Control entry of pet and animal waste and toxic chemicals into stormwater and creeks.
9. Redesign the Lake Ballinger outlet weir to maintain summer elevation, and to allow winter elevations to store stormwater by temporarily raising the lake surface level and increasing the lake's surface area into the floodplains. Adjust weir height to even out and minimize outflow from Lake Ballinger. Design weir to allow slow ramp up of discharge rate during storms to 60 CFS and to rapidly decrease discharge rate to 30 CFS or less after storms.
10. Create incentives and/or implement ordinances to replace impervious surfaces with pervious alternatives throughout watershed. Provide public education to increase knowledge of costs of conventional stormwater facilities and increase support for other alternatives.
11. Create public information and incentive program to reduce urban pollutant load (toxics) on waters in Lake Ballinger watershed. Provide incentives to stream-side property owners to replace lawns with native plantings, use a minimum amount of non-toxic products, remove armored stream banks, improve functions of stream and wetland buffers, replace lawns that extend to the streams with vegetative buffers, and remove invasive species.

The high flow by-pass techniques recommended to remove high flows from Lower McAleer Creek can only exacerbate the damage to fish occurring presently in Lake Washington from the toxic chemicals, fecal coliform bacteria, and other contaminants. The focus of TM2 and previous efforts has been to increase the capacity of creeks, culverts, and other conveyances. This does not adequately address water quality issues or improve the habitat for fish in Lake Washington and its tributaries.

In addition, it is highly questionable whether significant amounts of State, County, and local funding should be spent to protect 3 private homes from flooding without gaining additional long-term benefits. These homes should be purchased, removed and replaced with a natural riparian zone. This will eliminate the current flooding problem on the lake and contribute to the control of downstream flooding.

While it is likely that natural solutions cannot solve all of the stormwater runoff and flooding problems, they can contribute significantly to reduce further increases in inflow into Lake Ballinger and McAleer Creek. In any case, for stormwater control and water quality reasons these natural solutions should be pursued in parallel with any engineered solutions that are contemplated. Had the ranking system included more environmental considerations, some of these solutions would have compared favorably with the high priority solutions presently included in TM2. Implementation of various natural solutions should begin immediately and continue to be implemented indefinitely. They can help and they do no harm.

We commend the Forum for its leadership in identifying and researching the causes of the long standing water quality and surface water runoff problems in the Lake Ballinger Watershed. In developing potential solutions, we trust that you will emphasize natural solutions. We look forward to working with the Forum and the individual jurisdictions to continue the work that we have begun in Lake Forest Park to improve water quality and mitigate the effects of stormwater runoff.

Sincerely,

Stephen P. Plusch, President