



## MEETING SUMMARY AND NOTES

Sweeney Lake TMDL Technical Team

April 23, 2009

9:00 am

Golden Valley City Hall

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The original agenda items are listed in plain text. *Meeting notes and additions to the agenda are in blue italic text.*

I. INTRODUCTIONS. *(see attached sign-in sheet for list of attendees)*

II. MEETING OBJECTIVES

- A. Inform Group of TMDL work to date
- B. Identify load reduction strategies
  - 1. In-lake – internal loads
  - 2. Watershed – external loads
- C. Identify implementation strategy
- D. *Set date or schedule for Public Meeting*

III. TMDL WORK TO DATE

*A brief summary of work to date was given, with some additional discussion to get the new MPCA staff and others relatively new to Sweeney Lake key issues more up to speed. Discussion involved overall background of the project and history of work by the commission and Golden Valley dating back to the early 90's. Discussed use of the aerators and that one of the critical issues regarding this TMDL workplan was to monitor the Lake without the aerators in operation during the growing season. Also some discussion about the second year of monitoring being required due to 2007 being a year with significantly lower than normal precipitation and runoff for most of the summer monitoring season, even though the heavier fall rainfall events in 2007 may make it look like a typical year overall. We also covered the fact that 2008 was better overall monitoring and gave us a second data point with which to calibrate the in-lake and watershed models to.*

- A. Public Meeting #1 took place March 29, 2007
- B. 2 Years of monitoring completed during the growing season – aerators turned off
- C. Watershed model (P8) updated
- D. Lake response modeling (BATHTUB and other)

IV. WATER QUALITY DATA

*Len and Keith presented information on historical and recent water quality data for Sweeney Lake. One of the plots shows the total phosphorus, chl-a, and Secchi disc data from 1972 to 2008. Tim Brown mentioned that the 2008 observations and date in Sweeney showing better water clarity were also seen in other lakes in Minneapolis.*

- A. Historical
- B. 2007-2008 data

## V. LOAD REDUCTION STRATEGIES

*The preliminary modeling results for both in-lake response and watershed loading were discussed, recognizing that the team is still in the process of verifying assumptions and updating and refining the models. Overall preliminary results indicate a significant internal load as well as continued external loading of phosphorus (P). Related to the external watershed load, the current system of ponds does a fairly good job of removing phosphorus prior to discharge into the lake. Related to internal loading, much discussion took place around the available data in an attempt to understand what the best options are for internal load reduction or management. It was suggested to look at a total mass balance of P in the lake during aerated and non-aerated conditions to better assess the options. This will be completed in early May.*

- A. Reduction targets (**PRELIMINARY**) – *Based on the preliminary computations, one point of discussion related to what level of P reduction would be needed if all load reduction were focused on either the internal or external sources. Results for both 2007 and 2008 were discussed and results show that an external load reduction on the order of 70% would be needed to meet the in-lake P concentration target. Looking only at the internal load, a reduction on the order of 45% would be needed to meet the in-lake P-concentration target. While the final plan will likely include both internal and external load reduction strategies, this assessment gives a good comparative tool to help evaluate the options as the process moves forward.*
- B. Internal loading - in-lake (*see following pages on individual items*)
- C. External loading – watershed (*see following pages on individual items*)

## VI. IMPLEMENTATION STRATEGY

*Talked about the Permitted MS4's that will be subject to the WLA and that will ultimately need to modify their NPDES MS4 Permit to comply with the TMDL. There are four MS4 with the watershed including (with percent of watershed area): Golden Valley (77%); MnDOT (14%); St. Louis Park (9%) and Hennepin County (<1%).*

- A. Categorical Wasteload Allocation (greater flexibility)
- B. Adaptive Management (*not discussed in any detail*)

## VII. WRAP-UP / NEXT STEPS

*We discussed setting a date for the 2<sup>nd</sup> Public Meeting and the desired updates and milestones needed prior to and immediately after the Public Meeting. The next key steps are the following:*

- 1. Smaller group meeting with key technical team members from Barr and SEH, Golden Valley staff Mayor and council member(s), lake residents. This meeting was subsequently scheduled for Friday May 8, 2009.*
- 2. Project update to the Bassett Creek Commission at the May 21<sup>st</sup> meeting.*
- 3. Public Meeting in early June, date TBD - possibly June 3<sup>rd</sup> or 4<sup>th</sup>.*
- 4. Plan to post a draft TMDL report to the project webpage on or about June 11<sup>th</sup>, a week before the June 18<sup>th</sup> BCWMC meeting.*

## LOAD REDUCTION STRATEGIES

### External Loads

*Each of the following items was discussed in terms of the advantages and disadvantages of each approach, with some specific details identified for some of the listed items. For example, Len discussed load reduction estimates of several implementation items that have been recommended as part of previous studies including dredging of Spring Lake Pond (23 kg/yr), Shaper Pond (18 kg/yr) and a series of four other ponds (15 kg/yr). It was understood by the team that things like infiltration and filtration would be an ongoing effort by the cities as well as looking at opportunities to improve shorelines and to continue to educate all stakeholders.*

- *Redevelopment standards and/or opportunities to enhance current treatment systems. The City of Golden Valley suggested that Barr evaluate whether the phosphorus removal efficiency of a series of ponds directly north of Laurel Avenue could be enhanced.*
- *Increase infiltration / filtration (volume control) throughout the watershed*
- *Street Sweeping improvements (locations, methods, equipment, timing) Discussed the aggressive program that Golden Valley is currently conducting on street sweeping. Need follow up with MnDOT on what their practices are.*
- *Ice control methods. Discussed what type of ice control is being used (sand, chemical or a mix).*
- *MS4 or watershed led retrofit projects. Continue to look for opportunities.*
- *Shoreline restoration*
- *Education*
- *Bank stabilization at the Laurel Street stream.*

### Internal Loads

*Significant discussion took place on the topic of internal load reduction options. Summaries for each item are provided.*

- *Hypolimnetic withdrawal. Odor issues. Lots of problems with some local examples.*
- *Hypolimnetic aeration [use / modification]. A number of potential complications.*
- *Aeration system management – limit circulation of nutrient rich waters. Discussion related to the advantages and disadvantages to aeration during the growing season. The mass balance load computation mentioned earlier will help to further resolve this question as well as the relation it may have to other internal load reduction strategies and associated costs. The group generally agreed that in any case continued winter aeration is not a concern and likely is a good long-term management strategy for the lake.*
- *Chemical treatment. Several options here including alum, Phoslock, activated zeolite and others to bind phosphorus in lake sediments and not allow phosphorus release during summer months or when oxygen is low in bottom waters. Some discussions on costs related to the preferred approach of in-lake treatment to inflow treatment, with in-flow treatment being on the order of*

*five times the cost of in-lake. Some issues with dosing rates and need to control the pH, but lots of data and experience available to make sure it meets the criteria.*

- *Fish population management [e.g., carp, bullheads]. Discussed recent work in area lakes related to carp effects on internal loads. While this approach may result in some limited improvements, it is not expected to be a significant factor in the TMDL implementation plan. That said, this topic will be addressed qualitatively in the TMDL report.*
- *Barley straw/corn meal applications were discussed briefly but determined to be fairly expensive and requires significant efforts for annual application and maintenance.*

## IMPLEMENTATION STRATEGIES

*Various options for allocating loads to the MS4 were discussed, including assigning individual loads and taking a categorical approach to the load allocations. MPCA staff indicated that the preferred approach could be to use a combination of the two like they have seen in the Golden Lake TMDL example. The approach would be to assign an individual load reduction target to MnDOT with using the categorical load for Golden Valley and St. Louis Park so that they could continue to work through the Bassett Creek Watershed Management Commission to implement the most cost-effective BMPs in a cooperative manner. While MnDOT was not in attendance, it was suggested they would likely support this approach as they have in other TMDLs. Because Hennepin County has such a small contributing area (<1%) of the drainage area, they would not likely be assigned a load reduction.*

### **Individual Load Allocations**

- Availability of data to accurately assign individual loads

### **Categorical**

- Where not enough data is available to assign individual loads
- Permittees agree to implement BMPs to Maximum Extent Practicable
- Allows for greater reductions for some permittees with greater opportunity and less for others