



Barr Engineering Company  
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6D.

## Memorandum

**To:** Bassett Creek Watershed Management Commission  
**From:** Barr Engineering Company  
**Subject:** Agenda Item 6D – Medicine Lake TMDL Update  
**Date:** August 14, 2009  
**Project:** 23/27 051 2009

### Recommended/requested Commission action:

1. Information only – no action needed

### Medicine Lake TMDL Update

Following the July 16 Commission meeting, two letters regarding the Medicine Lake TMDL were prepared and sent to the MPCA as directed by the Commission and recommended by the Technical Advisory Committee (TAC):

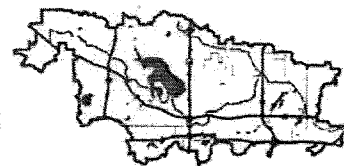
1. July 17, 2009 letter to Chris Zadak, MPCA (attached) – this letter contained the Commission's and TAC's comments regarding the June 12, 2009, Technical Memorandum summarizing the Medicine Lake watershed P8 modeling for the TMDL. No response to the letter has been received.
2. August 3, 2009 letter to Dale Thompson, MPCA (attached) – this letter requested additional details from the MPCA regarding the coordination and management that would be required for a TMDL with categorical waste load allocation versus a TMDL with individual waste load allocations. No response to the letter has been received.

The MPCA modeling consultant has been in contact with Greg Wilson (of Barr Engineering) since their June 25, 2009 meeting and they have been working to resolve the differences in the P8 model which was used to develop the concept plan for the City of Plymouth, West Medicine Lake Park Pond project and the Medicine Lake TMDL P8 model. A meeting is scheduled for Friday, August 14, 2009 at the MPCA to discuss recent modifications to the model and the results of those modifications. The conclusions of Friday's meeting will be reported to the Commission at the regular meeting, Thursday August 20, 2009. The resolution to the differences between the models and the modifications to the TMDL model has been delayed due to vacations of both the MPCA consultant and Greg Wilson.

The scheduled July stakeholders meeting was canceled by the MPCA and rescheduled for August 27, 2009.

# Bassett Creek Watershed Management Commission

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July 17, 2009

Mr. Chris Zadak

MN Pollution Control Agency  
Regional Division – Watershed Section  
520 Lafayette Road N.  
St. Paul, MN 55155

**Re: Comments on June 12, 2009 LimnoTech Draft Memo Regarding Medicine Lake TMDL P8 Modeling Summary**

Dear Mr. Zadak:

The Bassett Creek Watershed Management Commission (BCWMC) offers for consideration by the MPCA the following comments on the June 12, 2009 draft memo from LimnoTech summarizing the Medicine Lake TMDL P8 modeling.

1. The modeling and data suggest that watershed-wide efforts to reduce runoff could contribute to the improvement of water quality in Medicine Lake (and other water bodies), and the BCWMC will continue to invest resources and work with its member cities and others to determine the best way to achieve such reductions.
2. Continued reasonable efforts to refine the modeling to incorporate or reflect available data prior to finalization of the draft TMDL and implementation plan will result in a model that most effectively and reliably supports the efforts that will be undertaken to implement BMPs and stormwater management requirements to achieve TMDL goals.
3. The BCWMC requests the following information be provided, because it will be needed to continue the refinement of the model for its subsequent use for evaluating the proposed ponding at the mouth of Plymouth Creek and for tracking future BMP implementation:
  - a. Statistical analysis for the goodness-of-fit for the calibration and validation, if this analysis was completed;
  - b. A discussion of the approach that was used to calibrate the model, such as changes to the model inputs to optimize the match at all of the monitored sites, the weight given to specific sites, and whether the calibration was based on total phosphorus (TP) loading or flow-weighted mean concentration at each site;
  - c. Adjustments and parameters that were changed as a result of the validation runs;
  - d. A summary of the calibration results for total suspended solids (TSS), flow and dissolved phosphorus, if one was prepared;
  - e. The raw flow data and rating curves collected and developed by Three Rivers Park District;

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- f. A description of any review of the flow rating curves or other quality assurance measures that were completed for the small watersheds;
  - g. A discussion of any adjustments that were made in the evaluation of the proposed Plymouth Creek ponds to account for the additional sources and quantities of phosphorus (such as stream bank erosion and bed load) that are contributing to the increasing TP and TSS concentrations between the Industrial Park-2 and the Plymouth Creek sites, and the implications of these additional sources for in-lake water quality under existing conditions and for each of the improvement scenarios.
4. The memo also indicates that the TMDL model does deviate from data more consistently at the locations monitoring small watersheds, such as Medicine Lake-5 and Industrial Park-1, generally predicting higher phosphorus concentrations and loads. The disparity between the results from the calibrated model and the observed data when the spatial scale is smaller and subject to less uncertainty associated with multiple BMPs or conveyances is significant.
  5. The results of the FLUX modeling from 2006 show that there was a TP load of 2,235 lbs observed at the Plymouth Creek site. If there were a perfect match between the modeled and monitored TP and dissolved phosphorus fraction, it appears that there could be between 450 and 670 lbs of additional particulate phosphorus that would be subject to additional treatment by the proposed ponds. In addition, the calibrated model currently under-predicts the observed TP load at the Plymouth Creek site by approximately 400 lbs during the 2006 sampling period. This would have another additive effect on the disparity between the two modeling efforts. Based on these additive effects, a revised estimate for the load reduction provided by the proposed West Medicine Lake Park Pond would be significantly higher than the TMDL model estimates.
  6. As discussed in the memo, the assessment of phosphorus reduction scenarios was completed to identify the limitations of various BMPs if they were implemented watershed-wide. In addition to the limitations of the various BMPs to reduce nutrient loads, there are also limitations to implementing the BMPs due to conditions such as the developed condition of the watershed, high groundwater levels and tight soils. The implementation plan will need to consider these limitations and provide for a flexible approach to achieving the needed load reductions. The existing water quality improvement policies of the cities in the watershed have required new development and redevelopment to implement BMPs to improve the water quality of surface water runoff since the early 1990's. As a result, several hundred BMPs have been constructed at development sites in the watershed. This will continue into the future and more stringent water quality requirements will likely be adopted, however the policy changes and the implementation of additional BMPs will take years to implement. This needs to be acknowledged in the TMDL.

Please call Len Kremer, P.E., the BCWMC's engineer, at (952) 832-2781 if you have any questions.

Very truly yours,

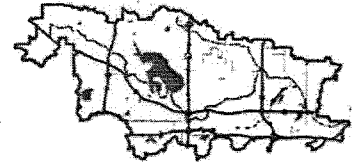


Chairman, Bassett Creek Watershed Management Commission

c: Bassett Creek Watershed Management Commission  
Bassett Creek Watershed Management Commission Technical Advisory Committee

# Bassett Creek Watershed Management Commission

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August 3, 2009

Mr. Dale Thompson  
Pollution Control Specialist  
Minnesota Pollution Control Agency  
520 Lafayette Road North  
St Paul, MN 55155

## Re: TMDL Implementation and Reporting

Dear Mr. Thompson;

The Bassett Creek Watershed Management Commission is working with the Minnesota Pollution Control Agency (MPCA) on TMDL studies for Medicine Lake in Plymouth, and Sweeney Lake and Wirth Lake in Golden Valley. All three projects are at the stage where waste load allocations (WLAs) are being discussed. The stakeholders in each case (the Commission and the Municipal Separate Storm Sewer System permit holders, among others) have been asked to recommend assignment of individual WLAs or a categorical WLA, managed by a Commission. The MPCA staff working with the Commission on these TMDLs have indicated that either method is acceptable to the MPCA.

The members of the Commission—which is not an MS4—wish to better understand the details of coordinating and managing a categorical WLA (or three) before agreeing to do so. Primary among the Commission members' concerns is the accounting for waste load reductions achieved and how credit will be allocated to MS4s:

- Will the MPCA rely exclusively or principally on the Commission's accounting and reporting of waste load reductions in its oversight of the relevant MS4 permits?
- The Department of Transportation has indicated that it prefers an individual waste load, even if a categorical approach is taken for a particular TMDL (when MnDOT is a contributing MS4). How will the reductions credited to MnDOT be determined, and will the Commission and the other MS4s have input on that accounting?
- If, after a period of time, the water body in question is still not achieving its TMDL targets, how will the burden of achieving the further necessary reductions be allocated? Will the MPCA defer to the Commission?

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Whether a categorical or individual approach is taken in each case, the Commission fully anticipates that it will work with the MS4s involved to develop, implement and monitor the effectiveness of best management practices and other efforts (such as ordinance changes) to achieve TMDL goals. Will MPCA permitting enforcement staff recognize and defer to the specific agreements the Commission and MS4s may enter to develop, fund, construct, and maintain BMPs? How will the MPCA contribute to and/or support the effort of the Commission and the MS4s to properly and equitably allocate credit for waste load reductions achieved?

In addition, the reporting requirements for the two approaches are not well understood. When existing MS4 permits are renewed in 2011, it is expected that the annual reporting requirements for MS4s with individual WLAs will differ from the reporting requirements for MS4s with categorical WLAs. Would the MPCA outline for the Commission and the MS4s what reporting requirements may be included in the renewed MS4 permits with these two options for the three TMDLs? Would the MPCA expect any annual reporting from the Commission? Could a single report from one of the MS4s in the watershed of the impaired water body or from the Commission meet the reporting requirements of the group that was assigned the categorical WLA?

The Commission would appreciate any other information that the MPCA can provide regarding the advantages and disadvantages of the two approaches for the MS4s and the Commission.

Sincerely,



Michael Welch  
Chair, Bassett Creek Watershed Management Commission

Enclosure

c: Jim Herbert, Barr Engineering Co.