



Barr Engineering Company
4700 West 77th Street • Minneapolis, MN 55435-4803
Phone: 952-832-2600 • Fax: 952-832-2601 • www.barr.com *An EEO Employer*

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Memorandum

To: Bassett Creek Watershed Management Commission
From: Barr Engineering Company
Subject: Item 6D – Medicine Lake TMDL Meeting with Minnesota Pollution Control Agency, Medicine Lake TMDL P8 Modeling
Date: August 18, 2009

6D. Medicine Lake TMDL Modeling Update

Recommended/requested Commission action:

Information only, No action needed

Medicine Lake TMDL Modeling Update

On Friday, August 14, a meeting was held with the Minnesota Pollution Control Agency (MPCA) and the consultants working with them on the Medicine Lake watershed and lake models to review revisions to the watershed model. The first presentation reviewed the sampling data that was used to calibrate the watershed model including flows, total suspended solids and phosphorus at the Industrial Park 2 and Plymouth Creek stations. It was indicated that the analysis of the data shows that there is a high level of accuracy in the flow, phosphorus and nitrogen measurements and a lesser level of accuracy in the suspended solids measurements. MPCA and/or Three Rivers Park District will follow up with more detailed results from the FLUX modeling that was used to estimate the monitored pollutant loadings.

The results of the revised modeling of the watershed, comparing the flows and loads calculated from the data and the flows and loads calculated by the watershed model were reviewed. For the 2006 calibration year the comparison between the calculated and predicted flows, total phosphorus load and phosphorus concentrations were acceptable but the differences between the calculated and predicted suspended solids loads at the Industrial Park 2 and Plymouth Creek stations were significant. There was discussion about the need to complete a flow duration analysis to compare the 2006 data with the data for 2004 through 2008 to determine if 2006 was an unusual year due to climate, stream bank erosion, and/or if the data from another year should be used to calibrate the model. There was also discussion about reviewing the 2006 suspended solids data to determine if it could be adjusted to remove the sediment/phosphorus contributed by channel erosion so that the calculated loads and predicted loads could be more readily compared.

It was noted that, with the latest changes to the modeling, the revised version of the watershed model predicts that 1000 pounds of phosphorus would be removed from the Plymouth Creek flows by the

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proposed West Medicine Lake Park ponds, project while a run of the model previously prepared for the City of Plymouth (in 2004) predicts that 400 pounds of phosphorus would be removed by the proposed West Medicine Park ponds project for the 2006 water year conditions.