

Memorandum

To: Bassett Creek Watershed Management Commission
From: Barr Engineering Co.
Subject: 5C. Consider Approval of Budget Amendment for the Parkers Lake Chloride Extraction/Dilution Study (PL-7)
Date: December 13, 2023

5C. Consider Approval of Budget Amendment for the Parkers Lake Chloride Extraction/Dilution Study (PL-7)

Recommendations:

1. Consider amending the September 2022 engineering services scope to increase the approved budget by \$4,100 to \$49,100.

Background

The Commission approved the scope of work and \$45,000 budget for the Chloride Extraction/Dilution from the Parkers Lake Study at their September 15, 2022, meeting. The goal of the study was to determine viable options for sufficiently removing chloride from Parkers Lake to meet the MPCA water quality standard. The study analyzed two primary alternatives to reduce chloride in Parkers Lake: 1) pumping lake bottom water directly to the sanitary sewer, and 2) pumping lake bottom water, treating it, and returning treated water to the lake. The Commission Engineer completed the project and presented the study results at the November 15, 2023 Commission meeting.

Status of Project Budget and Additional Budget Request

At project completion, the final project costs were \$49,100. We request a budget increase of \$4,100 to cover these additional costs. As discussed at the November 2023 Commission meeting, this study was a "leading edge" study for a type of project not implemented before for surface water, and it was not a typical CIP feasibility study. Because of its uniqueness, it was difficult to estimate the cost to prepare the study. The following comments support the additional budget request.

- The approved work scope included developing a study that would evaluate two design concepts for treating/extracting/diluting/reducing chloride in the lake, including costs and benefits.
 - The November 9, 2023 memo summarized two alternatives—1) discharge to the sanitary sewer; and 2) treatment of the lake bottom water and return of the treated water to the lake.

- Alternative 1 required several conversations (emails, meetings, and phone calls) with the Metropolitan Council and development of pre-permit documentation, that was more than anticipated in the work scope. Ultimately, the Metropolitan Council decided not to allow a permit for discharge to the sanitary sewer.
- Alternative 2 required further delving into a detailed evaluation of two treatment options—reverse osmosis and ion exchange. Investigating just one of these two treatment options, in a general way (with conceptual costs), would have satisfied the work scope. Instead, both options were investigated, including estimating detailed capital and O&M costs. This exercise was undertaken so the resulting report was consistent with a typical feasibility study with multiple options presented and cost benefits analyzed.
- Consistent with our work scope, we addressed all the potential permitting requirements with the Metropolitan Council and Minnesota Department of Natural Resources. It took a significant amount of time and communications (several emails, meetings, and phone calls) with the decision makers at the Metropolitan Council to get to a point where they could render a decision.
- Because of the nature of the study (leading edge/a project not performed before for chloride removal), there was a lot of interest, and many comments and questions were received from the Administrator and Plymouth staff on the draft memo, which took extra time to answer and address.

The results of the study are a critical step in understanding the complexity of the chloride problem, the expense of treating water already polluted with chloride, and the importance of source control. Although the project may not be implemented in Parkers Lake, this study is a blueprint for a small-scale pilot project that could be implemented elsewhere in the watershed. Our typical/preferred approach is to notify the Commission prior to exceeding budgets, to obtain direction. However, in this case we were too far along in the study before realizing the approved budget would be exceeded. Because the study was leading edge, it was difficult for our team to know "when to stop" analyzing options and begin writing the report.