

Parkers Lake Drainage Improvement Project

15500 County Road 6, Plymouth
Bassett Creek Watershed Project #PL-7



FINAL REPORT December 2023



I. Project Overview

This BCWMC Capital Improvement Project in the City of Plymouth restored 1,100 linear feet of streambanks along an unnamed natural ephemeral stream from 18th Avenue North to County Road 6 (figure 2-4). The project stabilized the streambanks in two distinct reaches by utilizing techniques such as root wads and live stakes and hard armoring techniques such as rock cross vanes and rock toes.

The project improved habitat, significantly reduced erosion, and reduced total phosphorus loads and total suspended solids loads by 20.1 and 40,140 lbs per year, respectively. The restoration work was completed in winter 2021-2022 with design and construction being implemented through an agreement with the City of Plymouth. In 2022 & 2023, additional vegetation was established along the banks and some minor repairs to a few areas was completed.

II. Project Description and Outcomes

The Parkers Lake Drainage Improvement Project stabilized slopes and made other drainage and stormwater management improvements along an intermittent stream within Plymouth Creek Playfields Park. The project restored approximately 1,100 feet of channel between 18th Avenue North and County Road 6.

The project reduced total phosphorus and suspended sediment loading to the stream by an estimated 20.1 and 40,140 lbs per year, respectively. These pollutant reductions also improved the water quality of downstream resources including Parkers Lake, Medicine Lake, and the Mississippi River. The project also improved the in-stream and near stream habitat along the creek.

Two reaches were stabilized and restored as part of the project. Techniques included clearing and thinning trees to open the canopy and allow more sunlight to reach the streambanks, restoring the vegetative buffer along the stream; re-connecting the stream with its floodplain, where applicable, removing large woody debris; and installing a variety of stream stabilization measures, including riprap, root wads, toe wood, vegetated reinforced soil stabilization (VRSS), rock or log vanes, and stone toe protection.

Through an agreement with the BCWMC, the City of Plymouth implemented this project. The city hired WSB. to design the project and provide construction oversight and contracted with Sunram Construction to construct the project.

III. Timeline and Key Documents

Many of these documents and this final report can be found at:

[Parkers Lake Drainage Improvement Project - BCWMC Webpage](#)

- August 2019: Feasibility study proposal by BCWMC Engineers approved
- February 2020: Public open house held to gather input during feasibility study

- May 2020: Feasibility report by BCWMC Engineers approved (Alternative #3)
- September 2020: Public hearing on the project
- September 2020: Project officially ordered
- September 2020: Agreement with City of Plymouth to implement project approved
- June 2021: 60% design plans by WSB approved
- August 2021: 90% design plans by WSB approved
- January 2022: Project construction started
- May 2022: Project construction completed
- Summer 2022 & 2023: Vegetation management and small repairs completed; project closed

IV. Project Budget and Funding

The BCWMC CIP budget for this project was set at \$485,000 funded through an ad valorem tax levied on watershed residents in 2021. However, with the approval of the feasibility study, the project was split into two components: the Parkers Lake Drainage Improvement Project with a budget of \$185,000 and the Parkers Lake Chloride Reduction Project with a budget of \$300,000. The drainage improvement project came in slightly under budget. The chloride reduction project is on a different timeline and the city will request reimbursement for this project at a later date.

Parkers Lake Drainage Improvement Project Expenses:

BCWMC Feasibility Study: \$57,547

BCWMC Administrative Expenses: \$3,700

BCWMC Design Review: \$3,666

Project Design & Construction: \$114,060

Total Expenses: \$178,973

Funding Source:

BCWMC CIP Funds: \$185,000

V. Lessons Learned

During this project, the City worked with adjacent landowners, users of the city park and internal staff to implement a successful project. Staff continued to work with landowners, users of the park and internal staff throughout the entire life of the project and have found this to be beneficial for successful implementation. It was particularly important to engage with internal (city) staff on the timing of the project as the City had multiple conflicting events within the park during the winter months that needed to be worked around by the contractor.

VI. Maintenance

The City of Plymouth will undertake vegetation maintenance in perpetuity for this project. It is anticipated that staff will continue to contract with a certified vegetation management contractor to manage invasive species, revegetate bare soils with appropriate native seed mix and/or plugs of native vegetation and identify longer term maintenance needs for the corridor.

VII. Photos

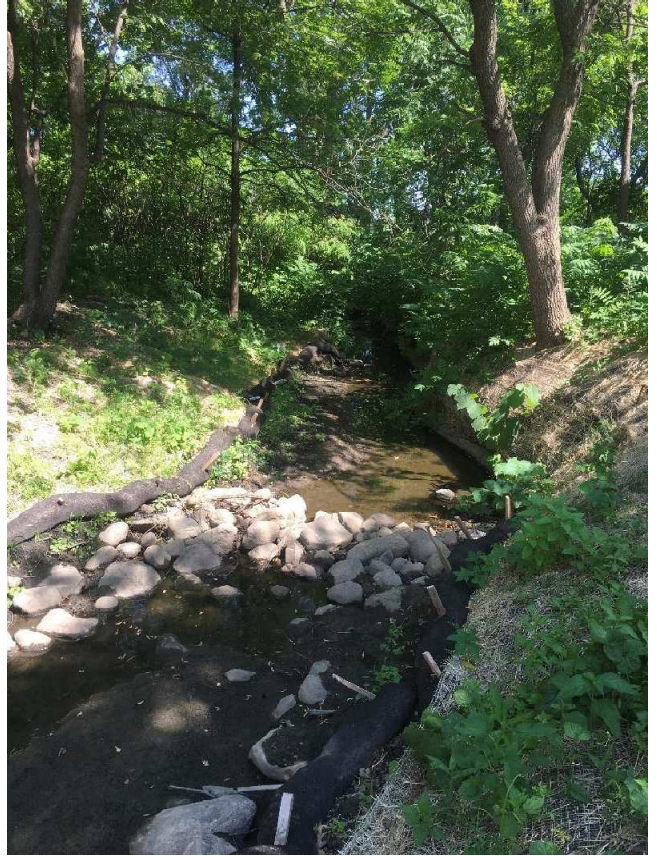
Before construction: Summer/Fall 2021

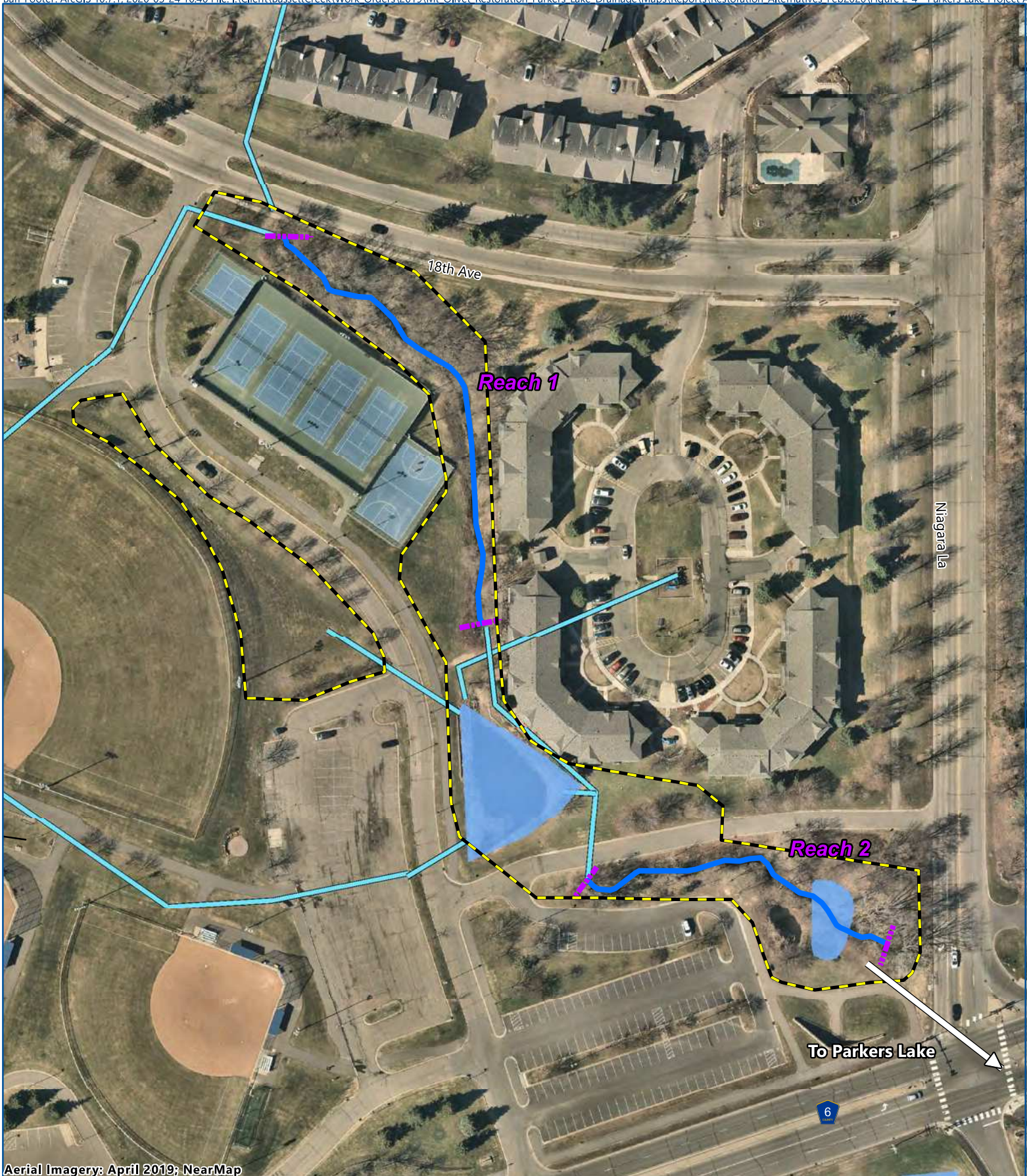


During construction: Winter 2021-2022



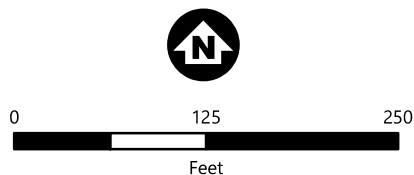
After construction: August 2022





Aerial Imagery: April 2019; NearMap

- Stream Path
- Reach Boundary
- Project Area (Stream/BMPs)
- Ponds and Wetlands
- Storm Sewer



PARKERS LAKE
PROJECT AREA
Mt. Olivet/Parkers Lake
Feasibility Study
FIGURE 2-4