



MINNEHAHA CREEK WATERSHED DISTRICT 2022 ANNUAL ACTIVITY REPORT



MINNEHAHA CREEK
WATERSHED DISTRICT

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Introduction

This report has been prepared to satisfy the Minnehaha Creek Watershed District's (MCWD or District) annual reporting requirements set forth in Minnesota Statutes Chapter 103D.351, which requires watershed districts to file an annual report with the Board of Water and Soil Resources and the Department of Natural Resources. Metropolitan watershed districts are required to follow reporting requirements described in MR 8410.0150.

Board Members

Below is a list of the District's current Board of Managers, including the designated officers and the county that appointed each member.

Manager	County	Contact Information
Sherry Davis White, President	Hennepin	swhite@minnehahacreek.org
Bill Olson, Vice President	Carver	bolson@minnehahacreek.org
Jessica Loftus, Treasurer	Hennepin	jloftus@minnehahacreek.org
Eugene Maxwell, Secretary	Hennepin	emaxwell@minnehahacreek.org
Richard Miller	Hennepin	rmiller@minnehahacreek.org
Arun Hejmadi	Hennepin	ahejmadi@minnehahacreek.org
Steve Sando	Hennepin	ssando@minnehahacreek.org

Staff Contact Information

The District currently employs 20 staff. The names, job titles, and contact information for all staff can be found on the District website at <https://www.minnehahacreek.org/about/staff>. The contact information for the District Administrator is provided below.

James Wisker, District Administrator
Minnehaha Creek Watershed District
15320 Minnetonka Blvd.
Minnetonka, MN 55345
Phone: 952-641-4509
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Assessment of 2022 Work Plans

In 2022, the majority of activities identified in the work plan were completed or work was initiated and continues into 2023.

In the Six Mile Creek-Halsted Bay subwatershed, the below work was conducted in 2022:

- Completion of the second alum treatment application on Wassermann Lake.
- Construction of the Six Mile Marsh Prairie Restoration Trail Project at the Six Mile Marsh Prairie Restoration, with interpretation to be constructed in 2023.
- Initiation of feasibility for the East Auburn Wetland Restoration project.
- Transition of the Wassermann Lake Preserve into warranty phase, including ongoing site management and vegetation improvements.
- On-going carp management as part of the Six Mile Creek Habitat Restoration Program.

In addition, MCWD continues to evaluate the next phase of capital project work in two project areas, the Turbid-Lundsten corridor in the City of Victoria and Six Mile Marsh-Halsted Bay on Lake Minnetonka.

In the Minnehaha Creek subwatershed, the below work continued in 2022:

- The 325 Blake Road Restoration and Redevelopment (325 Blake Road) Project reached 100% design, plans and specifications, and is ready for construction, in coordination with MCWD's development partner.
- The Cottageville Park Phase II Project also reached 100% design, plans and specifications, and is ready for construction, in coordination with the City of Hopkins.
- The associated Greenway to Cedar Trail Connection and Streambank Restoration is being coordinated with the City of St. Louis Park and Met Council's SWLRT project. Feasibility of the project is complete, with design planned for initiation in summer 2023.
- The Arden Park Restoration Project completed the warranty and vegetation establishment phase, and the regional stormwater system is now online, accepting stormwater flows from approximately 80-acres.

In addition, MCWD continues to work closely with the City of Minneapolis and the Minneapolis Park and Recreation Board to develop an implementation plan for the Minneapolis Parkway Master Plan. The partners are exploring opportunities to align capital improvement programs to kickstart project implementation.

Due to the complexity of some of these efforts, capital improvements can span multiple years to plan and implement. Expenditures for each of the District's programs and projects are included in the audit report (provided separately by the District's auditor). The 2019 Watershed Based Funding was allocated to Arden Park, Wassermann West Pond, and 325 Blake Road projects. Both the Arden Park and Wassermann West Pond projects are complete. The District has also been awarded Clean Water Fund grants for the 325 Blake Road Project and the Wassermann Lake Internal Load Management Project. On the 325 Blake Road Project, staff is in coordination with Board of Water and Soil Resource staff regarding the project schedule.

Watershed-wide work in 2022 included:

- The development of MCWD’s Multi-Year CIP program (MYCIP), a key step in MCWD’s continuous improvement model, further demonstrating close coordination with its public and private partners, aligning plans and resources prior to advancing implementation.
- MCWD finalized and adopted its Climate Action Framework to guide its climate action work leading up to the 2027 Watershed Management Plan. As part of this effort, MCWD initiated work and coordination with partners to build a pilot 2-dimensional model that will inform the future development of a watershed wide 2-dimensional model to predict and understand the watershed system in unprecedented detail. In addition, MCWD continued to build out its network of remote sensors, known as RESNET, which provides real-time data on water level, flow, and pollutant loading throughout the watershed.
- MCWD established a Technical Advisory Committee (TAC) to support its Land & Water Partnership Initiative, focused on improving integration of land use and water planning to develop impactful, collaborative projects that benefit the watershed and our communities. The TAC has vetted improvements to MCWD’s Permitting program and rules as well as a proposed Land & Water Partnership program that will provide technical and financial support to partner projects that provide significant, regional water resource benefit.
- MCWD continued development of the Land & Water Partnership program and has been operating it under a pilot phase, with anticipated adoption in 2023. In 2022, MCWD provided on-going support within the Long Lake Creek subwatershed and Gleason Lake subwatershed through the pilot program.
 - The District has been working with the cities of Orono, Long Lake, and Medina and Long Lake Water Association around the common goal of improving water quality within the Long Lake Creek subwatershed. In 2022, MCWD staff completed drafting of the Long Lake Creek Roadmap that includes findings of the subwatershed assessment, an evaluation of costs and benefits of project opportunities, and a coordinated implementation strategy.
 - The City of Plymouth identified a drainage improvement project to enhance water quality for Gleason Lake (Maple Creek Pond Improvement Project) and entered into a Funding Agreement for MCWD to support the water quality components of the project. This project is currently under construction and will be completed in 2023.
- MCWD advanced development of a new website for launch in 2023. The new website will connect users to the information they want quickly and intuitively while also promoting the MCWD’s partnership approach.

2023 Work Plans

For 2023, the District prepared one comprehensive work plan encompassing activities in its two focal subwatersheds, Six Mile Creek-Halsted Bay and Minnehaha Creek, as well as its watershed-wide programming. This document includes a summary of the District’s 2023 budget and can be found on the District website provided below and is also attached as Appendix A.

2023 Budget & Work Plan:

https://www.minnehahacreek.org/sites/minnehahacreek.org/files/attachments/2023%20Budget%20%26%20Workplan%20-%2008162022_final.pdf

Evaluation of Progress on Goals and Implementation Actions

In January 2018, the District adopted its 2017-2027 [Watershed Management Plan](#). Section 3.7 of the Plan describes the District's framework for setting goals and evaluating progress through a sequential process that begins with strategic goals and long-range targets and leads to subwatershed and then project-specific targets, performance measurement, and evaluation.

MR 8410.0150 requires that the District provide, at a minimum of every two years, an evaluation of progress toward the goals and implementation actions identified in its Watershed Management Plan. This evaluation was provided in the 2021 annual report and will be updated for the 2023 annual report. The District is in the process of implementing an information technology update that will improve the District's ability to comprehensively track and report on progress toward its goals across all of its programs and projects.

Trends in Monitoring Data

The Research and Monitoring program evaluates trends for long-term ("anchor") lake and stream monitoring stations throughout the District. Data for these anchor lakes is largely sourced from and collected by MCWD, the Minneapolis Park and Recreation Board, and Three Rivers Park District. In total, 22 lake stations were assessed for trends in surface water quality for the past ten years (2013-2022). Sampling events outside the growing season of June through September were not included in the analysis since the Minnesota Pollution Control Agency's water quality standards apply to the growing season average. Trends were computed using the Mann-Kendall test on water clarity (secchi disk), algal abundance (chlorophyll-a) and total phosphorus (TP) in the lake surface water to determine if an increasing or decreasing trend exists for each lake.

For streams, the Mann-Kendall test was used to compute stream trends on flow-corrected concentrations for both TP and total suspended solids (TSS). To minimize the impact of sampling duration changes, sampling events outside April through October were not included. A locally weighted scatterplot smoothing (LOWESS) residual was calculated between the parameter of interest (TSS or TP concentrations) and flow. MCWD staff used the Mann-Kendall test to determine if a significant trend existed for TSS or TP at each of the 11 anchor monitoring sites.

All statistical analyses were computed using R-studio statistical packages. An alpha of 0.05 was used to determine if the p-value was significant. Lakes trends are displayed in Table 2, and the stream trends are displayed Table 3.

Six Mile Creek Subwatershed

Six Mile Creek subwatershed showed significant improvements in stream total phosphorus concentrations. These data suggest that recently implemented watershed improvement projects have improved stream water quality conditions.

Lake water quality within Six Mile Creek is not showing significant improvements, which may seem counter intuitive since stream water quality is improving. The lack of observed in-lake water quality improvements is likely due to the magnitude of watershed project nutrient reductions compared to total in-lake nutrient budgets. Many of the lakes within this area have had active in-lake carp management over the past five years, with Wassermann Lake also receiving an alum treatment to

address internal sediment phosphorus loading. Impacts from this recent work are likely not observed yet through the ten-year trend window.

Minnehaha Creek Subwatershed

No stream monitoring locations or lakes within the Minnehaha Creek subwatershed showed any statistical trend for phosphorus. However, degrading trends were observed for lake response variables (secchi and chlorophyll-a) within Lake Nokomis and Lake Hiawatha (Table 2).

The recent decline in water clarity and increased algae production may be correlated to the back-to-back drought conditions the watershed has experienced during 2021 and 2022. The inverse relationship between water quality and flow in the creek is counterintuitive since most lakes experience poor water quality in years with high stormwater runoff. There is a delicate balance between watershed loading and lake residence time that can greatly impact how a lake cycles nutrients. For example, high phosphorus concentrations have been observed in Lake Hiawatha during 2012, 2021 and 2022 (drought years) and low phosphorus is observed in high flow years (Figure 1). Continued improvements in Lake Hiawatha moving forward are dependent on further refinement of Lake Hiawatha’s nutrient budget under disparate flow conditions to target the most important phosphorus sources.

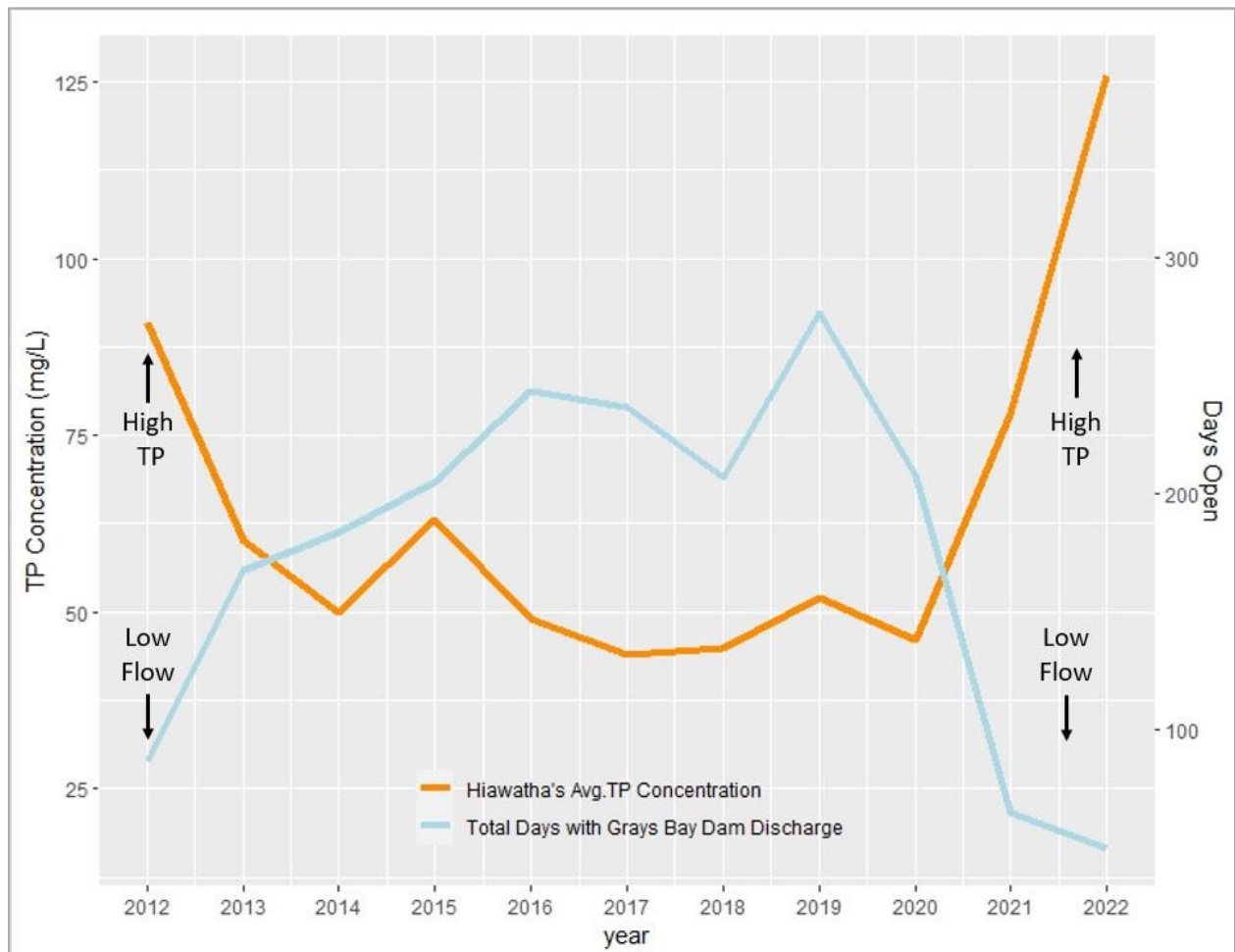


Figure 1. Lake Hiawatha’s average annual total phosphorus concentration plotted against the annual total number of days that Grays Bay Dam was open and releasing water.

Other Subwatersheds

Three bays in Lake Minnetonka showed signs of water clarity degradation, but no significant trends for phosphorus were observed within those same bays. Tanager was the only lake to have a degrading trend for both phosphorus and a response variable (secchi). A few other significant trends were observed across the other subwatersheds, but none in areas where MCWD is actively implementing projects for water quality (Table 2 and 3).

Table 2 Significant trends for lakes within Minnehaha Creek Watershed District				
Subwatershed	Lake	Total Phosphorus	Chlorophyll-a	Secchi Disk
Long Lake	Long	No Trend	No Trend	No Trend
	Tanager	Degrading	No Trend	Degrading
Six Mile Creek	Parley	No Trend	No Trend	No Trend
	Wassermann	No Trend	No Trend	No Trend
	Steiger	No Trend	No Trend	Degrading
	West Auburn	No Trend	No Trend	No Trend
	Zumbra	No Trend	No Trend	No Trend
Minnehaha Creek	Bde Maka Ska	No Trend	No Trend	No Trend
	Cedar	No Trend	No Trend	No Trend
	Lake of the Isles	No Trend	No Trend	No Trend
	Powderhorn	No Trend	No Trend	No Trend
	Nokomis	No Trend	Degrading	Degrading
	Harriet	No Trend	No Trend	No Trend
Lake Minnetonka	Hiawatha	No Trend	Degrading	Degrading
	Carman Bay	No Trend	No Trend	Degrading
	Crystal Bay	No Trend	No Trend	No Trend
	Forest	No Trend	No Trend	No Trend
	Grays Bay	No Trend	Degrading	Degrading
	Halsteds Bay	No Trend	No Trend	No Trend
	Jennings Bay	No Trend	No Trend	No Trend
	Lower Lake South	No Trend	No Trend	Degrading
Stubbs Bay	Degrading	No Trend	No Trend	

Table 3 Significant trends for streams within Minnehaha Creek Watershed District			
Subwatershed	Stream Station	Total Phosphorus	Total Suspended Solids
Dutch Lake	Dutch Lake: Lake Outlet	Improving	No Trend
Langdon Lake	Langdon Lake Outlet	No Trend	Degrading
Minnehaha Creek	Minnehaha Creek I-494 Ramp	No Trend	No Trend
	Minnehaha Creek W. 34 St.	No Trend	No Trend
	Minnehaha Creek Excelsior Blvd	No Trend	Degrading
	Minnehaha Creek: 21st/Minnehaha Pkwy	No Trend	No Trend
	Minnehaha Creek: Hiawatha Ave	No Trend	No Trend
Painter Creek	Painters Creek: W. Branch Rd	No Trend	No Trend
Six Mile Creek	Six Mile Creek: Auburn Lk East Inlet	Improving	No Trend
	Six Mile Creek: Lundsten Lk - North Outlet	Improving	No Trend
	Six Mile Creek: Mud Lake Outlet	Improving	No Trend

Annual Communications

MCWD’s outreach is guided by its 2017 Watershed Management Plan. The goal of MCWD communication efforts is to increase integration of land use and water planning by raising awareness within the land use community about the benefits of collaborating with MCWD. This includes an annual budget publication (Appendix A), customized communications with policymakers, media relations, print and digital publications, and MCWD’s website. MCWD also issues regular communications to its partners, such as water level e-mail updates, in which the District provides timely information and resources on flood risk, recreation conditions, and operation of the Gray’s Bay Dam.

In 2022, examples of MCWD communications that raise awareness to increase integration of land use and water planning include:

- The National Weather Service named MCWD a [Weather-Ready Nation Ambassador of Excellence](#), which recognizes work that improves the nation’s resilience in the face of extreme weather events. The award cited MCWD’s proactive flood risk communications to partner agencies and the public.
- MCWD’s website redesign initiative (in progress), which will connect stakeholders to the information they value and broadly share MCWD’s Balanced Urban Ecology vision for projects, policy, and partnerships.

MCWD also conducts specific outreach and engagement around its key projects. 2022 examples include:

- A Town Hall meeting in Minneapolis co-hosted by MCWD to discuss the complex water issues addressed in the [Lake Nokomis Area Groundwater & Surface Water Evaluation](#). The Town Hall meeting, attended by more than 100 people, included a presentation of the Evaluation, public question and answer period, and panel discussion with project partner agencies.
- An engagement process for MCWD’s [Land & Water Partnership Initiative](#), to involve cities and other public partners in refining its new program and policy direction. The initiative aims to

strengthen relationships with the land use community, develop MCWD’s Land & Water Partnership program, and revise the District’s permitting rules to better support partnership. MCWD released a [kickoff publication](#) in summer 2022 and convened a Technical Advisory Committee (TAC) starting in October 2022 and is still underway, which is comprised of staff from cities, counties, and park agencies within the watershed.

Solicitation of Services

In accordance with MN Statutes 103B.227, the District solicits proposals for legal, professional, or technical consultant services at least every two years. Below are the solicited proposals for 2022-2025, including upcoming associated RFPs:

- *Accounting Services* – contract expires November 30, 2023
 - RFPs will be requested September 2023
- *Audit Services* – RFP sent June 2022; contract expires April 30, 2024
 - RFPs will be requested June 2024
- *Engineering Services* – contract expires December 31, 2023
 - RFPs will be requested October 2023
- *Government Relations Services* – contract expires December 31, 2023
 - RFPs will be requested October 2023
- *IT Managed Services* – contract expires February 28, 2025
 - RFPs will be requested January 2025
- *Legal Services* – RFP sent June 2022; contract expires August 31, 2024
 - RFPs will be requested June 2024

Status of Local Plans

MN Statutes § 103B.235 and MN Rules § 8410.0160 grant watershed districts the authority to review and approve local water management plans (LWMPs). Under this framework, watershed districts can assign responsibilities to local government units (LGUs) for carrying out implementation actions defined in the watershed plan. The LWMP is a required element of the LGU comprehensive land use management plan which LGUs were required to update by the end of 2018.

The primary focus of the LWMP requirements set forth in the District’s 2017 Watershed Management Plan is on improving the integration of land use and water planning. To effectively integrate the goals of MCWD and its LGUs in a way that maximizes community benefits and effectively leverages public funds, the District has invited a partnership framework with its communities. In addition to the legally required elements of LWMPs, as defined in State statute and rules, the Watershed Management Plan requires communities to develop a coordination plan which describes how the LGU and MCWD will share information and work together to integrate land use and water planning. To date, 27 of the District’s 29 communities have received approval of their LWMP. The two remaining communities are Laketown and Watertown Townships, which rely on Carver County as the land use planning authority.

Status of Locally Adopted Ordinances

The District’s 2017 Watershed Management Plan did not establish any requirements for local ordinances.

Permits, Variances, and Violations

In 2022, the MCWD reviewed and processed 603 permit applications. Zero permits were denied, and there were no variances or exceptions approved. A total of 55 inspections were completed in 2022. Noncompliant sites were resolved through MCWD inspection reports to permittees and on-site meetings to discuss corrections and solutions to site-specific issues. MCWD issued zero notices of probable violation in 2022, and one Wetland Conservation Act violation. No formal enforcement actions were issued by the MCWD Board of Managers.



MINNEHAHA CREEK
WATERSHED DISTRICT

2023 MCWD BUDGET & WORKPLAN

Pursuing a balanced urban ecology through capital projects and policy

2023 BUDGET & WORKPLAN

January 2023 marks the mid-point in our 10-year cycle for watershed management planning at Minnehaha Creek Watershed District (MCWD). We can clearly see the progress achieved, with the help of partners, from the foundation laid in our 2017 Watershed Management Plan. From this vantage point we understand that delivering high-impact projects that measurably improve our treasured waters, while supporting the broader goals of building thriving communities, takes years. For this reason, each budget cycle represents not just an opportunity to look at the next fiscal year, but to strategically prepare to take on new impactful work in the years to come.

This workplan provides an overview of our 2023 annual budget and summarizes progress occurring throughout our watershed through strong partnerships.

- 2023 Budget Breakdown (page 2)
- Working to Create Land & Water Partnerships (page 3)
- Six Mile Creek – Halsted Bay Subwatershed Overview (page 4)
- Six Mile Creek – Halsted Bay 2023 Activities (page 5)
- Minnehaha Creek Subwatershed Overview (page 6)
- Minnehaha Creek Subwatershed 2023 Activities (page 7)
- Activity Spotlight: Creating a Data-Driven Planning Tool to Guide Climate Action (page 8)
- Additional Watershed-Wide Services (page 9)



OUR APPROACH: IN PURSUIT OF A BALANCED URBAN ECOLOGY

We believe that clean water and a healthy natural environment are essential to creating and sustaining vibrant, thriving communities. The beauty, green space, and recreational opportunities found in the Minnehaha Creek watershed create a sense of place that provides a local identity, adds economic value, and increases well-being.

We put this belief into action by partnering with our communities to integrate the natural and built environments across the watershed. In pursuing these partnerships, we focus in areas of high need to achieve significant, measurable improvements, while remaining responsive to needs and opportunities watershed-wide.

2023 BUDGET BREAKDOWN

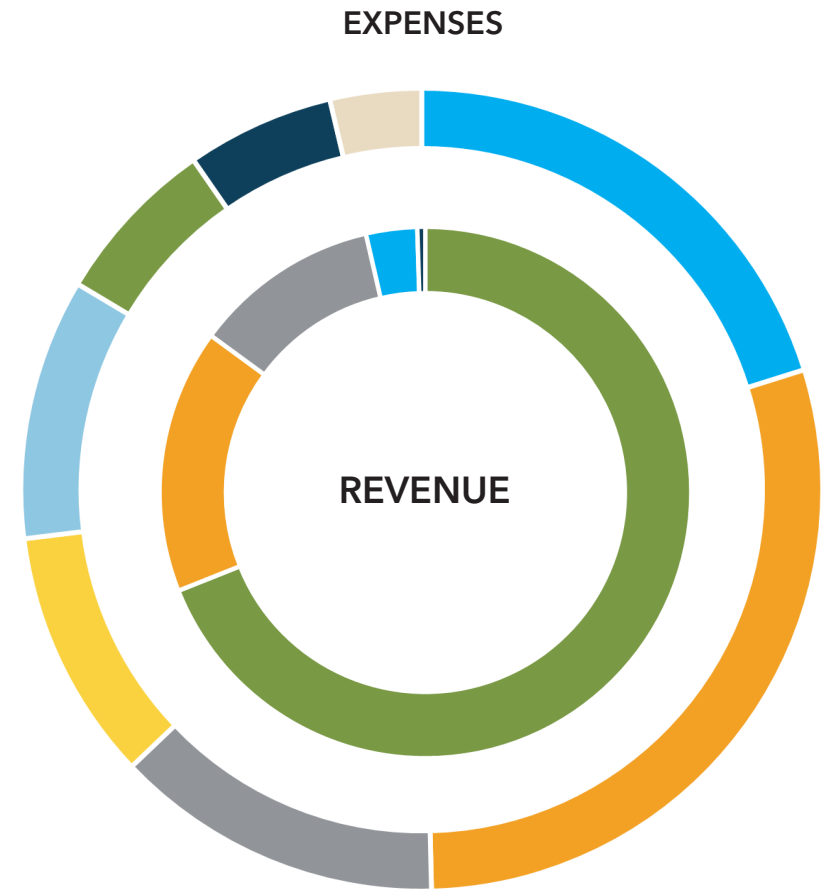
FISCAL RESPONSIBILITY

Our work is supported by an annual tax levy, funds levied in past years for multi-year projects (projects fund balance), funds reallocated from programs delivered under-budget (programs fund balance), grants and partner funds, interest, and reimbursement of permit fees.

After five years of maintaining a flat levy, we are proposing a 2 percent increase in the 2023 levy, or \$193,520, to support growth in project implementation in coming years as we take on more impactful and larger-scale capital work.

EXPENSES	2022	2023
Capital Projects	\$5,169,066	\$2,886,022
Capital Finance	\$2,758,468	\$4,212,718
Operations & Support Services	\$1,808,491	\$1,899,204
Research & Monitoring	\$1,208,792	\$1,454,612
Planning	\$1,226,937	\$1,505,479
Project & Land Maintenance	\$1,974,212	\$970,543
Permitting	\$825,894	\$852,789
Outreach	\$516,665	\$527,826
TOTAL	\$15,488,525	\$14,309,193

REVENUE	2022	2023
Levy	\$9,675,993	\$9,869,513
Projects Fund Balance	\$3,799,794	\$2,299,090
Programs Fund Balance	\$1,284,300	\$1,625,590
Grants & Partner Funds	\$647,218	\$445,000
Interest & Fees	\$81,220	\$70,000
TOTAL	\$15,488,525	\$14,309,193



WORKING TO CREATE LAND & WATER PARTNERSHIPS

CREATING SHARED BENEFITS

We've learned that we can best achieve our mission of protecting natural resources by working with land use partners, whether it's through a private development, park improvement, or municipal infrastructure project. As a regional agency, we've developed new ways to support our partners' goals and projects by applying our expertise in concept design, planning, permitting, and project management.



EARLY PARTNERSHIP COMES TO LIFE IN PLYMOUTH

The City of Plymouth (Plymouth) engaged early with MCWD to explore partnership opportunities for projects in Plymouth's capital improvement plan. Together, we identified a shared project to improve regional water quality within the Gleason Lake subwatershed. The project will be built in early 2023, and is a cost-effective partnership that provides an estimated 19 pounds of total phosphorus removal to the impaired Gleason Lake (pictured above). MCWD is providing financial assistance of up to \$100,000 in design and construction costs by integrating Plymouth's project into our Capital Improvement Plan.

ESTABLISHING A CLEAR PATHWAY FOR PUBLIC & PRIVATE PARTNERSHIP

In 2023 we will officially launch MCWD's new Land and Water Partnership (LWP) program. We're designing this program with partners in 2022 to support projects that advance community goals and enhance the watershed's resources. The LWP program will create opportunities for partners to connect with us early in their project planning and budgeting processes. We're ready to work creatively to provide technical and financial support on public and private projects by integrating qualifying projects into our Capital Improvement Plan in future years.

REIMAGINING THE PERMITTING PROCESS

MCWD's permit review is key to ensuring natural resources continue to be sources of value for communities. By engaging early and collaboratively, MCWD leverages the permit process as an opportunity to provide service, grow relationships, and find mutual value in partnership. We're improving our permitting process to be simpler, more streamlined, better integrated with other agencies, and able to catalyze partnership opportunities.

*Learn more about these exciting updates
and how to participate at*

minnehahacreek.org/partnership



SIX MILE CREEK - HALSTED BAY SUBWATERSHED

OVERVIEW

The Six Mile Creek - Halsted Bay Subwatershed (SMCHB) is a water resource rich system that forms the headwaters of Lake Minnetonka and Minnehaha Creek. Five lakes within SMCHB are impaired by excess nutrients and Halsted Bay is the most degraded in Lake Minnetonka.

PARTNERSHIPS

With our priority to create value-added partnerships, MCWD joined with communities to develop the Six Mile Creek - Halsted Bay Subwatershed Plan, a collaborative vision to improve water quality and natural resources while integrating local goals around infrastructure, community development, and parks, recreation, and open space planning.

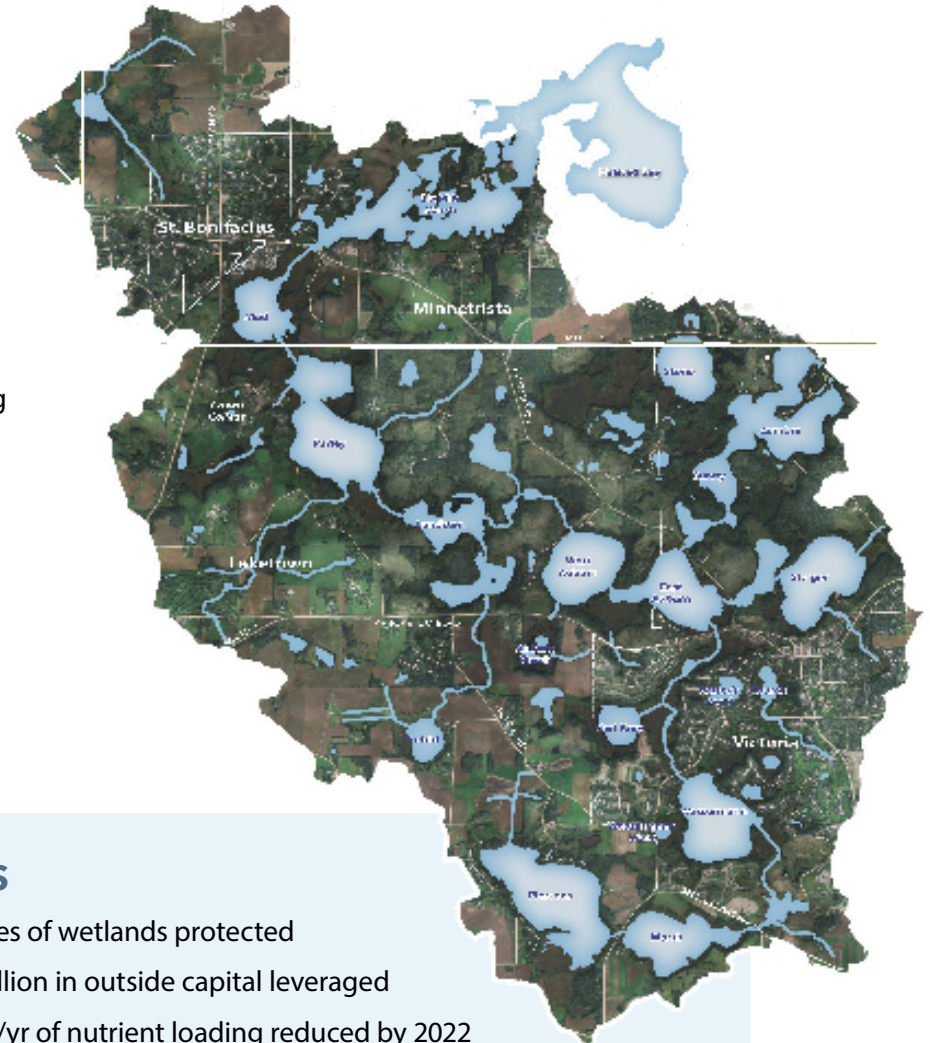
STRATEGY

- Restore lake habitat by managing carp populations
- Restore wetlands to reduce phosphorus and improve habitat
- Reduce phosphorus released from lake bottoms by controlling in-lake nutrients
- Implement stormwater management with cities & developers

WORK TO DATE

We have worked closely with the City and Victoria and other partners to restore Wassermann Lake, an impaired waterbody. 2022 marks the final year of this project work, as we look to continue restoration efforts downstream. Completed projects include a system wide carp management program, restoration of a 20-acre wetland in partnership with a private developer, and alum treatment of Wassermann Lake and an adjacent pond.

The restored lake can be enjoyed from the Wassermann Lake Preserve, a flagship project completed in 2021. This park, situated on the Wassermann shoreline, features restored native upland, shoreline, and stream channel habitat while providing unique nature-based amenities and creating the first waterfront park and preserve in Victoria, the "City of Lakes and Parks."



RESULTS

- 124 acres of wetlands protected
- \$1.2 million in outside capital leveraged
- 545 lbs/yr of nutrient loading reduced by 2022
- 190 acres of publicly accessible green space created
- 275,000 lbs of common carp reduced across 14 lakes
- 2,488 acres of deep and shallow lake habitat restored
- 25 percent improvement of nutrient concentrations at Six Mile Creek/Lake Minnetonka outlet over 10 years
- Wasserman Lake on track to be removed from State impaired list

SIX MILE CREEK - HALSTED BAY SUBWATERSHED 2023 ACTIVITIES

EAST AUBURN WETLAND RESTORATION

MCWD's Research and Monitoring team is collecting data in the wetland system between Wassermann and East Auburn Lakes. East Auburn is impaired for nutrients, and this wetland system has been identified as a major source. The data collection will help us identify innovative solutions to reduce nutrient loading to East Auburn by up to 135 lbs/yr. The monitoring effort will be complete in 2022, with feasibility and project design following in 2023.

TURBID-LUNDSTEN CORRIDOR

This degraded wetland system presents a unique opportunity to create a contiguous wetland and habitat corridor while reducing nutrient levels in both Turbid and Lundsten Lakes. The project could restore up to 95 acres of wetland and reduce nutrient loading to Turbid and South Lundsten Lakes by 35 and 55 lbs/yr, respectively. This restored corridor would be an asset in the future Victoria Greenway, which aims to create a connected system of parks and open space as development progresses south and west.



Above: Six Mile Creek flows into Halsted Bay on Lake Minnetonka.

LAKE MINNETONKA - HALSTED BAY ALUM FACILITY

MCWD is exploring the feasibility of a water quality treatment facility at the mouth of Six Mile Creek that would remove dissolved phosphorus from the stream before it enters Halsted Bay. This facility could remove 1,620 lbs/yr, approximately 50 percent of the nutrient load to Halsted Bay.

Below: Construction in 2022 added new trails and site interpretation to Six Mile Marsh Prairie, where agricultural land has been restored to native plantings to benefit the waters nearby.



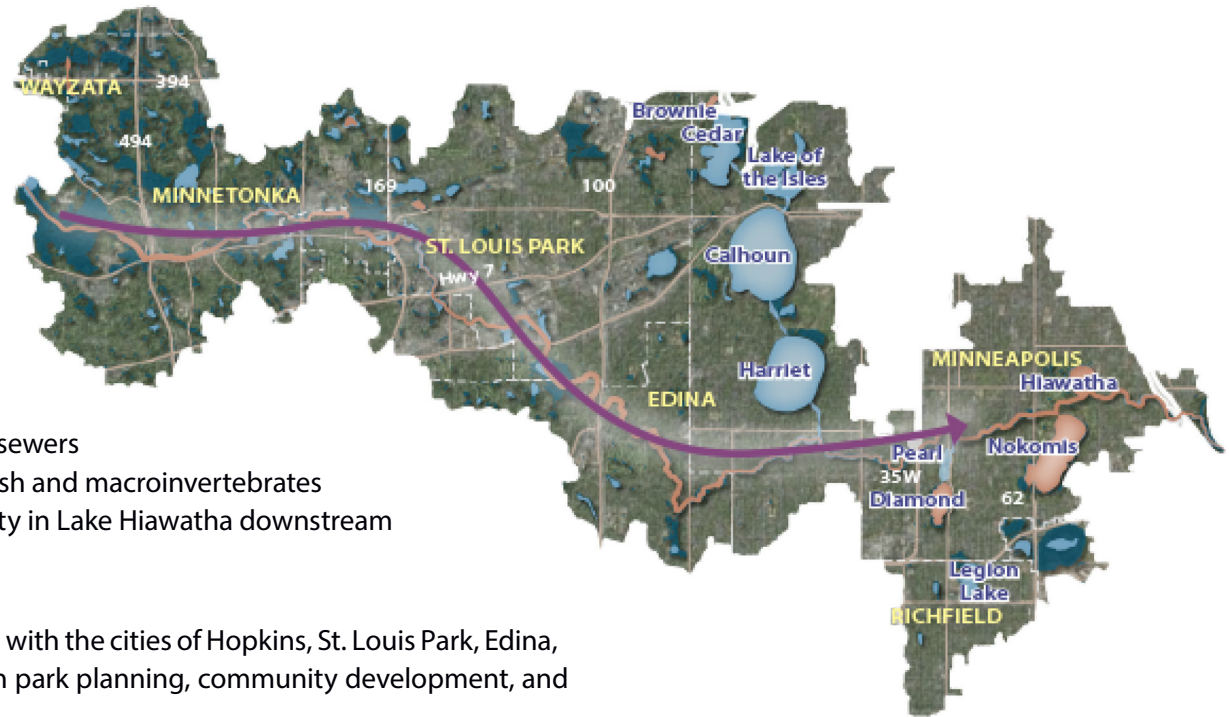
MINNEHAHA CREEK SUBWATERSHED

OVERVIEW

Minnehaha Creek flows nearly 23 miles from Lake Minnetonka and collecting stormwater from Minnetonka, Hopkins, St. Louis Park, Edina, Richfield, and Minneapolis, through the chain of lakes and into the Mississippi River.

The creek suffers from:

- A fragmented riparian corridor
- Altered stream channels with flashy water levels and flooding
- Polluted stormwater runoff from hundreds of storm sewers
- Impairments for E. coli, chloride, dissolved oxygen, fish and macroinvertebrates
- Transportation of nutrients that degrade water quality in Lake Hiawatha downstream



PARTNERSHIPS

We have developed strong relationships and momentum with the cities of Hopkins, St. Louis Park, Edina, and Minneapolis to integrate natural resource goals with park planning, community development, and infrastructure improvements.

STRATEGY

- Manage regional stormwater to slow down water, reduce runoff and pollution entering the creek, and decrease flood risk
- Restore the creek to reduce bank erosion, slow down water, and improve habitat and buffers while increasing opportunities for public access and economic development
- Restore and connect ecological corridors to maximize green space, improve habitat and flood storage, and strengthen resilience

WORK TO DATE

- Re-meandering sections of the creek in St. Louis Park and Edina
- Implementing stormwater management in Hopkins, St. Louis Park, and Edina
- Repairing eroded streambanks in Minneapolis
- Revitalizing Cottageville Park in Hopkins and Arden Park in Edina
- Creating new trail systems and public access to the creek in St. Louis Park

RESULTS

- 19 percent reduction in phosphorus levels in Lake Hiawatha
- Creek concentrations of chlorophyll-a that now meet state standards
- 60 acres of newly accessible green space
- 30 acres of restored wetlands
- 150+ lbs of phosphorus removed per year
- 3.2 acre-feet of floodplain storage
- 1.5 miles of restored creek/banks

MINNEHAHA CREEK SUBWATERSHED 2023 ACTIVITIES

325 BLAKE ROAD RESTORATION AND REDEVELOPMENT

Our project at this former industrial site bordering Minnehaha Creek will feature riparian restoration, open space amenities, and regional stormwater treatment. In partnership with the City of Hopkins and private development partner Alatus, approximately 12 acres of the site will be transformed into an integrated, transit-oriented mixed-use development. The completed site will treat polluted runoff from 270 acres of the surrounding region and reduce phosphorus levels by up to 385 pounds per year. MCWD has received \$2.4 million from Hennepin County, Met Council, Public Facilities Authority, and Clean Water Legacy Fund in project support.

The initial phase of the development is set to begin construction fall 2022 and continue throughout 2023 and will result in over 100 affordable housing units. This marks a major milestone that furthers our partners' (Hopkins, Hennepin County, Met Council) affordable housing goals, and is a powerful example of what our vision of a balanced urban ecology truly looks like in action.



Design drawing from consultants HDR and Damen/Farber of the fully restored and redeveloped 325 Blake Road, including recreational access to the creek and ponds to support regional stormwater management and cleaning.

COTTAGEVILLE PARK EXPANSION & GREENWAY CONNECTIONS

In 2023, we will invest capital funds to create a connection to the Minnehaha Creek Greenway trail system between Cottageville Park and the Minnehaha Creek Preserve. Additions at 325 Blake Road and Lake Street will include a Gateway Plaza and a new nature play area.

STREAM ENHANCEMENT & TRAIL CONNECTION

The Southwest Light Rail Transit (LRT) line will provide another important community connection to this revitalized corridor. In partnership with the City of St. Louis Park and the Metropolitan Council, a key connection will link investments along the Minnehaha Creek Greenway trail system to the Cedar Regional Trail and restore the streambank along the construction corridor. Project design work will begin in 2023 following completion of feasibility in 2022.

MINNEHAHA CREEK PARKWAY WATER RESOURCE IMPROVEMENTS

The Minneapolis Park and Recreation Board, in coordination with the City of Minneapolis and MCWD, adopted a new 30-year vision and plan for the Minnehaha Creek Regional Trail in 2020. Conversations continue among the partner agencies to set a shared framework for implementation to transform this critical natural space in south Minneapolis, including regional stormwater management solutions and creek restoration to make water quality, infrastructure, and ecological improvements.

ACTIVITY SPOTLIGHT: CREATING A DATA DRIVEN TOOL FOR CLIMATE ACTION

CHANGING OUR APPROACH

Water systems throughout Minnesota were built for stable, predictable precipitation patterns. New extreme swings in precipitation are stressing our natural and built environments, impacting water quality, wildlife habitat, and the safety of homes, public infrastructure, and businesses.

At a regional level, MCWD is well-positioned to understand how changing weather patterns will impact water issues in communities by building a high-resolution model of our watershed. This new model will leverage advancements in data science, and combine state land surface information with local infrastructure to provide a more detailed understanding of surface and groundwater flows in the watershed. This tool will help identify cost-beneficial projects.

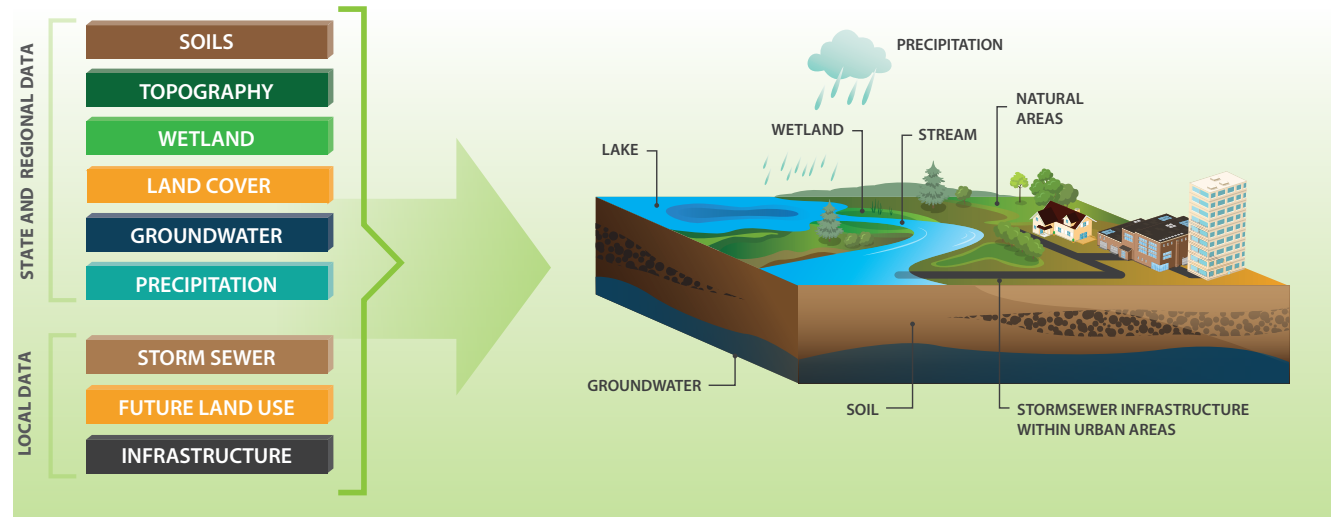
PARTNERSHIP FUELS PILOT WORK IN 2022

In 2022, we are partnering with the City of Edina and City of Victoria to develop a pilot model, an important first step as we seek to best serve our communities in their climate adaptation.

FULL WATERSHED BUILD & ENGAGEMENT BEGINS IN 2023

2023 will see our modeling work expand toward a fully built high-resolution model to serve the whole watershed and improve our understanding of how all surface and groundwater flows in the system. This new tool will help identify natural resources and public assets in need of protection.

HOW OUR NEW MODEL WILL USE DATA TO INFORM CLIMATE ACTION



High-resolution understanding of complex watershed

Predict impact of changing climate

OUTPUTS

Identify natural resources most in need of protection

Quantitatively compare proposed projects

Improve flood forecasting and emergency response

DEFINING OUR ROLE IN CLIMATE ACTION

Our Climate Action Framework, to be finalized in fall 2022, sets a direction for how we will engage with local, regional, and state partners over the next five years, leading to our 2027 Watershed Management Plan.



ADDITIONAL WATERSHED-WIDE SERVICES

In our commitment to serve partners and residents across the watershed's 178-square miles, we provide a variety of services that assist in clean water work to complement our work in focal geographies and through land and water partnerships.

SERVICE IN ACTION

Research and Monitoring staff, shown here, pump shallow groundwater from a monitoring well to collect water samples. Monitoring at varying depths and spatial locations throughout the wetland helps MCWD understand where phosphorus loading is coming from, which informs the design of water quality improvement projects.



SERVICES

- **Research and Monitoring:** Collecting and analyzing data across the watershed to identify resource needs to inform planning and implementation.
- **Permitting:** Reviewing and overseeing construction activities, in coordination with our communities, to protect natural resources from degradation as a result of land use change.
- **Outreach:** Connecting people to information they value and engaging residents, agencies, and private sector partners to ensure that our work is integrated with the goals of our communities.
- **Project Maintenance and Land Management:** Maintaining our projects and land to ensure their continued function and value and managing the operation of Gray's Bay Dam to balance the water budget throughout our 178-square miles and reduce the risk of flooding.

Find contact information for MCWD Board of Managers and staff across our programs at our website, www.minnehahacreek.org. We're excited to have a brand-new website to help share information our residents and partners value in 2023—keep an eye out for the launch in fall 2022!



MINNEHAHA CREEK
WATERSHED DISTRICT