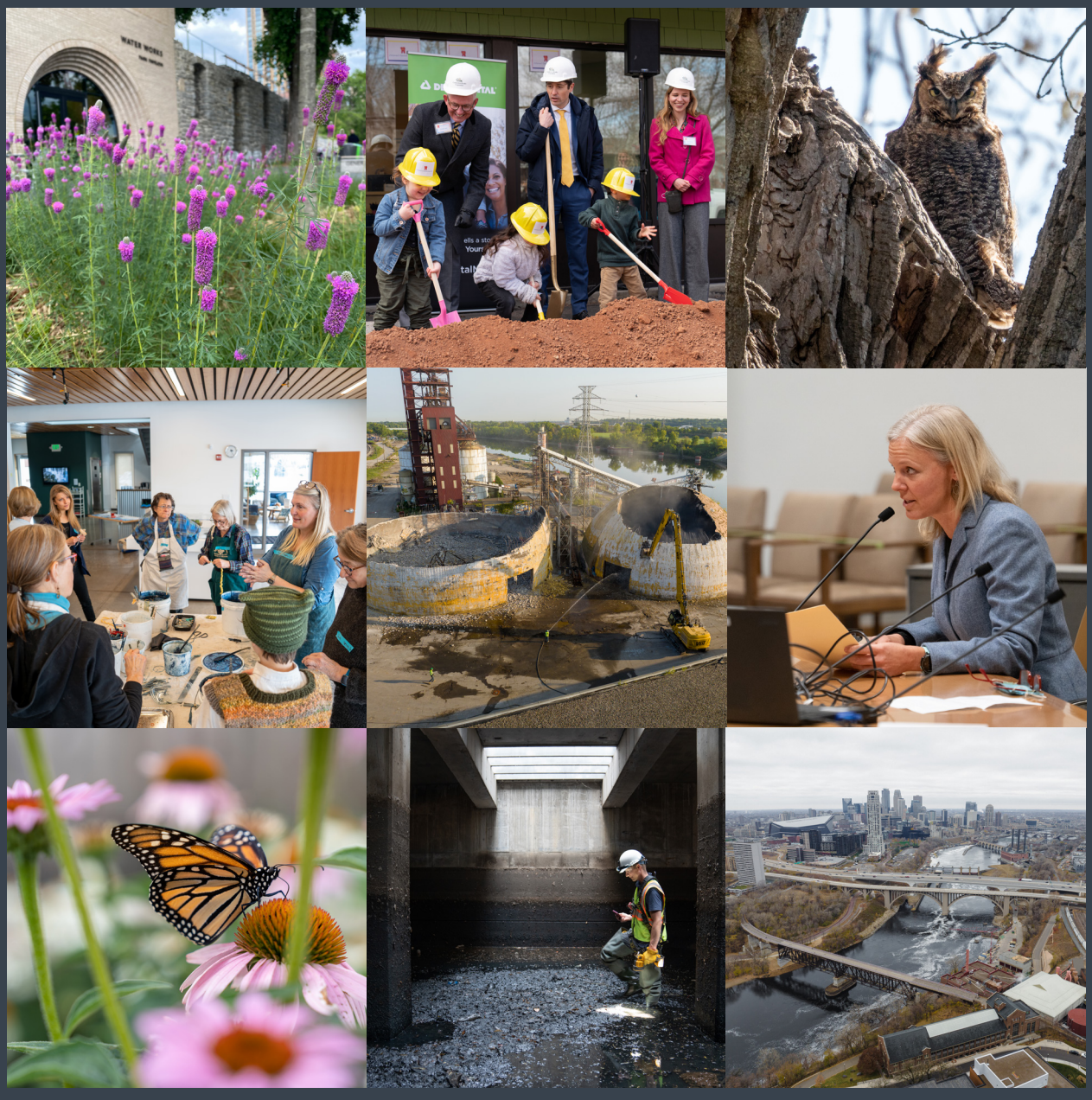
MWMO

Protect it. Pass it on.

MISSISSIPPI WATERSHED MANAGEMENT ORGANIZATION

2022 Annual Activity & Financial Report



MWMO Watershed Bulletin: 2023-2

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MISSISSIPPI WATERSHED MANAGEMENT ORGANIZATION

2022 Annual Activity & Financial Report

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Suggested Citation

Mississippi Watershed Management Organization. (2023). 2022 annual activity and financial report. MWMO Watershed Bulletin 2023-2. 64 pp.

Front Cover

Photo credit: Mississippi Watershed Management Organization

2022 Annual Activity & Financial Report

Mississippi Watershed Management Organization

Abstract

All metro-area watershed management organizations are required to annually submit an activity report, financial report and financial audit within 120 days of the end of the organization's fiscal year.

This report meets the requirements of the Metropolitan Water Management Act (MS 103B.231) and Minnesota Rules 8410.0150. The intent of an activity and financial report is to provide an annual snapshot or record of where this organization is in meeting its mission, goals and objectives, and what its goals and objectives are for next year. This record is important — not only to meet rule requirements, but also for future organization board and staff members to understand why past decisions were made and directions were taken.

Key components of the required reporting are:

- Budgets and expenditure information
- Annual workplan and evaluation of past workplan
- Status of local water management plan adoption
- Summary of monitoring data
- Permit and enforcement activity
- Status of wetland plans and banking

This report is organized by MWMO areas of expertise and activity. The workplan description is delivered at an area of activity or expertise level, rather than at an individual staff level. Individual workplans are adjusted quarterly to reflect and meet the ever-changing work environment of the MWMO, while areas of activity and expertise needs are driven by annual budget processes of the watershed and its members.

This report may be updated periodically throughout the year. The most recent version will be available on the MWMO's website at mwmo.org.

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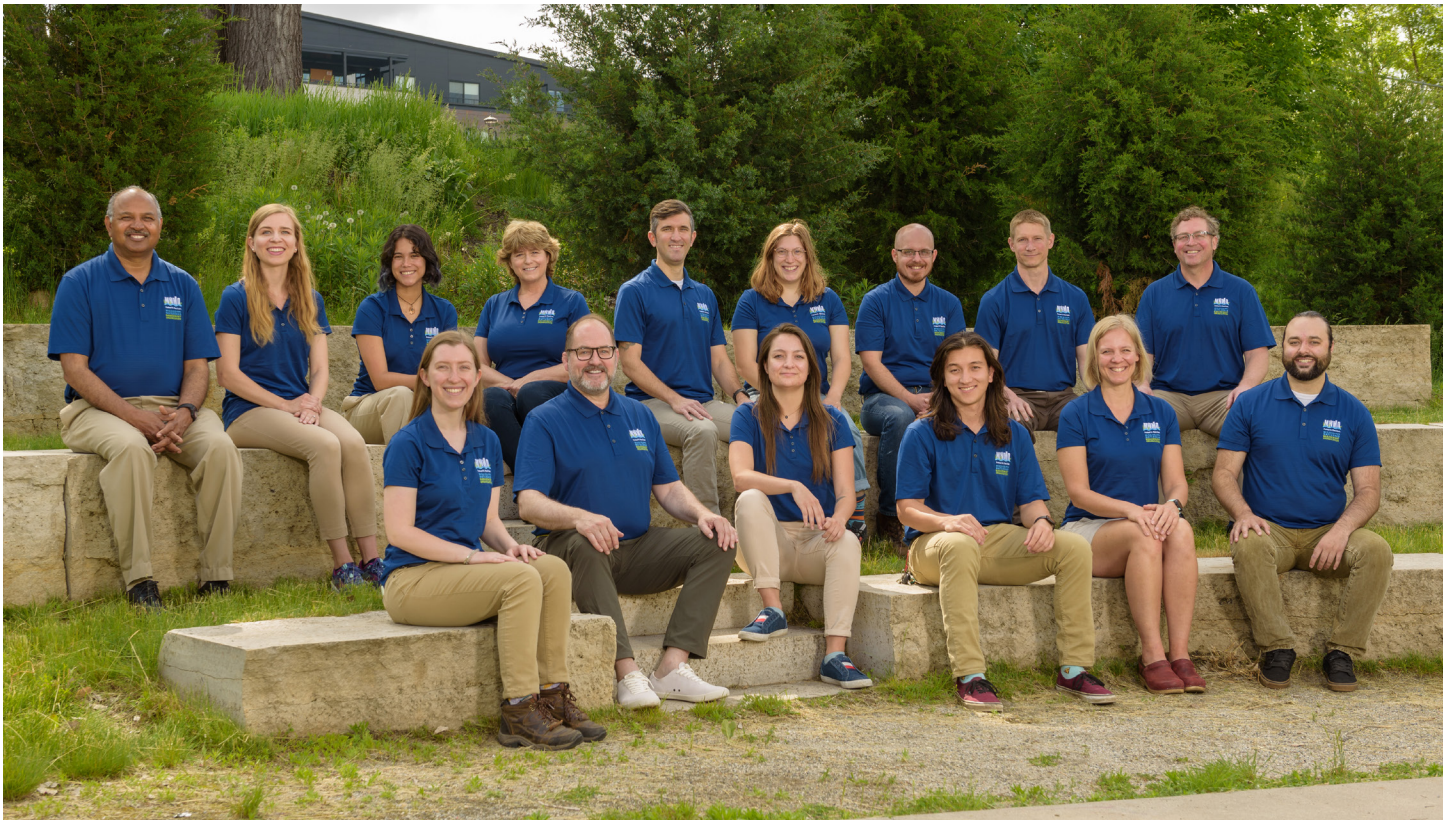

Figure 1. MWMO permanent and seasonal staff in June 2022. Top row, from left: Udai Singh, Alicia Beattie, Josephine Khan, Nancy Stowe, Nick Busse, Chloe Kahn, James Rudolph, Brian Jastram, and Dan Kalmon. Bottom row, from left: Eva Hanson, Kevin Reich, Isabel Seibert, Wyatt Schulman, Abby Moore, and Adam Flett.

Organizational Summary

Formation and History

The MWMO encompasses 25,309 acres (39.5 square miles) of fully-developed urban lands and waters within the Minneapolis—Saint Paul metropolitan core area. The original members included the cities of Falcon Heights, Lauderdale, Minneapolis, Saint Anthony Village, and Saint Paul, the Minneapolis Park and Recreation Board, and the University of Minnesota.

Key Events in the History of the Organization

The first draft of the MWMO Plan was published in December 1986. The 1986 plan was prepared to meet the then-current Minnesota Chapter 509 requirements. The 1986 plan addressed surface water quality and quantity, land use, and identified significant point and nonpoint source pollution in the MWMO. It also noted significant groundwater pollution problems from past industrial and commercial practices and stormsewer drainage, but was never approved by the Board of Water and Soil Resources (BWSR) or the MWMO Commission.

In 2000, the University of Minnesota opted out the organization. During second-generation planning (1997-2000, adopted in 2001), the MWMO acknowledged the limits of its member communities to incur additional financial expenses. Consequently, the MWMO developed strategies for new funding mechanisms. The MWMO sought inclusion on the list of Special Taxing Districts (Minnesota Statutes 275.066) and, in 2001, the MWMO became the first joint-powers WMO to receive an ad valorem levy authority necessary to implement plan goals and objectives. In addition, MWMO land in Falcon Heights and Lauderdale was placed in the Capitol Region Watershed District during its formation by BWSR. In September of 2002, the MWMO hired its first two full-time staff members to implement the plan.

The Mississippi River is the MWMO's natural resource focus and the nexus of the urban area we know as the Twin Cities, and the river is the setting for our work. The river itself provides important water-based ecosystem advantages and facilitates many other beneficial activities and services, including: hydroelectricity; barge access; habitat, wildlife corridors, and recreational water-related amenities; industrial, commercial and residential land uses; public drinking water; and stormwater and municipal wastewater discharge. Within the boundaries of the MWMO, surface water either flows directly overland or drains through pipes to the river. All groundwater generally flows toward the river as well.

The MWMO is one of several entities that has developed plans to address critical watershed issues within the MWMO. The MWMO believes coordination of these plans and the entities that drafted them are imperative to successful watershed management. The complex network of private and public (federal, state, regional, municipal, and local) agencies involved in water and natural resource management and land-use planning and development must work together to achieve mutual goals. To put financial and human resources to best use, land use and environmental policies, projects and programs stemming from those agencies must be implemented in a complementary, non-duplicative manner.

In 2011, Six Cities Watershed Management Organization was dissolved. The Cities of Columbia Heights, Fridley, and Hilltop became members of the MWMO in July 2012, joining the Cities of Minneapolis, Saint Paul, Lauderdale, and Saint Anthony Village, and the Minneapolis Park and Recreation Board. These entities entered into a new, revised joint and cooperative agreement (i.e., Joint Powers Agreement under Minnesota Statutes 471.59) that now form the MWMO.

The MWMO Watershed Management Plan was amended to include the area within the new member cities. In 2014, the MWMO went through a staff reorganization to better meet the goals of the organization and to support and coordinate implementation with its members to achieve water quality, water quantity and habitat goals. Depending on the season, the MWMO may have up to 20 staff members across all employment categories–full-time employees, temporary or seasonal employees and interns.

The current plan, approved in January 2022, uses information and data from past studies and actions to address a variety of issues deemed significant by the MWMO Citizen Advisory Committee (CAC), the MWMO Technical Advisory Committee (TAC) and the MWMO Board of Commissioners. This includes new items such as Diversity, Equity, and Inclusion (DEI), climate adaptation, and maintenance of Green Stormwater Infrastructure (GSI).

Vision and Mission Statements

Vision Statement: To lead, to inspire, to act, to educate, and to create a shared vision for a river system with ecological integrity.

Mission Statement: To lead, and to foster stewardship of the watershed with actions that promote civic ownership and responsibility and through measures that achieve diverse and functional ecosystems.

Summary of 2022 Services and Operations

Number of Employees (including seasonal and interns)	23
Number of FTEs	15
FTE Average Length of Service	4.91 years
FTE Turnover Rate	33.3 percent
Capital Improvements and Initiatives Revenue	$4,850,000
Capital Asset Replacement Revenue	$200,000
Operating Revenue	$1,220,000
Contingency	$130,000
Total Levy	$6,400,000

Board of Commissioners

The governing body of the MWMO is its commission, which consists of seven voting commissioners. All appointments to the commission are made in accordance with Minnesota Statutes 103B.227 and Articles III and IV of the MWMO Joint and Cooperative Agreement. These statutes and articles together lay out the appointment process and powers of the MWMO Board of Commissioners.

Notices of all vacancies and appointments shall be published at least 15 days prior to filling a vacancy in a legal publication of the member's community seeking a commissioner. The

council of each member shall appoint one commissioner to represent the member to the commission. Each commissioner shall serve until his or her successor is appointed.

Member councils may select and appoint alternates to the commission in the same manner as commissioners. In the absence of a member's commissioner, the designated alternate may vote and act in the commissioner's place. The alternate shall serve a term concurrent with the member's commissioner. The council of each member shall determine the eligibility and qualifications of its commissioner and alternate.

Commissioners

Commissioner Steve Eggert, City of Fridley, Chair
7071 University Ave. NE, Fridley, MN 55432
763-571-3450

Commissioner Randy Stille, City of St. Anthony Village, Vice-Chair
3301 Silver Lake Rd., St. Anthony, MN 55418
612-782-3301

Commissioner LaTrisha Vetaw, City of Minneapolis, Treasurer
350 S Fifth St., Rm. 307, Minneapolis, MN 55415
612-673-2201

Commissioner Jeffrey Dains, City of Lauderdale
1891 Walnut St., Lauderdale MN 55113
651-645-7068

Commissioner Becka Thompson, Minneapolis Park and Recreation Board
2117 West River Rd. N, Minneapolis, MN 55411
612-230-6443

Commissioner Connie Buesgens, City of Columbia Heights and City of Hilltop
1021 44th Ave. NE, Columbia Heights, MN 55421
763-788-5072

Commissioner Michael Lukes, City of St. Paul
2522 Marshall St. NE, Minneapolis, MN 55418
612-746-4970

Alternate Commissioners

Alternate Commissioner Michael Rainville, City of Minneapolis
350 S 5th St., Rm. 307, Minneapolis, MN 55415
612-203-1459

Alternate Commissioner Mary Gaasch, City of Lauderdale
1891 Walnut Street, Lauderdale, MN 55113
651-645-5918

Alternate Commissioner Jan Jenson, City of St. Anthony Village
3301 Silver Lake Rd., St. Anthony, MN 55418
612-782-3301

Alternate Commissioner Bertha Risdahl, City of Hilltop and City of Columbia Heights
1021 44th Ave. NE, Columbia Heights, MN 55421
612-746-4970

Alternate Commissioner Billy Menz, Minneapolis Park and Recreation Board
2117 West River Rd. N, Minneapolis, MN 55411
612-230-6443

Alternate Commissioner Tom Tilberry, City of Fridley
7071 University Ave. NE, Fridley, MN 55432
612-716-5879

Alternate Commissioner for City of St. Paul
Open

Citizen Advisory Committee

The MWMO Citizen Advisory Committee (CAC) meets at the request of the MWMO Board of Commissioners to assist in managing the water resources of the MWMO. The scope of responsibilities for the CAC include reviewing funding proposals (e.g., Planning and Action Grants through the Stewardship Fund program), reviewing the MWMO's annual capital budget, and participating in planning for the watershed. Other responsibilities may be assigned to the CAC by the Board of Commissioners as needed. The CAC provides review and feedback in the form of recommendations to the Board of Commissioners.

Applications are accepted year-round, and open positions are filled throughout the year. Applications submitted to replace incumbents are due by December 15 each year.

Appointments are for one year and are renewable annually. Up to two at-large positions may be filled by people who live outside of the MWMO boundaries. All CAC members may be contacted through the MWMO office.

CAC Positions

Columbia Heights (one)
Open

Fridley (one)
Nick Olberding

Hilltop (one)
Open

Lauderdale (one)
Open

St. Anthony Village (one)
Lona Doolan

Saint Paul (one)
Open

Minneapolis (five)

Open	North
Perry Dean	Northeast
Open	South
Ann Lewandowski	Southwest
Gareth Becker	Downtown

At-Large Positions (five)

Mary Fitzgerald	Minneapolis
Akia Vang	Minneapolis
Sam Westlund	Minneapolis
William Risse	St. Anthony Village
Open	

Staff

The MWMO Board of Commissioners first hired staff in September of 2002. The Board of Commissioners first established, and now maintains, personnel policies and structures to attract and retain qualified personnel to implement MWMO activities. This is accomplished by encouraging continual performance improvement through a well-administered training, salary and performance-review programs.

In addition to its own full-time employees, the MWMO shares employees with the City of St. Anthony Village in the areas of human resources and financial management, and the MWMO hires part-time regular and seasonal employees and interns as needed to complete its annual plan of work.

2022 MWMO Staff

Executive Director
Kevin Reich
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612-746-4971

Projects and Outreach Director
Nancy Stowe, PE
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612-746-4978

Water Resources Director
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Communications Principal
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Projects and Grant Specialist
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612-746-4988

Environmental Specialist
Eva Hanson
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Monitoring and Instrumentation Specialist
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Projects and Planning Specialist
Shawn James
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612-746-4983

Training and Community Learning Specialist
Abby Moore
amoore@mwmo.org
612-746-4981

Water Resources Specialist
Jim Rudolph
jrudolph@mwmo.org
612-746-4987

Administrative and Operations Specialist
Isabel Seibert
iseibert@mwmo.org
612-746-4982

Environmental Specialist
Mary Thelen
mthelen@mwmo.org
612-746-4987

Community Outreach Specialist
Mary Yang
myang@mwmo.org
612-746-4975

Water Quality Intern
Stephen Boler

Water Quality Intern
Lucas Clapp

2022 MWMO Staff (Continued)

Water Quality Intern
Chloe Kahn

Water Quality Intern
Madison DelCastillo

Water Quality Intern
Alexander Johansson

Water Quality Intern
Wyatt Schulman

Water Quality Intern
Donald Hagen

Water Quality Intern
Josephine Khan

Water Quality Intern
Eva Hanson

FT Employees Leaving the MWMO in 2022

Executive Director
Douglas Snyder

Capital Projects and Stewardship Specialist
Alicia Beattie

Water Resources Specialist
Brittany Faust

Environmental Specialist
John Mueller

Youth and Community Outreach Specialist
Michaela Neu

2022 Shared Staff

The MWMO shared the following staff with the City of St. Anthony Village in 2022:

Accountant
Ka Vue
ka.vue@ci.saint-anthony.mn.us
612-782-3334

Finance Director
Shelly Rueckert
shelly.rueckert@ci.saint-anthony.mn.us
612-782-3316

Human Resources Coordinator
Jennifer Doyle
jennifer.doyle@ci.saint-anthony.mn.us
612-782-3315

Consultants

In accordance with Minnesota Statutes 103B.227, subdivision 5, the MWMO sends out requests for proposals for legal, professional and technical (engineering) and consultant services at least once every two years (in the fall of even-numbered years). At its annual business meeting in January, the MWMO Board of Commissioners reviews and approves a list of approved consultants. The board reserves to right to alter the list at any point in order to meet the needs of the organization.

The following is a list of organizations that provided services to the MWMO in 2022:

Accounting

City of St. Anthony Village
3301 Silver Lake Rd.
St. Anthony, MN 55418
651-782-3301

Financial Audit

Redpath and Company
55 E Fifth St., Ste. 1400
St. Paul, MN 55101
651-426-7000

Engineering

Barr Engineering
4700 W 77th St.
Minneapolis, MN 55435-4803
952-832-2600

Emmons and Olivier Resources
651 Hale Ave. N
Oakdale, MN 55128
651-203-6001

HGA
420 N Fifth St.
Minneapolis, MN 55401
612-758-4000

Houston Engineering, Inc.
6901 E Fish Lake Rd., Ste. 140
Maple Grove, MN 55369
763-493-4522

Inter-Fluve
2121 Randolph Ave., Ste. 200
St. Paul, MN 55105
651-243-9700

RESPEC
1935 County Rd. B2 W, Ste. 230
Roseville, MN 55113
651-305-2280

TKDA
444 Cedar St., Ste. 1500
UBS Plaza
St. Paul, MN 55101
651-292-4400

Stantec
2335 West Highway 36
St. Paul, MN 55113
651-636-4600

Wenck Engineering
P.O. Box 249,
1800 Pioneer Creek Center
Maple Plain, MN 55359
763-479-4201

WSB and Associates, Inc.
763-541-4800
701 Xenia Ave. S, Ste. 300
Minneapolis, MN 55416

Payroll and Financial Services

City of St. Anthony Village
3301 Silver Lake Rd.
St. Anthony, MN 55418
651-782-3301

Banking and Investments

4M Fund
5298 Kyler Ave. NE
Albertville, MN 55301
763-497-1490

Multi-Bank Securities, Inc.
1000 Town Center, Ste. 2300
Southfield, MI 48075

Northeast Bank
77 Broadway St. NE
Minneapolis, MN 55413
612-379-8811

Pershing, LLC
1 Pershing Plaza
Jersey City, NJ 07399

Legal

Kennedy and Graven, Chartered
470 Pillsbury Center, 200 S Sixth St.
Minneapolis, MN 55402
612-337-9215

Information Management and Technology

City of Roseville Management Information Services — Metro-INET
2660 Civic Center Dr.
Roseville, MN 55113
651-792-7092

Other Service Providers

Anoka Conservation District
1318 McKay Dr. NE
Ham Lake, MN 55304
763-434-2030

Ruth Murphy
442 Summit Ave.
St. Paul, MN 55102

Fortin Consulting
215 Hamel Rd.
Hamel, MN 55340
763-478-3606

Metropolitan Council Environmental Services
455 Etna St.
St. Paul, MN 55304
763-434-2030

MMC Associates
1312 Portland Ave.
St. Paul, MN 55104
651-647-6816

St. Anthony Falls Laboratory, University of MN
2 Third Ave. SE
Minneapolis, MN 55414
612-624-4363

Three Rivers Park District
3000 Xenium Ln. N
Plymouth, MN 55441
763-694-7651

Freshwater Society
2424 Territorial Rd., Ste. B
St. Paul, MN 55114
651-313-5800

Wilderness Inquiry
808 14th Ave. SE
Minneapolis, MN 55414
612-676-9400

Communications/Website

Windmill Strategy
1227 Tyler St. NE #180
Minneapolis, MN 55413
612-521-4286

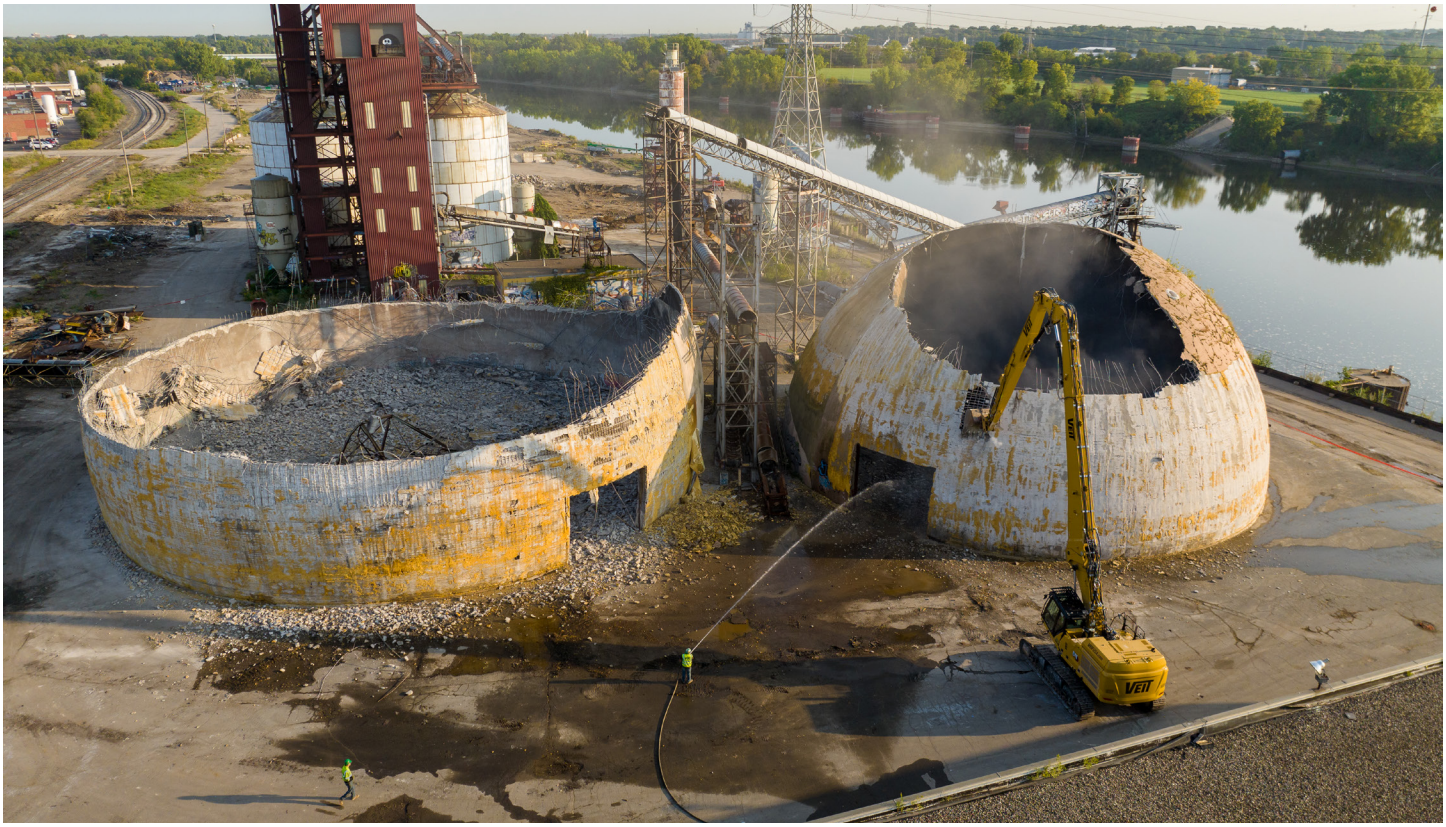

Figure 2. Workers use an excavator to demolish the dome-shaped silos at the Upper Harbor Terminal site in September 2022.

Capital Project Grants

Purpose

The MWMO's Capital Project Grants fund water quality and ecosystem health enhancements within the MWMO watershed. These projects provide unique and innovative solutions for stormwater management in highly developed urban areas. They also provide opportunities for community partnerships to build understanding, knowledge, and initiative related to water, habitat, and natural resource issues and solutions.

Objectives

- Encourage the integration of the stormwater system with other infrastructure systems — e.g., energy, water supply and reuse, and wastewater treatment — to create greater efficiencies for all infrastructure systems.
- Participate as members of project teams from ideation through design and implementation.
- Build the MWMO's capital improvement project (CIP) list with opportunities to collaborate

on capital projects that meet both MWMO and member organization goals.

- Strengthen our ability to reach key audiences by collaborating with other MWMO activity areas.
- Leverage funding sources to acquire key parcels of land within the MWMO that will lead to establishment of water quality and habitat improvements.

2022 Implementation

In 2022, the MWMO completed, entered into, or continued agreements and allocated capital funds for the projects listed below.

More detailed information about our projects can also be found at mwmo.org/projects.

Columbia Heights City Hall Snowmelt System

The City of Columbia Heights constructed a heated sidewalk serving approximately 5,000 square feet of exterior sidewalk and parking garage driveway area at its new city hall, located at the corner of 40th Avenue NE and Central Avenue NE. This system is designed to eliminate the need for chloride-based (i.e., salt) deicers used to melt ice in the winter.

Without the snowmelt system, assuming a conservative salt application at the rate of 1 pound of salt per 250 square feet, around 20 pounds of de-icing salt would be applied after each snow event. This would be enough to contaminate up to 7,600 gallons of water in a single snow event. In addition to saving the city money, the system will eliminate the need for an amount of salt that could contaminate an estimated 121,000 gallons per year of stormwater runoff that flows to the Mississippi River.

Columbia Stormwater Pretreatment

The MWMO and the City of Minneapolis installed a stormwater pretreatment unit known as a hydrodynamic separator at the intersection of 35th Avenue NE and NE Tyler Street to help ensure the long-term functionality of the Northern Columbia Green Infrastructure project to the west (downstream). The system is designed to screen, separate, and trap trash, debris, sediment, and hydrocarbons from stormwater runoff.

The project was completed in 2020 and MWMO funding was mostly released in 2021. In 2022, the remaining 10 percent of the grant was released with the city's submission of the operations and maintenance plan.

Downtown East Green Infrastructure

The MWMO provided $500,000 to the City of Minneapolis to implement green stormwater infrastructure (GSI) as part of a street reconstruction project in the area just north of U.S. Bank Stadium in Downtown Minneapolis. In October 2021, construction began on a combination of curb cuts, boulevard bioswales, and a large filtration basin. A diverse selection of native trees and perennials were installed in the bioswales and filtration basin.

The project is significant in that it is among the first GSI projects within the downtown core right-of-way. The new filtration basin captures and treats runoff from a total of 4.3 acres, removing an estimated 4.8 pounds of total phosphorus and 946 pounds of sediment annually. This project also helps relieve flooding through a new drill-hole connection for filtered runoff from the newly installed GSI to the stormsewer system. The project's stormwater features will be highly visible as they are located near U.S. Bank Stadium, the Guthrie Theater, and a number of downtown businesses.

Fifth Street NE Diversion Manhole

Design of the Fifth Street NE diversion manhole is associated with the Northern Columbia Green Infrastructure project, which began in 2020. The current construction ends with a pipe bulkhead on the east side of the Fifth Street NE curb line, upstream of two hydrodynamic separators. The connection between the stormsewer running north to south along Fifth Street NE and the infiltration basin requires the design and construction of a diversion manhole. SRF Consulting Group anticipates the need for rebar design and a large custom structure that may need to incorporate a catch basin and custom top slab. The manhole could be constructed once the project is ready to be put "online," which is anticipated in 2023. The final timing will be dependent on the retrofit design and construction for the northwest basin and other factors such as landscape establishment.

Hoyer Heights Tree Trenches

The City of Minneapolis installed a series of stormwater-absorbing tree trenches along portions of Fillmore Street NE, Buchanan Street NE, and Lincoln Street NE (south of 37th Ave NE) in Hoyer Heights as part of a street reconstruction project. This pilot project is among the first in the city to capture and treat runoff directly from the street in a residential neighborhood using a type of stormwater best management practice (BMP) called a tree trench. The design includes curb cuts that allow stormwater runoff to feed directly from the street into the tree trenches, which then filter out pollutants.

The project was planned as part of the Northeast Stormwater Management Initiative, which

seeks to improve water quality and flood resiliency in Columbia Park (including Columbia Golf Course) and the surrounding neighborhoods. Construction of the tree trenches, including plantings, was completed in the summer/fall of 2020, with follow-up grading completed in 2021. Vegetation health was assessed throughout 2022. The MWMO will continue to work with the city on outreach to residents, but construction and plant establishment is complete.

Juxtaposition Arts Campus Expansion

Juxtaposition Arts (JXTA), a nonprofit teen-staffed art and design center, gallery, retail shop, and artists' studio space in North Minneapolis, was awarded a $216,000 Capital Project Grant for a stormwater retention and reuse system and native plantings at its campus expansion project at 2015 Emerson Ave. N in Minneapolis.

JXTA sought to provide stormwater management features that are innovative, highly visible, and that provide educational benefits for their students and partners. The MWMO previously assisted JXTA in the development of raingardens at its Skateable Art Plaza through an Action Grant. Investigation of the site identified significant environmental pollutants in the soil that require complete removal and disposal. The stormwater management features were installed in 2022, and the project will be completed in 2023 with the planting of pollinator-friendly vegetation and development of educational signage.

Metro Transit Bus Garage

The MWMO worked with Metro Transit to design and implement a stormwater reuse system that will be used for washing buses at a new bus operations and maintenance facility in North Minneapolis. The system utilizes a 40,000-gallon underground cistern and multiple filtration methods to capture and treat runoff from the building's roof. This will allow facility staff to conserve up to 13,000 gallons of potable water each day, and up to 2.5 million gallons of water per year. Construction was largely completed in 2022, and the facility is expected to open early 2023.

Northern Columbia Green Infrastructure

Following extensive outreach and engagement in 2019, the MWMO and its partners began installation of new stormwater best management practices (BMPs) at the Columbia Golf Course and Columbia Park in October 2020. The project expanded an existing wet stormwater pond and constructed one new dry pond and one new wet basin at the golf course park, along with the necessary stormsewer improvements to convey stormwater. As part of the Northeast Stormwater Management Initiative, these upgrades will improve water quality, restore habitat, enhance the playability of the golf course, and improve the flood resiliency of the park, golf course, and upstream

neighborhoods. Construction and habitat restoration work was mostly completed in 2022; however, final grading of the new wet basin and vegetation establishment work will occur in 2023.

NorthPoint Health and Wellness Center Expansion

Construction of a stormwater-friendly landscape for the expanded NorthPoint Health and Wellness Center in North Minneapolis took place in 2022. Stormwater management on-site includes a raingarden, modular wetlands, and underground storage with a stormwater reuse system. This system was constructed to manage stormwater from a portion of the new building, the plaza, and new parking lot. The MWMO has been partnering with Hennepin County on this initiative since 2018. During 2020, the project was redesigned to come up with a more cost-effective solution to achieve the county's goals for the project. Construction of the stormwater management features was mostly completed in 2022. In 2023, the project will be completed with the addition of the raingarden and vegetation.

Towerside Fourth Street SE Landscape for Habitat

The management of an existing operations and maintenance grant along Fourth Street SE was taken over by MWMO staff in 2022. This was due to a shortage of staff at the Towerside Innovation District. The MWMO will continue to maintain the pollinator and migratory bird habitat project along a four-block stretch of Fourth Street SE between Malcom Avenue SE to 25th Avenue SE until the remaining grant funds run out. In 2023, the MWMO will modify the contract for ongoing watering and weeding, and will continue to work closely with Towerside to plan for long-term operations and maintenance.

Upper Harbor Terminal

In 2022, MWMO staff continued to work with the City of Minneapolis, the Upper Harbor Terminal (UHT) development team, the Minneapolis Park and Recreation Board, and neighborhood representatives to develop a shared public/private district system that manages stormwater, habitat, privately owned public space, and informal trails. Much of this work began in the planning phase, as further explained in the Watershed Assessment and Planning sections of this report. Projects listed below and anticipated in 2023 are outcomes of the planning phase.

Upper Harbor Terminal District Stormwater 60-Percent Design

In 2022, the 60-percent design of the district system was advanced in a manner to meet the project goals of the MWMO and partners. Materials were developed to communicate proposed physical improvements on the site, inform availability and needs for MWMO funding, and to guide the development of a reciprocal easement operating agreement (REOA) discussed and

refined by all of the partners. The 60-percent design for most of the UHT site was completed in 2022.

Upper Harbor Terminal Shoreline and Overlook

The Upper Harbor Terminal (UHT) shoreline and pedestrian overlook project is located along the west side of the Mississippi River between 33rd Avenue N and Dowling Avenue N, and is the result of a multi-year planning and construction phasing effort involving the City of Minneapolis, Minneapolis Park and Recreation Board (MPRB), the MWMO, and private developers.

The UHT site was formerly industrial and largely impervious or contained mostly non-native and undesirable vegetative species. In 2022, a 1-mile stretch along the riverbank was cleared of undesirable vegetation and many of the remaining structures were demolished. The shoreline and riverbank were substantially regraded to a 3.5:1 slope to allow for quality vegetation establishment, and was seeded with a native prairie seed mix. This effort will stabilize the slopes and soils along the river to prevent loss of shoreline, as well as restore habitat with a variety of vegetation types, including oak forest, along the Mississippi River Corridor Critical Area (MRCCA). In 2023, vegetation establishment will be monitored, trees will be planted, and an operations and maintenance plan will be developed.

A pedestrian overlook and restoration of a ravine are also planned as part of this project. The overlook will allow for a better-connected stormwater and habitat area within the UHT district stormwater system. It also serves as a headwall to a restored riverbank ravine and the living ephemeral stream falls that will discharge to the Mississippi River. The overlook will allow for educational opportunities and provide a viewing platform for the nearby heron rookery. Construction of the overlook and ravine restoration will begin by summer 2023.

Upper Harbor Terminal Easement Descriptions

To support development of the final UHT reciprocal easement operating agreement (REOA) in 2022, the MWMO contracted with Rani Engineering to develop easement depictions and legal descriptions representing areas of the district system at the UHT site. This initial phase of easement work was needed for the completion of a REOA.

Water Works Stormwater Reuse System

The Minneapolis Park and Recreation Board (MPRB) led the creation of a new park along the Mississippi River at a highly visited area adjacent to the Stone Arch Bridge in Downtown Minneapolis. Part of the RiverFirst Initiative, the project implemented a long-term vision for the area, integrating historical features of the city with park space, green infrastructure, and stormwater reuse within its park pavilion.

The MWMO funded a stormwater reuse system that will collect and treat roof runoff from the existing rooftops of adjacent buildings. This water will be used for irrigation at the Water Works site and toilet flushing in the pavilion. The 67,770-gallon storage tank is projected to conserve and reuse up to 970,000 gallons a year. The stormwater reuse system was installed in late 2019, and MWMO staff worked with the MPRB to get the system online in 2021. The project was completed in 2022 with the installation of interpretive elements.

Xcel Energy Marshall Operations Center

The MWMO provided grant funding to Xcel Energy to enhance water quality and habitat improvements at its newly constructed facility at the northwest corner of St. Anthony Parkway and Marshall Street NE in Northeast Minneapolis. The funding will be used for a variety of pollinator and wildlife habitat improvements, as well as stormwater best management practices.

Stormwater management features are anticipated to remove an estimated 95 percent of phosphorus and sediment from the site's stormwater runoff. The redeveloped site will also serve as a connection between several existing prairie and woodland habitat areas near the Mississippi River. In 2022, infiltration basins, vegetated swales, and pretreatment structures were constructed, most of the invasive plant species were removed, and some of the native trees were planted around the infiltration basins. In 2023, the project will be completed with the planting of the remaining trees, native prairie seeding, installation of shrubs and perennials around the building, and the addition of interpretive features.

Funding Availability and Outcomes

Table 1 on the following page shows the funding spent or anticipated to be spent over a three-year window for each MWMO capital project. Amounts spent are rounded to the nearest $1,000. Capital projects are either identified in the MWMO's Watershed Management Plan as part of its Capital Improvement Program or are awarded funding through a competitive grant application process. Each year, funding is made available to allow for the completion of the projects identified in the plan ($2.86 million allocated for 2022).

In addition to MWMO funding, several projects are supported by additional funders.

Table 1. Capital Project Grants Implementation

Implementation Table	2021	2022	2023
CIP Budget	$2,700,000	$2,862,000	$3,034,000
26th Avenue Overlook	$5,000	--	--
3030 Nicollet Stormwater Infrastructure	--	--	$486,900
37th Avenue Green Stormwater Infrastructure	--	--	$262,000
5th Street Diversion Manhole	--	$11,000	$28,000
8th Street Stormwater Planters	$7,000	--	--
Columbia Heights City Hall Snowmelt System	--	$119,000	$13,000
Columbia Stormwater Pretreatment	$144,000	$16,000	--
Downtown East Green Infrastructure	--	$500,000	--
Focus Arts Rooftop Farm	--	--	$200,000
Graco Park Development	--	--	$480,000
Hoyer Heights Tree Trenches[1]	$73,000	$38,000	--
Juxtaposition Arts Campus Expansion	$13,000	$171,000	$32,000
Metro Transit Bus Garage	$16,000	--	$40,000
Northern Columbia Green Infrastructure[2]	$5,046,000	$1,020,000	$350,000
NorthPoint Health and Wellness Center Expansion	--	$284,000	$32,000
Northrup King Campus Redevelopment	--	--	$254,000
Southside Green Zone Infrastructure Improvements	--	--	$210,000
Towerside District Stormwater System	$138,000	--	--
Towerside Fourth Street SE Landscape for Habitat	$56,000	$15,000	$5,000
Upper Harbor Terminal District Stormwater 60% Design	$272,440	$235,000	$37,000
Upper Harbor Terminal District Stormwater 90% Design	--	$100,000	$304,000
Upper Harbor Terminal Easement Descriptions	--	$8,000	$35,000
Upper Harbor Terminal Shoreline and Overlook	--	$1,267,000	$1,333,000
Water Works Stormwater Reuse System	--	$100,000	--
Xcel Energy Marshall Operations Center	--	$110,000	$185,000

1 $113,459 was reimbursed through Board of Water and Soil Resources (BWSR) Minnesota Clean Water Fund watershed-based funding grant.

2 $800,000 will be reimbursed through a BSWR Minnesota Clean Water Fund grant and $100,000 will be reimbursed through a Hennepin County Natural Resources Opportunity Grant. Up to $2,908,012 will be reimbursed by the City of Minneapolis. There is a separate contract (amended) with SRF Consulting for bidding and construction service (not to exceed $679,799).

Capital Projects Substantially Completed over the Last Three Years

Below is a summary of progress made towards MWMO's Watershed Management Plan Goals via capital projects. The projects are associated with the year they have been deemed substantially complete.

Projects implemented in 2020 included: Columbia Stormwater Pretreatment; Hoyer Heights Tree Trenches; Islands of Peace Park Restoration; Metro Transit Bus Garage; and Old Bassett Creek Tunnel Phase II Cleanout. Please note that the Old Bassett Creek Tunnel Phase II Cleanout was a one-time removal of sediment and pollutants.

Projects implemented in 2021 included: Downtown East Greening.

Projects implemented in 2022 included: Columbia Heights City Hall Snowmelt System; Juxtaposition Arts Campus Expansion; NorthPoint Health and Wellness Center Expansion; Upper Harbor Terminal District Stormwater 60-Percent Design; and Water Works Stormwater Reuse System.

Table 2. Capital Project-Related Watershed Management Plan Goals and Measures Achieved

Water Quality and Quantity	**2020**	**2021**	**2022**
Number of Projects	7	1	5
Annual TSS Removed (lbs.)	2,860	946	932
Annual P Removed (lbs.)	15.65	4.8	3.79
Volume Reused (gal.)	1,100,000	0	132,943
Volume Infiltrated (cu. ft.)	836,604	0	5,005

Urban Stormwater Management	**2020**	**2021**	**2022**
Types of BMPs Installed			
Infiltration Basin	1	0	0
Cistern	0	0	4
Filtration Basin	0	1	6
Permeable Pavement	0	0	0
Iron-Enhanced Sand Filter	0	0	0
Pretreatment	0	0	0
Streambank Stabilization	1	0	1
Habitat Restoration	1	0	0
Tree Trench	1	0	3

Ecosystem Health	2020	2021	2022
Vegetation Added (sq. ft.)	--	11,536	192,160
Trees Added	--	35	50

2023 Workplan

Several projects were underway in 2022 that will be finalized and reimbursed in 2023, including:

- Columbia Heights City Hall Snowmelt System
- Fifth Street Diversion Manhole
- Juxtaposition Arts Campus Expansion
- Metro Transit Bus Garage
- Northern Columbia Green Stormwater Infrastructure
- NorthPoint Health and Wellness Center Expansion
- Upper Harbor Terminal District Stormwater 60-Percent Design
- Upper Harbor Terminal Shoreline and Overlook
- Xcel Energy Marshall Operations Center

In addition, seven capital projects will largely get underway in 2023:

3030 Nicollet Stormwater Infrastructure

A stormwater reuse system and other green infrastructure will be installed at a planned multi-family housing development at 3030 Nicollet Avenue in Minneapolis. The building will replace a former Wells Fargo branch that was damaged during civil unrest in 2020 and then demolished. Along with a new Wells Fargo branch, the project will construct 110 units of affordable housing and affordable commercial condos that will be sold to local entrepreneurs.

Grant funds will be used to support the final design and installation of the stormwater and habitat features at the site. A rainwater harvesting system will use reclaimed stormwater runoff from the building's roof for toilet flushing and irrigation. A stormwater infiltration tank will treat and infiltrate the runoff from both 3030 Nicollet Avenue and the adjacent

parking lot to the north. A raingarden will filter water from the roof overflow drains, while a permeable paver patio area will capture and treat additional runoff.

37th Avenue Green Stormwater Infrastructure

The City of Columbia Heights (in coordination with the City of Minneapolis) will reconstruct approximately 5,230 feet of 37th Avenue, between Central Avenue and Stinson Avenue NE. The project exists on the boundary of Columbia Heights and Minneapolis, and will include adding a pedestrian trail on the north side of 37th Avenue, a boulevard between 37th Avenue and the proposed trail, and the inclusion of several Green Stormwater Infrastructure (GSI) features.

GSI features will include tree trenches, bioswales, and the creation of native plant habitat. The work provides the opportunity to make right-of-way improvements with many benefits (infrastructure, environmental, societal, aesthetic), for various users. These improvements will further the goal of improving water quality by reducing the overall impervious area within the corridor, creating disconnected impervious areas with the inclusion of the proposed trail, and incorporating beneficial GSI.

Focus Arts Rooftop Farm

This project is an innovative stormwater reuse system for a rooftop farm at the Focus Arts Building, located in the Seward Neighborhood of Minneapolis. The project's goal is to capture and reuse stormwater runoff to support a self-sustaining, year-round urban farm. Runoff from the building's roof will be conveyed into cisterns, cleaned, and used to irrigate the crops.

The project is part of the 3.5-acre Seward Commons redevelopment, which has transformed a formerly polluted industrial property into mixed-use buildings featuring mixed-income, multifamily housing near the Franklin Avenue light rail station. The water reclamation plan and project design were developed using a travel grant from the Bush Foundation, a capital grant from the McKnight Foundation, and a Stewardship Fund Planning Grant from the MWMO. Construction of this project is anticipated in 2023.

Graco Park Development

The MWMO awarded the Minneapolis Park and Recreation Board (MPRB) a Capital Project Grant of up to $480,000 to fund native habitat restoration, stormwater management features, and a heated sidewalk snowmelt system for the planned Graco Park at Sibley Street NE between Eighth Avenue and 10th Avenue NE in Minneapolis.

The Graco Park concept plan includes a multi-use, net-zero building with a geothermal heat source, walkways, gathering spaces, a trail under the Plymouth Avenue bridge that connects to Boom Island Park, public access to the river, and extensive integration of native habitat restoration and stormwater management features. The Mississippi East Bank Trail will

continue to travel through the park, with safety upgrades at the intersection of Plymouth/ Eighth Avenue NE and Sibley Street NE.

Northrup King Campus Redevelopment

Artspace Projects, Inc. (Artspace), a nonprofit arts organization specializing in creating, owning, and operating affordable spaces for artists and creative businesses, received approval for an MWMO Capital Project Grant of up to $750,000 for the Northrup King Campus Redevelopment Project. The Northrup King Campus is approximately 13 acres and is located at 1500 Jackson St. NE in Minneapolis.

Design work and cost estimates for stormwater management and habitat enhancement features were refined in 2021. The applicant proposed multiple ways to improve stormwater management for this historic site that currently has no stormwater practices, including: two filtration tanks; a combined rate control and treatment tank (with up-flow filter); permeable pavement areas; tree trench filtration systems; sunken trenches along streets; bioswales; runnel conveyance; and reuse/cisterns. The project also includes native and pollinator-friendly plantings. Construction of the project is anticipated to begin in spring 2023.

Southside Green Zone Infrastructure Improvements

The MWMO awarded the City of Minneapolis a $210,000 Capital Project Grant to install green infrastructure as part of a street reconstruction project at two key intersections along Minnehaha Avenue in the city's Southside Green Zone.

The city plans to convert 4,797 square feet of pavement into green space and treat stormwater runoff from approximately 1.3 acres of public right-of-way, adjacent roadways, and surrounding properties at Franklin and Minnehaha Avenues, and at 21st Avenue S and Minnehaha Avenue. The project will serve as a model for future collaborations between the city's Transportation and Surface Water and Sewers Divisions by informing approaches, scopes, procedures, and designs that could be replicable for future projects associated with the city's Concrete Streets Rehabilitation Program. The project will also create a unique opportunity for training and green jobs by using the vegetation installation and maintenance as a learning lab for local youth and nonprofit programs that invest in local, green jobs for the first five years of plant maintenance.

Upper Harbor Terminal

Upper Harbor Terminal District Stormwater 90-Percent Design

Continuing efforts to design a district stormwater system at Upper Harbor Terminal (UHT), MWMO awarded funding to Barr Engineering to assist developers in completing their designs. Collaboration will continue with the City of Minneapolis, the Minneapolis Park and Recreation

Board (MPRB), developers, and neighborhood representatives to develop a shared public/private District System that manages habitat, privately owned public places, and surface stormwater (HPS).

This project scope includes collaboration with partners to support development of the final Reciprocal Easement Operating Agreement (REOA) and Access Agreement. It will advance the design of the southern regional treatment system to 60 percent and 90 percent, which includes a water treatment system, storage tank, and stormwater pipe connections. The design of the reuse system will also be advanced to 90 percent and 100 percent, including UV treatment, pumping, and two ephemeral streams. This effort will include support with the public art process, construction administration, and continuing a collaborative approach to HPS idea generation and design recommendations. This effort commenced in 2022, but will be largely underway in 2023 and continue into 2024.

Upper Harbor Terminal Easement Descriptions

In 2023, the initial phase of easement work completed by Rani Engineering will be finalized and recorded against each parcel as an exhibit to the REOA. In addition, the MWMO will extend its contract with Rani Engineering to develop revised easement depictions and legal descriptions on a as needed basis as parcels are built out through 2030.

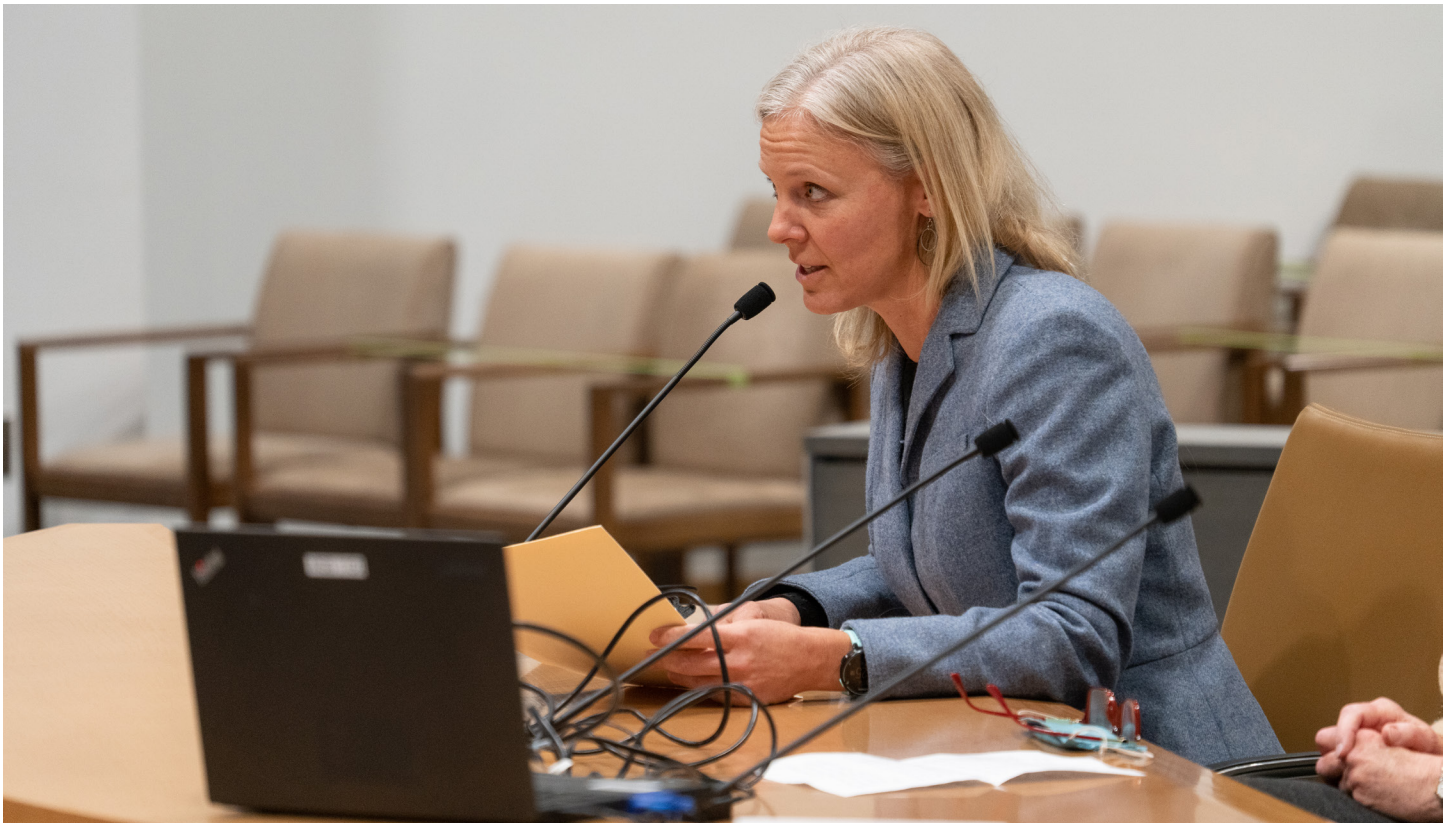

Figure 3. MWMO Training and Community Learning Specialist Abby Moore testifies in support of proposed smart salting legislation at a Minnesota Senate committee hearing on Feb. 16, 2022.

Communications and Outreach

Purpose

The MWMO's communications and outreach initiatives provide information, training, educational opportunities, financial resources and other services to promote community partnerships and good stewardship of water and natural resources.

Objectives

- Provide services and products to inform and educate the watershed community using a variety of methods and media.
- Create and support opportunities for public participation and involvement.
- Collaborate with other professionals, networks and communities to develop partnerships, leverage funding and increase the reach and effectiveness of watershed education.

- Inform and educate land use decision-makers about the relationship between land use and natural resource protection/conservation.
- Develop cultural competencies to directly reach diverse communities of the MWMO.
- Provide training and certificate programs for the evaluation, development and use of new technologies and management practices.
- Promote and host workshops and training opportunities for MWMO staff, staff of member organizations, Minnesota Water Stewards, Citizen Advisors, community volunteers and other entities involved in water resources management.
- Support and promote local stewardship initiatives, community leadership and public engagement.
- Create demonstration sites to inform and educate the watershed community.

2022 Implementation

The MWMO carried out the following communications and outreach activities in 2022:

Community Outreach

The MWMO partnered on 30 community events, providing tours, activities and/or presentations for participants. Many events were based in the new "Meet the Mississippi" campaign, which seeks to provide access to recreational activities in the watershed while learning about water and habitat protection. More than 795 participants engaged with staff during these events to learn about actions they could take to protect water quality. Additionally, the MWMO continued to build connections with communities through general neighborhood outreach and responding to inquiries for information or help around stormwater issues, and highlighted community projects through communications channels to demonstrate the diversity of perspectives and efforts in protecting water in the MWMO. The MWMO continues to seek opportunities for outreach in under-served or under-represented areas of the watershed, and prioritizes these opportunities as they arise.

Drone Photography

The MWMO has owned and operated an aerial drone since 2018. Its primary use is to document the MWMO's green infrastructure projects and their impacts over time on the watershed. Photos and videos produced with the MWMO's drone have become a distinctive feature of MWMO communication products, and are frequently used by the MWMO's partners and grantees in their own communications. The MWMO's communications principal is a

licensed commercial drone pilot and the MWMO operates its drone in accordance will all applicable federal, state, and local regulations.

In 2022, the MWMO purchased a new drone, a DJI Mavic 3, after its original drone (a DJI Mavic Air) become inoperable. An important use of the drone was documenting the redevelopment of the 53-acre Upper Harbor Terminal site. The MWMO coordinated with City of Minneapolis and Minneapolis Park and Recreation Board staff to document the demolition, regrading, native seeding, and other changes at the site. The resulting images were used in many presentations and educational materials by project partners. MWMO footage of the demolition of the iconic dome-shaped silos also became the subject of a WCCO-TV news story.

Email Communications

Email is a key part of the MWMO's communication strategy. The MWMO sends out a monthly email newsletter that serves as a digest of news and events from all MWMO program areas. In addition, the MWMO provides periodic email bulletins on specific topics, which subscribers may select based on their individual areas of interest. The MWMO uses the GovDelivery email platform.

In 2022, the MWMO redesigned its email bulletin templates with a cleaner, simpler aesthetic that displays much better on mobile devices than the previous version. This new mobile-friendly design is now used as the default for all of the MWMO's email communications.

Table 3. Snapshot of MWMO Email Communications

Metric	2017	2018	2019	2020	2021	2022
Number of Bulletins	106	135	118	85	99	85
Impressions	30,100	42,600	70,000	70,600	74,300	104,000
Engagement Rate	38.8%	45.7%	53.8%	40.8%	48.8%	51.8%
Total Subscribers	3,628	5,016	6,129	7,874	9,083	9,984

Minnesota Water Stewards

The Minnesota Water Stewards program, formerly known as Master Water Stewards, increases knowledge and awareness of water quality and creates a skilled volunteer corps who work within their communities to effect change. In 2022, the MWMO sponsored training of a cohort of six stewards. The course content is now primarily delivered online and the cohort had virtual check-in sessions monthly to get to know one another, learn about how course content applies in the MWMO, and plan capstone projects. The group met in person for a watershed tour in May and then again at the Confluence of Stewards with all metro-area stewards in October.

The MWMO Steward Leadership team continued to meet periodically in 2022 to coordinate communication, continuing education, and volunteer and social opportunities to keep stewards engaged, learning, and motivated. They coordinated a joint tour and social hour with Capitol Region Watershed District stewards and hope to do more collaborative events to network and share resources in the future.

Mississippi River Green Team

The Mississippi River Green Team is a two-year employment and conservation program for teens from North and Northeast Minneapolis. The Green Team was co-created by the Minneapolis Park and Recreation Board (MPRB) and the MWMO as an opportunity for youth to have a mentored job experience, learn about environmental careers and acquire new skills. Typical daily activities include working to prevent water pollution, removing invasive species, building raingardens, planting trees and prairie plants, and assisting in citizen science projects. In 2022, 11 youth were employed in the program.

Youth have the chance to participate in the Mississippi River Green Team for two years. After those two years, they are a part of a supportive network that works with them to help secure jobs to expand their skills and get them ready for the future. Many Green Team alumni have gone on to pursue degrees and careers in environmental fields. In 2022, the MWMO hired a Green Team alum as a permanent member of the outreach team.

Professional Workshops and Trainings

Again in 2022, the MWMO sponsored and facilitated trainings on turfgrass maintenance and smart salting. More than 165 winter and summer maintenance professionals, property owners, and supervisors in the public and private sectors attended a total of five trainings held in 2022. All training sessions were delivered virtually. These trainings are a part of a voluntary maintenance certification program through the Minnesota Pollution Control Agency.

Social Media

The MWMO maintains an active social media presence on Twitter, Facebook, LinkedIn, Instagram, Flickr and YouTube. Generally speaking, the MWMO has been, and continues to be, a leader among its peers in the realm of social media.

In assessing the impact of social media activity, it is difficult to provide an apples-to-apples comparison of analytics data between different platforms, since each one uses different metrics. With that being said, below is a snapshot of the MWMO's social media audience and overall reach in 2022. Comparable numbers for previous years are included, if available.

Table 4. MWMO Social Media Followers

Channel	2017	2018	2019	2020	2021	2022
Facebook	1,163	1,624	2,100	2,287	2,418	2,528
Instagram	269	650	972	1,156	1,320	1,531
LinkedIn	89	134	242	428	523	742
Twitter	945	1,178	1,346	1,435	1,500	1,485
YouTube	55	70	103	168	326	446

Table 5. MWMO Social Media Impact

Channel	2020	2021	2022
Facebook (Reach)	62,470	31,245	29,167
Instagram (Reach)	4,991	4,299	32,841
LinkedIn (Impressions)	--	--	37,625
Twitter (Impressions)	209,064	121,819	71,648
YouTube (Views)	18,816	52,100	47,878

Figure 4. MWMO Capital Projects and Stewardship Specialist Alicia Beattie (top right) joins Minneapolis Mayor Jacob Frey (top center) and others at a groundbreaking ceremony for Children's Dental Services' Broadway Street clinic expansion project on April 26, 2022.

Stewardship Fund Grants

MWMO Stewardship Fund Grants provide financial assistance to community-led projects and educational efforts to improve and conserve water and natural resources in the watershed.

Financial assistance is provided through three types of Stewardship Fund Grants. In 2022, Community Grants offered up to $5,000 in funding for short-term or smaller-scale water quality projects. Planning Grants offered up to $20,000 in funding to plan projects that are significant in scope and cost; they are used to assess the potential success of a project or develop the details required to make a project actionable. Action Grants offered up to $50,000 in funds for the implementation of fully-designed projects that are significant in scope and cost.

All proposals are reviewed by MWMO staff. Planning and Action Grants are also reviewed by the MWMO Citizen Advisory Committee and approved by the MWMO Board of Commissioners.

Grants are awarded based on a project's ability to:

- **Develop partnerships with community organizations.**
  Projects create partnerships and build community understanding with organizations and people wanting to proactively engage in clean water issues, demonstrate new methods, and extend the MWMO's ability to protect clean water and improve water quality, and protect and restore habitat and natural resources through building community knowledge and stewardship.

- **Protect or improve the quality of water, habitat, and natural resources.**
  Projects reduce pollution entering our streams, wetlands, lakes, river and groundwater, and projects that prevent flooding, lessen the effects of drought, retain water on site and/or restore and maintain habitat.

- **Build community understanding, knowledge, and initiative related to water, habitat, and natural resource issues and solutions.**
  Projects engage and educate people in the community about water quality issues. These projects result in awareness of water issues and changed behaviors that protect water. Organizations receiving grants will increase their ability to lead and promote clean water efforts.

Note: Stewardship Fund Grants may be used to create new external programs, but are not intended to sustain ongoing efforts. Projects must benefit people who live, learn, and/or work in or near the MWMO watershed. Physical projects must also lie within the MWMO watershed boundaries or drain to receiving water bodies within the watershed.

Table 6. Stewardship Fund Grants

Stewardship Fund Grants	2020	2021	2022
Total no. awarded (no. proposed)	10 (22)	14 (25)	14 (18)
Mini Grants (*Total; breakdown by season below*)	2 (5)	8 (18)	6 (10)
Spring	*1 (3)*	*4 (11)*	*5 (8)*
Summer	*1 (2)*	*4 (7)*	*1 (2)*
Planning Grants	4 (5)	2 (3)	3 (3)
Action Grants	4 (12)	4 (4)	5 (5)

Stormwater Park and Learning Center

Throughout 2022, the MWMO's Stormwater Park and Learning Center hosted botanist and artist Sarah Nassif as the MWMO Artist in Residence. We hosted monthly Weaving Water Workshops — free fiber art workshops that reveal and celebrate connections between craft, community, and water. More than 300 people participated in Weaving Water Workshops in 2022.

The gallery hosted two exhibits in 2022. The first was Mississippi River Stories, a collection of visual artworks created by 16 different artists. Each piece was inspired by a river story collected from around the Twin Cities by University of St. Thomas students through a research partnership with the Sustainable Communities Partnership, the MWMO, and the Natural Heritage Project. A virtual exhibit hosted on the MWMO website accompanied the gallery exhibit in an effort to make it more accessible.

Personal Watersheds, the second exhibit in 2022, featured artist Sarah Nassif's solo work in fiber and video, her Weaving Water community collaborations, and a working indigo dye and fiber art studio called the Weaving Water Workshop.

The MWMO also hosted the annual Share the River Nordeast event in June and welcomed more than 115 people for an evening of community, canoeing, and cookies.

Website

The MWMO website serves as the main hub for information about MWMO projects and programs. MWMO staff maintain the website internally and contract with a website development firm for technical support as needed.

"News" continues to be the most popular section of the website, accounting for more than 21 percent of unique pageviews, followed by "About" (17.8 percent), "Learn" (13.8 percent), and "Projects" (13.4 percent). Approximately 40 percent of website users in 2022 accessed the site

from a mobile device, up from approximately 37 percent in 2021.

Table 7. MWMO Website Traffic Overview

Metric	2017	2018	2019	2020	2021	2022
Pageviews	98,357	96,251	100,605	95,626	96,986	97,642
Sessions	37,634	43,742	47,523	47,335	54,646	52,066
Users	23,232	29,081	33,495	33,729	38,806	37,228

Youth Outreach

The MWMO staff facilitated "Stormwater 101" programs, the MWMO's signature outreach programming, which utilizes a watershed floor map, a stream table, a watershed model and on-site stormwater BMPs, for 150 youth. Staff also hosted a career panel in partnership with several other organizations focused on creating career pathways into environmental careers. Thirty-four youth participated in the full-day event.

In partnership with Minneapolis artist Susan J. Sperl, youth from Plymouth Youth Center and teaching artist, Jack Kotz, the MWMO helped produce Voices from the Water, an exhibit of Sperl's felted sea creatures and youth-created comic art about preventing water pollution and protecting aquatic and marine life. Voices from the Water was on display at the Westminster Gallery from September–November and attracted many visitors. A reception for the artists in October drew 50 people.

Table 8. Communications and Outreach Implementation

Implementation Table	2021	2022	2023
Communications and Outreach Budget	$250,000	$250,000	$250,000
Stewardship Fund Grants Budget	$250,000	$250,000	$350,000
Community Outreach	$1,120	$16,385	--
Drone Equipment Purchase	--	$3,248	--
Email Communications	$6,078	$6,381	--
Media Training	$3,000	--	--
Minnesota Water Stewards	$18,750	$13,328	--
Mississippi River Green Team	$14,850	$14,313	--
Professional Workshops and Trainings	$10,510	$8,000	--
Stormwater Park and Learning Center	$760	$8936	--
Website	$8,449	$7,820	--
Youth Outreach	$3,670	$7,237	--

Table 9. Communications and Outreach-Related Watershed Management Plan Goals and Measures Achieved

Number Engaged (by Audience)	2020	2021	2022
Professional	130	277	502
Community	535	706	1205
Youth	240	283	223

2023 Workplan

- MWMO staff will provide communications support and leadership for the Mississippi Centennial Celebration, a multi-agency effort to commemorate 100 years of Mississippi River protection and restoration in the Twin Cities Metro Area in 2026.
- The MWMO will focus its social media efforts on short-form vertical videos for TikTok, Instagram Reels, and YouTube Shorts.
- The MWMO will continue to refine its monthly newsletter format to improve readability and increase engagement rates.
- The MWMO will offer resources and support for residents to take water-friendly actions at home and in their communities. Priorities will be building relationships with new, underserved, and/or other target audiences, such as those near MWMO-funded projects.
- The MWMO will focus on connecting residents with the Mississippi River through various recreational offerings through the Meet the Mississippi outreach campaign.
- The MWMO will support engagement with the Mississippi River through the artARK, a floating science and art lab that will cruise the river during the Triennial Festival: WAKPA in summer 2023.
- The MWMO will continue to fund Stewardship Fund Community Grants, Planning Grants and Action Grants. Efforts to assist grantees from targeted populations will continue as opportunities to deepen these relationships are growing.
- Citizen Advisory Committee (CAC) members will engaged with MWMO activities mainly through upcoming Planning and Action Grant reviews. Strategic recruitment of CAC members from under-represented populations will continue.
- The MWMO will train six new Minnesota Water Stewards and support continued engagement of certified stewards in their work as community leaders on behalf of water

quality and habitat.

- The MWMO will continue to offer opportunities to educate and engage local policy-makers and community leaders.
- The MWMO will offer training opportunities for professional audiences whose work directly impacts water quality.
- The MWMO will work with partners to develop and support training opportunities that support the development of a skilled workforce for green infrastructure maintenance.
- The Mississippi River Green Team will enter its 16th year, with expanded support and partnerships.
- The MWMO will continue to support youth programs to strengthen awareness and connection to our water resources. Program offerings will be highlighted on the web.
- The MWMO will continue to partner with artist, Sarah Nassif to bring Weaving Water Workshops to other parts of the watershed beyond Stormwater Park and Learning Center.

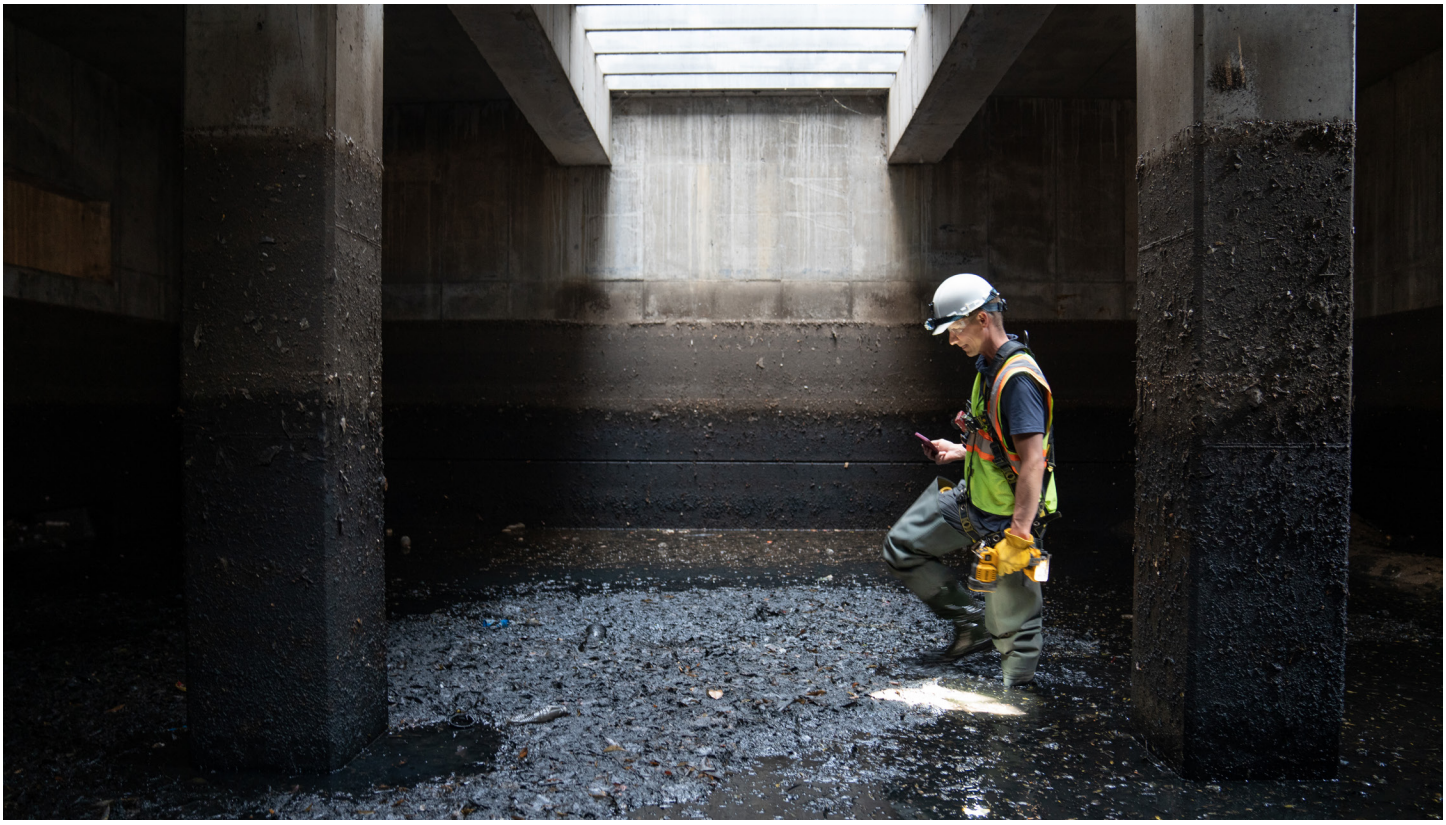

Figure 5. MWMO Monitoring and Instrumentation Specialist Brian Jastram inspects the Lowry Avenue Bridge's sand filter chamber on September 13, 2022.

Monitoring

Purpose

The MWMO's water quality monitoring efforts provide a scientific basis for identifying and tracking water quality and quantity issues and provide information to aid in the selection of projects and evaluate the success of those projects. The MWMO is charged with protecting water quality within the watershed, pursuant to Minnesota Statutes Chapter 103B.201 and Minnesota Rules Chapter 8410.003, which established a Joint Cooperative Agreement among the MWMO's member organizations. Minnesota Rules Chapter 7050 requires that all water bodies comply with water quality standards. Furthermore, section 303d of the Federal Clean Water Act requires states to develop total maximum daily loads (TMDLs) for waters with impaired uses.

Objectives

- Monitor physical, chemical, and biological parameters of surface and groundwater

resources in the watershed.

- Monitor water quality within the watershed.
- Develop a record of baseline data to characterize water quality and identify pollutants that exceed water quality standards.
- Assess pollutants listed on the Minnesota Impaired Waters list for the TMDL process.
- Collect rate and volume data for the Mississippi River and key subwatersheds.
- Monitor performance of stormwater best management practices (BMPs).
- Collaborate with stakeholders to identify and apply a standardized data collection and assessment approach.
- Develop partnerships and collaborate with other organizations and/or agencies both inside and outside the watershed boundaries to improve water quality in the Mississippi River.
- Assess land use impacts on water quality.
- Participate in the technical development and update of statewide monitoring databases.
- Make data accessible to the public, other organizations, and MWMO staff.
- Develop an emergency monitoring plan in case of emergencies affecting water resources.

2022 Implementation

Capital Projects and Stormwater Best Management Practices (BMP) Inspection, Operation, Maintenance, and Monitoring

Edison High School Green Campus BMP Monitoring

MWMO staff continued to monitor two Edison High School Green Campus BMPs: a parking lot tree trench and an underground stormwater reuse tank. Precipitation, stormwater volume, and water quality data were collected. Monitoring data from the reuse system were provided to MWMO outreach staff to share with educators at Edison High School.

Jackson Pond Iron-Enhanced Infiltration Bench

Stormwater quantity and quality data collection continued at the Jackson Pond iron-enhanced sand filter in Columbia Heights. Monitoring equipment to measure outflow from Jackson

Pond iron-enhanced sand filter was maintained and operated for a third year. Because of an unusually dry year and scheduling conflict with the City of Columbia Heights' operation of pumps and MWMO's monitoring staff, no water quality samples were collected in 2022. Data from outflow weirs was collected to estimate the total volume of water treated by the iron-enhanced sand filter BMPs. MWMO staff will continue to collaborate with City of Columbia Heights public works staff to monitor the Jackson Pond sand filter system in 2023.

St. Anthony Regional Stormwater Treatment and Research System

MWMO monitoring staff continued to inspect, operate, maintain, and monitor the St. Anthony Regional Stormwater Treatment and Research System in 2022. The quantity and quality of water entering and exiting each component of the facility were monitored in order to assess the treatment systems' effectiveness. A report of system performance was completed and submitted to the City of St. Anthony Village's public works staff in 2022.

Towerside District Stormwater System

MWMO monitoring staff continued monitoring precipitation, tank level, and stormwater overflow monitoring at the Towerside District Stormwater System. Monitoring staff, along with projects and planning staff, continued overseeing the contractor to maintain and operate the ultraviolet treatment system to treat the stormwater from reuse tank that is used for community gardens.

MWMO Stormwater Park and Learning Center

Stormwater flow, volume, and water quality data were collected at the MWMO's Stormwater Park and Learning Center filter media lab site in collaboration with the University of Minnesota—Twin Cities, and the Natural Resources Research Institute at University of Minnesota—Duluth. The research project started in 2021, with the objective of evaluating the effectiveness of three different types of filter media: iron-enhanced sand, biochar-amended sand, and regular sand. These filter media are being used to evaluate the efficiency of pollutant removal from the shared Tony Jaros and MWMO parking lot stormwater runoff. The research is partially funded by the Minnesota Stormwater Research Council's competitive grants program, of which the MWMO is an original and contributing member. A University of Minnesota graduate student is working on the research project to complete their master's degree thesis.

Data Management, Reporting, and Outreach

MWMO monitoring staff began the in-house operation, maintenance, and management of the MWMO's remote monitoring data network in 2018. All monitoring data are now stored and managed in one database. Long-term and annual datasets were analyzed and compiled. MWMO staff continued to collaborate with several other metro-area organizations using the

same database software. Monitoring staff also reached out to and met with member cities to assess their monitoring needs and develop monitoring plans.

Water quality data collected by the MWMO are submitted annually to the Minnesota Pollution Control Agency's (MPCA) EQuIS database at the end of the monitoring year and summary data are reported on the monitoring pages of the MWMO website. Other data are made available upon request to staff, stakeholders, agencies, and research institutions.

Lake and Wetland Monitoring

The MWMO continued to monitor water levels in the Kasota Ponds wetlands and maintained a web-connected monitoring system to autonomously collect and publish level, water temperature, and conductivity data from the Kasota Pond West (KPW). Water quality and biological sampling were conducted in 2021 following a five-year monitoring schedule.

The MWMO contracts with Anoka Conservation District (ACD) to monitor lake levels and water quality of Sullivan (Sandy) Lake and Highland (Unnamed) Lake in Columbia Heights. In 2022, the lake levels were recorded weekly and data were submitted to the Minnesota Department of Natural Resources (DNR) LakeFinder database. ACD staff also monitored the water quality of Sullivan (Sandy) Lake and Highland (Unnamed) Lake in Columbia Heights. ACD will monitor lake levels in 2023.

Mississippi River Monitoring

In 2022, water quality samples were collected twice per month between April and October and once per month from November to March at seven sites on the Mississippi River within the MWMO's jurisdiction. Water samples were also collected on a biweekly basis from seven sites on the Mississippi River for E. coli analysis, specifically for continuing data collection for the Upper Mississippi River Bacteria Total Maximum Daily Load (TMDL). Staff gauges at six locations along the river were visited on a weekly basis to track river level changes throughout the year. Hourly river level data was also collected in the Mississippi River at the MWMO by using an automated continuous level logger.

In 2022, two new automated continuous level loggers were installed in the Mississippi River for collecting hourly river level data.

Bathymetry data were collected in the Mississippi River upstream of the Upper St. Anthony Lock and Dam to the railroad bridge at 41st Avenue N in Minneapolis. These data will be combined with previous data sets and future years' bathymetric data to assess how the river bed is changing as a result of the Upper St. Anthony Falls Lock closure in 2015.

Special Projects

Columbia Golf Course Monitoring

Monitoring staff collected water level data in a number of ponds on the Columbia Golf Course in Northeast Minneapolis to support a watershed assessment study investigating groundwater flow in and around the golf course for the purpose of determining potential future BMP placement in the southern portion of the golf course. Monitoring staff also worked with Minneapolis Park and Recreation Board staff to measure the flow rate of the pump in the groundwater well that fills one of the ponds that is used for irrigating the golf course.

Dowling Avenue Monitoring

MWMO monitoring staff continued collecting water quantity and water quality data at the Dowling Avenue stormwater tunnel in North Minneapolis in an effort to improve flood modeling and pollutant loading.

Erosion and Sediment Control Internship Program Administration

MWMO monitoring staff worked with the City of Minneapolis Health Department to fund an erosion and sediment control internship program. Two interns were hired in 2022 and an activity report was submitted to the MWMO.

Illicit Discharge Monitoring

MWMO monitoring staff worked with the City of Minneapolis in 2022 to survey for and sample potential illicit discharges from stormwater outfalls emptying into the Mississippi River.

65th Avenue Stormwater Tunnel Monitoring

MWMO monitoring staff provided technical service to the West Mississippi Watershed Management Commission and maintained, operated, and collected water quantity and quality data at their 65th Avenue stormwater outfall monitoring site.

Stormwater Pipeshed (Source) and Precipitation Monitoring

The MWMO continued to monitor seven long-term stormwater pipeshed monitoring sites in 2022. Five of those sites use a combination of area/velocity sensors and automated samplers to collect water quantity and quality data throughout the year. Those data are used to calculate stormwater runoff volume and annual pollutant loads for the pipesheds. Summaries of stormwater runoff volume and other monitoring data are available on the MWMO website.

Additional stormwater pipes throughout the watershed were equipped with flow monitoring devices to provide stormwater runoff flow data for the calibration and validation of Hydraulic and Hydrologic (“H&H”) modeling efforts (further discussed in the Watershed Assessment

section of this report).

Precipitation data were collected at several manual and automatic rain gauge sites throughout the watershed.

Other BMP Monitoring Activities

- Precipitation, tank level, and stormwater overflow monitoring continued at the Towerside District Stormwater Reuse System.
- Infiltration rate, treatment efficiency, and plant health of the 8th Street Stormwater Planters in downtown Minneapolis were collected throughout the 2021 monitoring season. Objectives of the project and results from the first year of monitoring were presented at the Minnesota Water Resources Conference in October 2021.
- Water quality data were collected at the newly constructed stormwater ponds at the Fridley City Hall and public works campus in collaboration with the City of Fridley Public Works department.
- Staff installed equipment to monitor the stormwater reuse system at the Minneapolis Sculpture Garden in collaboration with Minneapolis Park and Recreation Board staff.
- Collected level and estimated infiltration rate in the newly constructed northwest dry basin in the Columbia Golf Course in Minneapolis.

Table 9. Water Quality Monitoring Implementation

Implementation Table	2021	2022	2023
Monitoring Budget	$150,000	$250,000	$250,000
Bathymetry Project	$7,500	$2,000	$7,500
Data Management Software	$8,000	$5,300	$10,000
Edison High School BMP Monitoring	$1,500	$1,000	$1,000
EnviroDIY Datalogging System	$7,000	$200	$5,000
Laboratory Analysis	$120,000	$110,000	$125,000
Minneapolis Illicit Discharge Monitoring	$2,000	$1,000	$2,000
Monitoring Equipment	$40,000	$46,300	$50,000
Monitoring Related Training	$1,500	$2,900	$7,000
MWMO's Filter Media Laboratory Instrumentation	$2,500	$500	$5,000
Real-Time Data Management	$1,500	$1,000	$2,500
St. Anthony Regional Treatment Monitoring	$1,500	$3,400	$35,000

Table 10. Monitoring-Related Watershed Management Plan Goals and Measures Achieved

Monitoring	2020	2021	2022
Number of Stormwater Monitoring Sites	7	9	9
Number of Wetland Monitoring Sites	3	3	3
Number of River Sample Locations	7	7	7
Number of BMPs Monitored	7	10	11

Note: The MWMO is currently gathering long-term trend data. For more detailed monitoring information, visit the MWMO website or contact Water Resources Director Udai Singh.

2023 Workplan

The 2023 work plan for the MWMO's monitoring program includes:

New Monitoring Initiatives for 2023

- Delineate catchments and investigate connections and groundwater flow, etc., at the Kasota Ponds wetlands.
- Update the Big River Study to include the assessment of the Mississippi River reach between the new upper boundary of the MWMO and the previous upstream boundary (53rd Avenue N).
- Update the MWMO's long-term monitoring program outlook, including monitoring for emerging issues.

Ongoing Monitoring Efforts

Many of the monitoring activities conducted in 2022 will continue in 2023, including: stormwater and precipitation monitoring at long-term monitoring sites; Mississippi River monitoring for water level, water quality, bacteria, and bathymetry; and monitoring select stormwater BMPs throughout the watershed. MWMO monitoring staff will continue to work with Anoka Conservation District for monitoring Highland and Sullivan Lakes, and will continue to work with member cities to assess and assist in accomplishing their monitoring needs.

MWMO staff will support City of St. Anthony Village public works staff in inspection, operation, and maintenance of the primary treatment chamber of the St. Anthony Regional Stormwater Treatment and Research System and will continue to lead the inspection, operation, and maintenance of the secondary treatment system chambers and monitoring the treatment efficiency of the total system. An inspection of the pretreatment chamber will

be conducted in the spring or summer of 2023 to assess the deposition patterns of sediment and organic matter.

The MWMO will continue to work with the MPCA and other federal, state, and local agencies on projects as they arise, including current total maximum daily load (TMDL) studies. Monitoring data will be submitted to the MPCA's EQuIS database, published on the MWMO website, and will be available upon request.

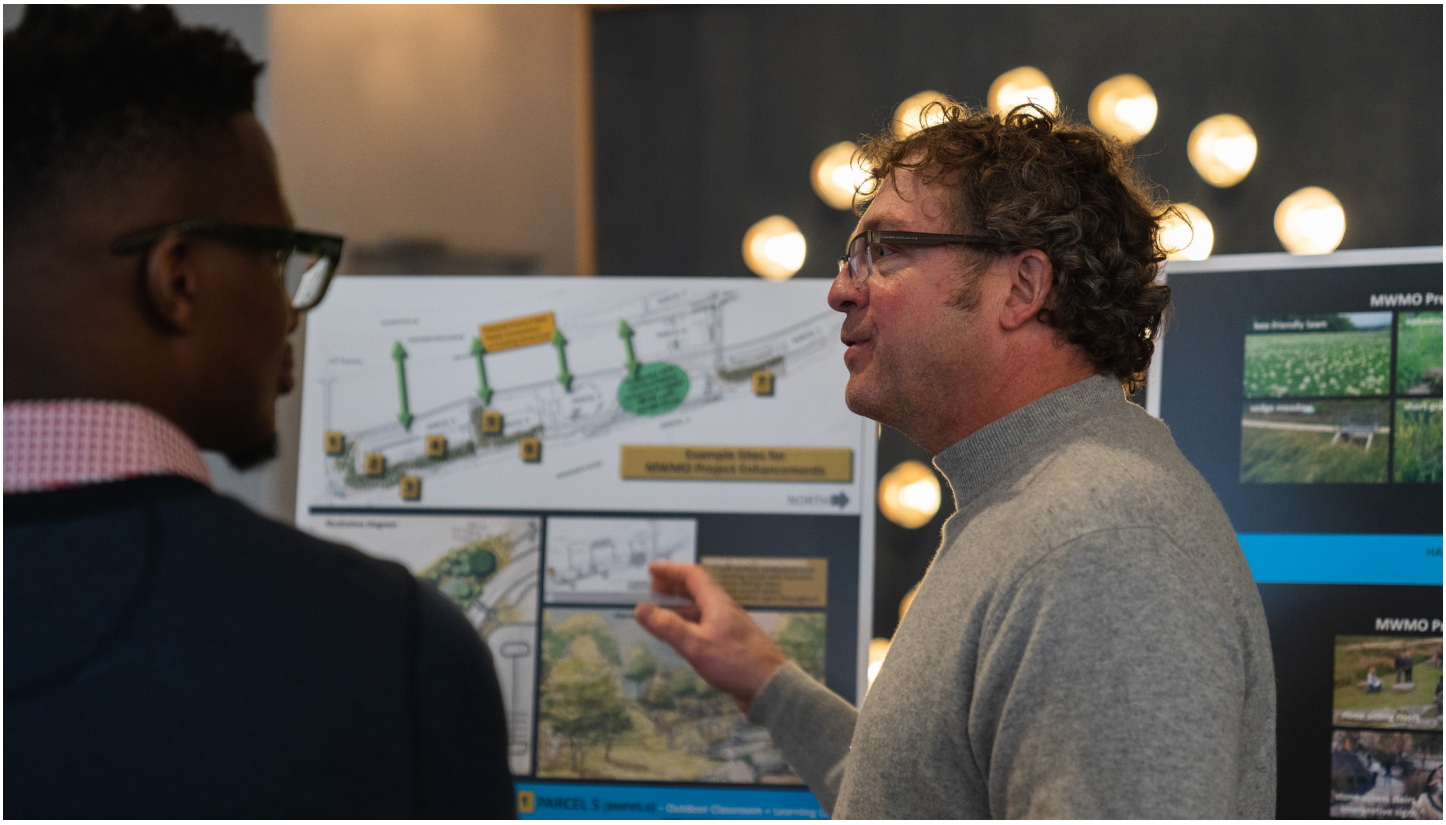

Figure 6. MWMO Planning Principal Dan Kalmon (right) talks with visitors at an open house event for the Upper Harbor Terminal redevelopment project on December 13, 2022.

Planning

Purpose

Planning provides direction to the MWMO's activities. Our planning efforts clarify and integrate the MWMO's goals, responsibilities and future courses of action. Through planning, we coordinate implementation of MWMO standards and goals by member organizations, and maintain involvement with Mississippi River regional working groups.

Objectives

- Develop and maintain the MWMO's role in water management.
- Keep the MWMO's Watershed Management Plan current to address new circumstances and changing priorities.
- Develop plans for new watershed initiatives.

- Review and approve local management plans and amendments that impact water and natural resources.
- Develop consensus among constituents for managing resources in the watershed.
- Work with member organizations on the implementation of ordinances, standards, plans, and enforcement.
- Participate in regional working groups for protection and improvement of the Mississippi River.

2022 Implementation

The MWMO completed, continued or began the following planning initiatives in 2022:

10-Year Watershed Management Plan (2021-2031)

In 2022, the MWMO Board of Commissioners approved the MWMO's 10-year Watershed Management Plan update. Copies of the plan were distributed to agencies. Staff also initiated guidance regarding the MWMO's standards and our member cities' new Mississippi River Corridor Critical Area (MRCCA) ordinances, which will be posted on the MWMO website.

MWMO staff also initiated a planning process that will result in an amendment to the 10-year plan and better guidance on how MWMO will address existing operations and maintenance shortcomings in the watershed.

Restorative Development Partnership & Restorative Development Feasibility Study: Integrated Utility Hub

In 2022, MWMO staff and the Restorative Development Partnership's leadership team continued to meet and identify opportunities to pilot a restorative development project in the watershed. The partners toured the City of Minneapolis' Pacific Street transfer station with the intent to develop a potential future partnership with them.

Towerside District Stormwater Administration

In preparation for the transfer of administrative duties over to the owners of the Towerside District Stormwater System, MWMO staff worked with them to update contracts and revise agreements for operations and maintenance service providers.

The MWMO continued its membership on the Towerside Technical Advisory Committee, which consists of a mix of experts on stormwater, energy, zoning, affordable housing, architecture, public realm, restorative systems, etc., who will provide support services for the

neighborhood review committees that approve development projects in the area prior to the plans advancing to the cities.

Upper Harbor Terminal

In 2022, MWMO staff continued to work with the City of Minneapolis, the Upper Harbor Terminal (UHT) development team, the Minneapolis Park and Recreation Board, and neighborhood representatives to develop a shared public/private district system that manages habitate, privately owned public spaces, and surface stormwater (HPS).

Ongoing planning has led to the UHT District Stormwater 60-Percent Design and UHT Shoreline and Overlook projects, as discussed in the "Capital Project Grants" section of this report.

Upper Harbor Reciprocal Easement Operating Agreement

MWMO planning staff lead a collaborative process with project partners to develop and finalize a Reciprocal Easement Operating Agreement (REOA) and an Access Agreement for the long-term management of the Upper Harbor District System. These legal agreements will guide how the district system — with shared habitat, public places, and surface stormwater — will be managed holistically across the entire 50-acre site.

The REOA and Access Agreement provide the funding and access rights needed to build, maintain, and replace the MWMO's capital project grants as well as a bridge loan to developers to prebuild portions of the district system. The MWMO will serve as the district administrator until 2030, after which the City of Minneapolis Community Planning and Economic Development (CPED) division will become district administrator. The final REOA is anticipated to be signed by all parties in 2023, and MWMO will commence district administrator duties.

Table 11. Planning Implementation

Implementation Table	2021	2022	2023
Planning Budget	$150,000	$100,000	$200,000
10-Year Watershed Management Plan (2021-2031)	$14,600	$13,400	$7,000
Restorative Development Partnership	$40,000	$3,800	--
Towerside District Stormwater Administration	--	--	--
Upper Harbor Reciprocal Easement Operating Agreement[3]	--	--	--

3 See Upper Harbor Terminal District Stormwater 60-Percent and 90-Percent Design in the "Capital Project Grants" section of this report.

Below is an evaluation of progress made towards MWMO's Watershed Management Plan goals via planning initiatives undertaken.

Table 12. Planning-Related Watershed Management Plan Goals and Measures Achieved

Planning	2018	2019	2020	2021	2022
New Initiatives and Related Studies Started	7	5	5	3	1
New Initiatives Resulting in CIP Outcome	--	1	1	--	3
New Initiatives Resulting in Policy Change	--	--	--	1	2
New Initiatives Resulting Partnership Agreements	3	1	3	1	2
Amendments Completed to Maintain WMP Relevance	3	2	0	0	1

2023 Workplan

In 2023, the MWMO will continue or begin work on the following initiatives:

10-Year Watershed Management Plan (2021-2031)

In 2023, the MWMO will complete and post guidance regarding MWMO's standards and our member cities new MRCCA ordinances on our website.

In addition to the existing Operations and Maintenance MWMO planning process underway, staff will also initiate a similar process to clarify our efforts to improve equity and reduce the impacts of climate change within the Watershed.

Restorative Development Partnership Feasibility Study: Integrated Utility Hub

In 2023, the MWMO and the Restorative Development Partnership's leadership team will propose a series of convenings with the land and business owners of two transfer stations in the watershed, SKB Environmental and the City of Minneapolis' Pacific Street site, with a goal of establishing a partnership that will consider the potential for integrating a pilot Integrated Utility Hub into their current operations.

Towerside District Stormwater Administration

Staff will be holding a series of meetings with the owners of the Towerside District Stormwater System to transfer the district administrator duties over to them in 2023.

Upper Harbor Terminal Reciprocal Easement Operating Agreement (REOA)

In 2023, the MWMO's planning staff will begin serving as the Upper Harbor Terminal site's district administrator. They will be responsible for carrying out the legal agreement (REOA)

that is guiding the holistic management of habitat, public spaces, and surface stormwater within the Upper Harbor District System. (See the budget line items for Upper Harbor Terminal District Stormwater 60-Percent and 90-Percent Design in the “Capital Project Grants” section of this report for the budget being managed by the district administrator.)

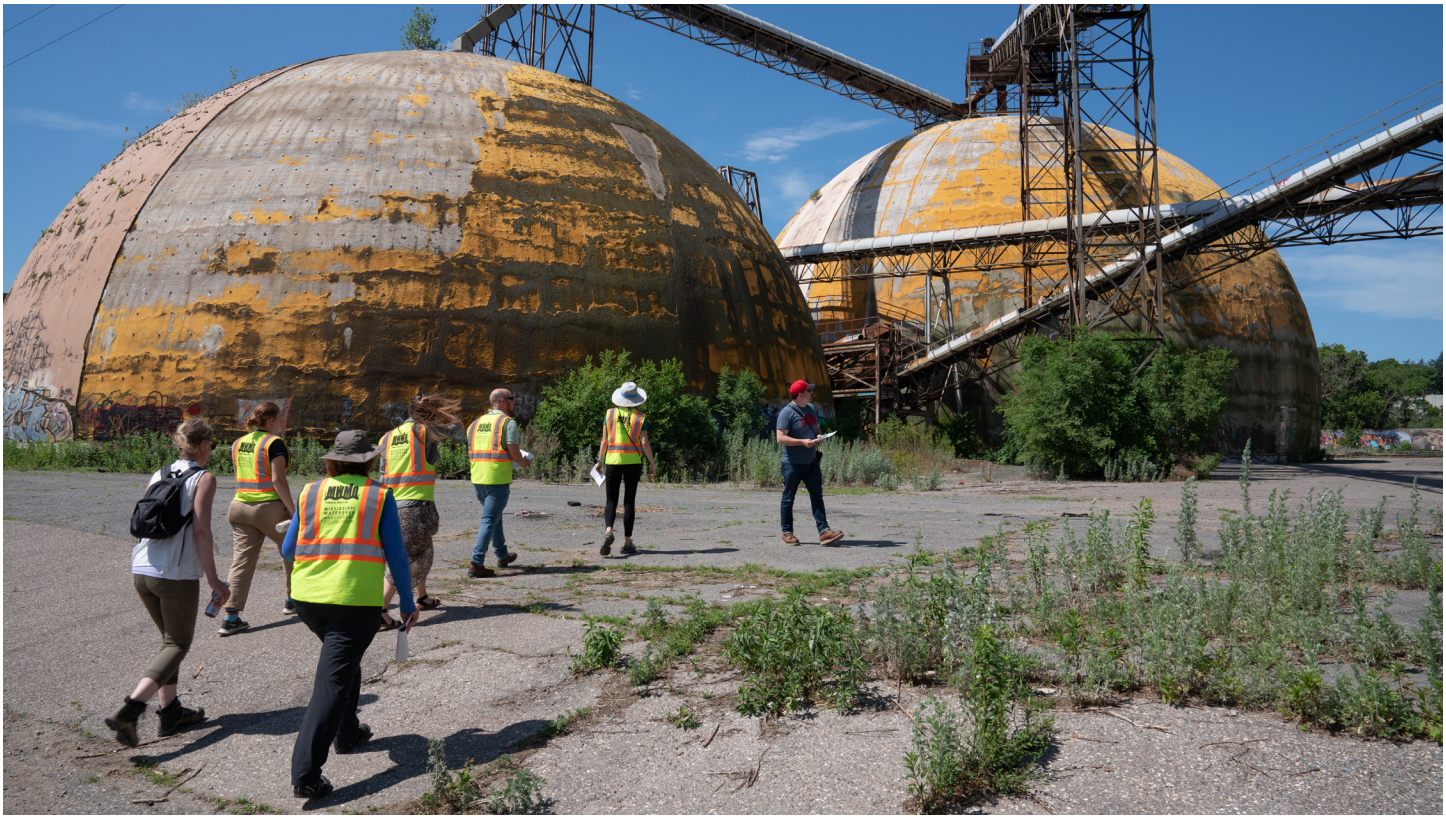

Figure 7. MWMO and Minneapolis Park and Recreation Board staff tour the Upper Harbor Terminal redevelopment site on June 23, 2022.

Watershed Assessment

Purpose

The MWMO's watershed assessment and research activities seek to develop a scientific base of knowledge that characterizes physical, chemical, cultural, historic, biological, social, economic, organizational and political resources of the MWMO to guide planning and management decisions in the watershed.

Objectives

- Conduct assessments within the watershed to define the ecological, physical, biological, cultural, social, economic, organizational and political characteristics of the MWMO.
- Conduct project-based diagnostic and feasibility studies.
- Provide information to support other MWMO projects and activity areas.
- Provide watershed information to organizations inside and outside MWMO boundaries.

2022 Implementation

The MWMO completed the following Watershed Assessment activities in 2022:

Field Evaluation of Stormwater BMPs to Characterize the Comprehensive Contaminant Removal Performance of Biochar-Augmented Filter Media

MWMO staff worked on retrofitting the outdoor filter media laboratory at the MWMO Stormwater Park and Learning Center during the spring and fall of 2019. To measure the inflow of stormwater runoff from Tony Jaros' and MWMO's parking lot, a weir box (5 feet long, 5 feet wide, and 4.5 feet deep) with a V-notch weir was installed at the inlet of the three filter media cells. Three smaller weir boxes with V-notch weirs were installed at the outlet of the filter media cells to measure the outflow. During the fall of 2019, the MWMO supported researchers from the Natural Resources Research Institute (NRRI) at the University of Minnesota—Duluth and the Department of Bioproducts and Biosystems Engineering from University of Minnesota—Twin Cities (UMN) to submit a research grant proposal to Minnesota Stormwater Research Council (MSRC) to conduct field evaluation of stormwater best management practices to characterize the comprehensive contaminant removal performance of biochar-augmented filter media. NRRI and UMN researchers received the grant funding from MSRC; however, because of COVID-19, field installation of the experiment did not take place in the 2020 season.

MWMO staff, in partnership with NRRI and UMN staff, installed the research experiment in May 2021 and started collecting data on water quantity and water quality. MWMO monitoring staff, in partnership with NRRI and UMN staff and graduate student collected water quality samples from the treatment system during the 2021 and 2022 field seasons. A graduate student from UMN started analyzing the data and writing a master's thesis on the project. The student will defend the thesis in spring 2023. MWMO staff will continue to monitor the research experiment and work with other scientists and stakeholders to collaborate and participate for advance the science of stormwater best management practices and their evaluations and technology transfer.

Minnesota Stormwater Research Council Funding for Applied Stormwater Research

MWMO staff, along with staff from other watershed districts, watershed management organizations, state agencies, soil and water conservation districts, and several research institutions, have been part of the team to conceptualize, formulate, and establish the Minnesota Stormwater Research Council (MSRC).

The MSRC was established as a nonprofit organization in 2016 to facilitate the completion of needed applied research that enables more informed decisions about the use, management, and protection of water resources in urbanized areas. The MSRC periodically assesses

the status of research, identifies consensus research priorities, and communicates these to Minnesota's public and private research agencies and organizations. It also promotes coordination of research goals, objectives, and funding among the research agencies and organizations. The MSRC is an independent organization of stormwater professionals, practitioners, managers, engineers, researchers, and others currently operating as an unincorporated association with the University of Minnesota Water Resources Center (WRC) as the fiscal agent.

The MSRC raised a total of $100,000 in 2017, $115,000 in 2018, $115,000 in 2019, $163,000 in 2020, and $135,000 in 2021. MSRC had set a goal of raising $150,000 for the year 2022. The MWMO has provided $25,000 per year in funding to the MSRC in each of those years. The WRC also received $1.5 million for stormwater research from the State of Minnesota's Clean Water, Land and Legacy Amendment funds for the 2017-2018 funding cycle and $1.35 Million for the 2019-2020 funding cycle.

A total of 29 research projects have been funded since 2017 and 18 research projects were completed by end of 2022. Four projects were ongoing and seven new research projects started in 2022. MSRC also worked on prioritizing urban stormwater pond research in 2022. MSRC developed a short-term research strategy, completed a comprehensive literature review of past research on ponds, and established a fund dedicated to pond research.

More information on the MSRC can be found at wrc.umn.edu/msrc.

Towerside District Stormwater Phase II 30-Percent Design

In 2022, MWMO staff moved forward with the Towerside project team on a shared understanding of the partners' ultimate goals and cost-sharing associated with a proposed integrated district system that includes privately owned public places, a surface stormwater system, habitat corridors, a regional linear park system, and opportunities for future restorative energy, water, and food systems. Partners agreed that a significant policy shift by the Minneapolis Park and Recreation Board (MPRB) was needed to support the buildout of the district system. As a result, MPRB is now working with Wall Companies on a comprehensive multi-parcel process to satisfy the park land dedication process. Land dedicated through this process will lay the foundation of easements needed for the district system.

Upper Harbor Terminal Community Conversations

In 2022, as a part of the Upper Harbor Terminal Reciprocal Easement Operating Agreement (REOA), parties agreed that the MWMO may work individually with each parcel owner as their parcel redevelops to identify areas within the project where the community can contribute specific design ideas on public places within the project.

Table 13. Watershed Assessment Implementation

Implementation Table	2021	2022	2023
Watershed Assessments Budget	$200,000	$300,000	$200,000
Columbia Heights Huset Park Zurek Pond	$40,000	--	--
Field Evaluation of Stormwater BMPs to Characterize the Comprehensive Contaminant Removal Performance of Biochar-Augmented Filter Media	$15,000	$15,000	--
Minnesota Stormwater Research Council Funding	$25,000	$25,000	$25,000
Towerside District Stormwater Phase II 30% Design	$32,500	--	--
Upper Harbor Terminal Community Conversations	$50,000	--	--

2023 Workplan

In 2023, the MWMO will continue or begin work on the following initiatives:

Field Evaluation of Stormwater BMPs to Characterize the Comprehensive Contaminant Removal Performance of Biochar-Augmented Filter Media

MWMO staff, in partnership with the Natural Resources Research Institute (NRRI) at the University of Minnesota—Duluth and the Department of Bioproducts and Biosystems Engineering from University of Minnesota—Twin Cities (UMN), will continue to collect water quantity and quality data during the 2023 monitoring season.

Minnesota Stormwater Research Council Funding for Applied Stormwater Research

A stormwater pond-only competitive research proposal process will be completed and a request for research proposals will be released in the beginning of 2023. Stormwater pond-only research projects are anticipated to start in April 2023. MWMO has budgeted and will contribute $25,000 in research funding for the 2023 budget year.

Towerside District Stormwater Phase II 30-Percent Design

In 2023, the MWMO will continue to work with partners at Towerside to advance a district system design that will truly enhance and connect: habitat, public place, and surface stormwater on the 15-acre site.

Projects underway in the southeast corner of the site will be coming online in the spring of 2023 as well as the potential start of redevelopment at the United Crushers elevator site. With these pressing timelines, the partners will need an interim solution that could provide portions of the permanent district system as well as some interim storage that buys time for the remainder of the district system to come online at a later date with the design/construction

of a greenway and park area.

Upper Harbor Terminal Community Conversations

The MWMO will work with each parcel owner as their parcel redevelops to identify areas within the project where the community can contribute specific design ideas on public places within the project.

Watershed-Scale H&H and Water Quality Modeling

The MWMO is undertaking a major initiative to create detailed hydrology and hydraulic (H&H) and water quality models across our jurisdiction. The H&H models are being used to simulate and inform the management of flooding throughout the MWMO, while the water quality models are used to estimate pollutant loading from the landscape and into MWMO waterbodies. Results of the modeling initiative are used to help the MWMO and its member communities to better understand the functioning of our stormwater systems, as well as prioritize the placement and design of future capital projects. The MWMO is divided into multiple project areas for this effort. In 2023, an H&H model will be developed for the highly urbanized 3,146-acre 35W South area in Minneapolis.

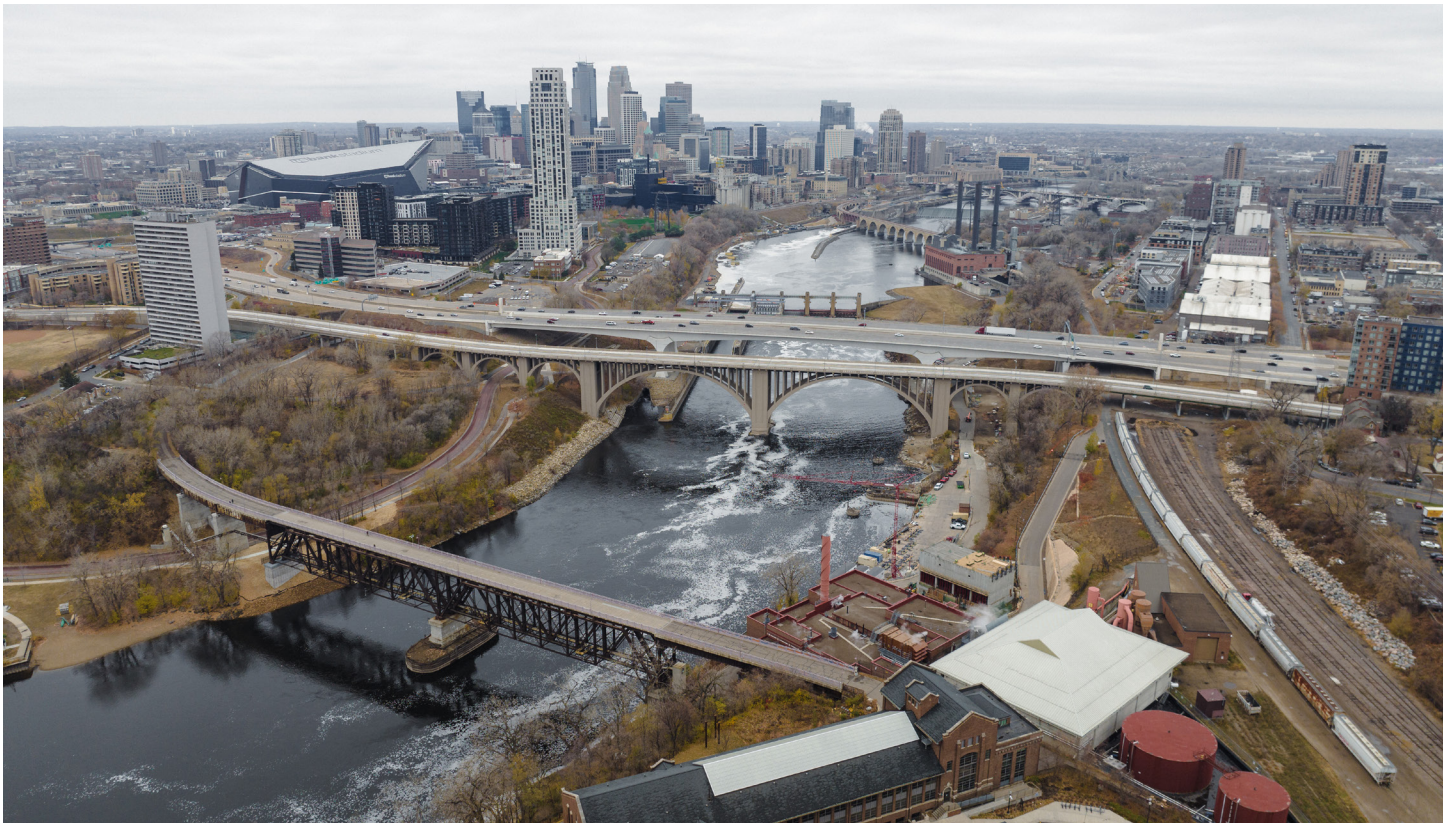

Figure 8. An aerial view of the Mississippi River as it flows south of downtown Minneapolis.

Financial Information

Policy

During the plan development in 1997-2000, the MWMO board acknowledged the limits of its member communities to incur additional financial expenses and therefore developed strategies for new funding mechanisms. The MWMO sought inclusion on the list of Special Taxing Districts (Minnesota Statutes 275.066) and, in 2001, became the first joint powers WMO in Minnesota to receive levy authority. This funding is necessary to implement plan goals and objectives of the watershed management plan. Taxes are levied in accordance with procedures specified in the Joint and Cooperative Agreement (JCA) and Minnesota Statutes 103B.201–103B.255, also referred to as the Metropolitan Surface Water Management Act (Act), and are subject to limitations set forth in Minnesota Tax Statutes, the Act, the JCA, and the Watershed Management Plan.

It is the Board of Commissioners' policy intent to use funds raised in the most effective and efficient manner possible. The MWMO completed an update to its comprehensive plan in 2011 that changed the way projects are selected for inclusion on the capital improvement plan (CIP).

This was amended in May 2015, with a minor CIP schedule update occurring in September 2016. In 2021, the MWMO finished a major update of its 10-year Watershed Management Plan. The updated plan was approved by the Board of Water and Soil Resources in 2021 and approved by the MWMO Board of Commissioners on January 11, 2022.

The MWMO will continue to coordinate its CIP with those of its members. Projects are required to have feasibility studies completed that describe estimated water quality and quantity benefits and habitat or resource protection and improvement prior to the MWMO committing funds to the construction of the project. Anyone wishing to partner with the MWMO should invite the watershed to the table early in project design and assessment. The MWMO believes this will improve the project selection process and allow for better budgeting.

Budget

In general, the MWMO follows the following process to set its annual budget and select capital projects to which grant funding is allocated:

- Seek and receive project proposals from members by May of the prior year.
- Submit a draft forecast levy and amended CIP at the July board meeting.
- Select proposed projects for the next fiscal year at the September board meeting.
- Submit a preliminary levy to counties by September 30 for Truth in Taxation statements.
- Make the updated CIP final and approve a final levy at the November board meeting.
- Submit a plan amendment, if needed, to the Minnesota Board of Water and Soil Resources.
- Submit final levy documents to Anoka, Hennepin and Ramsey Counties by December 15.

Table 14. MWMO Budget

2022 Budget	
Projects and Initiatives	$4,850,000
Capital Asset Replacement Fund	$200,000
Administration	$1,220,000
Subtotal Budget	$6,270,000
Contingency (Uncollected Levy)	$130,000
Total Budget	**$6,400,000**

Capital Projects and Initiatives	**$4,850,000**
Capital Projects	$3,700,000
Fridley/Columbia Heights 53rd Avenue NE	$400,000
Graco Park	$400,000
Northeast Stormwater Management Initiative	$800,000
Towerside Phase II	$700,000
Upper Harbor Terminal	$1,700,000
Initiatives	$1,150,000
Communications and Outreach	$250,000
Planning	$100,000
Monitoring	$250,000
Watershed Assessments	$300,000
Stewardship Grant Fund	$250,000
Capital Asset Replacement Fund	$200,000

Administration	$1,220,000
Staff Salary and Benefits	$970,000
Commissioner Expenses	$5,000
Office Admin: Energy, Repair, Equipment, and Supplies	$95,000
Service Providers - Legal, Engineering, IT, Auditor	$150,000
Operating Reserve (additional funds were not needed in 2021)	$0

Line items in the 2022 budget with no money raised in the current fiscal year does not mean there is no money available to the line item. Rather, it means additional funds did not need to be raised in the current fiscal year. For additional financial information, including the 2022 audit, visit mwmo.org or contact the MWMO's executive director.

Each year, the MWMO receives a Certification of Apportioned Levies from the Minnesota Department of Revenue. This chart is then used by the three counties in the MWMO to apportion the levy. The following table represents the estimated breakout of levies for each county within the MWMO for 2022.

Table 15. Certification of Apportioned Levies

District 072 - Middle Mississippi River Watershed Management Organization
Certification of Apportioned Levies
Payable 2022

(1) *Payable 2021 Property Tax Levy* $6,400,000

County	(2) Payable 2021 Taxable Net Tax Capacity	(3) Net Tax Capacity Percent Distribution	(4) Apportioned Payable 2022 Levy (1x3)
ANOKA COUNTY	$23,678,294	5.5193%	$353,234
HENNEPIN COUNTY	$403,093,485	93.9589%	$6,013,368
RAMSEY COUNTY	$2,238,774	0.5218%	$33,398
WATERSHED TOTAL	$429,010,553	100.0000%	$6,400,000