



Watershed Management Plan 2021-2031

5.0 Watershed Issues, Goals, and Strategies



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5.0 Watershed Issues, Goals, and Strategies

This section starts with a discussion of key partnerships the MWMO will seek out to collaborate on implementation, avoid duplication, and build off what partners are doing to leverage funding and other organizational resources (**Table 24**). It then expounds upon ten Focus Areas that are the underpinnings of MWMO's goals and strategies and were derived from public input on the plan. **Section 5** is a pivotal point in the plan, informing and establishing much of the content found in **Section 6**. This includes MWMO's financials, programmatic activities, MWMO's Capital Improvement Schedule (**Table 26**), and The MWMO's Ten-Year Implementation Schedule (**Error! Reference source not found.**), which aligns MWMO's key strategies with lead staff work areas and ranks the strategies as a low, medium, or high priority over the next ten years.

The MWMO will seek out partners and leverage funding whenever possible to carry out the focus areas, goals, and strategies presented in MWMO's Ten-Year Implementation Schedule. Strategies in **Error! Reference source not found.** (the MWMO's Ten-year Implementation Schedule) were derived from MWMO staff, the public, government agencies, non-governmental organizations, and MWMO municipal partners via public meetings, and surveys (see <u>Appendix H</u> for details).

Partners may be member organizations, government agencies, organizations such as nonprofits, private developers and businesses, as well as residents and other stakeholders. **Table 24** outlines key partnership opportunities the MWMO has with organizations who conduct work in support of water resource issues.

Assembling diverse and collaborative partnerships are central to the MWMO's ability to carry out our work to protect and improve water quality, habitat and natural resources without causing unintended externalities. As such, our initiatives and projects are becoming more systems based in an attempt to see how the interconnectedness of the work we do environmentally affects other systems (e.g. energy, food, transportation, solid waste, cultural, social, and economic). Doing this well means working with partners outside traditional means to arrive at outcomes that benefit all.

On an annual basis the MWMO will invite partners on this list to meet and review our current capital improvement schedule, allowing them the opportunity to partner with us on existing projects or suggest new projects.

Source	Agency/ Organization	Mission/Activities
Federal	Environmental Protection Agency	Implement Clean Water Act by requiring states to monitor waters, conduct TMDL studies, and regulate certain activities affecting wetlands, lakes, and rivers. Provides research assistance to state and federal agencies and requires state programs to meet or exceed federal standards. Provides water quality improvement project funding (319 Program).

 Table 24: Potential Water Resource Project Partners

Source	Agency/ Organization	Mission/Activities
	Natural Resources Conservation Service	Delivers soil and water conservation programs on agricultural lands. Provides financial assistance for many conservation activities and conservation technical assistance to land-users, communities, and units of state and local government. Oversees the Resource Conservation and Development Program.
Federal	United States Army Corps of Engineers	Oversees Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Oversees dredging, filling, and dam maintenance activities in waters of the United States.
	United States Geological Survey	Provides water information that benefits citizens, including publications, data, maps, and applications software. Oversees and conducts research and data acquisition on ground and surface water resources.
	National Park Service	Oversees the Mississippi National River and Recreation Area.
State	Minnesota Pollution Control Agency	Protects, improves, and conserves water quality. Oversees wastewater and stormwater permitting, septic systems, impaired waters (Total Maximum Daily Load) projects, surface water monitoring, groundwater monitoring, and the state administration of the Clean Water Act mandates and state and federal water funds.
	Minnesota Department of Natural Resources	Manages the conservation and use of natural resources. Oversees public waters permits, invasive species, groundwater monitoring, water resource mapping, water appropriations, dam safety, flood damage, lake and stream hydrology, and shoreland management.
	Minnesota Department of Agriculture	Regulates fertilizers, pesticides, and soil and plant amendments, Minnesota Pesticide Control Act and Agriculture Best Management Practices Loan Program. Monitors waters for pesticides.
	Minnesota Department of Health	Prevents environmentally induced disease. Oversees the Safe Water Drinking Act, health-based standards setting and groundwater well sealing.
	Environmental Quality Board	Coordinates state water management activities and the development of broad water policy recommendations. Oversees environmental review process, conducts period water quality and quantity trends assessments and reports, coordinates overall state water policy.
	Board of Water and Soil Resources	Improves and protects Minnesota's water and soil resources. Works in partnership with local organizations on private lands. Oversees the Wetland Conservation Act. Provides watershed district and watershed management organization oversight, local water planning, erosion control and water quality cost

Source	Agency/ Organization	Mission/Activities
		share. Administers conservation easements. Evaluates outcomes and performance of local water management.
	Minnesota Geological Survey	Conducts mapping, research, and education on wells, hydrologic properties, and groundwater monitoring. Maintains statewide database on well records. Collects geophysical logs, maps ground water, identifies recharge areas, recharge rates, and sustainable yields.
Regional	Metropolitan Council	Monitors metro area lakes and rivers, provides funding to local park services and runs a Citizens Assisted Monitoring Program. In cooperation with local communities, oversees a comprehensive regional planning framework focusing on wastewater, transportation, and park systems that guides the efficient growth of the metropolitan area. The Council operates wastewater and transit services and administers housing and other grant programs.
	Counties: Hennepin, Anoka and Ramsey	General-purpose unit of government approach to water. Has a major funding role with Soil and Water Conservation Districts. Administers shoreland and land use regulations that guide property development. Manages the local water plan by identifying problems and providing for development. Regulates wetlands, manages large tracts of public lands.
Local	Park and Recreation Organizations	They govern, maintain, and develop the park systems in the watershed. Preserving, protecting, maintaining, improving, and enhancing natural resources, parkland, and recreational opportunities. They provide places and recreational opportunities for all people to gather, celebrate, contemplate, and engage in activities that promote health, well-being, community, and the environment.
	Soil and Water Conservation Districts	Political subdivisions governed by a board of elected supervisors. Work cooperatively with the public, nonprofit organizations, and governmental entities in protecting water and land resources through the use of conservation practices. Provide local leadership for the prudent use and conservation of water, soil, and associated resources.
	Watershed Management Organizations	Prepare and implement comprehensive surface water management plans and work cooperatively with each other, the state, counties, cities, and soil and water conservation districts to achieve water quality, water quantity, and natural resource preservation and improvement.
	Watershed Districts	Local government units that work to solve and prevent water- related problems. The boundaries generally follow those of watersheds and cross multiple jurisdictions. Watershed Districts

Source	Agency/ Organization	Mission/Activities
Source	U	have broad authorities including adopting rules, hiring staff and contracting with consultants, levying taxes, accepting grant funds, acquiring property and drainage systems and entering upon lands. In addition, Watershed Districts can act in coordination with each other, the state, counties, cities, and soil and water conservation districts to achieve goals. Water suppliers that utilize Mississippi River as at least a partial water source; owners of storm sewer systems; plan, direct, coordinate, and evaluate all planning and zoning activities. Holders of National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System permits and usually the primary implementers of Total Maximum Daily Load wasteload allocation strategies.
	Public and Private Organizations	sector partners, organizations improving the Mississippi River upstream and downstream, individual neighborhoods working to improve their communities and to protect and improve the natural, human and cultural resources of the area.

Public Input and Focus Areas

In 2010, the MWMO tested several approaches for gathering public input on the Plan. In the end, a survey sent out to residents had the greatest impact, producing 80 – 90% of the public comments received. As such, in 2019 the MWMO decided to utilize a survey tool to gather public input on the Plan. The MWMO was able to gather over 430 survey responses from the public (<u>Appendix G</u>). These responses and past public input were used to develop ten focus areas that are the underpinnings of MWMO's goals and strategies.

Based on the public comments received between 2019 and 2021, the existing focus statements remain relevant, with the caveat that rather than try to narrow the more comprehensive issues of equity and climate change into a single focus area, the MWMO sees these issues permeating throughout all aspects of our organization and the work we do. As such, these topics are addressed under many of the focus areas' challenges section.

The mix of sources and manner in which the input was gathered does not lead to a prioritization of the focus areas in of themselves. Rather, it provides us insight into key issues and what citizens value in the watershed. The focus areas are outlined in further detail in **Section 6.2**, **Table 27**.

Ten watershed focus areas:

- 1. Water Quality (WQ)
- 2. Water Rate and Volume (WRV)
- 3. Monitoring and Data Assessment (MD)
- 4. Communication and Outreach (CO)
- 5. Ecosystem Health (EH)
- 6. Regulations and Enforcement (RE)
- 7. Urban Stormwater Management (USM)
- 8. Emergency Preparedness and Response (ER)
- 9. Emerging Issues (EI)
- 10. Financial Responsibilities and Strategies (FRS)

The focus statements, goals, and strategies found in MWMO's Ten-Year Implementation Schedule were developed specifically based on these ten focus areas. The MWMO will continue to develop its staff and expertise as necessary to implement activities resulting from the goals and strategies of each focus area described in this section.

5.1 Focus Area: Water Quality (WQ)

Purpose

Initiatives implemented within this focus area will protect, maintain, or improve the water quality of the Mississippi River and the other water resources within the MWMO.

Challenges

The densely urban and highly developed condition of the MWMO watershed poses a primary water quality challenge for the MWMO. The high impervious surface coverage and population density can limit opportunities for traditional water quality treatment projects, yet they also present opportunities for new and innovative approaches to water quality challenges.

The effects of climate change also pose a significant water quality challenge to the MWMO watershed. Many existing water quality improvement projects were not designed for the expected

changes in surface and groundwater flows due to rainfall events of increasingly larger intensity, leading to increased pollutant loading to the Mississippi River. The application of more green or natural infrastructure and the protection of natural areas may help limit the need for construction of larger and additional stormwater infrastructure to remove pollutants.

Being located downstream of a large urban watershed creates challenges related to riverbank erosion, which can be a substantial source of sediment and can be exasperated by more intense rainfall events due to climate change, as intense rain events on poorly vegetated landscapes can lead to significant topsoil loss. Efforts to prevent erosion along the riverbank can therefore be highly effective in protecting the water quality of the Mississippi River.

One other challenge the MWMO faces in implementing water quality improvements is the regional nature of the water quality issues facing the Mississippi River, the major water resource within the MWMO. The water quality of the Mississippi River is affected by actions far upstream of the boundaries of the MWMO, making coordination with upstream groups necessary to improve the water quality of the river.

While contaminated stormwater poses risks for everyone, some communities are at greater risk because of historic urban development decisions affecting residents of low-income and BIPOC communities. The result is that these neighborhoods are often paved-over and lacking in green spaces that could absorb stormwater and filter contaminated urban runoff. The stormwater runoff in these communities are also often exposed to dangerous levels of toxins associated with high concentration of polluting businesses, industries, and transportation corridors such as highways, freeways, and rail lines.

Target Audiences

The primary target audiences for water quality implementation initiatives are entities holding land rights, land use controls, and regulatory controls for water resources within the MWMO and their associated headwaters, as well as those partaking in any use of the land and resources within the watershed.

Indicators and Measures of Performance

Performance will be measured by using the long-term water quality trend in pollutant loading to continue toward attainment of the required pollutant reductions, the waterbody standard, and notable improvements in the aquatic ecosystem. An evaluation of the trend in water quality parameters at points of discharge into the Mississippi River will be conducted every 5 years at a minimum. For all other waterbodies, resource specific evaluations will be conducted.

5.2 Focus Area: Water Rate and Volume (WRV)

Purpose

Implementation of Water Rate and Volume initiatives will provide protection from the impacts of high stormwater runoff volumes, limit the frequency at which flood damage occurs, and help reduce the severity and frequency of drought-like conditions. The MWMO utilizes practices such as green infrastructure, stormwater infiltration, and water harvesting for irrigation. These types of techniques collect stormwater runoff where it falls, and then infiltrates it or reuses it, thereby tempering the effects of drought-like conditions.

Challenges

The MWMO's main challenge when addressing stormwater runoff volumes, flooding, and drought concerns is how to integrate structural solutions within the watershed to protect both local and downstream communities. The impacts of climate change, such as more frequent and heavier rainfall events, will require new and innovative design approaches for stormwater infrastructure, particularly in low lying areas of the watershed. Many stormwater conveyance systems are undersized, as they were designed based on outdated precipitation records. Flooding is an increasing challenge in many neighborhoods within the MWMO watershed, threatening damage to buildings and public health. However, flooding poses a particular safety risk for many marginalized and socioeconomically disadvantaged communities, as the cost of clean-up and repairs may be exceptionally high as compared to income levels and can also cause profound disruptions to already struggling families. Chronic flooding issues can also lead to high maintenance costs, mold, and waterborne diseases that tend to disproportionately affect renters and low income homeowners.

Target Audiences

The primary target audience for Water Rate and Volume implementation initiatives are the member organizations that can implement land use controls and standards and partner on capital improvement projects in order to limit stormwater runoff volumes and reduce the occurrence of flooding and drought-related damages.

Indicators and Measures of Performance

Performance will be measured by monitoring the change in the rate of stormwater discharging into the Mississippi River and reduction in the number and extent of damages to habitat, communities, and infrastructure resulting from flooding or drought.

5.3 Focus Area: Monitoring and Data Assessment (MD)

Purpose

Implementation of Monitoring and Data Assessment initiatives continue to assemble the best scientific data to inform water resource decision making and to identify successful implementation of stormwater management practices based on water quality and quantity trends.

Challenges

Challenges include identifying monitoring methodologies and locations appropriate for the varying hydraulic and hydrologic conditions and pollutant mixing occurring within the MWMO's reach of the Mississippi River. Damaging conditions resulting from the hydraulics and size of the urban stormwater pipeshed, animals, as well as vandalism can limit available monitoring station locations and corrupt data collected. The bluff landscape along the Mississippi River also limits access to stormwater pipes, some of which are located greater than fifty feet below the land surface. Tailwater conditions during intermittent high river levels at some outfalls have also been a challenge.

Target Audiences

The target audiences for Monitoring and Data Assessment implementation initiatives are MWMO's member communities as well as local and statewide entities already conducting monitoring initiatives. The data are publicly available to all parties through the Minnesota Pollution Control Agency's "EQUIS" database.

Indicators and Measures of Performance

The measure of performance is an increasing length of accurate and usable data records. Ultimately, having sufficient data to guide water resource management indicates success. The MWMO will also consider how to make collection and use of the data more accessible. Monitoring helps inform projects both on the front-end, by understanding and assessing site conditions, as well as on the back-end (post-construction) to determine if projects are functioning as intended and addressing problems such as flooding and water quality issues. Monitoring results can inform future project design and implementation. Development of new monitoring methods or approaches can also help inform how to more efficiently collect data and cut costs so communities, neighborhood groups, and others can utilize the data.

5.4 Focus Area: Communications and Outreach (CO)

Purpose

To develop an engaged, empowered, and informed public by providing information, opportunities for engagement, training and financial support to promote connection with and responsible stewardship of water and natural resources in the watershed.

Challenges

Providing informative, inclusive, and engaging communications and outreach products and activities can be a challenge in our culturally, racially and economically diverse watershed.

Finding ways to connect with and build relationships with different communities is key to finding common ground and shared values around water and environmental protection.

Target Audiences

Target audiences for communication and outreach initiatives are the policy and decision makers, residents, workers, and visitors. This includes such segments of the population as homeowners, residents, professionals, elected officials, public agency staff, large property owners, partners, youth, and educators.

Indicators and Measures of Performance

Performance indicators for outreach activities are measured by participation and engagement in various outreach activities across the MWMO as well as the degree to which different communities (culturally, racially, geographically, etc.) are represented in these activities. Additionally, the data collected from surveys, awards, grant applications and additional community interactions help staff monitor the knowledge, participation, and engagement level of target audiences in the watershed. Key performance indicators and insights gained on communication activities may come from data analytics on website traffic, social media engagement, email newsletter performance and similar online measures.

5.5. Focus Area: Ecosystem Health (EH)

Purpose

A healthy, balanced and functioning ecological system is essential to protecting water quality and quantity in the watershed and significant effort must be put into restoring, establishing, and protecting ecosystem health.

Challenges

Not only do the ecosystems existing within the MWMO watershed need to function in a highly urban setting, but increasing challenges are expected as ecosystems need to adapt to impacts of climate change. Native plants may be increasingly stressed by pests, diseases, and non-native, invasive plants, which may expand their range and have a competitive edge as winters become warmer. Existing habitat in the watershed is highly fragmented with low species diversity, making recovery more difficult. Bloom times of native plants may also shift, leading to less food availability for bats, birds, insects, and other pollinators.

Changing hydrologic conditions such as increased flooding and erosion also pose challenges to the design of habitat restoration projects to ensure their long-term function. Healthy ecosystems are critical for our heritage and culture; equity and inclusiveness in planning and implementation of projects will be key to ensuring more connected and healthier conditions for all community members.

Target Audiences

The target audiences for Ecosystem Health initiatives are citizens, community members, and landowners who can help protect and restore ecosystem health. This includes member organizations and public land-use authorities who have jurisdiction over public lands, as well as permitting entities, private developers, and landowners who make landform and landscaping decisions.

Indicators and Measures of Performance

Urban ecology requires an understanding of the relationship between social and ecological systems. Habitat patches and corridors that connect and maintain healthy ecosystems provide essential mental, physical, and social health benefits. Increased ecosystem connectivity and an increase in key social and environmental health parameters (e.g. reduced heat stroke, lower crime rates, improved mental health, vegetation and wildlife), will indicate successful implementation.

5.6 Focus Area: Regulations and Enforcement (RE)

Purpose

Implementation of Regulations and Enforcement initiatives will promote consistency across jurisdictions in the standards, compliance and enforcement of regulations for the protection and improvement of water and natural resources.

Challenges

MWMO is predominantly a non-regulatory jurisdiction. MWMO will need to work with member organizations to be sure they have the necessary resources and controls to implement and enforce the MWMO's Standards. A variety of site conditions such as poorly drained or contaminated soils could limit the stormwater management practices available to contractors, increasing the cost of meeting the standards.

When developing plans for equity and climate change, the MWMO will evaluate if our standards could serve as a vehicle to restoring equity in communities, increase the watershed's resilience to climate change, or establish a basis for equitable community engagement.

Target Audiences

The target audience for Regulations and Enforcement initiatives include member organizations and local units of government who regulate water resources and stormwater management. Stakeholders and workgroups within the MWMO who can effectively evaluate water resources standards, rules, and regulations and associated enforcement activity are also targeted.

Indicators and Measures of Performance

One measure of performance is an increase in the consistency across jurisdictions in the application of standards and compliance and enforcement of regulations. A long-term reduction in pollutant loads entering and exiting MWMO waterbodies is another measure of performance.

5.7 Focus Area: Urban Stormwater Management (USM)

Purpose

Implementation of Urban Stormwater Management initiatives will promote unique and effective stormwater solutions to address the highly-developed urban condition of the watershed.

Challenges

The urban and highly-developed nature of the watershed demands innovation in stormwater management. The MWMO works to implement and encourage regulators to allow for innovative urban stormwater management practices, retrofit solutions to existing infrastructure, and deal with contaminated or compacted soils from historic land uses. The extent of impervious surfaces and the high population density within the watershed are simultaneously a barrier to innovation and an opportunity for gaining support and recognition for highly visible projects. Protecting communities from flooding and contaminated water, particularly in areas that have experienced a lack of investment, may include implementation of solutions such as green stormwater infrastructure and restoration of natural areas. Using data on water, health, and equity issues will be key to the future of urban stormwater management within the MWMO.

Target Audiences

The target audiences for Urban Stormwater Management initiatives are the member organizations who can modify existing land use regulations and building codes to allow for new stormwater management, and stakeholders and other entities that are willing to collaborate on the design and implementation of unique stormwater management solutions.

Indicators and Measures of Performance

Performance will be measured by the degree each project funded by the MWMO advances beyond the equivalent conventional design, policy, funding, and benefit to the public.

5.8 Focus Area: Emergency Preparedness and Response (ER)

Purpose

Implementation of Emergency Preparedness and Response initiatives will prepare the MWMO and member organizations to protect water and natural resources in the event of an emergency that threatens the health and function of these resources and assist them in alleviating damages to resources from emergencies.

Challenges

The MWMO's challenge in being prepared for emergencies is the inherent unpredictability of the type and timing of emergencies. There may also be challenges among the public and existing emergency response agencies given that these emergency preparedness and response initiatives represent a change from the historical role the MWMO has played in this arena. Examples may include emergency response to flooding and other increasing climate-related disasters.

Target Audiences

Target audiences for Emergency Preparedness and Response initiatives include MWMO staff and member organizations who can implement emergency response activities, as well as emergency response officials from local, state, and federal agencies who can effectively protect water and natural resources.

Indicators and Measures of Performance

The measure of performance is the demonstrated preparedness and response to future emergencies that threaten water and natural resources in the watershed.

5.9 Focus Area: Emerging Issues (EI)

Purpose

Implementation of Emerging Issues initiatives will develop awareness of new issues and address the related changing conditions, in order to protect water and natural resources.

Challenges

The MWMO's main challenge is the inherent newness of emerging issues. This compounds the difficulty of anticipating and identifying potential impacts to water and natural resources, and possible solutions to these impacts.

A history of systemic racism coupled with continued present-day land use patterns; infrastructure, operations, and maintenance patterns; have brought to the forefront unresolved social, economic, and environmental issues of climate change. These climate change impacts are generating greater inequity within communities of black, indigenous, and people of color.

MWMO staff need to continue to build public and private partnerships with neighborhoods, governmental and private sector partners to engage early on in planning for new redevelopment activities that bolster the watershed's resilience to climate change; regain social and environmental equity neighborhoods have lost; and reduce long term infrastructure debt.

Private site by site redevelopment and the separation of public and private infrastructure systems to support it has unwittingly contributed to today's issues of climate change, inequity, and infrastructure debt. The MWMO needs to continue to work with its member cities on new district, regional, and restorative infrastructure patterns that help resolve these issues. Staff need to

continue to help partners promote and implement systems based designs that utilize stormwater to re-establish connected habitat corridors that has multiple benefits including: reduced crime rates, improved physical and mental health, cooling of the urban heat island, improved work place productivity, increased access to healthy food sources, improved social cohesion and community resilience; absorption of carbon emissions and other air pollutants; regained environmental and economic equity for neighborhoods; more extensive public spaces, lower public infrastructure debt, and lower long-term maintenance costs.

Target Audiences

The primary target audience for emerging issues implementation initiatives is MWMO staff and stakeholders with input on key emerging issues.

Indicators and Measures of Performance

The performance measure is the retrospective evaluation of how emerging issues were handled, the ability to build awareness and build partnerships and projects that implement corrective actions, the identification of secondary effects avoided, and the perceived preparedness for future changes in conditions.

5.10 Focus Area: Financial Responsibilities and Strategies (FRS)

Purpose

The purpose of MWMO financial strategy is to effectively, efficiently, and transparently fund implementation, operation and management of MWMO projects and program initiatives to achieve the protection and improvement of the natural and water resources in the watershed. The MWMO will make every effort to utilize and leverage of grants and partner funds whenever possible. MWMO will actively maintain a financial plan.

Challenges

In the past the MWMO had a relatively scant amount of water and natural resource information on which to base its programmatic expenditures. As such, it has taken the initiative to identify gaps in this information and fund watershed assessments to further develop this base of knowledge. New knowledge about the watershed's resources may shift the focus of the MWMO's funding toward projects and activities and less on assessments and studies. Thus, one of the challenges for the MWMO is maintaining enough flexibility in funding its projects and activities to keep up with current science and information available on the watershed.

Target Audiences

The primary target audiences for financial responsibilities and strategies implementation initiatives are the MWMO itself, potential project partners who can provide in-kind or cash

contributions, and the public and member organizations who are interested in the funding process and approval of expenditures.

Indicators and Measures of Performance

The performance measures will be the amount of leveraged funds, the extent of public benefits created by use of funds, and the number of successful activities and projects that are funded.