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# Watershed Management Plan 2021-2031

7.0 MWMO Administration/Internal Operations



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## 7.0 MWMO Administration/Internal Operations

The internal operations of the MWMO are designed to allow the organization to efficiently and effectively accomplish its duties. The MWMO addresses the protection and restoration of water and natural resources through planning, financing and funding processes, and a variety of projects and activities. This section of the Plan outlines the administration and internal operations of the MWMO. For a discussion on MWMO financing and funding see the implementation chapter “Financial Responsibilities and Strategies” and “MWMO Financials.”

### 7.1 MWMO Project Expertise and Services

While the MWMO Watershed Management Plan lays out the general work flow for the organization, it does not provide the year-to-year specific planning and work detail necessary to implement the goals of the plan. In addition to the Plan, the Board periodically carries out strategic planning that must be incorporated into the annual workplan of staff. Each year, MWMO staff develops an annual workplan to present to the Board of Commissioners. The annual workplan provides a schedule and details of the projects and activities to be completed each year. The process takes place concurrently with the MWMO budget process to ensure funds are directed to priority projects and activities.

The MWMO conducts an annual prioritization and selection of projects and activities based on available funding for capital projects, planning initiatives, research and watershed studies, communication and outreach initiatives and monitoring. These projects and activities selected and implemented will advance the organization’s goals and strategies while responding to changing resource conditions and financial constraints of the MWMO.

The MWMO also continues to seek out opportunities to collaborate and develop partnerships with other organizations to expand the reach of its and their activities, to leverage additional funds, and to prevent duplication of services and project efforts within the watershed (**Table 24**).

All projects undertaken and services provided will have an evaluation component. Evaluations measure the impact of the MWMO’s efforts and are a critical part of improving its projects and activities. Evaluations will clearly state objectives, measure results, and serve as a valuable tool in documenting the success of the MWMO’s implementation plan. The MWMO will include results of the evaluations as part of its annual report and financial summary.

#### **MWMO brings staff and expertise to each of the following areas:**

- Capital Projects
- Communications
- Outreach
- Monitoring
- Planning
- Watershed Assessment

Below are summaries of each area of expertise and the how and why of the work they do.

## **Capital Projects**

**Purpose and Justification:** The MWMO builds structural solutions to address its water resource protection and improvement goals because it is often the most efficient and effective way to attain the water quality and quantity goals of the MWMO. Nutrient reduction, volume control, rate control, and drought attenuation on a district, sub-watershed, or watershed scale is where the MWMO primarily invests its capital improvement funding.

Restoration of native vegetation is also an effective tool to reduce water volume, sediment, and other pollutants of stormwater in the watershed. Trees and other vegetation help reduce the negative impacts of urbanization on water and air quality, habitat, energy use, public health, and quality of life. The strategic use of vegetation reduces the amount and cumulative impact of impervious surfaces. Structurally, vegetation also provides layers of opportunities (e.g. canopy, ground cover, roots in the ground) to intercept, use, transpire, and infiltrate stormwater before it becomes runoff. Moreover, using vegetation to mitigate urban effects is often less costly than structural engineering solutions. These projects utilize opportunities and incentives to retrofit sites to integrate vegetation to improve water quality, to integrate better building and landscape design into land use decisions and policies, and to pilot new approaches to solving resource problems.

The combination of water conservation (using less water) and reuse (using water more than once before discharge) are additional measures the MWMO utilizes to reduce the impact and demand on our water resources. Water is an increasingly scarce resource, both regionally and nationally, and growing demands are arising from an expanding population, changing lifestyles, and industrial, commercial, and agricultural uses. Even in Minnesota, a land of many waters, water is not replenished at the same rate that it is used. Reuse of water can also provide a backup to potable water supplies, creating a strategic level resilience for a community, thereby enhancing community resilience. Sustainable water management practices are an integral part of water use and planning by individuals and large water users, even in the absence of water restrictions.

Finally, through acquiring easements and purchasing land, the MWMO improves its ability to significantly protect and improve surface and groundwater resources, as well as other recreational, historical, and cultural resources. Cooperative land conservation projects and a dedicated budget enables the MWMO to participate in long-term planning and purchasing processes, as well as respond to opportunities as land becomes available. Moreover, MWMO funds will be used strategically to leverage additional partnerships and purchasing power.

### **Objectives:**

- Encourage the use of new and innovative water management systems for energy, water supply, and stormwater and wastewater treatment and reuse
- Evaluate the effectiveness of new technologies

- Pilot innovative and visible demonstrations to showcase techniques for local conditions
- Provide technical and funding assistance for projects, programs, and policy development in the watershed that encourage conservation of water resources
- Provide leadership in surface and groundwater conservation, and reuse whenever opportunities arise
- Provide leadership, technical, and funding assistance in the watershed, to support a transition to restorative infrastructure that equitably optimizes the environmental, social and economic outcomes of redevelopment
- Promote integration of building and landscape design
- Use plants to reduce the volume, slow the rate, and treat runoff leaving the land
- Increase capacity of the watershed to intercept precipitation and infiltrate and store water
- Restore and protect habitat, native plant, and animal communities
- Work towards preserving diverse natural areas (e.g. floodplains, prairies, savannas, and forests), and creating habitat corridors crucial for wildlife movement
- Create and restore ecosystem function and structure
- Create climate resilient landscapes
- Implement best practices and apply innovative approaches to maximize native plant community health and habitat, as well as encourage the selection of plant species suitable to a changing climate
- Design water quality improvement and flood control projects resilient to climate change
- Actively seek opportunities to vegetate urban landscapes and link green spaces
- Apply hydrologic, hydraulic, and water quality science and computer simulation models in the selection of project locations providing the best opportunities to reduce flood risk and pollutants to the Mississippi River
- Create recreational opportunities related to water
- Develop partnerships between the MWMO and communities
- Reduce the pollutant load reaching the Mississippi River and other MWMO water resources
- Address localized flooding concerns by reducing the rate and volume of runoff reaching the flood area
- Work toward improvement in regional flooding concerns through reductions in the rate and volume of runoff that reaches the Mississippi River
- Provide technical and funding assistance for regional projects in the watershed
- Assist member organizations in eliminating remaining combined sewer overflows
- Leverage funding from other sources to purchase property that supports watershed planning goals
- Provide financial assistance to member organizations for responding quickly to emergencies that impact water resources
- Protect groundwater by investigating potential soil contamination and use information to inform project design

## Communications

**Purpose:** Increase awareness and understanding of the MWMO and its role in protecting and improving water quality and habitat. Spur action and advocacy by residents and stakeholders to improve water quality and habitat and support green infrastructure projects. Support MWMO member organizations, partners, and clean-water allies by helping meet their communication needs.

**Justification:** The MWMO's communications staff supports the other program areas by providing professional communication services, serving as the main conduit of public information, and developing strategies and tactics to assist staff in engaging the public in ways that support the MWMO's mission and goals.

The communications area promotes and maintains MWMO brand and graphic standards, provides media relations services, and provides public information through various channels. These may include printed materials, web content, email newsletters, social media, video platforms, and various new and emerging communication technologies as they become relevant. Communications staff also ensure compliance with specific statutory requirements found in Minnesota Statutes Chapter 103B and Minnesota Rules Chapter 8410.

Communications staff work in close collaboration with the MWMO's outreach and education team. These two areas together function as the public face of the MWMO in its day-to-day operations. Communications staff also provide support to staff and residents of MWMO member communities when appropriate.

### Objectives:

- Support MWMO staff, program areas, and member organizations in communications services related to stormwater management, water quality and habitat.
- Provide public information via print, web, email, social media, news media outreach and other communications channels and technologies as they become relevant.
- Maintain and promote awareness of the MWMO's graphic standards among MWMO staff and partners to ensure consistent, professional appearance in communications products.
- Support MWMO staff with communications services and coordinate communications-related contracts with outside vendors.
- Ensure compliance with state regulations regarding required communications with residents.
- Maintain the MWMO website and ensure compliance with accessibility standards.
- Provide communication services and support to MWMO member organizations to achieve shared goals around water quality and habitat.
- Promote the expertise and services that the MWMO offers partners and member organizations.
- Promote awareness and understanding of the benefits of MWMO projects through project-specific communications, including development of interpretive signage.

- Facilitate communication with all of the diverse communities in the MWMO watershed, adapting communication strategies and tactics to reach specific audiences as needed.
- Maintain and update the MWMO’s Strategic Communications Plan in accordance with the strategic priorities identified by the MWMO’s leadership team.
- Maintain and update the MWMO’s Crisis Communications Plan and ensure that MWMO staff are informed of the plan and have appropriate media training.
- Develop an internal communications plan to facilitate effective communication between MWMO staff and program areas.

## **Outreach**

**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.

**Justification:** Continuing to build community understanding about water and natural resources is at the core of a successful watershed management plan. Encouraging behaviors that positively impact water quality and habitat are key to protecting the environment and long-term health of our communities. Greater knowledge, awareness and engagement can lead to adjustments in personal, corporate, and institutional behaviors and expectations.

Since the MWMO is one of the most diverse and densely populated watersheds in the state of Minnesota, a wide variety of audiences must be identified and engaged. Doing this well requires varying strategies and must address access and barriers, particularly in underserved communities, to achieve ongoing constituent engagement.

Outreach programming and activities fulfill specific statutory requirements found in Minnesota Statutes Chapter 103B and Minnesota Rules Chapter 8410. Coordinated programming and activities may also support member cities in fulfilling the demands of NPDES permit authority and support other MWMO projects and actions to increase their impact.

### **Objectives:**

- Support member organizations in outreach related to stormwater management, water quality and habitat.
- Collaborate with other professionals and networks to leverage funding and other resources to increase the reach and effectiveness of watershed education and engagement.
- Increase awareness and understanding of the MWMO and its role in stormwater and water quality management.
- Develop public awareness of threats to water quality and habitat and possible solutions and create opportunities for public engagement and participation.
- Develop public awareness of the causes, impacts and solutions of climate change and the role of land use decisions and green infrastructure in developing climate resilient communities.

- Empower constituents to take actions to improve water quality by increasing awareness and knowledge of stormwater issues and resources among key audiences, including homeowners/residents, elected officials, public agency staff, large property owners, partners, youth and educators. Create demonstration sites to inform and educate the watershed community
- Utilize Stormwater Park and Learning Center to promote connection, understanding and care for water and natural resources in the watershed and beyond.
- Actively work to expand audiences to include all people who work, live and recreate in the watershed through relationship building, developing partnerships and addressing inequities.
- Consider and adapt approaches to complex intersecting issues impacting local water resources and communities, including but not limited to climate change, historical land use, green infrastructure, environmental justice, and housing issues.
- Provide and promote professional training opportunities that increase understanding and competency across professional fields that have direct impact on water quality and habitat.
- Educate and engage land-use professionals and decision-makers about the relationship between land use and water quality and environmental health.
- Provide resources and opportunities to build capacity and leadership and promote responsible stewardship of water and natural resources.
- Support and promote local stewardship initiatives, community leadership, and community involvement.
- Provide opportunities for youth to learn about and engage in watershed awareness and watershed management activities.
- Develop and training programs and career pathways to encourage more people, particularly BIPOC and other under-represented populations to pursue environmental careers.

## **Monitoring**

**Purpose:** Provide a scientific basis for identifying and tracking water quality and quantity issues, and to provide information to aid in the selection of projects and evaluating the success of those projects.

**Justification:** Minnesota Statutes Chapter 103B.201 and Minnesota Rules Chapter 8410.003 establish the principle purposes of the MWMO. Among other purposes, the MWMO is charged with protecting groundwater and surface water quality; additionally, the MWMO may address water quantity issues to correct of flooding within the watershed. Minnesota Rules Chapter 7050 requires all waterbodies comply with water quality standards.

Section 303(d) of the Federal Water Pollution Control Act (commonly known as the Clean Water Act) requires states to develop Total Maximum Daily Loads (TMDLs) for waters with impaired uses. The Mississippi River, within the MWMO's boundaries, is listed on the Environmental Protection Agency's 303(d) list of impaired waters. Water quality monitoring provides scientific data to ascertain where and how stormwater management practices can be implemented to effectively achieve TMDLs, state standards, and MWMO purposes and standards.

## Objectives:

- Monitor biological, chemical, and physical 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 management practices
- 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 and public entities and to MWMO staff for use as an education tool (e.g. BMP performance data)
- Collaborate with emergency response officials in training and implementation of emergency response practices
- Develop emergency monitoring plan in case of emergencies affecting water resources

## Planning

**Purpose:** Provide direction to the MWMO's activities. Clarify and integrate the MWMO's goals, responsibilities, and future courses of action. Coordinate implementation of MWMO Standards and goals by member organizations. Maintain involvement with Mississippi River regional working groups.

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 environmental equity neighborhoods have lost; and reduce long term infrastructure debt through public private partnerships.

Lead stormwater and habitat infrastructure planning efforts that: reduce crime rates, improve physical and mental health, cool the urban heat island, improve work place productivity, increase access to healthy food sources, improve social cohesion and community resilience, absorb carbon emissions and other air pollutants, improve social equity within neighborhoods, create extensive public spaces, and lower long-term maintenance costs.

**Justification:** Planning processes led and carried out by the MWMO transform the planning requirements of Minnesota Statutes Chapter 103B from referenced laws into a vision, mission, goals, and actions that are collectively understood and implemented by the MWMO and its member organizations. Planning for projects and activities provides the MWMO with an opportunity for coordination and to create efficiencies as to how it achieves its desired outcomes.

**Objectives:**

- Develop and maintain MWMO organizational identity
- Keep the MWMO's Watershed Management Plan (WMP) current to address new circumstances and changing priorities
- Develop plans for new watershed initiatives
- Review and respond to planning related activities and project proposals within the watershed to assure they are in concert with the MWMO's WMP
- Review and approve local management plans and amendments that impact water and natural resources
- Provide access to information about MWMO goals, priorities, projects, and work areas
- Encourage public participation in MWMO planning activities
- Bring together information (i.e. watershed assessments and data, public comment, staff and Board reviews) to identify MWMO planning priorities
- Integrate MWMO priorities into areas and projects
- Develop consensus among stakeholders for managing resources in the watershed
- Coordinate budget establishment process and financial evaluation of MWMO projects and activity areas
- 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
- Develop plans for habitat and stormwater that are intended to re-connect neighborhoods to waterbodies and natural areas in the watershed Establish public and private partnerships during redevelopment that restore net positive social, environmental, and economic equity in communities

**Watershed Assessment**

**Purpose:** 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.

**Justification:** Watershed Assessment projects and activities meet the purpose of water management programs found under Minnesota Statutes Chapter 103B.201. Assessments enable a management and prioritization of water resource issues that is scientifically based, accurate, and effective. These projects and activities support both internal and external planning initiatives and the MWMO's implementation efforts by providing information on the physical and social conditions of the watershed allowing focused and equitable planning and implementation.

**Objectives:**

- Provide the research, engineering, social and physical science required to understand how new redevelopment infrastructure (stormwater, rate control, and habitat) can break down and remove the historic and present-day systemic barriers that have led to the existing social inequity in communities, climate change related challenges, and growing infrastructure debt.
- Provide information needed to set and refine design and performance standards for the watershed

- Conduct basic research to enhance understanding of general water resource issues and emerging issues within and beyond the watershed’s boundaries
- Conduct assessments within the watershed to define the ecological, physical, biological, cultural, social, economic, organizational, and political characteristics that comprise the MWMO
- Conduct project-based diagnostic and feasibility studies
- Provide information to support other MWMO projects and work areas
- Provide information to inform the prioritization and use of the MWMO’s natural, financial, and human resources
- Provide watershed information to organizations both inside and outside the MWMO’s boundaries

## 7.2 Plan Amendments

As a governmental entity, the MWMO levies taxes to pay for its activities. As such, it is essential that there is an opportunity for input by the community when the MWMO is amending or identifying new activities it will take on in the Plan. In addition, actions taken by the MWMO affect the activities of many other governmental and private entities. Thus, when making Plan amendments, coordination with these entities is an essential part of balancing the needs of all affected parties.

This plan will guide MWMO activities until BWSR’s 10-year plan update approval in 2031 unless it is superseded by the adoption and approval of a subsequent plan within the ten-year timeframe. Many uncertainties arise when trying to align a ten-year planning horizon with the one-year capital budget cycles of the MWMO and member organizations. Thus, changes and amendments to the plan are likely to occur prior to the next scheduled update in 2031. The MWMO will follow the most recent version of Minnesota Statutes, section 103B.231 and Minnesota Rules 8410 when amending the Plan.

The more routine plan changes can be implemented through a process known as “Changes not requiring an amendment” where only a notice and the distribution of changes made is required. These draft and final changes may be sent electronically and must be distributed to member cities, agencies, counties, and watersheds who have received a copy of the MWMO’s Plan. Distribution must include a version of track changes made with deleted text as stricken and new text as underlined. Final changes need to be in the form of replacement pages for the plan with each page renumbered as appropriate and each page including the effective date of the change. Changes not requiring an amendment to the plan are as follows:

- formatting or reorganization of the plan;
- revision of a procedure meant to streamline administration of the plan;
- clarification of existing plan goals or policies;
- inclusion of additional data not requiring interpretation;
- expansion of public process; or
- adjustments to how an organization will carry out program activities within its discretion.

In 2016 the MWMO routed a copy of the Plan with changes not requiring an amendment to provide member communities with timely and current information for their mandatory comprehensive plan update cycles.

The MWMO will review, revise, or amend this plan when completion of current and future studies, regulatory changes, emerging issues, or new research necessitates changes in the implementation schedule or activities of the organization. Finally, the MWMO will review, revise, or amend as necessary its long-range implementation program through the MWMO annual budget and work plan process.

The following is an abbreviated version of the current amendment process which describes: the type of amendment needed, procedural process to be followed, and oversight on the process:

When making amendments to the Plan the MWMO will adhere to the review process provided in Minnesota Statutes, section 103B.231, subdivision 11, except when the proposed amendments are determined to be minor amendments according to the following provisions:

- the Board of Water Soil Resources has either agreed that the amendments are minor or failed to act within five working days of the end of the comment period specified in item B unless an extension is mutually agreed to with the MWMO;
- the MWMO has sent copies of the amendments to the plan review authorities for review and comment allowing at least 30 days for receipt of comments, has identified the minor amendment procedure is being followed, and directed that comments be sent to the MWMO and the Board of Water Soil Resources;
- no county board has filed an objection to the amendments with the organization and the board within the comment period specified in item B unless an extension is mutually agreed upon by the county and the MWMO;
- the MWMO has held a public meeting to explain the amendments and published a legal notice of the meeting twice, at least seven days and 14 days before the date of the meeting; and
- the amendments are not necessary to make the plan consistent with an approved and adopted county groundwater plan.

Draft and final amendments may be sent electronically. A receiving entity may request to receive an amendment in paper format. Draft amendments must show deleted text as stricken and new text as underlined. Unless the entire document is redone, all final amendments adopted by the organization must be in the form of replacement pages for the plan with each page renumbered as appropriate and each page including the effective date of the amendment.

The MWMO will maintain a distribution list of member organizations, state review agencies, the Metropolitan Council, Hennepin County, Ramsey County, Anoka County, and interested parties who have received a copy of the plan. The MWMO will distribute copies of amendments to all on the distribution list and post the amendments on the organization's web site within 30 days of adoption.

Government agencies reviewing proposed amendments are encouraged to use the opportunity to balance needs and coordinate activities with the MWMO. Taxpayers of the MWMO can comment on proposed amendments by contacting the MWMO to request a copy of the amendment and providing written comment and/or by providing input at the public meeting.

### **7.3 Administration of Legal Boundary**

The MWMO primarily conducts activities for protection and improvement of water and natural resources within its legal boundary. Due to its urban setting, the MWMO's legal boundary encompasses an interconnected drainage network of pipes passing between the cities of Minneapolis, Saint Anthony Village, Saint Paul, and Lauderdale and between the cities of Hilltop, Columbia Heights, and Fridley and discharging directly to the Mississippi River. The legal boundary follows established property lines and typically starts in places where the upstream surficial drainages and topography are routed into this network of pipes. In cases where activities occurring outside the MWMO's legal boundary are affecting the MWMO's water resources, the MWMO will work with the adjacent watershed management organizations, watershed districts, any other local unit of government or organization to address water or natural resource protection or improvement issues.

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## SOILS SOURCE DATA

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## Figures Source Information

| Figure # | Name  | Layer                          | Source                              | Year |
|----------|---|--------------------------------|-------------------------------------|------|
| 1        | MWMO Boundary                                 | MWMO Boundary                  | MWMO                                | 2014 |
| 2        | Potential Limitations to Infiltration         | Infiltration                   | MWMO                                | 2014 |
|          | Location Map of Special Area Plans            | Special Area Plans             | MWMO                                | 2014 |
| 3        | Topography                                    | Contours                       | Minnesota DNR                       | 2011 |
| 4        | Surficial Geology                             | Surficial Geology              | Minnesota Geological Survey (M-178) | 2007 |
| 5        | Bedrock Geology                               | Bedrock Geology                | MPCA Metropolitan Groundwater Model | 2000 |
| 6        | Bedrock Units                                 | Bedrock Profile (not a map)    | (Ojakangas and Marsh, 1982)         | 1982 |
| 7        | Historic Hydrologic Soil Group                | Hydrologic Soils               | NRCS                                | 2007 |
| 8        | Present Day Urban Soils                       | Soil Type                      | Historic Waters of the MWMO Study   | 2011 |
| 9        | Modern Secondary Soil Information             | Soil Information               | Historic Waters of the MWMO Study   | 2011 |
| 10       | Combined Historic and Modern Soil Information | Modern Soil Unit               | Historic Waters of the MWMO Study   | 2011 |
| 11       | Soil Series                                   | Hennepin NRCS Soil Units       | Historic Waters of the MWMO Study   | 2011 |
| 12       | Soil Orders                                   | NRCS Natural Soil or Complex   | Historic Waters of the MWMO Study   | 2011 |
| 13       | NRCS Based Vegetation                         | NRCS Vegetation                | Historic Waters of the MWMO Study   | 2011 |
| 14       | Historic Estimate of Soil Hydrologic Group    | NRCS                           | Historic Waters of the MWMO Study   | 2011 |
| 15       | Natural and Semi Natural Areas                | Natural and Semi Natural Areas | Minnesota DNR                       | 2008 |
| 16       | Population Density                            | Block Groups                   | U.S. Census Bureau                  | 2010 |
| 17       | Areas of Concentrated Poverty                 | ACP 50                         | Met Council                         | 2019 |
| 18       | Population Density                            | 2010 Population                | Census                              | 2010 |
| 19       | Neighborhood Boundaries                       | Minneapolis Neighborhoods      | City of Minneapolis                 | 2014 |
| 20       | Historic Subwatersheds                        | Historic Subwatersheds         | MWMO                                | 2009 |
| 21       | Present land use                              | Land Use                       | Metropolitan Council                | 2011 |
| 22       | 2020 Future Land Use                          | 2020 Land Use                  | Metropolitan Council                | 2014 |
| 23       | Surface and Groundwater Appropriations        | Water Use Permit               | Minnesota DNR                       | 2014 |

| <b>Figure #</b> | <b>Name</b>   | <b>Layer</b>                      | <b>Source</b>                         | <b>Year</b> |
|-----------------|---|-----------------------------------|---------------------------------------|-------------|
| 24              | Parks and Open Space  | Map Created By City               | City of Minneapolis                   | 2008        |
| 25              | Regional Parks and Trails   | Map Created By City               | City of Minneapolis                   | 2008        |
| 26              | Existing Minneapolis Park System                                  | Map Created By City               | Minneapolis Park and Recreation Board | 2007        |
| 27              | Minneapolis Trail System and Regional Park System                 | Map Created By City               | Minneapolis Park and Recreation Board | 2007        |
| 28              | Minneapolis Existing Land Use                                     | Map Created By City               | City of Minneapolis                   | 2009        |
| 29              | Minneapolis Future Land Use                                       | Map Created By City               | City of Minneapolis                   | 2009        |
| 30              | City of Saint Anthony Village Existing Land Use                   | Map Created By City               | City of Saint Anthony Village         | 2008        |
| 31              | City of Lauderdale Existing Land Use                              | Map Created By City               | City of Lauderdale                    | 2008        |
| 32              | City of Saint Paul Park System                                    | Map Created By City               | City of Saint Paul                    | 2008        |
| 33              | Columbia Heights Existing Land Use                                | Land Use                          | City of Columbia Heights              | 2008        |
| 34              | Columbia Heights Future Land Use                                  | 2030 Land Use                     | City of Columbia Heights              | 2008        |
| 35              | Fridley Existing Land Use   | Land Use                          | City of Fridley                       | 2007        |
| 36              | Friday Future Land Use  | 2030 Land Use                     | City of Friday                        | 2007        |
| 37              | Hilltop Existing Land Use   | Land Use                          | City of Hilltop                       | 2009        |
| 38              | Hilltop Future Land Use   | 2030 Land Use                     | City of Hilltop                       | 2009        |
| 39              | Mississippi National River and Recreation Map                     | Map Created By Agency             | National Park Service                 | No Date     |
| 40              | Permitted Wastewater and Industrial Stormwater Sites              | Industrial Stormwater Permit      | Minnesota Pollution Control Agency    | 2014        |
|                 |   | Wastewater Discharge Sites        | Minnesota Pollution Control Agency    | 2014        |
| 41              | Known and Potential Sources of Soil and Groundwater Contamination | Contaminated Sites                | Minnesota Pollution Control Agency    | 2014        |
| 42              | Environmental Hazards   | Potentially Contaminated Sites    | Minnesota Pollution Control Agency    | 2014        |
|                 |   | County Well Index                 | Minnesota Department of Health        | 2014        |
|                 |   | Leaking Underground Storage Tanks | Minnesota Pollution Control Agency    | 2014        |
| 43              | Surface Water Resources   | Wetlands (NWI)                    | U.S. Fish and Wildlife Service        | 2007        |
|                 |   | Bridal Veil Falls                 | EOR                                   | 2009        |

| <b>Figure #</b> | <b>Name</b>                                     | <b>Layer</b>                              | <b>Source</b>                         | <b>Year</b> |
|-----------------|---|---|---------------------------------------|-------------|
|                 |   | Public Waters Inventory (PWI)             | Minnesota DNR                         | 2009        |
| 44              | Metropolitan Mosquito Control District Wetlands | MMCD Wetlands                             | Metropolitan Mosquito Control Distric | 2014        |
| 45              | Impaired Waters                                 | Impaired Waters                           | Minnesota Pollution Control Agency    | 2014        |
| 46              | Minor Pipeshed Boundaries                       | Minneapolis Pipesheds                     | City of Minneapolis                   | 2020        |
|                 |   | Lauderdale Pipesheds                      | City of Lauderdale                    | 2008        |
|                 |   | Saint Anthony Village Pipesheds           | City of Saint Anthony Village         | 2008        |
|                 |   | Saint Paul Pipesheds                      | City of St. Paul                      | No date     |
|                 |   | City of Fridley Pipesheds                 | City of Fridley                       | 2020        |
|                 |   | Columbia Heights Pipesheds                | Columbia Heights                      | 2020        |
| 47              | Subwatersheds                                   | MWMO Subwatersheds                        | MWMO                                  | 2014        |
| 48              | 1997 Flood Areas                                | Map Created by Minneapolis                | City of Minneapolis                   | 1997        |
| 49              | Storm Tunnel System                             | Map Created by Minneapolis                | City of Minneapolis                   | No date     |
| 50              | FEMA Designated Flood Plains                    | Floodplains                               | Federal Emergency Management Agen     | 2007        |
| 51              | Sensitivity to Groundwater Pollution            | Sensitivity to Goundwater Pollution       | Minnesota Geological Survey           | 1989        |
| 52              | Groundwater Management Areas                    | Wellhead Protection Areas                 | Minnesota Department of Health        | 2019        |
|                 |   | Source Water Assessment Areas             | Minnesota Department of Health        | 2014        |
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| 53              | Monitoring Sites                                | Monitoring Sites                          | MWMO                                  | 2014        |

## Appendices

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[Appendix A MWMO Joint and Cooperative Agreement, Legal Description and Bylaws](#) (PDF, 3 MB, 59 pages)

[Appendix B MWMO Standards](#) (PDF, 0.1 MB, 6 pages)

[Appendix C Water Resource-Related Activities of Member Organizations](#) (PDF, 0.9 MB, 82 pages)

[Appendix D Soil Series Descriptions](#) (PDF, 0.2 MB, 11 pages)

[Appendix E Rare Species Index and Blanding's Turtle Information](#) (PDF, 0.5 MB, 12 pages)

[Appendix F Joint and Cooperative Agreement regarding Bassett Creek Tunnels](#) (PDF, 1 MB, 18 pages)

[Appendix G Public Comments and Issues Identification](#) (PDF, 0.3 MB, 16 pages)

[Appendix H Statutory Reviewer Comments and Responses 2020](#) (PDF, 0.4 MB, 20 pages)

[Appendix I Design Sequence Flow Chart](#) (PDF, 0.1 MB, 2 pages)

[Appendix J MWMO 2021 WMP Data Sources and Updates](#) (PDF, 0.4 MB, 21 pages)

[Appendix K Public Hearing Comments and Responses](#) (PDF, 0.2 MB, 2 pages)