2 Alignment with Regional and other MMSD Activities

This chapter describes the integration of Milwaukee Metropolitan Sewerage District's (MMSD) 2050 Facilities Plan (2050 FP) with other regional and MMSD organizational plans and activities.

2.1 INTRODUCTION

The 2050 FP is designed to guide the MMSD facilities planning process. Although this facilities plan is more focused on MMSD's assets and actions than on nonpoint source pollution abatement, as was the case with the 2020 FP, the 2050 FP supports MMSD's mission to cost-effectively protect the quality of the region's water resources. It also supports the objective of an efficient and high-performance sewerage system and promotes effective planning that reliably and sustainably meets the needs of growth and redevelopment. Additionally, the 2050 FP supports integrated regional planning decisions across southeastern Wisconsin that will allow the planning area and broader region to thrive economically and environmentally. To achieve these goals, the 2050 FP has been developed in alignment with and support of several regional plans and activities, as well as with MMSD's organizational plans and activities, including asset management, ongoing planning, long-term financial planning and budgeting, as well as other projects as outlined below.

2.2 COORDINATION WITH OTHER ACTIVITIES

State of Wisconsin

The 2050 FP fulfills MMSD's planning requirements under State law. Wisconsin Statutes §§ 281.41 and 283.85 require publicly-owned treatment facilities to undertake facilities planning to ensure the most cost-efficient method of meeting limitations and standards. Regulations at Wisconsin Administrative Code Natural Resources (Wis. Admin. Code NR) 110.08 to 110.10 detail the requirements for facilities planning. These regulations direct MMSD to demonstrate a need for proposed facilities, make a systematic evaluation of feasible alternatives, establish the most cost-effective method of meeting effluent limitations and water quality standards, and consider total monetary, environmental, and social considerations in the cost evaluation. (Wis. Admin Code NR 110.09)

Regional Water Quality Management Plan Update

The 2050 FP is aligned with the purpose of Southeastern Wisconsin Regional Planning Commission's (SEWRPC's) Regional Water Quality Management Plan Update (RWQMPU), which is the "…abatement of water pollution within the greater Milwaukee watersheds…" [1] The RWQMPU has a broader scope than the 2050 FP and uses the U. S. EPA's watershed approach. Both the MMSD 2050 FP and the RWQMPU seek to reduce water pollution through long-range planning efforts to improve water quality in southeastern Wisconsin.

Clean Water Act

While the 2050 FP effort supports MMSD's mission to protect the region's water resources, it also addresses MMSD's requirement to comply with the Clean Water Act (CWA). The CWA, passed in 1972 and amended in

1977 and 1987, was originally known as the Federal Water Pollution Control Act. The following sections summarize the CWA's requirements for Section 201 planning and Section 208 planning.

Section 201 Plan

Section 201 of the CWA authorizes the administration of grants for the construction of publicly-owned treatment facilities. Section 201 mandates the development and implementation of waste treatment management plans using the best practicable waste treatment technology to achieve the goals of the CWA.

Section 208 Plan

Section 208 of the CWA requires the development and implementation of area-wide waste treatment management plans. Section 208 planning seeks to identify and control all sources of point and nonpoint source pollution within a geographic area. Section 208 plans facilitate the administration of grants for publicly-owned treatment facilities under Section 201. Proposed waste treatment facilities are required to conform to the area-wide Section 208 plan. The RWQMPU provides recommendations for the control of water pollution from point sources, nonpoint sources, and is consistent with the requirements of Section 208 of the Federal CWA.

Watershed Planning

Watershed-based planning occurs over geographic areas that are defined by watersheds as opposed to civil divisions or governmental units. Management of water quality on a watershed basis integrates planning, public involvement, and the implementation of state-of-the-art solutions and water quality monitoring programs.

Where applicable, the 2050 FP builds on the watershed approach employed by the 2020 FP and the RWQMPU by looking beyond civil divisions or government units when considering improvements to water quality. MMSD, SEWRPC, and the Wisconsin Department of Natural Resources (WDNR) continue to work together through long-range planning efforts to improve water quality in southeastern Wisconsin.

Taken together, the MMSD 2020 FP and the RWQMPU are referred to as the Water Quality Initiative (WQI) for the region. The WQI is a long-range planning process that follows the watershed approach to water quality management. In addition to MMSD and SEWRPC, the WQI also involves WDNR. With respect to this collective planning effort, the watershed approach identified and considered all sources of water pollution to the rivers and lakes in the region.

Southeastern Wisconsin Watersheds Trust, Inc.

Because nonpoint source pollution is generated across the region and generally ignores municipal boundaries, MMSD and many others recognized during facilities planning in the mid-2000s that the quality of the water being received can only be improved by the actions of strong partnerships. MMSD helped to establish a partnership group that is now known as the Southeastern Wisconsin Watersheds Trust, Inc. (SWWT). Together with SWWT, MMSD spearheaded the development of watershed restoration plans (WRPs) and the RWQMPU, discussed previously. Advisory committees of SWWT factored heavily into WRP production in 2009 and 2010, and are assisting with the development of MMSD's Water Quality Improvement Plan (WQIP). The SWWT will continue to play a strong role in piloting total maximum daily loads (TMDLs) and other water resource improvement planning actions through the foreseeable future. MMSD remains an active SWWT member and is committed to various other water resource endeavors, such as watershed-based permitting, throughout the greater Milwaukee watersheds.

The SWWT and its committees are the primary external stakeholder groups for 2050 FP outreach and communication. The SWWT Science and Policy committees provided the perspective of engaged citizens and organizations, reflecting the expectations of the community. The 2050 FP team met with the committees and

presented information at the annual *Clean Rivers, Clean Lakes* conferences held during the development of the 2050 FP (2016 to 2019) to receive feedback on policy direction and data analysis.

2.3 COORDINATION WITH MMSD ASSET MANAGEMENT PLANNING PROCESS

The 2050 FP uses elements of an asset management approach to direct the efficient management of MMSD's infrastructure. This aligns with MMSD's ongoing Asset Management Program that began as a component of MMSD's Capacity, Management, Operation and Maintenance (CMOM) Program that was initiated in 2007. The asset management approach is based on effective planning, supported by sound data, and is reliant on an understanding of asset risk and service delivery.

The 2050 FP was developed based on evaluations and assessments to identify risks to meeting level of service targets as defined through MMSD's asset management planning process. The 2050 FP project team developed a risk methodology that evaluates the likelihood of an event happening and the consequences if the event does occur. Each risk was categorized according to failure mode (capacity, physical mortality, level of service, and economic efficiency). Consequence of failure and likelihood of failure ratings were assigned to each risk and an overall risk level (high, moderate, low, minimal) was calculated. This allows issues or risks to be compared on a consistent basis to identify significant risks that require further evaluation. The risk methodology evaluates risk against multiple service categories that MMSD strives to deliver: permit requirements, energy, environmental improvements, fiscal responsibility, management effectiveness, safety, and customer service / communication / employee development.

To support risk identification, the 2050 FP conducted windshield surveys of equipment and infrastructure to document physical condition, developed a risk register to document identified risks, and created a business case evaluation tool to evaluate potential ways to reduce the risks.

The asset management planning process will be a significant input in the development of annual prioritized lists of capital, operations, and maintenance projects and provide recommendations on funding levels needed for various other programs that support asset management, such as the Private Property Infiltration and Inflow (PPI/I) and Green Infrastructure (GI) programs. MMSD's intent is to assess risks and performance against performance indicator targets on a regular basis; targets also will be reviewed and updated as required. Concurrent with the 2050 FP process, MMSD is also developing a separate Asset Management Plan, the initial efforts of which are documented in the 2050 FP.

Although the risk assessments helped identify and inform decisions, the majority of the alternative analyses and the projects in the recommended plans were evaluated based on a more traditional triple bottom line assessment and did not use the asset management business case evaluation tool and risk optimization process.

2.4 ALIGNMENT WITH MMSD LONG-TERM FINANCIAL PLANNING AND BUDGETING

MMSD budgets are driven by organizational financial goals and outside factors (political, social, and economic) that influence the financial resources available for both short-term asset needs and long-term planning purposes. This requires collaboration among internal stakeholders from across MMSD to understand the budgetary inputs to the 2050 FP development process as well as the recommended budgetary outputs from the 2050 FP that will assist in completing future annual budgets. It is necessary to link levels of service with identified investment needs so that decision-makers have the information required to evaluate the trade-offs between investments and service.

MMSD develops six-year long-range finance plans. The 2050 FP assumes that all committed activities (activities in construction, contracts in place, and other programs already funded) included in the December 2019 version of the 2020 to 2025 long-range finance plan will proceed. This analysis is discussed in Chapter 7 and 8.

The 2050 FP will be the basis for development of the 2021 to 2026 long-range finance plan. In addition, the 2050 FP plan will inform the activities to be accomplished by year 2035, which was considered to be equal to 2040 for NR 110 compliance (20-year required planning period; see Section 2.2 for reference to specific NR 110 sections), as well as the long-range activities for 2050, which is considered the ultimate buildout of the MMSD planning area.

2.5 Other MMSD Efforts and Programs

The 2050 FP is aligned with MMSD's organizational goals and 2035 Vision, which drive MMSD's efforts and programs. [2] The 2050 FP supports other MMSD organizational efforts and programs, as presented below.

Strategic Plan, 2035 Vision and Connections to Changing Climate

Every three years MMSD undertakes a strategic planning process to adopt a three-year strategic plan to identify actions MMSD can take in the short-term to help achieve the 2035 Vision. One of the key elements of the 2035 Vision is MMSD's commitment to mitigate and adapt to climate change. There is an extensive body of scientific research concluding that climate change is responsible for significant adverse impacts in the state of Wisconsin and that it is expected to deliver even more severe consequences in the future. Together with experts, MMSD studied and continues to include considerations for a changing climate in the work it undertakes. MMSD's 2035 Vision includes climate change mitigation goals to reduce its carbon footprint by 90 percent, meet net 100 percent of energy needs with renewable energy sources (80 percent of which would be from internal sources), use the Greenseams® Program to provide for 30 percent sequestration of its carbon footprint, and anticipate and respond to a range of related impacts. Further, the 2035 Vision includes climate change adaptation goals to acquire 10,000 acres of river buffers, use GI to capture the first 0.5 inch of rainfall (determined to be 740 million gallons across the 2050 FP planning area), and harvest the first 0.25 gallon per square foot of area of rainfall. Good science drives MMSD's climate change goals.

This is important because climate change is predicted to inflict significant burdens on conveyance and water treatment facilities as well as streams and lakes, particularly in the Midwest and Great Lakes region. Storms will likely become more volatile, with larger events predicted to be more intense and smaller ones to be both less frequent and less substantial. As average temperatures increase, so too will the occurrence of heat waves, and more precipitation is expected to fall as rain rather than snow during the winter. Overall, climate change will present an increasing operational challenge for MMSD. As a result, the MMSD Commission adopted Commission Policy 1-11.06, Climate Change Adaptation, in July 2019. [3]

Sustainability

In 2012, MMSD released its comprehensive Sustainability Plan. [4] The Sustainability Plan builds on MMSD's past successes and outlines how MMSD continues to lead the way in innovative technologies to reduce the impact of operating an energy-intensive and vital service like water reclamation using grey and GI and watershed-level planning. When written, the plan provided a roadmap for how MMSD would initiate efforts to attain the stretch goals of the 2035 Vision. It also includes approaches to attaining economic and social sustainability.

MMSD embraces sustainability as an overall core value and operational philosophy, focusing on services and processes to preserve the natural environment and reduce the consumption, waste, and emissions it generates. An excerpt of the 2005 Sustainability Policy adopted by the MMSD Commission states: [5]

> *The foundation[s] for MMSD's sustainability philosophy are its policies, practices and programs that: encourage and optimize the use of renewable, recyclable, eco-friendly materials; reduce energy consumption and emissions from fossil fuels; and have a positive impact on the region's economic, social and environmental resources while maintaining the desired level-of-services in a financially responsible manner.*

This policy is important because its concepts and principles guide all capital and operations and maintenance work undertaken by and on behalf of MMSD.

To meet its sustainability goals, MMSD has developed two overarching plans: The Regional Green Infrastructure Plan [6] and the Energy Plan, [7] discussed below. To ensure that the 2050 FP is in alignment with these efforts, these plans were researched to identify appropriate performance indicators and informed the evaluations performed during the development of the 2050 FP.

Regional Green Infrastructure Plan

MMSD created a systematic Regional Green Infrastructure Plan to help meet its sustainability goals. [6] As a regional agency, MMSD is uniquely positioned to lead GI planning for the Milwaukee region and has funding to undertake the work. This effort will help MMSD make logical GI funding decisions. It will also help municipalities and non-governmental organizations prioritize their actions and will help inform municipalities and private funders where their GI money can do the greatest good. The plan was approved by the MMSD Commission on July 22, 2013.

Energy Plan

In 2015, MMSD released its comprehensive Energy Plan, [7] which considers nearly 100 alternatives to achieve the 2035 Vision goals related to energy: meeting (net) 100 percent of its energy needs with renewable energy sources, with 80 percent from internal sources. The Energy Plan ultimately recommends a combination of 19 energy efficiency and renewable energy projects The Energy Plan recommendations rest heavily on increasing the amount of landfill gas to the Jones Island Water Reclamation Facility, decreasing the amount of supplemental fuel required for Milorganite® drying, and increasing the amount of solids from industrial/commercial waste to co-digest at the South Shore Water Reclamation Facility. The findings of the Energy Plan are further considered in the 2050 FP, both as individual energy alternatives and other assessments (such as biosolids) that heavily impact energy use.

TMDL Implementation Plan

In March 2018, the U. S. EPA approved MMSD's third-party TMDLs. [8] The ultimate goal of the TMDL is to delist impaired streams that are on the WDNR Section 303(d) list of impaired waters and protect and improve waterways in the Milwaukee River basin. The effort included collaboration and leadership from WDNR, U.S. EPA, SEWRPC, and MMSD, with significant stakeholder input through SWWT. Implementation efforts in the greater Milwaukee watersheds will be furthered by a WQIP, as outlined below.

Water Quality Improvement Plan

On April 1, 2019, WDNR issued a new MMSD WPDES permit [9] that required a WQIP be submitted to WDNR by March 1, 2020. The WQIP addresses stakeholder concerns that the TMDL load allocations require insurmountably large reductions and seeks to use an integrated watershed management approach to achieving the TMDL levels.

MMSD leads many projects that improve water quality in the watercourses. The municipalities served by

MMSD contribute financially to these projects and would like to be able to acknowledge their contributions in their respective Municipal Separate Storm Sewer System (MS4) permits. MMSD has developed an Intergovernmental Cooperation Agreement (ICA) that municipalities can use to streamline the connection between MMSD's projects and the municipalities' MS4 permit requirements. The WQIP is intended to be a holistic plan to address water quality issues and stream impairments, build the framework behind the ICA using a collaborative approach, explore and facilitate other cost-effective collaboration opportunities between and across watershed stakeholders, and establish a stream monitoring system that will enable streams to be removed from the WDNR Section 303(d) list of impaired waterbodies.

Resilience Plan

In 2017, MMSD staff began work on its Resilience Plan, which was published in 2019. [10] The project included collaboration with regional partners to evaluate regional risks and identify strategic actions that can be taken to reduce the most critical risks. By working with stakeholders, MMSD identified cross sector vulnerabilities and developed a set of recommended actions that, when implemented, will reduce the risks. While the plan assessed risks in multiple sectors, including environmental, economic, and social, MMSD will only invest in plan components that are aligned with MMSD's mission. The Resilience Plan built on previous efforts and included the integration of climate modeling, population changes, and land use changes identified for the 2050 FP.

PPI/I Reduction Program

MMSD's PP/I Program seeks to reduce the amount of infiltration and inflow entering the sewer system during rain events. By reducing Infiltration and inflow, MMSD is reducing the amount of flow that must be conveyed, stored, and treated by MMSD, thereby reducing the risk of water in basement and overflows. The 2050 FP analysis assumes that I/I from the currently-served areas as of 2019 will remain constant. This assumption implies that municipalities and MMSD maintain their sewer systems so that I/I does not increase above baseline levels. The plan recommends I/I reduction to be a component of any future capacity improvement project.

MMSD has allocated $56 million to the PPI/I Reduction Program through 2019, including available stormwater best management practices funding. The first phase of PPI/I is nearly complete from a budget and policy standpoint. Through 2018, 25 of the 28 municipalities have participated in the program and rehabilitation has been completed at over 9,000 properties. MMSD continues to receive work plans on a monthly basis and anticipates work continuing through the end of 2022 to expend the remaining $16.8 million of uncommitted funding as of 2018. MMSD completed workshops with internal staff and a subcommittee of the Technical Advisory Team in 2018 and 2019 to review the program to date and begin drafting the revised program policy for post-2020.

Wet Weather Peak Flow Management Program

MMSD's Wet Weather Peak Flow Management Program (WWPFMP) manages the efforts to limit peak wet weather flows from the municipal sewer systems served by MMSD into the MMSD conveyance system to levels at or below the performance standards listed in Chapter 3 of MMSD's Rules. Efforts include working in collaboration with the municipalities served by MMSD to ensure continued long-term compliance with the peak flows identified for the municipalities. Under the WWPFMP, enforcement metersheds have been identified for flow data analysis. When flows from an enforcement metershed have been determined to exceed performance standards listed in Chapter 3, all of the municipalities responsible for the flow in the metershed are notified by the MMSD with requests for action to reduce peak flows. [11]

Biodiversity Plan

The Biodiversity Plan was developed as part of the 2050 FP planning effort. [12] It lays out a plan to help protect and restore native biodiversity within MMSD's planning area through the application of GI. The term GI as used in the Biodiversity Plan refers to localized management approaches and technologies that infiltrate, evapotranspire, capture, and reuse stormwater to maintain or restore natural hydrology.

Greenseams®

MMSD's Greenseams Program is an innovative flood management program that permanently protects key lands containing water-absorbing hydric soils. By storing and draining water into the ground naturally, Greenseams helps to preserve regional flood capacity and protect water quality while supporting and protecting MMSD's structural flood management projects—infrastructure investments that are worth hundreds of millions of dollars. The program makes voluntary purchases of undeveloped, privately-owned properties in areas expected to have major growth in the next 20 years and open space along streams, shorelines, and wetlands. All land acquired will remain undeveloped. Wetlands maintenance and restoration at these sites will provide further water storage. Greenseams also preserves wildlife habitat and creates recreational opportunities for people living in the region. Where applicable, the properties can be used for hiking, bird watching, and other passive recreation.

Working Soils®

MMSD's Working Soils Program is a complement to the Greenseams Program and supports MMSD's objectives to mitigate risk of flooding. Working Soils aims to permanently protect privately-held agricultural lands of ecological significance in the Milwaukee River watershed floodplain. MMSD works with landowners to acquire agricultural easements on priority lands containing hydric soils. Landowners voluntarily place a permanent agricultural easement on their land, retaining ownership and the right to work the land. The U.S. Department of Agriculture Natural Resources Conservation Service staff work with the landowners to implement agricultural conservation plans to improve soil health, reduce soil erosion, and mitigate risk of and damage from future flooding.

2.6 REFERENCES

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[7] CH2M Hill, "Final Energy Plan," MMSD, Milwaukee, WI, 2015.

[8] CDM Smith, "Total Maximum Daily Loads for Total Phosphorus, Total Suspended Solids, and Fecal Coliform Milwaukee River Basin, Wisconsin," CDM Smith, Milwaukee, WI, March 19, 2018.

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