NACWA 2012 Excellence in Management Recognition Program
Milwaukee Metropolitan Sewerage District
Effective Utility Management – Product Quality

MMSD operates all its facilities in full compliance with State and Federal regulatory requirements. MMSD's two water reclamation facilities are Platinum certified by the National Association of Clean Water Agencies (NACWA). The Jones Island Water Reclamation Facility has received this distinction for 14 consecutive years. The South Shore Water Reclamation Facility has received this distinction for 15 consecutive years.

Exceeding regulatory requirements to protect the environment is MMSD's ultimate goal. MMSD has developed internal operating and management procedures to insure this happens. It also works very closely with its regulators to make sure that it understands new regulatory requirements prior to their implementation so that MMSD can prepare proactively for the modifications. NACWA awards provide an additional checklist that MMSD reviews and exceeds.

NACWA 2012 Excellence in Management Recognition Program
Milwaukee Metropolitan Sewerage District
Effective Utility Management – Financial Viability

MMSD prepares two budgets that utilize long-range financial planning. First, the District has a Capital Budget that is supported by an approved Facilities Plan.

The District prepares a six-year financial plan as part of its Operations and Maintenance (O&M) budget. The financial plan includes all known changes during the period and forecasts total user charge billings changes along with any significant financial impacts in future years. The plan is supported by three separate reserves.

The District's financial performance is illustrated in its annual budget document by the Standard and Poor's Top 10 Management Characteristics (refer to document page 23 or pdf page 30).

Policies	Metrics	2009	2010	2011
Strategic Use of Reserves	User Charge Stabilization Fund (O&M) balance: >=2.5% of Annual Revenues	12.17%	9.68%	11.35%
	Equipment Replacement Fund (O&M) balance: >=5% of Net Asset Value	6.81%	6.69%	5.87%
	Unallocated Reserve(O&M contingency fund): 2-3.5% of Annual Expenditures	2.9%	3.86%	3.14%
	Allowance for Cost and Schedule Changes (Capital): 2-5% of Expenditures	2%	2%	2%
Investment Policy	Return Exceeds State of WI Local Government Insurance Pool performance	$1,419,000	$1,025,000	$633,000
Debt Policy	25% cash financing over 6 years	28.4%	26.9%	25.3%
	Outstanding debt as a percent of equalized property value limited to 2.5%.	1.37%	1.59%	1.62%
	Bond Rating Moody's S&P Fitch	 Aa1 AA+ AAA	 Aaa AA+ AAA	 Aaa AA+ AAA
Financial Planning and Budgetary Controls	Tax Levy Change from Prior Year	2.0%	0.0%	3.9%
	User Charge Billings	11.8%	2.0%	-3.6%

NACWA 2012 Excellence in Management Recognition Program
Milwaukee Metropolitan Sewerage District
Effective Utility Management – Customer Satisfaction

Customer satisfaction is a difficult metric to measure. Since 2002, the Executive Director has made customer satisfaction his top priority. He refocused MMSD staff so they understand that everything they do is related to customer satisfaction. Through customer surveys, focus groups, and personal experience, he identified the two issues that were viewed the most poorly: overflows and financial impact. For these issues, he developed new ways of reporting the overflows in real-time. In 2011, MMSD began reporting percentage treated on its website. This daily calculation provides reinforcement to the community of MMSD's good efforts and refocuses the discussion away from simply overflows.

For financial issues, MMSD staff developed long-term financial plans for both the capital and the operation and maintenance budgets. MMSD learned that having open communications improved customer opinions. In 2011, a nonpartisan public policy research organization and good government watchdog group, the Public Policy Forum, published a report on MMSD's financial situation. This report stated, "We find an agency that has experienced few of the severe financial problems faced by other Milwaukee-area local governments." This quote illustrates MMSD's success in being fiscally prudent in poor economic times and helped to elevate MMSD satisfaction in the business community.

MMSD is a wholesale provider of water reclamation and flood management services to 28 satellite communities. To maintain an ongoing, proactive dialogue with these customer communities, MMSD hosts monthly meetings that provide input to MMSD from both political and technical circles. These meetings are described more fully in the attribute "Stakeholder Understanding and Support". This customer feedback works very well for non-emergency situations.

MMSD provides several direct lines of communication with the individual stakeholders of the region through its webpage and through social media. Social media provides a very active means for MMSD to discuss issues with its customers, and MMSD's webpage allows customers to send their concerns via e-mail to MMSD staff members. Additionally, in 2011, the Executive Director initiated a monthly e-mail educating recipients on timely issues. Titled, "Blue Notes", this email blast is starting to gather more readers every month. The email blast is reposted via Facebook and Twitter.

MMSD also understands that once avenues for customer concerns to be expressed are provided, responses must be relayed to the customer in a timely fashion. MMSD replies to all email and social media questions within 24 hours. If there are a number of questions that all deal with the same issue, MMSD works with the local media outlets to provide a widespread response to those issues.

MMSD's response to customer concerns is an ongoing effort. The District understands that this attribute can be measured through a variety of channels: personal experiences, media stories, social media responses, and the webpage responses. These softer metrics are usually the most visible. While the hardest to provide a metric for, it is the one attribute that drives many of MMSD overarching decisions. MMSD is constantly adjusting its performance measures to provide clearer, more understandable information.

NACWA 2012 Excellence in Management Recognition Program
Milwaukee Metropolitan Sewerage District
Effective Utility Management – Employee and Leadership Development

MMSD works with its private operator, Veolia Water Milwaukee (VWM), to ensure future employee improvement and stability. MMSD and VWM knew that they would lose 50% of their employees over the near term due to retirements. To retain institutional knowledge and improve skills over time, MMSD and VWM have engaged in the following initiatives:

- **Succession Plan**: From the top down, a succession plan was developed to maintain continuity in operations and maintenance of the system. The plan is updated annually, and it stresses growth from within and bringing new employees with growth potential into entry level positions.
- **Upskilling**: It was recognized that, with future improvements, growth in technology, and more stringent regulatory requirements, skill levels of operations and maintenance employees would need to increase. Further, goals and objectives are established for existing employees to increase their skill levels.
- **Training:** To meet the needs of the wastewater system of the future, technical, safety, and management training is a key to success. Both internal and external training resources are used and are managed by an onsite training coordinator.
- **Online Training and Electronic Training Database:** In 2011, MMSD provided conference and seminar training to 106 employees or 46.6% of the MMSD workforce and provided tuition reimbursement to 15 employees or 6.6% of the MMSD workforce. VWM provided 13,000 hours of training to their employees for an average of about 59 hours per employee. A training database was implemented to track the training by each employee.
- **Workforce Development Training and Placement (WDTP) program**: The WDTP program provides training and professional development opportunities for nontraditional participants to succeed on District projects as interns, apprentices, managers, and certified small, women, and minority businesses owners. The four components of WDTP include:

    - The **Pre-Apprentice Training and Placement Program** trains non-traditional participants for employment as apprentices in the construction trades. Last year, MMSD helped to place 25 participants in construction apprenticeships.

    - The **Engineering and Construction Management Program** provides contractors and engineering consultants the opportunity to participant in a structured mentoring relationship. MMSD assisted 14 individuals in completing the program in 2011.

    - The **Business Development Program,** through seminars and mentoring opportunities, develops and increases the capacity of small, women, and minority-owned businesses. Last year, more than 20 businesses participated in the program.

    - The **Regional Internships in Science and Engineering (RISE)**. The program recruits college students who graduated from a local high school and places them in internships with District contractors and consultants. In 2011, 10 students participated in the program.

Through MMSD's strategic planning process, milestones are set for staff development, and progress toward attaining the metrics are reported to the MMSD Commission on a quarterly basis. The ultimate goal of the above, ensuring sustainable operation and improved skills and performance, is met through diligence and the efforts of a cohesive team.

MMSD's Collection and Conveyance System (C&C) as well as its water reclamation facilities (WRF) are operated and maintained by Veolia Water Milwaukee, LLC. The operator has implemented management systems which promote sustainable performance improvements as well as continuous improvement in all operations. The District's contract with the operator provides for metrics which not only ensure that performance goals are met through potential penalties, but incentivizes the operator to exceed the requirements of the discharge permit as well as the contract limits as shown below.

	BOD(mg/l)	TSS(mg/l)	Fecal
Permit Limit	30	30	400
Contract Limit	15	15	100
Incentive	<9	<8	

The District has a complex SCADA system for both the C&C as well as the WRF's. Data from the SCADA is integrated with an operations database which is used for managing the WRF processes. In addition, the District's Lab Management System is also integrated with the same database. The integration of these systems increases productivity and accuracy of data collection. It also expedites information flow to the operators allowing for more immediate process control decisions.

An important element of the WRF operation is the Process Control Management Plan. The plan establishes key performance indicators (KPI's), targets, and warning and alarm limits for each unit process. Cascaded reporting takes place: daily flash reports, used by operators and supervision, to Unit Process Reports and Management reports routed upward to management and technical staff. This provides a line of communication from the operator all the way to senior management.

MMSD's cost and sustainability program identifies KPI's targeted at consumption of consumables such as power, natural gas, and chemicals. The operator uses KPI's such as chemical dosage, dryer loading, BTU/# solids, and power produced from biogas to evaluate performance and continuous improvement. The operator is developing a Carbon Footprint (CFP) baseline for total power and natural gas and landfill gas used for the WRF's. The Water Impact Index (WIIX) was developed by the operator in Milwaukee. The CFP and WIIX are used by the operator as a criterion in evaluating potential capital improvements.

Technical and safety training are imperative for continuous improvement. A total of 13,000 hours of training were provided for all WRF and Conveyance employees, for an average of about 59 hours per employee. In addition, operators review all standard operating procedures (SOP's) on an annual basis. This provides an opportunity to edit the SOP's based on most current experience and facility physical and operating conditions. This training, along with a succession plan, ensures continuity and sustainable system operation.

NACWA 2012 Excellence in Management Recognition Program
Milwaukee Metropolitan Sewerage District
Effective Utility Management – Infrastructure Stability

The District developed and implemented its formal Capacity, Management, Operation, and Maintenance (CMOM) Program in 2007 based upon best practices for wastewater conveyance, wastewater treatment, and watercourse management, which results in maximizing the capacity of the existing and planned facilities to convey and treat wastewater, providing flood management, and improving water quality in the MMSD service area. As a requirement of the District CMOM program, all 29 satellite municipalities have developed their own CMOM programs.

An important component of the CMOM program is the Asset Management Program (AMP). Key elements of the AMP include (1) taking a life cycle approach; (2) developing cost effective management strategies for the long-term; (3) providing a defined level of service and monitoring performance; (4) managing risks associated with asset failures; (5) using the physical resources of the agency in a sustainable manner; and (6) continuously improving asset management practices.

To effectively operate the AMP, an asset management team was established, with representation from all key areas of the District. Also, because the District has developed positive working relationships with its 29 satellite municipalities, regular coordination occurs between the District and municipalities regarding asset rehabilitation and replacement, leading to less disruption in the community, a higher level of protection, and minimizing taxpayer dollars to accomplish common goals.

All District assets have been compiled into a central, easy-to-search database, which includes key attributes of the asset, asset condition, and consequences of asset failure. Consequence of failure ratings are developed by considering (1) level of service consequences; (2) direct cost consequences; and (3) risk consequences. By using consequence of failure and probability of failure ratings, through condition monitoring, the District can cost effectively plan future asset rehabilitation and replacement needs.

Computerized Maintenance Management Systems (CMMS) are used to manage workflow and asset condition data related to above and below ground assets. This CMMS uses a paperless workflow management process for dispatching and executing work orders. In 2011, an audit was conducted on the classification system in the drying and dewatering system. Outcomes from this audit include refinement of capital project requests, improvement of the maintenance plan for the equipment covered, and a profound knowledge gained by both the operations group and the maintenance group. This approach is being used throughout the facilities to maximize life cycle costs and reliability.

The District developed performance measures, defined in the CMOM Program, to evaluate the effectiveness of its programs in achieving established CMOM goals and objectives. Each year, performance measures are tracked and reviewed through the annual CMOM report to evaluate performance relative to asset management. Review of performance annually provides guidance in determining potential improvements in managing assets at the defined level of service. The District makes available the CMOM program documentation, including all performance measures on its website.

NACWA 2012 Excellence in Management Recognition Program
Milwaukee Metropolitan Sewerage District
Effective Utility Management – Operational Resiliency

A utility's resiliency starts with an established vision for the future, corresponding milestone goals and objectives, and periodic check-ins to confirm that the goals are being achieved. This requires an ongoing, adaptive dialogue with all levels of staff.

MMSD's approved 2035 Vision outlines the long-term desires of the District. From this Vision, MMSD crafts a three-year strategic plan (see pages 12 through 21 of the annual budget book), which identifies the goals and objectives over the three-year horizon. Building these goals and objectives into the annual budget allows MMSD to annually report its accomplishments in prior years and to identify the annual business plan that will move it closer to attaining these metrics. Once the annual business plan metrics are identified, MMSD performs an annual performance review for all its employees. The applicable goals and objectives from the business plan are then assigned to individual employees, and job performance is reviewed based on their abilities to meet these metrics. This cycle is repeated for every year and for every three-year cycle.

To validate that these metrics are being attained, MMSD utilizes Microsoft SharePoint software to allow each division to input their quarterly progress toward the goals. Staff members create a dashboard presentation which allows everyone to see how much progress is being made. On a quarterly cycle, the Executive Director reviews this progress and then will make adjustments as needed to guarantee the attainment of the goals and objectives.

Additionally, MMSD executive staff meets weekly to discuss ongoing issues. This open forum provides a more regular feedback loop for the Executive Director to confirm that the short-term and long-term goals are attainable.

NACWA 2012 Excellence in Management Recognition Program
Milwaukee Metropolitan Sewerage District
Effective Utility Management – Community Sustainability

The MMSD Commission approved a 2035 Vision and Strategic Objectives (2035 Vision) in January 2011. Foundational input included the recommendations of the 2020 Facilities Plan (undertaken in conjunction with an update to the Regional Water Quality Management Plan, with which it shared modeling and public involvement programs) and subsequent watershed restoration plans. Guiding principles of the 2035 Vision focus on sustainability and include a sustainable bottom line and water quality leadership/collaboration. Strategic objectives of the 2035 Vision specifically relate to integrated watershed management and climate change mitigation/adaptation with an emphasis on energy efficiency. In addition, strategic objectives of the 2035 Vision include measurable goals and qualitative initiatives. Formal reporting to the MMSD Commission on those goals and initiatives begins in June 2012, and interim targets to attain goals will be provided for in the 2013-2015 strategic plan. Corrective actions, if any, will be recommended in a dialog with the Commission and acted upon through the strategic planning process that is tied to the annual budget process. Longer term, corrective actions will be incorporated into the next facilities plan.

To implement the 2035 Vision, staff wrote and the MMSD Commission approved the "Sustainable Water Reclamation" (SeWeR) plan in February 2012. The plan commits MMSD to continuing to play a strong role in the region's collaborative efforts to improve water resources. Moving forward, several of SeWeR's chapters are becoming stand-alone plans. The green infrastructure chapter is being expanded upon now to become a regional green infrastructure plan that will set implementation more specific watershed-based goals. Groundwork is being laid to expand the energy and climate change chapters into energy and climate change plans next year. While stand-alone plans are in the works, measurable goals in SeWeR are provided in each chapter to serve as interim guides. They relate to and expand on measurable goals and qualitative initiatives in the 2035 Vision and will be reported on and implemented in conjunction with the approaches mentioned above.

MMSD understands that its decisions have an impact not only on the community and watershed health and welfare, but also on a whole array of social, economic and environmental factors. Throughout the region, MMSD continues to build watershed-based flood management solutions that design with nature for the communities, such was work recently completed in a downstream reach of the Kinnickinnic River. Over a number of years, MMSD has acquired 2,350 acres (and counting) of upper-watershed property to hold rainwater where it falls, ensuring that downstream floods are managed through the foreseeable future. As it plans for water resources, MMSD believes that watershed geography, decision making based on strong science, and far ranging public involvement and collaboration will continue to chart a strong and clear path to a sustainable future.

NACWA 2012 Excellence in Management Recognition Program
Milwaukee Metropolitan Sewerage District
Effective Utility Management – Stakeholder Understanding and Support

Stakeholder understanding and support starts with open, transparent communication. Making sure that the customer understands the expectations and goals of MMSD is the first step. Then, following though to meet those goals and report success is vitally important. The Milwaukee public expects more than just meeting permit requirements; they want MMSD to do better than these limits and to do it in a low cost manner. So that customers know its record of success, MMSD utilizes a variety of communication paths, including personal discussions, presentations to groups, website, news media, and social media.

MMSD hosts a monthly Technical Advisory Team (TAT) meeting of all the engineers in the region to discuss a variety of technical and financial topics. All policy and technical issues are first vetted with this group. Following dissemination by the TAT, the MMSD Executive Director meets monthly with all elected officials from the satellite communities to present these ongoing issues. Based on the information received from the TAT and the elected officials meetings, MMSD will then either hold public meetings or will take the issues directly to the MMSD Commission for consideration. Public meetings are always held for rate setting and other budgetary issues to gather the public's input as well. These meetings provide a venue for dialogue and trust building.

MMSD staff members make presentations to school groups, business organizations, environmental groups, and religious organizations to highlight its success and to teach about what individuals can do to help reduce their impact on the environment. MMSD also works actively with the local news media to ensure proper comprehension of issues that arise.

MMSD uses its website and social media as a means of distributing news stories, technical publications, and individual experiences. During storm events, MMSD's storm update website provides real time information about the volume of water in the tunnel system, the volume of water treated, the current rainfall data, and, when necessary, when MMSD has an overflow to the rivers.

MMSD funds significant fresh water research at local universities. This research displays the success and highlights future challenges to the water industry. Once complete, these scientists then present their findings and studies at a variety of venues where the past fresh water successes of MMSD and the region are showcased.

All these outreach efforts are reported to the MMSD Commission and the public on a quarterly basis. Transparency is the key to stakeholder understanding and support. MMSD undertakes all these steps to demonstrate to the public what it does and how it accomplishes its goals and objectives.

Through all these venues, MMSD provides information to the stakeholders and then uses that information to modify their approaches.

NACWA 2012 Excellence in Management Recognition Program
Milwaukee Metropolitan Sewerage District
Resource Efficiency and Protection Activities – Pretreatment

MMSD's Industrial Waste Pretreatment Program (IWPP) was one of the country's first approved programs when it was fully implemented in 1983 and has been a model for other publically operated treatment works that have had to initiate a program of their own or modify their existing programs. Currently, the MMSD's IWPP has 124 permitted Significant or Categorical Industrial Users of which more than 92% are in compliance with their discharge and reporting regulations. Over the last three years, MMSD has issued 144 Notices of Noncompliance, 21 Notices of Violation, and 68 Notices of Continuing Violation, which have typically always included compliance schedules. Two 60-day Notices of the Intent to Sue were issued, which resulted in penalties of $15,000 and $11,000 each.

To ensure that industrial facilities are in compliance with local and federal standards, an average number of 1,868 samples were collected each of the past three years with an average of 6,950 tests performed on those samples during each of those years as well. To ensure that pollutant loadings remain at or below today's levels, MMSD samples the influent and effluent at each of its two water reclamation facilities for metals once per week. MMSD also samples its dried biosolids product, Milorganite®, for metals and PCB's on a daily basis. To identify possible new sources of pollutant loading and to monitor existing sources of pollutant loadings, MMSD's IWPP staff collects and analyzes samples for metals, HEM, and organic compounds from each of the 26 large industrial parks in its service area for seven continuous days, two times per years.

The goal of MMSD's IWPP is for each of its permitted industrial users to achieve and maintain consistent compliance with their discharge regulations. MMSD works with facilities that are out of compliance through the use of tight compliance schedules and pollution prevention/reduction strategies, rather than issuing unnecessary punitive enforcement whenever appropriate. Annually, MMSD publishes the names of industries that have achieved consistent compliance for an entire year and issues them a plaque for their facility for doing so. In addition, MMSD issues a separate award for every facility that achieved compliance for five continuous years.

MMSD's *2011 Source Reduction Report* illustrates the reduction in pollutant loading since 1983 at the water reclamation facilities in the influent and effluent and the Milorganite® biosolids product that has been achieved due in large part through its IWPP.

NACWA 2012 Excellence in Management Recognition Program
Milwaukee Metropolitan Sewerage District
Resource Efficiency and Protection Activities – Biosolids/Septage/Residuals Management

For more than 85 years, MMSD has relied on the production, marketing, and sales of Milorganite® brand fertilizers as its chief biosolids management strategy. Launched in 1926, Milorganite® (Milwaukee-Organic-Nitrogen), a heat-dried and pelletized class A biosolids, gained favor with golf course superintendents. The unique approach of creating an applied research and marketing infrastructure allowed biosolids produced in Milwaukee to transcend many of the negative stereotypes and focus on its many beneficial agronomic attributes. Over the brand's life span, more than 9 billion pounds of product have been distributed for use in agriculture, professional specialty turf, and retail markets. Today, more than 1.6 million bags of Milorganite® are sold annual. Its primary markets are in the United States and Canada, with a small, but consistent, amount in export sales. Product for home owners can be found in all major garden retail outlets.

Milorganite® is a blend of both waste activated and digested sludge brought together at the Jones Island dewatering and drying facility, where the value added product is produced. Nearly 100% of all biosolids produced through water reclamation in Milwaukee are used in the production of Milorganite®, and all is used for beneficial reuse activities. At its zenith, over 70,000 dry tons of product was produced annually. Reduced waste loads have limited current annual production levels, averaging in the mid-40,000-ton range.

Milorganite® is produced to consistently meet the EPA's part 503 rules for exceptional quality and is often referred to as the standard for pelletized biosolids. Daily, weekly, and monthly testing protocols ensure that MMSD meets all regulatory guidelines, making it the most tested fertilizer product in the market. Packaging and inventory protocols allow the tracking of a bag of product in the field to the actual date produced. Registration and compliance reporting allows the sale of the product in all 50 states in the United States.

Evaluation of biosolids disposal options for MMSD continues to rate Milorganite® as its most cost effective and environmentally friendly means of biosolids disposal. The effectiveness of the Milorganite® program is measured by the annual tonnage distributed, the average per ton selling price, and the revenue to sales/ marketing expenditure ratio.

Quick Facts: Outcome Indicators

	2006	**2007**	**2008**	**2009**	**2010**	**2011**
Tons sold	42,073	32,722	35,792	39,277	36,685	36,073
Net Revenue (millions)	$5.2	$4.3	$7.3	$8.0	$7.0	$7.3
Marketing Expenditures (millions)	$2.7	$2.5	$3.2	$2.9	$2.8	$3.1
Average Selling Price (ton)	$141	$150	$182	$196	$193	$206

MMSD's 2035 Vision contains several goals related to climate change. The most pertinent for this attribute are:

Energy Efficiency and Climate Mitigation & Adaptation Goals:

a. Meet a net 100% of MMSD's energy needs with renewable energy sources.
b. Meet 80% of MMSD's energy needs with internal, renewable sources.
c. Reduce MMSD's carbon footprint by 90% from its 2005 baseline.
d. Respond to a range of climate change impacts when considering surface water, groundwater, and the management of stormwater and floodwater.

The Vision also outlines several objectives that must be considered, including:

a. Create and support a robust southeast Wisconsin regional climate change modeling program that will help forecast climate change impacts.
b. Create an internal risk analysis process that characterizes near-, mid-, and long-term actions necessary to protect MMSD's existing investments in facilities and create new facilities, programs, and operational improvements that adapt to climate change.
c. Expand green infrastructure to help to mitigate climate change and make the region more resilient in the face of intense storms.

To address these objectives, MMSD developed several approaches to prepare for the changing climate, including:

- Initiating and completing the Greenhouse Gas Inventory project inventoried greenhouse gas emissions from all of the District's water reclamation facilities.

- Working with the regional planning agency and the University of Wisconsin to develop a report titled "Impact of Climate Change on CSOs and SSOs in Milwaukee Watersheds." This report identifies the actions steps needed to be implemented for climate change preparedness.

- Expanding its green infrastructure initiatives in the sewer service to help prepare for climate change and developing a modeling study that identifies the benefits of green infrastructure on reducing overflows.

- Initiating a Landfill Gas Pipeline Project that, when operational in 2013, will help to reduce MMSD's carbon emissions by 95%.

Through MMSD's strategic planning and budgeting efforts, annual performance measures are developed for this attribute that target the 2035 Vision's goals. Projects are adjusted and plans modified to ensure that these measures are exceeded.

NACWA 2012 Excellence in Management Recognition Program
Milwaukee Metropolitan Sewerage District
Resource Efficiency and Protection Activities – Water Quality Protection on a Watershed Basis

Since 2002, MMSD has addressed environmental compliance, environmental enhancement, and environmental restoration through a holistic watershed approach. Several initiatives spotlight this ongoing effort.

- In 2002, MMSD commenced the development of a 2020 facilities plan utilizing the EPA's watershed approach. The MMSD 2020 Facilities Plan (201 Plan) was completed in collaboration with the Southeastern Wisconsin Regional Planning Commission's (SEWRPC) Regional Water Quality Management Plan (208 Plan) Update. Together, the plans focused on the causes of water pollution and actions needed to improve water quality in the 1,100-square-mile Greater Milwaukee Watershed. MMSD's plan recommended a strategy of facility improvements, programs, operational improvements, and policies and has become the roadmap for MMSD's watershed efforts. The plan looked comprehensively at the causes of water quality impairments, including combined sewer overflows, sanitary sewer overflows, and urban and rural nonpoint source pollution. This holistic watershed plan was developed by successfully utilizing a broad public participation process including residents, elected officials, environmental groups, SEWRPC, and public agencies. The plan prioritized MMSD capital improvements through 2020 based on ecosystem improvements and is currently being implemented.

- MMSD's award winning Greenseams® Program has purchased over 2,300 acres of environmentally sensitive properties and preserved these parcels with conservation easements. Also, since 2002, MMSD has constructed and financed green infrastructure improvements throughout its 411-square-mile area. MMSD installs green roofs, porous pavement, bioswales, rain gardens, and rain barrels.

- MMSD continues its efforts to restore urban waterways to their natural state. Following the example of Lincoln Creek, MMSD in 2011 initiated the reconstruction of the Kinnickinnic River. This work involves removing a concrete liner and replacing it with a natural meandering waterway.

- In 2011, MMSD initiated an effort with the Menomonee River communities and EPA to develop a framework for a watershed permit. To date, this effort has developed a draft document through a variety of municipal meetings. A final version of the framework is anticipated over the next few months. In 2012, MMSD was selected to receive the 2012 U.S. Water Prize. This award brings recognition to all MMSD's efforts in this attribute. Quoting the Clean Water America Alliance's website for this award, MMSD was selected because, "[It's] pursuing a pilot project for watershed-based permitting, and possibly trading, within watersheds of two rivers, to reduce phosphorus pollution in the most effective and efficient way possible, tailoring priorities among diverse interests and stakeholders and continuing to integrate green and gray infrastructure."

MMSD continues to exceed the goals of the 2035 Vision and action items are constantly being reviewed, adapted, and reported to the MMSD Commission.