Our Mission

The Milwaukee Metropolitan Sewerage District’s mission is to cost effectively protect the area’s waterways. We achieve this through reliable sewerage services, building flood resilience, and protecting and enhancing our waterways and land. The District is a state chartered, governmental agency providing wastewater services for 28 municipalities with a population of about 1.1 million people. We work hard to deliver sustainable public health, financial and environmental solutions.
The Milwaukee Metropolitan Sewerage District 2018 Annual Performance Report describes activities undertaken between January and December 2018 to meet our customer needs, regulatory obligations, and contribute towards achieving our 2035 Vision of a healthier Milwaukee region and a cleaner Lake Michigan. The District’s 2016-2018 Strategic Plan focuses the District’s efforts and initiatives around the themes of collaborative, lean and efficient, accountable, and resilient (CLEAR) actions. In the past, the annual performance report has highlighted the goals and achievements under each focus area; however, with the new 2019-2021 Strategic Plan using a different framework, the 2018 Annual Performance Report provides a general year in review, rather than using the CLEAR framework.
# 2018 Annual Performance Report

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MMSD SEWER SERVICE AREA

349 SQUARE MILES SERVED

2018 POPULATION 1.1 MILLION

1.1 MILLION 2018 POPULATION

98.3% WASTEWATER CAPTURED

630 MILLION GALLONS PER DAY PEAK TREATMENT CAPACITY

76.9 BILLION GALLONS OF WATER TREATED

MILWAUKEE METROPOLITAN SEWERAGE DISTRICT 2018 ANNUAL PERFORMANCE REPORT
Guided by our 2035 Vision of creating a healthier Milwaukee region and a cleaner Lake Michigan, MMSD delivered a range of significant projects and programs to support a more vibrant, resilient, and sustainable region in 2018.

A changing climate is a challenge to all area residents. MMSD strives to meet this challenge by managing its environmental impact and has set the goal to meet 100 percent of the MMSD’s energy needs with renewable energy sources by 2035. MMSD is well underway in pursing this goal, providing innovation in resource recovery and driving improvements in renewable energy production throughout 2018. These efforts included improvements to solar turbines, digester gas turbines, and landfill gas production.

In 2018, MMSD invested $60.3 million in capital projects, upgrading existing infrastructure in the water reclamation system to support the region’s growing population.

Our flood management program restores previously engineered stormwater channels to more natural systems, enabling communities to connect with their local waterways. MMSD continued work with the Wisconsin Department of Natural Resources to support integrated water management design in significant urban renewal projects to improve open space, flood management, water quality, and livability. In 2018, this included the completion of the removal of the Estabrook Dam, the Kinnickinnic River Habitat Rehabilitation project and Underwood Creek Great Lakes Fishery and Ecosystem Restoration project.

MMSD continues to transform its community engagement to create more meaningful ways for public involvement in MMSD’s decision making process. MMSD hosted its first community Open House at MMSD’s Headquarters and invited the public to learn more about MMSD’s projects, operations, budget, and regulations. A refreshed Fresh Coast Guardians website provides another avenue to provide the public with relevant information on how the public can help keep area waterways clean and healthy.

Through collaboration, consultation, and engagement, MMSD provided millions of dollars in partnership funding to municipalities and local organizations to improve waterway health, increase green infrastructure, and reduce inflow and infiltration to the water reclamation system.
In 2018, MMSD’s service area experienced frequent, high volume rain storms. The heavy rainstorms coupled with an effort to keep water out of people’s basements, caused MMSD to have three sanitary sewer overflows and to initiate six combined sewer overflows, totaling 1.27 billion gallons of overflow. MMSD’s wastewater discharge permit with the DNR allows for overflows due to extreme weather events, and, in 2018, MMSD was still within permit limits. Nevertheless, MMSD’s goal for the 2035 Vision is to have zero overflows by 2035.

In February 2018, the effluent at the Jones Island Water Reclamation Facility exceeded state permit limits for chlorine and suspended solids following heavy rainstorms on February 19 and 20. These were the first violations of the MMSD’s DNR wastewater discharge permit at Jones Island Water Reclamation Facility since June 1997. MMSD is actively working with Veolia Water, MMSD’s private operator, to investigate the cause of the permit violation and identify measures to prevent this from reoccurring.

MMSD also continued work on the 2050 Facilities Plan. With a population of 1.3 million by 2050, MMSD recognizes the critical value that infrastructure delivers to the livability of the region. As the District looks to the future, it will prioritize projects that will better manage water where it falls and reduce the need for overflows.

MMSD encourages you to read and learn more about MMSD’s achievements over the past year and how its goals drive the region towards continued success. As always, we welcome your feedback.

**Kevin Shafer, Executive Director**
Milwaukee Metropolitan Sewerage District
MEETING CHALLENGES

HARBOR SIPHONS SETTLEMENT

The Harbor Siphons structures are two large structures that house large sewers and control flow from the conveyance system into the Jones Island Water Reclamation Facility. In February 2018, the structures and piping adjacent to these structures began settling due to poor soil conditions. Under an emergency declaration, engineers and contractors have been in the process of repairing and stabilizing these assets. This work is expected to continue throughout 2019.

MILORGANITE® TEMPERATURE ISSUE:

Since 2017, the District, Wisconsin Department of Natural Resources (WDNR), and United States Environmental Protection Agency (USEPA) have been in discussions on how to resolve some concerns raised by WDNR and USEPA regarding the District’s long-standing method for demonstrating compliance with some technical regulations for Milorganite® production. In 2018, agreement was reached on how to modify this method, the changes were incorporated into the re-issued discharge permit, and District staff have been developing these changes, with implementation scheduled to be complete in the first half of 2019.
SYSTEM PERFORMANCE

In 2018, the District captured and treated 76.9 billion gallons of water, or 98.4 percent of all of the water that entered the conveyance system. The high success rate is attributed to a number of projects and programs the District hosts.

The District’s capital improvements program includes long-term projects to invest in the District’s assets. In 2018, the District invested $29.8 million in the water reclamation facilities and $5.3 million in the conveyance system.

In order to improve the system’s performance, the District completed the following capital improvements projects:

1. Jones Island Pressure Relief Panel Replacement project to ensure the safety of personnel and equipment within and around the JI D&D facility;
2. Aeration Basin Concrete Rehabilitation Phase 2 project at South Shore to extend the useful life of the aeration basins;
3. Conveyance Gate Rehabilitation Phase 3 project to rehabilitate the 18 gate systems at drop shaft sites and diversion chambers within the District conveyance system; and
4. Martha Washington Dr. MIS Segment Rehabilitation project to reduce the risk of SSOs and extend the useful life of the pipe.
5. South Shore gas cleaning project including installing equipment to remove moisture and siloxanes from digester gas before it is combusted in engine generators. Cleaner gas will increase engine generator operating time between overhauls, thus reducing purchased energy costs and engine maintenance costs.

THE DISTRICT CAPTURED & TREATED 76.9 BILLION GALLONS OF WATER IN 2018
ANNUAL PERFORMANCE REPORT

PRACTICING SUSTAINABILITY

Operating the regional sewerage system requires significant energy. As stewards of the environment and public resources, the District is committed to increasing energy efficiency and increasing the District’s use of renewable energy. The District’s renewable energy efforts include: solar panels; capturing methane gas from digesters and using it to generate electricity at the South Shore Water Reclamation Facility; using landfill gas at Jones Island Water Reclamation Facility to generate electricity for plant purposes; and using the waste heat from the engine generators to heat dry biosolids and create Milorganite®.

The District also recycles sewage solids by making Milorganite®. Making Milorganite® saves the District money because every ton sold is a ton the District must no longer pay to land-apply. In 2018, the District produced 47,722 tons of Milorganite®.
Green infrastructure is an approach to water management that protects, restores, or mimics the natural water cycle. In 2018, the neighborhood outreach program expanded from two to three neighborhoods reaching even more District residents. The District expanded the number of rain garden workshops to increase local awareness about the importance of native landscaping and the proper way to install a rain garden. The District also launched rain barrel workshops where after learning how to install a rain barrel, participants received a voucher for a rain barrel. In 2018, the District funded the installation of green infrastructure to capture over 3.8 million gallons of rain water.

The District rebranded the Green Infrastructure Center of Excellence as the Fresh Coast Resource Center. The Center uses the Fresh Coast Guardians theme to recognize local residents who are working to protect the area’s waterways. In 2018, the District launched a “What’s Your Why” campaign asking local residents to tell their story for why it is important to manage water where it falls and protect Lake Michigan.
COST-EFFECTIVELY PROTECTING THE AREA’S WATERWAYS

The District’s mission is to cost-effectively protect the region’s waterways. In 2018, the District’s O&M budget ended in a surplus due to higher than anticipated revenues and lower than anticipated costs. The surplus from the 2018 budget will be used in preparing the 2020 O&M budget. Revenue for the O&M budget includes the sale of Milorganite®. In 2018, the District exceeded the revenue budget for Milorganite® net sales. The District also increased the average value per ton of the product. The District also secured grant funding from the Wisconsin Department of Natural Resources, the National Oceanic and Atmospheric Administration, the Fund for Lake Michigan, and the Robert Wood Johnson Foundation. In total, the District was awarded over $600,000 in grant funding.

District policy sets spending goals for working with small business enterprises (SBE), minority-owned business enterprises (MBE), women-owned business enterprises (WBE), and veteran-owned business enterprises (VBE). The Procurement and Supplier Development Office provides information and tools to help District departments succeed in meeting the District’s goals, develops training and networking opportunities for diverse businesses, assists prime contractors in identifying potential diverse partners, and regularly reports program performance. In 2018, the District awarded over $63 million in contract awards. The District met its goal of awarding over 20 percent of total spending to disadvantaged firms and over 50 percent to local firms in the sanitary sewer service area.
REDUCING INFLOW AND INFILTRATION

In 2018, the District continued its work on the Private Property Inflow and Infiltration (PPI/I) Reduction Program. Infiltration is the clear water entering a sewer system through aging & defective buried infrastructure. Private property sources are often leaking under basement floor plumbing, sewer lateral pipe cracks and joints, and connections at the municipal sewer mainline. Inflow is the clear water entering the sewer system through direct connections. The most common private property sources are foundation drains, downspouts, and catch basins. During rain events, infiltration and inflow dramatically increase the flows in the sanitary sewer system increasing the risk of basement backups and overflows. The increased flow in the sewer system must also be conveyed, stored, and treated by the District at a cost to the District’s tax and rate payers. In 2018, ten municipalities submitted workplans completing investigative or construction work on 385 properties with District funding. The District estimates that the private property work completed to date keeps approximately 58 million gallons of inflow and infiltration out of the sanitary sewer system annually.
NATURALIZING WATERWAYS TO IMPROVE WATER QUALITY

ACOE & MMSD TURNED 4,400 FEET OF CONCRETE DITCH INTO A NATURAL FLOWING WATERWAY

UNDERWOOD CREEK

In 2018, the District, in partnership with the U.S. Army Corps of Engineers completed flood management work on Underwood Creek. The ACOE and MMSD turned 4,400 feet of concrete ditch into a naturally flowing waterway that now supports fish and other aquatic life. The eight-mile long stream is a major tributary of the Menomonee River.
FLOOD MANAGEMENT

ESTABROOK DAM

In 2018, the District completed the demolition of the Estabrook Dam. The project included removing, transporting, and disposing of the dam, stabilizing the shoreline, and establishing vegetation to improve water quality. The Estabrook Dam Removal project earned up to $2.3 million in grants including $2 million from the Wisconsin Department of Natural Resources (WDNR) which is funded through the EPA Great Lakes Restoration Initiative, $250,000 from the Fund for Lake Michigan, and $50,000 from the WDNR Municipal Dam Grant Program. The grant funding received more than offset the cost incurred to remove the dam.
PROTECTING THE AREA’S WATERWAYS THROUGH HABITAT RESTORATION

KK HABITAT RESTORATION PROJECT

In 2018, the District completed the grant funded project to design and construct habitat improvements along the Kinnickinnic River and conducted a supplemental aeration pilot study to understand the amount and type of aeration necessary to improve dissolved oxygen levels. The habitat improvements include invasive plant treatment and bank stabilization.
In 2018, the District began construction on the Kinnickinnic (KK) River Reach 2 – Pulaski Park project. Two miles of concrete-lined channel built in the 1960’s is reaching the end of its useful service life. The concrete is also unhealthy for the river’s aquatic life. The District will remove 1,600 feet of concrete-lined channel and replace with a naturalized channel, construct green infrastructure, and enhance Pulaski Park’s assets.
PROTECTING THE AREA’S WATERWAYS

BY KEEPING WASTE OUT OF THE WATERWAYS

The District’s skimmer, Lynyrd Skymmer, removes trash that has washed into the waterways from the rivers, making the waterways cleaner and more enjoyable. In 2018, the skimmer removed 1,540 cubic yards of debris.

The District’s household hazardous waste collection program provides Milwaukee County residents a safe option for properly disposing of their hazardous wastes, which benefits both water quality and public health. In 2018, over 18,000 residents participated in the program, keeping over 1.2 million pounds of waste out of the area waterways.

The District worked with Milwaukee Riverkeeper to provide the second year of the Adopt-a-River program. The program encourages volunteer groups to clean up area waterways. Individuals, businesses, community organizations, and government agencies can adopt sections of waterways throughout the Milwaukee River Basin. Adopters pledge a two-year commitment, with two cleanups a year. In 2018, 79 adopters participated in the program, collecting over 16,000 pounds of debris.
As our cities become denser and more urbanized, community access to green spaces and the natural environment is reduced. In 2018, the District worked to protect public land through its Greenseams® program. The Greenseams® program was designed to accomplish environmentally responsible flood management by permanently preserving critical floodplain areas and hydric soils. Undeveloped, vegetated lands reduce future flooding risks by storing and draining water into the ground naturally. Greenseams® complements MMSD’s structural flood management projects and helps protect infrastructure investments worth hundreds of millions of dollars.

The Greenseams® Program makes voluntary purchases of undeveloped, privately owned properties in areas expected to experience major growth in the next 20 years. These sites contain water absorbing hydric soils typically found in floodplains and wetlands, and along streams and shorelines. In 2018, the Greenseams® program acquired an additional 64 acres of land in 2018.
Invasive plant removal
ANNUAL PERFORMANCE REPORT

Jones Island tour during Doors Open event

Touring MMSD’s Water Quality vessel, the Pelagos

Jones Island tour
EDUCATING AND ENGAGING OUR CONSTITUENTS

Tours are a popular, free service that the District offers the community as a way to educate the public about the wastewater treatment process and District initiatives. Approximately 5,000 visitors toured the Jones Island Water Reclamation Facility in 2018. The District also participated in Historic Milwaukee’s popular Doors Open program, allowing the public to tour Jones Island, learn about the District, and take home a bag of Milorganite®. Other special presentations focused on careers at the District and in wastewater. In addition to providing tours of Jones Island, the District participated in educational events in the community, giving presentations and demonstrations. The District also partners with local environmental education groups to teach youth about water and water quality protection. In 2018, over 4,600 youth participated in the environmental education initiative.