



Capacity, Management, Operation and Maintenance (CMOM) Program Annual Report for 2011

Milwaukee Metropolitan
Sewerage District

June 2012

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SECTION 1: PROGRAM OVERVIEW

The Milwaukee Metropolitan Sewerage District (District) developed and submitted to the Wisconsin Department of Natural Resources (WDNR) documentation of its Capacity, Management, Operation and Maintenance (CMOM) Program in June 2007. To oversee and assist with efforts related to the CMOM Program development and implementation, a CMOM Program Committee consisting of District Staff from the Technical Services, Legal Services, and Water Quality Protection Divisions was created. This committee now also includes staff from the Planning, Research and Sustainability Division, which was split from the Technical Services Division in 2009. Changes to the Program are made through consensus of the committee. The CMOM Committee also provides oversight on the preparation of the CMOM Program Annual Reports.

The District determined that it would implement its CMOM Program for its three main areas of operations: wastewater conveyance, treatment and watercourse systems. Further, the District viewed the CMOM Program implementation as an opportunity to (1) audit its practices and documentation, (2) bring the documentation under one umbrella to ensure consistent practices, and (3) improve its management of capital assets.

The CMOM Program is used as a method for the District to document current and proposed activities that are intended to help the District achieve goals related to overflows, effluent quality, and watercourse flooding. In addition, through the annual reporting and auditing effort, it is a way to periodically assess its practices and make systematic improvements. As part of this effort, the District has completed this fifth review of the Program in conjunction with evaluating the performance measures defined in the Program. The details of the Program changes resulting from the review are described further in the appropriate section below.

1.1 REPORT PURPOSE

The CMOM Program Annual Report provides summary descriptions of CMOM Program activities (past and planned) and is intended to be a communication tool. The report is intended for District staff, regulatory authorities, customers, and the general public. The report serves four general purposes:

1. To provide an overview of the activities completed under the CMOM Program on an annual basis;
2. To describe and document changes to the CMOM Program documentation on an annual basis, which may include changes to objectives, strategies, tactics, and performance measures;
3. To describe the activities that are planned or currently being undertaken under the CMOM Program; and
4. To continue compliance with the 2002 Stipulation Agreement between the District and the State of Wisconsin, which requires that “On a regular basis the District shall report to the Department on the implementation and performance of the CMOM program.”

The report consists of this Program Overview section plus one section for each of the CMOM Program Plans which are summarized below.

1.2 PROGRAM SUMMARY BY PLAN

The District's CMOM Program includes a Management Plan, Asset Management Plan (AMP), Overflow Response Plan (ORP), System Evaluation and Capacity Assurance Plan (SECAP), Communication Plan and Audit Plan. A general description of each of these plans is included immediately below. Significant activities that took place in 2011 under each of these plans are discussed in Section 1.3. Additional details are discussed in the individual chapters devoted to each plan. Performance measures are included in the CMOM Program under the Management Plan, but are discussed separately below.

Management Plan

The Management Plan describes the goals and objectives of the District related to conveyance, treatment plant and watercourse systems, the strategies and tactics the District is employing to achieve the goals, and the performance measures being used to assess attainment of the goals.

The goals of the CMOM Program for the District are divided into four areas: 1) Overall; 2) Conveyance; 3) Treatment; and 4) Watercourse

The goal and objectives for each of the four areas are listed below.

Overall Goal

By June 2007, MMSD will develop and implement a cost-effective CMOM Program 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. The program must be consistent with goals from other MMSD policies and facilities plans.

Overall Objectives

1. Enable implementation of the CMOM Program within the District organizational structure
2. Communicate the goals and objectives of the CMOM Program to internal and external stakeholders, monitor the CMOM Program implementation, and institute program modifications
3. Continue to maintain adequate financial planning
4. Continue to comply with regulatory requirements
5. Establish a regional CMOM program
6. Continue to maintain a safe work environment and sustain a competent workforce

Conveyance Goal

By June 30, 2007, MMSD will implement a CMOM Program with the intent of eliminating all SSOs except those caused by circumstances as defined by Title 40 of the Code of Federal Regulations (CFR) §122.41 (m) (4), and minimizing CSOs in accordance with the current discharge permit.

Conveyance Objectives

1. Establish CMOM program elements specific to minimizing the number and volume of CSOs
2. Address peak wet weather flows from satellite systems that impact the District's system
3. Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures
4. Continue to establish and document level of protection, design, and performance standards for new conveyance assets constructed in the District service area
5. Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels
6. Enhance District level of knowledge and understanding of wet weather flows and system response to precipitation and other factors
7. Provide information receipt, response activity, and feedback regarding customer inquiries

Treatment Goal

By 2007, the MMSD will implement a CMOM Program for cost-effective wastewater treatment that will achieve and sustain:

- Effluent, biosolids, and air emissions quality meeting or exceeding regulatory and permit requirements
- Sustain operational readiness, reliability, and redundancy for liquid and solids processing
- Achieve asset management implementation
- Improve coordination of wastewater treatment plant operations with collection system facilities and staff
- Improve proper work management related to maintenance

Treatment Objectives

1. Continue to provide effluent quality that meets or exceeds WPDES permit requirements and effluent quality goals
2. Continue to optimize effectiveness of wet weather treatment capacity
3. Continue to manage bio-solids in a manner that maximizes beneficial reuse
4. Continue to document level of protection, design and performance standards for new treatment plant assets
5. Minimize the cost of wastewater treatment asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels

Watercourse Goal

MMSD will implement a CMOM Program intended to minimize the risk of flooding associated with the one percent probability flood event to habitable structures along jurisdictional streams in an environmentally responsible and cost-effective manner, through updating and implementing its Watercourse Management Plan.

Watercourse Objectives

1. Within jurisdictional streams, cost-effectively remove or reduce the consequences to habitable structures from flooding associated with the District's one-percent probability flood event
2. Reduce the likelihood of new habitable structures being added to the District's one-percent probability floodplain
3. Establish and document level of protection, design, and performance standards for new assets in the watercourse system
4. Minimize the cost of watercourse asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels
5. Continue to be a leader in the effort to improve the area's water quality
6. Provide information receipt, response activity, and feedback regarding customer inquiries on the watercourse systems

Performance Measures

A complete list of the performance measures and the value/status for 2009 through 2011 is included in Attachment 1. The purpose of the performance measures is to track District activities over time and gauge achievement of District objectives.

Some of the performance measures have been selected as key performance measures to be used to quickly gauge the overall performance of the District in the areas of Organization, System Performance, Satellite Municipalities, and Customer Service. These key performance measures are shown in Table 1 on Page 1-6.

Asset Management Plan

The Asset Management Plan describes the objectives, strategies, and tactics specifically related to asset management in more detail than is described in the Management Plan. These objectives are related to asset information, asset maintenance, asset rehabilitation and replacement, levels of service, and cost minimization.

The District has a 10-year agreement (Agreement) with Veolia Water Milwaukee (Veolia) for the operation and maintenance of the conveyance and treatment facilities that went into effect on March 1, 2008 and expires on February 28, 2018. Because of their responsibilities outlined in the Agreement, many of the District's asset management objectives related to these facilities were and are being met by Veolia.

Overflow Response Plan

The Overflow Response Plan describes the measures the District has put in place to be aware of, respond to, and provide notification of overflows from the District system.

Veolia has the equipment and personnel, and is required by the District (through the Agreement for operation and maintenance services), to be the first responder for emergencies and overflows from the conveyance system. As the Agreement was developed during 2007, language was included that requires Veolia to have emergency, sanitary sewer overflow (SSO), and combined sewer overflow (CSO) response plans in place. In 2008, Veolia submitted their overflow and emergency response plans to the District and has been updating these plans annually.

Veolia is not responsible for responding to watercourse issues with the exception of the stormwater pumping station located at North 42nd Street & West Mt Vernon Avenue in

the City of Milwaukee. In 2009, the District completed a watercourse emergency response plan, which is put into place when there is the threat of severe rain, flooding, or issuance of a flood watch by the National Weather Service.

System Evaluation and Capacity Assurance Plan (SECAP)

The SECAP describes actions the District has taken and will take to determine capacity requirements, evaluate system capacity, and undertake capacity enhancement measures.

The District completed and submitted the 2020 Facilities Plan (2020 FP) to the WDNR in June of 2007. The 2020 FP was a broad-scope effort and looked not only at facilities required for the District to provide services, but also at methods of improving the quality of the region's water resources. As part of the 2020 FP development process, an analysis of the capacity requirements and available storage and capacity was performed to determine additional facilities needed through the year 2020. The 2020 FP recommended additional treatment and conveyance facilities that may be needed, depending on several factors, including population growth, additional monitoring and analysis, success of I/I reduction efforts, etc. The District continues to perform individual capacity analyses and studies in the conveyance and treatment system as described in Chapter 5.

The District also has previously completed Watercourse System Plans that outlined the efforts needed to provide flood flow conveyance and protect habitable structures from flood flows.

Communication Plan

The Communication Plan serves to document the types and frequency of communications that will be prepared and distributed regarding the implementation of the CMOM Program.

Audit Plan

The Audit Plan serves to define the method, responsibilities, timeline, and documentation that will be used to complete an audit of the District CMOM Program.

Table 1: Key Performance Measures

Performance Measure	2011 Value/Status	Evaluation
Organization		
1 <i>Organizational Best Practices Index</i> ¹	27	District is better than 50 th percentile in benchmark survey (25.5) ²
2 <i>Bond Ratings</i>	AAA (Fitch), Aaa (Moody's), AA+ (S&P)	Fitch and Moody's are at top grade, S&P is one step below top grade
3 <i>Employee Health and Safety Severity Rate</i> ³	0.0	Decrease from 2010 value of 8.1; 0.0 is the best value attainable
System Performance		
4 <i>Volume of wet weather SSOs where the event-generated flow is less than the WDNR approved Level of Protection</i>	0.0 MG	No SSO's were reported in 2011
5 <i>Percent of time effluent is in compliance with WPDES permit limits</i>	100%	
6 <i>Conveyance System Integrity</i> ⁴	0.28 failures /100 miles of piping	One pipe failure causing a loss of capacity. District is better than 75 th percentile in benchmark survey (0.9 failures/100 miles of piping) ⁵
7 <i>Annual number of habitable structures removed from the District's one-percent probability floodplain</i>	31	
8 <i>Number of building backups caused by the loss of capacity or function of a District facility</i>	0	
Satellite municipalities		
9 <i>Satellite CMOM & WWPFPMP development</i>		
2011 <i>Review of annual satellite CMOM reports</i>	Yes	
<i>District action taken for satellite reporting issues</i>	Yes	
<i>Review of WWPFPMP monitoring data</i>	Yes	
<i>District action taken with respect to peak flow performance standards</i>	Yes	The District is monitoring and reviewing actions taken by municipalities with non-compliant metersheds from the 2010 analysis
Customer Service		
10 <i>Percent of inquiry documentation completed (conveyance and watercourse)</i>	99%	

¹ Benchmark is defined in *Benchmarking Performance Indicators for Water and Wastewater Utilities*.

² Value of 25.5 is from *Benchmarking Performance Indicators for Water and Wastewater Utilities* (2007 survey report)

³ Benchmark is defined in *Benchmarking Performance Indicators for Water and Wastewater Utilities*.

⁴ Benchmark is defined in *Benchmarking Performance Indicators for Water and Wastewater Utilities*.

⁵ Value of 0.9 failures/100 miles of piping is from *Benchmarking Performance Indicators for Water and Wastewater Utilities* (2007 survey report)

1.3 SIGNIFICANT ACTIVITIES

Included below is a discussion of some of the significant activities the District has completed, arranged by the CMOM Program plan under which they apply.

Management Plan

One of the conveyance objectives of the CMOM Program is to address peak wet weather flows from satellite systems that impact the District's system. Excess Infiltration and Inflow (I/I) is the most significant cause of SSOs in the District's system.

The District developed the Wet Weather Peak Flow Management Program (WWPFMP) to manage peak flows so that municipal flows remain at or below levels established during the 2020 Facilities Plan (2020 FP). Peak flow performance standards have been developed and are implemented through Chapter 3, Subchapter II of MMSD Rules.

The District serves 29 municipalities (including Milwaukee County) and divides the service area up into metersheds (areas tributary to flow metering stations). There are approximately 200 metersheds currently defined. Flow data is used to determine if the metersheds comply with the performance standards established by sec. 3.201 of MMSD Rules.

In 2011 construction began on Phase I and Phase II of the Wet Weather Peak Flow Project. The project addresses work at numerous remote flow monitoring locations and three remote precipitation gauge locations. Phases I and II consist of the installation of area-velocity (A/V) meters at 52 new metering locations and the upgrade of 52 existing meter sites. The sites are anticipated to be operational in 2012. Phase III of the construction project is scheduled for award in 2012 and consists of the installation of 56 A/V meters of which 15 will be new meter locations and 41 will be upgrades to existing sites.

Analyses of 25 metersheds in the District's service area using area-velocity flow data (as opposed to level-only data) were performed in 2011. The 25 metersheds are in addition to 31 metersheds that were analyzed under the WWPFMP in 2010, resulting in a total of 56 metersheds analyzed through 2011. The results of the analyses are:

- 30 metersheds have been found to comply (21 metersheds from 2011 analysis)
- 26 metersheds have been found to be in noncompliance (4 metersheds from 2011 analysis)
- One metershed that was found to be in noncompliance from the 2010 analysis was later determined to be in compliance; therefore noncompliant metersheds from 2010 analysis were reduced by one

Currently eight municipalities that contain 22 noncompliant metersheds from the 2010 analysis are working with MMSD to develop a peak hourly flow rate reduction program to bring the metershed flows into compliance.

The tributary municipalities to the additional 4 noncompliant metersheds from the 2011 analysis will be notified of the findings when the next phase of compliance letters are

prepared for metersheds analyzed using area-velocity data. The next phase of compliance letters are scheduled for mid 2012. To date metersheds have been analyzed in a total of 16 municipalities, of those 16, 9 municipalities contain at least 1 noncompliant metershed.

Asset Management Plan

One of the fundamental objectives of a successful asset management plan is to know all of the assets owned by the organization and have a documented system for naming and organizing the assets. The District maintains maps and information on the conveyance, storage, and watercourse systems in its Geographical Information System (GIS) and a list of the conveyance, storage and treatment plant equipment in the computerized maintenance management system (CMMS) used by Veolia.

Geographical Information System

In 2011, MMSD updated the Conveyance GIS data by geometrically connecting all structures and pipes together to create a geometric network. During this effort, pipes were updated to include all the upstream and downstream structure numbers and a quality control effort was put in place to give all structures a unique identifier as well as eliminate any duplication of structure or pipeline numbers.

Equipment Assets and Work Management System

In 2011, the District began a comprehensive review of Veolia's equipment asset audit information, completed in 2010, to compare with the District's asset database. The goal of this review is to confirm that both Veolia and the District have matching asset information. This review is expected to continue in 2012.

Veolia currently uses two computerized maintenance management systems for tracking preventive, predictive and corrective maintenance work done on assets. One system is used for equipment assets (OWAM) and one is used for underground assets (InfoNet), each one is geared toward the type of asset being tracked. Veolia is continually improving and upgrading OWAM. In late 2011 Veolia replaced their existing underground asset system (ICOM3) with InfoNet.

In late 2011 the District began preparation of a Request for Proposal to procure and design a new watercourse computerized maintenance management system to replace the existing system. The new system will be more compatible with the District's overall asset management system and will require less maintenance. This contract is expected to be awarded in 2012.

Overflow Response Plan

Root Cause Analyses

Since 2006 the District has been documenting and analyzing the causes of system issues, such as overflows, pipe breaks, equipment problems, and diversions in the conveyance system and at the treatment plants. There were no root cause analyses that began during 2011.

Emergency Response Plan Review

In 2011, the District and Veolia completed a review of actual emergency responses from five emergency and overflow situations that occurred between 2008 and 2010. The actions that were taken during the events were compared to those described in the documented plans. It was determined that in general the responses followed the documented plans and timely actions reduced the risk to the public, to water quality and to District assets. Several items were identified which have the potential to improve overflow and system emergency response procedures. These items are planned to be reviewed during 2012 to determine if the recommended improvements will be incorporated.

System Evaluation and Capacity Assurance Plan

2020 Facilities Plan Advanced Planning Activities

The 2020 FP, completed and submitted to the WDNR in June 2007, was approved by the WDNR in December 2007. Advanced planning has been ongoing through 2011 on a number of capacity-related issues. Discussion of individual initiatives is included in Section 5.

Communication Plan

CMOM Conference

During 2011, the District held its fifth annual CMOM conference with a main theme of reporting. The conference included presentations on private property I&I, CMOM program reporting and CCTV technology improvements, among others.

SECTION 2: MANAGEMENT PLAN

This section of the report discusses changes to the defined performance measures and evaluation of the District's performance using the defined measures. Review of performance using defined measures is intended to be an evaluation of the District's status with respect to achieving its goals and objectives. The review then provides impetus to continue existing strategies and tactics or to modify them to better achieve the objectives.

2.1 PERFORMANCE MEASURES

Performance measures were originally defined in section 2.2.6 of the CMOM Program documentation submitted to the WDNR in June 2007. There were modifications to the performance measures that were included in the annual reports submitted to the WDNR on June 30th, 2008, June 30th, 2009 and June 30th, 2010.

2.1.1 CHANGES TO THE DEFINED PERFORMANCE MEASURES

There were no changes to the wording of any of the defined performance measures in 2011.

2.1.2 EVALUATION OF 2011 PERFORMANCE BASED ON THE DEFINED MEASURES

All of the individual performance measures and the value or status for the years 2009 through 2011 is included in Attachment 1 to this report. A review of recent performance measures indicates the following District strengths, areas in which improvements have been made and areas in which improvements should be focused.

District Strengths

- Treatment plant effluent quality
- Achieving objectives related to overflows
- Managing operation of the Inline Storage System
- Beneficial reuse of biosolids
- Customer service (percent inquiry documentation completed)

Improvements Made

- Condition monitoring (percent of conveyance and watercourse assets with a defined condition and management method)
- Achieving annual target for removing habitable structures from the floodplain

Improvements Desired

- Developing guidelines for conducting Business Case Analysis
- Reducing backlog of construction project updates to the GIS

- Improving monitoring site data and timeliness of data review
- Condition monitoring of treatment plant assets

2.2 MANAGEMENT PLAN REVISIONS

There were no changes made to the District's objectives, strategies, tactics or performance measures during 2011.

SECTION 3: ASSET MANAGEMENT PLAN

The District has determined that a key component of its CMOM Program will be the development, implementation and maintenance of an Asset Management Program. To oversee and assist with the efforts related to the Asset Management Program, an Asset Management Team has been developed. The Asset Management Team includes personnel from the areas of Planning, Accounting, Facilities Information, Contract Compliance, and Capital Program Business Administration as well as staff from Veolia.

The District has been working with Veolia throughout the term of its contract on implementing the near-term and long-term objectives of the Asset Management Plan related to conveyance and treatment facilities. The bulk of this work is related to maintaining the asset listing and work management (preventive, predictive, and corrective maintenance work).

Veolia is responsible for maintaining the single stormwater pumping station (located at North 42nd Street & West Mt Vernon Avenue in the City of Milwaukee) that is owned by the District, but they do not otherwise have responsibility for watercourse assets. As of the end of 2007, the District had developed a watercourse inspection and maintenance program and an information and management system for tracking complaints, inspections, and maintenance related to watercourse assets. The District used this system in 2011 to refine the list of watercourse assets, schedule and track watercourse inspections, and track issues related to the watercourse systems.

Objectives were identified in the Asset Management Plan and are discussed below. They were grouped into immediate, near-term, and long-term objectives. Discussed first are the immediate objectives.

3.1 IMMEDIATE OBJECTIVES

The District's immediate asset management objectives include: 1) Vision and Support; 2) Plan Organization; 3) Plan Communication; 4) Plan Development; and 5) Immediate Gains. Each objective is discussed below.

Vision and Support

The key objectives include gaining understanding and obtaining support from District management and the Commission, and establishing relationships between levels of protection and costs. All of these objectives were met by the end of 2007. The District received support from District management and the Commission, and the relationship between Level of Protection and cost was addressed in the 2020 FP.

Plan Organization

This objective required the establishment of the Asset Manager position and chartering the Asset Management Team, both of which occurred prior to the end of 2007.

Plan Communication

This objective required the identification and interests of key stakeholders, which has mostly occurred. In 2008, the District's internal CMOM web page was implemented and

used to post information related to the documentation and implementation of the CMOM Program. This continued in 2011 with the posting of additional information and reports on the internal and external web pages.

Plan Development

This objective dealt with developing an Asset Management Plan (AMP). By virtue of the CMOM Program documentation submitted in 2007, this objective has been completed. Being part of the CMOM Program, the AMP is set up to be continually practiced and improved, and to receive periodic reviews for updates to the documentation.

Immediate Gains

Immediate gains are expected to be realized through utilizing the Business Case Analysis (BCA) process, which defines objectives and drivers for each project and alternative approaches to meet objectives. The ultimate outcome of applying the BCA process is to ensure projects that are undertaken have valid business objectives; the project will meet the objectives, and the project will be completed cost-effectively. The BCA process is expected to be developed in the future as part of the capital improvement program.

3.2 NEAR-TERM AND LONG-TERM OBJECTIVES

The District's near-term and long-term objectives include asset knowledge, planning, refurbishment and replacement, asset development, condition monitoring, operations and maintenance, financing, financial reporting, and the asset information management system (AIMS). The foundation for addressing these objectives was laid in 2007 through the development and documentation of the AMP, as well as including asset monitoring and maintenance requirements in the Agreement with Veolia. These objectives were under various states of activity in 2011 and are discussed under the following areas: Asset hierarchy, Asset criticality, Asset maintenance, and Asset inventory.

Asset Hierarchy

The District has organized its assets by location and class (type). The location hierarchy includes buildings and treatment processes at the treatment plants, subsystems in the conveyance system, and watersheds and sub-watersheds in the watercourse system. The class hierarchy includes equipment types (i.e. pumps, conveyors, gates, valves), sewer types (i.e. interceptor sewers, collector sewers, storage tunnels, outfalls), and channel types (i.e. non-concrete, concrete lined, enclosed culvert). In 2008, in implementing asset management and the use of their new CMMSs, Veolia also grouped the District's assets into functional systems. In the conveyance system, this is the same as the location hierarchy. In the treatment plants, it somewhat mimics the location hierarchy, but is different in some significant ways, mainly where portions of systems are located in different buildings. For example, the primary sludge pumping system has assets located in both the primary clarifier gallery and in the preliminary treatment facility (where the sludge is processed). The system hierarchy allows for straightforward viewing of the functional group of assets and performing subsequent reviews related to criticality and failure modes.

Asset Criticality

Grouping the assets into functional systems was the first step in performing a criticality review of assets. The District began a study of criticality in the conveyance systems in 2007. The effort involved refining the factors used to determine criticality (or consequence of failure) and going through practice exercises with a team. This effort was completed in 2009 and is now used as part of the conveyance prioritization system.

The treatment plant equipment underwent a criticality review in 2008, undertaken by Veolia. The starting point for the criticality review was the system hierarchy, discussed immediately above. Each system was evaluated based on consequences of failure. Veolia began a subsequent criticality review of treatment plant equipment in 2011 to better refine their ratings. The review began at the South Shore Water Reclamation Facility, which is scheduled to be completed in 2012, and will continue in 2012 with the Jones Island Water Reclamation Facility.

The District continued criticality reviews on watercourse assets in 2011. The current plan is to finish these reviews in 2012. The purpose of performing the criticality reviews is to determine which systems have unacceptable or major consequences of failure and to generally rank the systems by criticality.

Refining the asset hierarchy and determining system criticality ultimately result in better knowledge of the assets and asset systems. This allows for more proactive planning of preventive and predictive maintenance, reduction of failure risks and more efficient operations.

Asset Condition Monitoring and Maintenance

Veolia currently uses the Pipeline Assessment Certification Program (PACP) defect coding system devised by the National Association of Sewer Service Companies (NASSCO) when inspecting the District's conveyance system. This defect coding method is being used to assign a condition and probability of failure for sewer line assets, which can lead to rescheduling and reprioritization of maintenance and inspection activities, as well as subsequent rehabilitation or replacement as necessary to keep the risk of sewer failures at or below acceptable levels. Between 2008 and 2011, Veolia has inspected approximately 73% of the District's conveyance pipes. This percentage was reported as 80% in the 2010 report, but it is believed that number was based on an incorrect total footage of conveyance pipes, as reported by Veolia. The 2010 percentage was likely closer to 61%.

The maintenance management system used by Veolia for above-ground equipment (OWAM) generates preventive and predictive maintenance work orders for treatment plant and conveyance equipment generally in line with the maintenance recommended by the manufacturer. In 2011, Veolia completed nearly all of the preventive maintenance work orders that were generated and maintained the backlog of work orders (those more than 90 days past due) at an acceptable level.

Corrective maintenance work orders, which are generated by Veolia staff, are also tracked in OWAM. Tracking all of the work orders and associated information allows the cost of asset maintenance and asset ownership to be rolled-up, viewed, and analyzed in various ways, including by system, by location, and by asset type. This information

can then be used to determine rehabilitation and replacement schedules, as well as which assets are using the most resources.

In the watercourse system, the District uses a custom-built maintenance management system that includes the asset listing, schedules inspection work orders, tracks inspection results, tracks asset issues and is used to log complaints from citizens and municipal representatives. In 2011, the District completed nearly all of the scheduled watercourse, culvert, detention basin, and trash rack inspections. The District is in the process of procuring and designing a new computerized maintenance management system for watercourse assets. The new system will be more compatible with the District's overall asset information management system and will require less maintenance. The new system is anticipated to be operational in 2013.

Asset Inventory

In 2010, Veolia conducted a physical inventory of the treatment plant equipment and compared it to the asset listing in the maintenance management system. The inventory identified many assets that were not yet in the maintenance management system (mostly due to new construction) and many assets that had been physically removed that were still in the maintenance management system. Veolia corrected many of these items during 2011.

Veolia's updated asset inventory is also being used by the District to update the Fixed Asset (Accounting) List. The District began reconciliation of the Veolia asset audit with the Fixed Asset List in 2011. This reconciliation is expected to continue through 2012 with completion in 2013.

The procedures used for adding asset information into both Veolia's and the District's systems (Fixed Asset SOPs) was updated in 2010. With the update of these procedures, occurrences of assets not included in the maintenance management system or not being removed should decrease. Additional updates to the Fixed Asset SOPs are planned for 2012 to further define procedures for asset hierarchy, asset naming, condition assessment, criticality assignment and general asset management processes. The updates will likely continue through 2013 with ongoing revisions anticipated as processes are continually improved.

The District, in 2011, continued to review the maps and data available in the GIS that are used for its conveyance and watercourse facilities. There were numerous updates of new and corrected information to both of the systems.

In 2010, the District also performed a review of miscellaneous equipment that is in the conveyance system, such as flap gates and isolation gates. Some of this equipment is not currently in the maintenance management system and was not receiving regular maintenance. The initial purpose of this review was to obtain a complete list of flap gates in the system, but for efficiency sake, it was decided to prepare a list of all field equipment. The District intends to use this equipment list to update the Fixed Asset (Accounting) List. This reconciliation is expected to begin in 2012.

SECTION 4: OVERFLOW RESPONSE PLAN

The overflow response plan (ORP) included with the CMOM Program documentation has listings of constructed overflow points (both SSO and CSO), as well as the methods in place for knowing there is an overflow, response procedures, analysis, and public notifications. These plans are in place and are implemented when responding to overflows and emergencies.

4.1 CONSTRUCTED OVERFLOW POINTS

In 2011, one of the CSO points listed in Appendix 4-1 of the CMOM Program documentation was abandoned and another was updated with the correct CSO number. The overflow at East Brady Street and North Water Street which is identified as CSO105 in the WPDES permit was abandoned in 2011. Flow which discharged at this location is now conveyed through DS105/017 and is able to overflow at CSO 017. The overflow at North Newhall Street and East Park Place which is identified as CSO 097 in the WPDES permit has been updated to CSO 097A based on rehabilitation at this location in 2007. This update had not been previously incorporated in Appendix 4-1.

No physical changes were made to any other SSOs or CSOs in 2011. The SSO and CSO tables included in this report as Attachments 3 and 4 show the most up-to-date listing of the District's constructed overflow points.

4.2 CONTACT LISTS

The District's list of municipal phone numbers for emergency situations has been updated. The updated list is included as Attachment 5 to this report. The District's situational contact list has been updated and sent out to the satellite municipalities. The contact list is included as Attachment 6 to this report.

4.3 EMERGENCY RESPONSE PREPAREDNESS

In 2008, Veolia submitted an overflow response plan and an emergency response plan. The overflow response plan details the steps to be taken when an overflow is identified, whether it is an SSO or CSO. The steps include notifications, dispatch of crews, containment, and feedback. The emergency response plan includes actions to be taken during various emergency situations, including severe weather, spills of hazardous substances into the conveyance system, power failures, and other treatment plant and conveyance system emergencies that impact the collection, conveyance, and treatment of sewage.

During 2011, Veolia responded to 17 reported spills, 7 odor issues, and 8 reports of damage to system equipment among the various items that were reported to them.

In 2010, the District began a review of the actual responses to: 1) The flooding of the Beach Drive pump station that occurred on June 7, 2008; 2) Sewage escaping from the Underwood Creek force main on June 25th, 2009; 3) The overflow at South Chase Ave and West Rosedale Ave that occurred on December 9th, 2009; 4) A flap gate that became

dislodged from its hinges on July 15, 2010; and 5) An overflow that occurred at North Richards Street & West Congress Drive (ext'd) on August 21, 2010. This review of the actual responses to the incidents above was prepared in 2011. Several items were identified which have the potential to improve overflow and system emergency response procedures. These items are planned to be reviewed during 2012 to determine if the recommended improvements will be incorporated.

With the transition of the operating contract from United Water to Veolia in 2008, the District removed the duties related to watercourse maintenance and responding to watercourse issues and emergencies. With this change, the District began using the watercourse CMMS to track watercourse related emergencies and complaints. In 2011, the District responded to numerous complaints regarding debris and sediment in the watercourse systems, as well as complaints about clogging of the trash racks, among the various items that were reported.

4.4 INCIDENT ANALYSIS

Since 2006, the District has been preparing documentation on pipe breaks, equipment problems, overflows, and those in-plant diversions that are not consistent with the WPDES permit, generally called root cause analyses (RCAs).

2011 Root Cause Analyses

There were no root cause analyses which were started in 2011.

Prior Root Cause Analyses

1. On June 15th, 2010, an overflow occurred from three separate overflow sites; North 35th Street & West Roosevelt Drive (SSO), North 32nd Street & West Hampton Avenue (CSO); and North 27th Street & West Silver Spring Drive (SSO). During this wet weather event, the Inline Storage System (ISS) was not closed to separate sewage. Additionally, the 32nd & Hampton CSO was not expected to operate during this event. Therefore, an analysis was begun to determine the cause of each of these sites operating. Two of these RCA's were completed in 2011 and one was completed in 2012 (27th & Silver Spring). Causes of the overflows at both the 35th & Roosevelt site and the 32nd & Hampton sites were determined to be due to precipitation of 10-year (35th & Roosevelt) and 25-year (32nd & Hampton) recurrence intervals. It was determined that I/I at the 35th & Roosevelt site exceeds the District's peak flow performance standards and it is possible a metershed contributing to the 32nd & Hampton site exceeds the peak flow performance standards. It was recommended that the District's WWPFMP investigate the metershed upstream of 32nd & Hampton. The WWPFMP is currently working with the municipality to reduce flows contributory to the 35th & Roosevelt site. The RCA for the 27th & Silver Spring site determined the overflow at this site did not come from the MIS system but was likely caused by clear water infiltrating the local municipal system. The analysis determined this SSO site does not provide relief to the MIS system and should either be turned over to the local municipalities or abandoned. This recommendation will be discussed with the

- affected municipalities in 2012 to determine if they elect to take over the site or if the District should proceed with abandonment.
2. On July 15th, 2010, modulating gates at diversion chamber DC0507 automatically closed when the ISS filled to capacity. An analysis was begun on this site to determine the cause and impact of the gate closures. This RCA was completed in 2011. It was determined that a revised operational strategy at the site, based on system upgrades in the area, was not functional in the District control system at the time of the July 15th, 2010 event. The revised strategy would have opened the gates when the ISS filled to capacity. Since the revised strategy was not functional the gates closed during this event which resulted in likely impacts to the local sanitary sewer system. After review of this event the revised operational strategy was implemented in the control system on October 5, 2010. There is no further action required.
 3. On August 21, 2010, during a wet weather event, the bypass at North Richards Street & West Congress Drive activated even though the ISS drop shaft just upstream of the site was still open and accepting flow. An analysis was begun on this site to determine the causes that triggered the overflow. This RCA is in the draft phase and should be finalized in 2012.
 4. The root cause of the gate closure on June 7, 2008, in diversion chamber DC0408, located at North Green Bay Road and West Fairy Chasm Drive, appears to be storm related (i.e. possible lightening strike, or extraordinarily high or fast flows, or surface flooding). There is no further action required.

SECTION 5: SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN

The District completed the 2020 FP in June 2007, with the plan being approved by the Wisconsin Department of Natural Resources in December 2007. This plan addresses the long-term, overall evaluation of the capacity requirements and available capacity of the wastewater system. A number of advanced planning items were identified in the 2020 FP that address specific capacity evaluations. Short descriptions of these and other capacity-related programs and projects that are being undertaken by the District are included below.

The Wet Weather Peak Flow Management Program (WWPFMP)

The objective of the WWPFMP is to manage peak wet weather flows in the tributary municipal sewer systems to levels at or below the performance standards listed in Chapter 3 of the District's Rules. In addition to changing the District rules to require management within the identified performance, the District, working in collaboration with the satellite municipalities, is in the process of developing a Program that will ensure continued long-term compliance with the peak flows identified for the satellite municipalities.

Efforts that were underway in 2011 include:

- Construction on Phase I and Phase II which will install A/V meters at 52 new metering locations and 52 existing sites will be upgraded
- Performing analysis on twenty five metersheds using area-velocity data
- Working with municipal officials of the eight metersheds that are out of compliance with the peak flow performance standards, based on 2010 analysis, to develop a peak hourly flow rate reduction program to bring the metershed flows into compliance

Flow Metering for Potential Conveyance Relief Projects

Data from new and existing meter sites is being analyzed to evaluate the timing and need for potential conveyance relief projects. This effort will continue in 2012.

Evaluation of the ISS Head Tanks and Discharge System

The planning for a hydraulic analysis commenced in 2010 that involves the impact of upgrading the capacity of the Inline Storage System (ISS) Pump Station on the Jones Island and South Shore Head Tank and discharge system, and the South Shore Force Main. This analysis was completed in 2011. Based on recommendations from the analysis a capital project is under design to increase the height of the head tanks at Jones Island. Recommendations for South Shore are being confirmed through additional monitoring and a preliminary engineering study will be conducted to evaluate other options to increase flow through the head tank and force main system since the original recommendation required significant changes to the South Shore head tank.

Real-Time Control Set-point Study

This evaluation began in 2008. The purpose of this study is to determine if flow can be reverted (sent back to Jones Island) at different set points during events to optimize the

use of District facilities for preventing overflows. The analysis was completed in 2009 and the final report was delivered in February 2010. Based on results of the analysis an additional study was performed to evaluate a modified reversion strategy for DC0505 to optimize flow into the inline storage system during tunnel events. The final report for this study was completed in March 2011. Recommendations from the report are being reviewed by District staff to determine a schedule for implementation.

Collector System and CSO Evaluation

The purpose of this study, which began in 2008, is to evaluate whether inactive combined sewer outfalls are necessary for the operation of the conveyance system. It includes an evaluation of the near-surface collector sewers associated with the inactive combined sewer outfalls. The collector sewers deliver flow to the inline storage system. The study was completed in 2011. Recommendations from the study are being reviewed by District staff to determine if field monitoring of combined sewer outfall sites should continue to confirm recommendations, or if a schedule can be prepared for implementation.

Combined Sewer Outfall CSO145 Analysis

The purpose of this study was to perform a hydraulic evaluation of the combined sewer outfall system that is the relief when the District closes the combined sewer gates at ISS dropshaft NS12. The evaluation included an alternatives analysis of providing outfall capacity equal to the capacity of the dropshaft. The evaluation was begun in 2010 and completed in December 2011. Recommendations from the study will be re-evaluated after completion of an ongoing District planning project which will provide detailed information on stormwater flow data in this area. The planning project is scheduled for completion in 2013.

Collector System CT0506 Analysis

The purpose of this study, which was in response to surface flooding and basement backups during the extreme events of July 2010, is to perform a hydraulic evaluation of the City of Milwaukee's combined sewer systems and the District's collector system that discharge into ISS dropshaft CT0506. The evaluation began in 2010 and was completed in 2011. The study concluded that there was sufficient capacity in the District's near surface collector system and sufficient relief provided by the CT0506 overflow outfall during the July 2010 flooding event and that the MIS did not negatively impact the operation of the City of Milwaukee combined sewer system in that area. No further action is required by the District.

Conveyance Analysis of Overflow Relief for the MIS

The purpose of this study was to size overflow relief points on the District's MIS system to keep water levels below known critical elevations (municipal connections, basement elevations, etc.). The overflow points in particular that were studied were at North 59th Street & West State Street and at the District's drop shaft to the ISS located at West Riverwoods Parkway & the Milwaukee River (NS3). This study was completed in 2011. Recommendations from the study were incorporated in two capital projects which designed overflow pump stations at the locations studied. The North 59th Street and West State Street pump station is being constructed while the West Riverwoods Parkway &

Milwaukee River pump station was determined to not be required based on additional hydraulic analysis performed during design.

Capacity Analyses of the Jones Island and South Shore Water Reclamation Facilities

Consistent with the recommendations of the 2020 FP, a detailed capacity analysis of the Jones Island and South Shore Water Reclamation Facilities was initiated in 2008. The study includes process and hydraulic modeling to determine the upper limit of treatment capability. This analysis was completed in 2011. Study recommendations for South Shore are currently being reviewed and coordinated with other ongoing capacity related projects. Recommendations are planned to be included in a capital project to perform preliminary engineering services. Recommendations for Jones Island are under review by District staff to determine a schedule for implementation.

Demonstration and Installation Projects for Increasing Capacity of the South Shore Water Reclamation Facility

This project consists of developing and pilot testing a biological/physical-chemical process for the treatment of wet weather flows at the South Shore Water Reclamation Facility. This project follows the Capacity Analyses mentioned directly above and was initiated in 2010. The information obtained from the demonstration project pilot testing will be used for the design of the full-scale wet weather treatment facilities, should they be necessary. Pilot testing was performed using simulated wet weather flow in 2011. Additional pilot testing will continue in 2012 testing actual plant wet weather flows.

Lyons Park Creek Flood Management

The evaluation portion of this project began in 2011 and is scheduled for completion in 2012. This project was initiated based on the results from a District-funded study by SEWRPC in 2009 which updated the floodplain boundary and the number of habitable structures at risk of flooding during a one-percent probability flood flow. The purpose of this part of the project is to develop alternatives to remove habitable structures from the one-percent flood flows along Lyons Park Creek, evaluate these alternatives with project stakeholders and determine the recommended alternative.

Wilson Park Creek Flood Management – South 27th St to South Howell Ave

The evaluation portion of this project began in 2009 and was completed in early 2011. This project was initiated based on the results from a District-funded study by SEWRPC in 2008 which updated the floodplain boundary and the number of habitable structures at risk of flooding during a one-percent probability flood flow. The purpose of this part of the project is to develop alternatives to remove habitable structures from the one-percent flood flows along Wilson Park Creek, evaluate these alternatives with project stakeholders and determine the recommended alternative. The recommended alternative consisted of the construction of a 170-acre foot detention basin, increase the capacity of four culverts and perform channel rehabilitation on 1.8 miles of concrete lined channel. Recommendations for the upstream portion of the study area are being incorporated in a preliminary engineering project scheduled to start in 2012. Incorporation of downstream recommendations has not been scheduled due to budgetary constraints.

Villa Mann Creek Subwatershed Flood Management

The evaluation portion of this project began in 2010 and was completed in 2011. This project was initiated based on the results from a District-funded study by SEWRPC in 2009 which updated the floodplain boundary and the number of habitable structures at risk of flooding during a one-percent probability flood flow. The purpose of this part of the project is to develop alternatives to remove habitable structures from the one-percent flood flows along Lyons Park Creek, evaluate these alternatives with project stakeholders and determine the recommended alternative. The model was updated to incorporate recent construction by the Wisconsin Department of Transportation and the project determined that no structures had low water entry levels below the one-percent probability flood flow elevation.

Honey Creek Subwatershed Flood Management

The evaluation portion of this project began in 2011 and will continue through 2012. This project was initiated based on the results from a District-funded study by SEWRPC in 2009 which updated the floodplain boundary and the number of habitable structures at risk of flooding during a one-percent probability flood flow. The purpose of this part of the project is to develop alternatives to remove habitable structures from the one-percent flood flows along Honey Creek, evaluate these alternatives with project stakeholders and determine the recommended alternative.

Oak Creek Watershed Flood Management

The evaluation portion of this project began in 2010. This project was initiated based on the results from a District-funded study by SEWRPC in 2009 which updated the floodplain boundary and the number of habitable structures at risk of flooding during a one-percent probability flood flow. The purpose of this part of the project is to develop alternatives to remove habitable structures from the one-percent flood flows within the Oak Creek watershed, evaluate these alternatives with project stakeholders and determine the recommended alternative. The final draft report was completed in 2011 and is under review by project stakeholders. The recommended alternative primarily consisted of floodproofing.

SECTION 6: COMMUNICATION PLAN

The Communication Plan documents the types and frequency of communications that are prepared and presented or distributed regarding the implementation of the CMOM Program.

The District conducted several activities during 2011 to communicate the status of its CMOM Program to various stakeholders. The activities included the CMOM conference, which is attended by satellite municipalities, presentations to District staff, submitting the CMOM Program Annual Report to the WDNR, and updating CMOM Program information on the District's web site (both internal and external).

Discussed below are the activities of the communication plan that have been completed during 2011:

- Presentations were given to consultants and District staff on January 26 and February 17, 2011
- The District held a CMOM conference on March 10th, 2011. Public works and engineering staff from the District's satellite municipalities attended. The conference included presentations on private property I&I, CMOM program reporting and CCTV technology improvements, among others.
- The CMOM Program Annual Report for 2010 was submitted to the WDNR on June 30, 2011.
- Staff submitted a memorandum to the Commission on July 11th, 2011, which provided a summary and description of the 2010 CMOM Program Annual Report.
- The District's publicly accessible CMOM web page was updated to include the 2010 CMOM Program Annual Report.
- The District updated its internal CMOM web page to include the 2010 CMOM Program Annual Report.

SECTION 7: AUDIT PLAN

The Audit Plan is comprised of three sections: (1) Annual updating, which is completed through the Annual Report; (2) Program audit, which is completed through the Program Audit Report and undertaken on a five year cycle, with the first anticipated in 2012, and (3) Program change procedures, which will be implemented following the Program Audit.

The 2010 CMOM Program Annual Report was completed in 2011 and included some updating and clarifications to the language of some of the objectives and performance measures that are in the Management Plan. There were no other activities related to the Audit Plan that occurred in 2011.

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2009 Status/Value	2010 Status/Value	2011 Status/Value
Overall	Program Organization	Organizational Best Practices Index*	2.2.1.1.1 – Enable implementation of the CMOM Program within the District organizational structure	27	27	27
Overall	Program Organization	CMOM Manager responsibilities assigned	2.2.1.1.1 – Enable implementation of the CMOM Program within the District organizational structure	Yes	Yes	Yes
Overall	Program Organization	CMOM work team established and functioning	2.2.1.1.1 – Enable implementation of the CMOM Program within the District organizational structure	Yes	Yes	Yes
Overall	Program Organization	Asset Manager responsibilities assigned	2.2.1.1.1 – Enable implementation of the CMOM Program within the District organizational structure	Yes	Yes	Yes
Overall	Program Organization	Asset Management Team established and functioning	2.2.1.1.1 – Enable implementation of the CMOM Program within the District organizational structure	Yes	Yes	Yes
Overall	Communication	CMOM page on the District’s internal web site updated annually to include new reports and communications	2.2.1.1.2 – Communicate the goals and objectives of the CMOM Program to internal and external stakeholders, monitor the CMOM Program implementation, and institute program modifications	Yes	Yes	Yes
Overall	Communication	CMOM page on the District’s public web site updated annually to include new reports and communications	2.2.1.1.2 – Communicate the goals and objectives of the CMOM Program to internal and external stakeholders, monitor the CMOM Program implementation, and institute program modifications	Yes	Yes	Yes
Overall	Communication	Annual TAT briefing completed	2.2.1.1.2 – Communicate the goals and objectives of the CMOM Program to internal and external stakeholders, monitor the CMOM Program implementation, and institute program modifications	No	No	No

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2009 Status/Value	2010 Status/Value	2011 Status/Value
Overall	Communication	Annual Commission memorandum completed	2.2.1.1.2 – Communicate the goals and objectives of the CMOM Program to internal and external stakeholders, monitor the CMOM Program implementation, and institute program modifications	Yes	Yes	Yes
Overall	Communication	Annual staff briefing completed	2.2.1.1.2 – Communicate the goals and objectives of the CMOM Program to internal and external stakeholders, monitor the CMOM Program implementation, and institute program modifications	Yes	Yes	Yes
Overall	Communication	Percent of annual reports completed on time	2.2.1.1.2 – Communicate the goals and objectives of the CMOM Program to internal and external stakeholders, monitor the CMOM Program implementation, and institute program modifications	100%	100%	100%
Overall	Program Organization	Annual cost for the implementation of the regional CMOM Program activities	2.2.1.1.2 – Communicate the goals and objectives of the CMOM Program to internal and external stakeholders, monitor the CMOM Program implementation, and institute program modifications	\$130,205.82	\$119,273.78	\$101,761.12
Overall	Finance	Percent of cash financing (six-year average)	2.2.1.1.3 – Continue to maintain adequate financial planning	27%	25%	30%
Overall	Finance	Outstanding Debt	2.2.1.1.3 – Continue to maintain adequate financial planning	1.44%	1.59%	1.63%
Overall	Finance	Six-year capital financing plan is updated and revised annually	2.2.1.1.3 – Continue to maintain adequate financial planning	Yes	Yes	Yes

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2009 Status/Value	2010 Status/Value	2011 Status/Value
Overall	Finance	Bond Ratings*	2.2.1.1.3 – Continue to maintain adequate financial planning	AAA (Fitch Ratings), Aa1 (Moody's), AA+ (S&P)	AAA (Fitch Ratings), Aaa (Moody's), AA+ (S&P)	AAA (Fitch Ratings), Aaa (Moody's), AA+ (S&P)
Overall	Communication	Percent of overflow and in-plant diversion events for which a public notification was issued	2.2.1.1.4 – Continue to comply with regulatory requirements	100%	100%	100%
Overall	System Performance	Percent of time effluent BOD is in compliance with WPDES permit limits	2.2.1.1.4 – Continue to comply with regulatory requirements	100%	100%	100%
Overall	System Performance	Percent of time effluent TSS is in compliance with WPDES permit limits	2.2.1.1.4 – Continue to comply with regulatory requirements	100%	100%	100%
Overall	System Performance	Percent of time effluent fecal coliform count is in compliance with WPDES permit limits	2.2.1.1.4 – Continue to comply with regulatory requirements	100%	100%	100%
Overall	System Performance	Percent of flow into system, resulting from wet weather, that is captured and treated	2.2.1.1.4 – Continue to comply with regulatory requirements	97%	93%	99.6%
Overall	System Performance	CMAR overall score*	2.2.1.1.4 – Continue to comply with regulatory requirements	JI = 3.81; SS = 3.05	JI = 3.91; SS = 3.46	Waiting on review from DNR.

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2009 Status/Value	2010 Status/Value	2011 Status/Value
Overall	System Performance	Number of wet weather sanitary sewage overflows occurring more frequently than the WDNR approved Level of Protection ¹	2.2.1.1.4 – Continue to comply with regulatory requirements	Either zero or one ²	One ³	Zero
Overall	Satellite systems	Percent of sewer plans reviewed by the District within deadlines established by the sewer plan review process	2.2.1.1.5 – Establish a regional CMOM program	100%	100%	100%
Overall	Satellite systems	Percent of municipal sewer construction projects receiving QA inspection as defined by the QA program	2.2.1.1.5 – Establish a regional CMOM program	100%	100%	100%
Overall	Personnel & Safety	Annual regulatory training completed	2.2.1.1.6 – Continue to maintain a safe work environment for District employees and sustain a competent District workforce	Yes	Yes	Yes
Overall	Personnel & Safety	Annual training hours per employee*	2.2.1.1.6 – Continue to maintain a safe work environment for District employees and sustain a competent District workforce	15.8 hrs/employee	7 hrs/employee	16.8 hrs/employee
Overall	Personnel & Safety	Employee Health and Safety Severity Rate*	2.2.1.1.6 – Continue to maintain a safe work environment for District employees and sustain a competent District workforce	5.7 injury hours per 100 FTEs	8.1 injury hours per 100 FTEs	0 injury hours per 100 FTEs
Conveyance	System Performance	Number of wet weather CSOs	2.2.1.2.1 – Establish CMOM Program elements specific to minimizing the number and volume of CSOs	2	4	1

¹ Level of Protection is defined as the 5-year wastewater recurrence interval, as stated in the approved 2020FP

² The April 26th, 2009 event caused an overflow at Green Tree/Milwaukee River. The recurrence interval for the event in the vicinity of the overflow is unknown

³ The August 21st, 2010 event caused an overflow at Richards & Congress. The overflow occurred during wet weather but was caused by an equipment malfunction



ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2009 Status/Value	2010 Status/Value	2011 Status/Value
Conveyance	System Performance	Ratio of unused volume of the ISS to the wet weather CSO volume for each event	2.2.1.2.1 – Establish CMOM Program elements specific to minimizing the number and volume of CSOs	4/26/09 13%; 6/19/09 2%	6/15/10 >100%; 7/7/10 >100%; 7/15/10 1%; 7/22/10 0%	6/21/11 60%
Conveyance	Asset Management	Percent completion of post-overflow review process within one year	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures	33%	100%	40%
Conveyance	System Performance	Number of building backups caused by the loss of capacity or function of a District facility	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures	3 ⁴	Cannot be determined ⁵	Zero
Conveyance	System Performance	Percent of total flow entering the conveyance system that is captured and treated	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures	98.3%	96.2%	99.8%
Conveyance	System Performance	Number of dry weather overflows	2.2.1.2.1 – Establish CMOM Program elements specific to minimizing the number and volume of CSOs 2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures	2	0	0

⁴ Building backups were caused by the flooding of the control cabinet for the bypass station at Honey Creek and Wisconsin

⁵ The District’s investigation into 12 basement backups which occurred during a July 15, 2010 event could not determine whether the backups were attributable to the interceptor system owned by the District based on the information available on the local municipal sewer system.

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2009 Status/Value	2010 Status/Value	2011 Status/Value
Conveyance	System Performance	Number of wet weather SSOs where the event generated flow is less than the WDNR approved level of protection	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures	Either zero or one ⁶	One ⁷	0
Conveyance	System Performance	Number of wet weather SSOs	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures	2	4	0
Conveyance	System Performance	Volume of wet weather SSOs where the event generated flow is less than the WDNR approved level of protection	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures	Either zero or 0.62 MG. ⁸	0.61 MG	0 MG
Conveyance	System Performance	Volume of wet weather SSOs	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures	57 MG	326 MG	0 MG
Conveyance	System Performance	Regulatory-approved Industrial Waste Pretreatment Program in operation	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures	Yes	Yes	Yes

⁶ The April 26th, 2009 event caused an overflow at Green Tree/Milwaukee River. The recurrence interval for the event in the vicinity of the overflow is unknown.

⁷ The August 21st, 2010 event caused an overflow at Richards & Congress. The recurrence interval for the event appears to be below the defined Level of Protection. The overflow was caused by an equipment malfunction.

⁸ The April 26th, 2009 event caused an overflow at Green Tree/Milwaukee River. The recurrence interval for the event in the vicinity of the overflow is unknown.

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2009 Status/Value	2010 Status/Value	2011 Status/Value
Conveyance	Asset Management	Percent of conveyance assets with defined condition and management method as documented in the Asset Information Management System	2.2.1.2.4 – Continue to establish and document level of protection, design and performance standards for conveyance assets constructed in the District service area	37%	61%	73%
Conveyance	Asset Management	Establish criteria and procedures for conducting Business Case Analysis on conveyance projects by June 30, 2009	2.2.1.2.4 – Continue to establish and document level of protection, design and performance standards for conveyance assets constructed in the District service area	In Progress	In Progress ⁹	In Progress ¹⁰
Conveyance	Asset Management	Percent of Business Case Analyses completed where required by District procedures	2.2.1.2.4 – Continue to establish and document level of protection, design and performance standards for conveyance assets constructed in the District service area	N/A for 2009	N/A for 2010	N/A for 2011
Conveyance	Asset Management	Number of conveyance construction project updates to the GIS	2.2.1.2.4 – Continue to establish and document level of protection, design and performance standards for conveyance assets constructed in the District service area	9 contracts	4 contracts	5 contracts
Conveyance	Asset Management	Backlog of conveyance construction project updates to the GIS	2.2.1.2.4 – Continue to establish and document level of protection, design and performance standards for conveyance assets constructed in the District service area	6 contracts	4 contracts	5 contracts

⁹ New completion date is June 30, 2011.

¹⁰ New completion date is June 30, 2013.



ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2009 Status/Value	2010 Status/Value	2011 Status/Value
Conveyance	Asset Management	Level of Protection defined and approved by the WDNR for the wastewater system	2.2.1.2.4 – Continue to establish and document level of protection, design and performance standards for conveyance assets constructed in the District service area	Yes	Yes	Yes
Conveyance	Capital Program Implementation	Facilities Plan implementation on schedule	2.2.1.2.4 – Continue to establish and document level of protection, design and performance standards for conveyance assets constructed in the District service area	Yes	Yes	Yes
Conveyance	Asset Management	Number of open PM work orders older than 90 days (sewers)	2.2.1.2.5 – Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	45	13 ¹¹	2
Conveyance	Asset Management	Number of open PM work orders older than 90 days (conveyance equipment and pump stations)	2.2.1.2.5 – Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	70	67	124
Conveyance	Asset Management	Planned maintenance ratio: hours* (sewers)	2.2.1.2.5 – Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	99%	97%	85%
Conveyance	Asset Management	Planned maintenance ratio: cost* (sewers)	2.2.1.2.5 – Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	99%	97%	89%

¹¹ The evaluation of this performance measure was defined in 2010 to include only intercepting structure inspections and siphon inspections, activities that are sensitive to time, and exclude CCTV inspections, manhole inspections, etc., activities that are not sensitive to the 90 day timeframe.



ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2009 Status/Value	2010 Status/Value	2011 Status/Value
Conveyance	Asset Management	Conveyance system integrity* [# of collection system failures/total miles in collection system]	2.2.1.2.5 – Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	0.56 failures per 100 miles of piping	0 failures per 100 miles of piping ¹²	0.28 failures per 100 miles of piping
Conveyance	Asset Management	Planned Maintenance ratio: count (sewers)	2.2.1.2.5 - Minimize the cost of conveyance asst ownership while maintaining necessary stewardship of assets and achieving defined protection levels	95%	95%	95%
Conveyance	Asset Management	Planned maintenance ratio: hours* (conveyance equipment and pump stations)	2.2.1.2.5 - Minimize the cost of conveyance asst ownership while maintaining necessary stewardship of assets and achieving defined protection levels	73%	71%	77%
Conveyance	Asset Management	Planned maintenance ratio: cost* (conveyance equipment and pump stations)	2.2.1.2.5 - Minimize the cost of conveyance asst ownership while maintaining necessary stewardship of assets and achieving defined protection levels	65%	64%	67%
Conveyance	Asset Management	Planned maintenance ratio: count (conveyance equipment and pump stations)	2.2.1.2.5 - Minimize the cost of conveyance asst ownership while maintaining necessary stewardship of assets and achieving defined protection levels	81%	79%	84%
Conveyance	System Monitoring	Percent of portable flow monitors repaired within 5 business days after problems are identified	2.2.1.2.6 – Enhance District level of knowledge and understanding of wet weather flows and system response to precipitation and other factors	100%	100%	100%

¹² No piping failures causing a loss of capacity of function identified in 2010.



ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2009 Status/Value	2010 Status/Value	2011 Status/Value
Conveyance	System Monitoring	Percent of permanent monitoring sites with less than 30 consecutive days of missing or bad data	2.2.1.2.6 – Enhance District level of knowledge and understanding of wet weather flows and system response to precipitation and other factors	72%	72% ¹³	65% ¹³
Conveyance	System Monitoring	Percent of monitoring sites calibrated [check and adjustment as necessary] annually	2.2.1.2.6 – Enhance District level of knowledge and understanding of wet weather flows and system response to precipitation and other factors	100%	100%	100%
Conveyance	System Monitoring	Percent of rain gauges calibrated [check and adjustment as necessary] annually	2.2.1.2.6 – Enhance District level of knowledge and understanding of wet weather flows and system response to precipitation and other factors	94%	94%	100%
Conveyance	System Monitoring	Percent of data reviewed for QA within 30 days	2.2.1.2.6 – Enhance District level of knowledge and understanding of wet weather flows and system response to precipitation and other factors	70%	70%	70%
Conveyance	Customer Service	Percent of documented inquiries with a documented response	2.2.1.2.7 – Provide information receipt, response activity, and feedback regarding customer inquiries	100%	96%	97%
Treatment	System Performance	Volume of in-plant diversions not consistent with permit requirements	2.2.1.3.1 – Continue to provide effluent quality that meets or exceeds WPDES permit requirements and effluent quality goals	0	0	0

¹³ Sites with non-functioning equipment have not been repaired because they will be replaced or abandoned under the WWPMP. Some sites have portable meters to cover gaps in data until permanent meters are functioning.

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2009 Status/Value	2010 Status/Value	2011 Status/Value
Treatment	System Performance	Number of in-plant diversions not consistent with permit requirements	2.2.1.3.1 – Continue to provide effluent quality that meets or exceeds WPDES permit requirements and effluent quality goals	0	0	0
Treatment	System Performance	Receipt of NACWA Peak Performance Award	2.2.1.3.1 – Continue to provide effluent quality that meets or exceeds WPDES requirements and effluent quality goals	Yes	Yes	Yes
Treatment	System Performance	Percent of time effluent BOD is in compliance with WPDES permit	2.2.1.3.1 – Continue to provide effluent quality that meets or exceeds WPDES requirements and effluent quality goals	100%	100%	100%
Treatment	System Performance	Percent of time effluent TSS is in compliance with WPDES permit	2.2.1.3.1 – Continue to provide effluent quality that meets or exceeds WPDES requirements and effluent quality goals	100%	100%	100%
Treatment	System Performance	Percent of time effluent fecal coliform count is in compliance with WPDES permit	2.2.1.3.1 – Continue to provide effluent quality that meets or exceeds WPDES requirements and effluent quality goals	100%	100%	100%
Treatment	System Performance	Percent of time effluent Phosphorous is in compliance with WPDES permit	2.2.1.3.1 – Continue to provide effluent quality that meets or exceeds WPDES requirements and effluent quality goals	100%	100%	100%
Treatment	System Performance	Percent of time effluent Ammonia is in compliance with WPDES permit	2.2.1.3.1 – Continue to provide effluent quality that meets or exceeds WPDES requirements and effluent quality goals	100%	100%	100%

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2009 Status/Value	2010 Status/Value	2011 Status/Value
Treatment	System Performance	Volume of SSOs due to closure of the ISS separate sewer gates where the event generated flow is below the approved Level of Protection	2.2.1.3.2 – Continue to optimize effectiveness of wet weather treatment capacity	0	0	0
Treatment	System Performance	Volume of SSOs due to closure of the ISS separate sewer gates	2.2.1.3.2 – Continue to optimize effectiveness of wet weather treatment capacity	56 MG	326 MG ¹⁴	0 MG
Treatment	System Performance	Number of SSO events due to closure of the ISS separate sewer gates where the event generated flow is below the approved Level of Protection	2.2.1.3.2 – Continue to optimize effectiveness of wet weather treatment capacity	0	0	0
Treatment	System Performance	Number of SSOs due to closure of the ISS separate sewer gates	2.2.1.3.2 – Continue to optimize effectiveness of wet weather treatment capacity	1	2	0
Treatment	System Performance	Percent of produced biosolids that are beneficially reused	2.2.1.3.3 – Continue to manage biosolids in a manner that maximizes beneficial reuse	96.8% ¹⁵	98.4% ¹⁵	97.7% ¹⁵
Treatment	Asset Management	Percent of treatment plant assets with defined condition and management method as documented in the Asset Information Management System	2.2.1.3.4 – Continue to establish and document levels of protection, design and performance standards for treatment plant assets	0%	0%	0%

¹⁴ This is the total overflow volume for the event where the ISS was closed to separate sewage. It is not an actual determination of the specific overflow volume that was directly caused by the closing of the ISS separate sewer gates

¹⁵ All biosolids not beneficially reused were from cleaning of digesters.

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2009 Status/Value	2010 Status/Value	2011 Status/Value
Treatment	Asset Management	Establish criteria and procedures for conducting Business Case Analysis on treatment plant projects by June 30, 2009	2.2.1.3.4 – Continue to establish and document levels of protection, design and performance standards for treatment plant assets	In Progress	In Progress ¹⁶	In Progress ¹⁷
Treatment	Asset Management	Percent of Business Case Analyses completed where required by District procedures	2.2.1.3.4 – Continue to establish and document levels of protection, design and performance standards for treatment plant assets	N/A for 2009	N/A for 2010	N/A for 2011
Treatment	Asset Management	Level of Protection is defined (by the 2020 Facilities Plan) and approved by the WDNR for the Wastewater System	2.2.1.3.4 – Continue to establish and document levels of protection, design and performance standards for treatment plant assets	Yes	Yes	Yes
Treatment	Capital Program Implementation	Facilities Plan implementation on schedule for treatment plant studies and projects	2.2.1.3.4 – Continue to establish and document levels of protection, design and performance standards for treatment plant assets	Yes	Yes	Yes
Treatment	Asset Management	Number of PM work orders older than 90 days (plant equipment)	2.2.1.3.5 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	481	349	625

¹⁶ New completion date is June 30, 2011.

¹⁷ New completion date is June 30, 2013.



ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2009 Status/Value	2010 Status/Value	2011 Status/Value
Treatment	Asset Management	Planned maintenance ratio: count of work orders	2.2.1.3.5 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	72%	73%	81%
Treatment	Asset Management	Percent of PM tasks completed	2.2.1.3.5 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	99%	99%	99%
Treatment	Asset Management	Number of CM work orders older than 90 days (treatment plant equipment)	2.2.1.3.5 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	528	276	213
Treatment	Asset Management	Planned maintenance ratio: cost*	2.2.1.3.5 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	38%	37%	54%
Treatment	Asset Management	Planned maintenance ratio: hours*	2.2.1.3.5 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	52%	52%	68%
Treatment	Asset Management	O&M cost per MG treated*	2.2.1.3.5 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	\$1,040/MG	\$1,036/MG	\$1,0007/MG

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2009 Status/Value	2010 Status/Value	2011 Status/Value
Watercourse	Capital Program Implementation	Annual number of habitable structures removed from the District's one-percent probability floodplain	2.2.1.4.1 – Within jurisdictional streams, cost-effectively remove habitable structures from flooding associated with the one-percent probability flood event	0	1	31
Watercourse	Capital Program Implementation	Percent of annual habitable structures removal goal achieved.	2.2.1.4.1 – Within jurisdictional streams, cost-effectively remove habitable structures from flooding associated with the one-percent probability flood event	0%	5%	119%
Watercourse	System Performance	Number of habitable structures impacted (low water entry into a habitable building) by the District's one-percent probability flood	2.2.1.4.1 – Within jurisdictional streams, cost-effectively remove habitable structures from flooding associated with the one-percent probability flood event	1,093 structures ¹⁸	1,035 structures ¹⁹	885 structures ²⁰
Watercourse	System Conservation	Percent of stormwater management plans reviewed within the timeframe allowed	2.2.1.4.2 –Reduce the likelihood of new habitable structures being added to the District's one-percent probability floodplain	100%	100%	100%
Watercourse	System Conservation	Area of property protected/preserved through District ownership or conservation easement	2.2.1.4.2 –Reduce the likelihood of new habitable structures being added to the District's one-percent probability floodplain	187 acres ²¹	220 acres ²²	94 acres ²³

¹⁸ The number increased due to analysis conducted on the Kinnickinnic River.

¹⁹ The number decreased due to review and analysis on several watercourse systems.

²⁰ The number decreased due to analysis conducted on the Kinnickinnic River and removal of structures on the Kinnickinnic River.

²¹ 2,036 acres to date

²² 2,256 acres to date

²³ 2,350 acres to date



ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2009 Status/Value	2010 Status/Value	2011 Status/Value
Watercourse	Asset Management	Number of presentations by District personnel that included information on stormwater runoff reduction practices	2.2.1.4.2 - Reduce the likelihood of new habitable structures being added to the District's one-percent probability floodplain	119 presentations	53 presentations	90 presentations
Watercourse	Asset Management	Number of rain barrels sold by the District	2.2.1.4.2 - Reduce the likelihood of new habitable structures being added to the District's one-percent probability floodplain	2,814 rain barrels ordered	1,782 rain barrels ordered	1,397 rain barrels ordered
Watercourse	Asset Management	Number of stormwater runoff reduction projects with District financial participation	2.2.1.4.2 - Reduce the likelihood of new habitable structures being added to the District's one-percent probability floodplain	9 projects	6 projects	14 projects
Watercourse	Asset Management	Linear feet of jurisdictional streambank with a current condition assessment	2.2.1.4.3 – Establish and document level of protection, design and performance standards for new assets in the watercourse system	20%	51%	77%
Watercourse	Asset Management	Percent of watercourse assets with defined condition and management method documented in the Asset Information Management System	2.2.1.4.3 – Establish and document level of protection, design and performance standards for new assets in the watercourse system	24%	44%	54%
Watercourse	Asset Management	Establish criteria and procedures for conducting Business Case Analysis on watercourse projects by June 30, 2009	2.2.1.4.3 – Establish and document level of protection, design and performance standards for new assets in the watercourse system	In Progress	In Progress ²⁴	In Progress ²⁵

²⁴ New completion date is June 30, 2011.

²⁵ New completion date is June 30, 2013.



ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure <small>* indicates the measure is also a benchmark</small>	Reference Objective	2009 Status/Value	2010 Status/Value	2011 Status/Value
Watercourse	Asset Management	Percent of Business Case Analyses completed where required by District procedures	2.2.1.4.3 – Establish and document level of protection, design and performance standards for new assets in the watercourse system	N/A for 2009	N/A for 2010	N/A for 2011
Watercourse	Asset Management	Number of jurisdictional watercourse construction project updates to the GIS	2.2.1.4.3 – Establish and document level of protection, design and performance standards for new assets in the watercourse system	6 contracts	0 contracts	0 contracts
Watercourse	Asset Management	Backlog of jurisdictional watercourse construction project updates to the GIS	2.2.1.4.3 – Establish and document level of protection, design and performance standards for new assets in the watercourse system	1 contract	2 contracts	2 contracts
Watercourse	Asset Management	Level of Protection defined and accepted by Stakeholders	2.2.1.4.3 – Establish and document level of protection, design and performance standards for new assets in the watercourse system	Yes	Yes	Yes
Watercourse	Asset Management	Percent of scheduled jurisdictional watercourse inspections completed	2.2.1.4.4 – Minimize the cost of watercourse asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	86%	95%	96%
Watercourse	Asset Management	Percent of scheduled culvert and structure inspections completed	2.2.1.4.4 – Minimize the cost of watercourse asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	100%	100%	100%
Watercourse	Asset Management	Jurisdictional watercourse O&M costs	2.2.1.4.4 – Minimize the cost of watercourse asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	\$ 564,940	\$ 1,297,012	\$ 376,059

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2009 Status/Value	2010 Status/Value	2011 Status/Value
Watercourse	Asset Management	Jurisdictional watercourse O&M hours	2.2.1.4.4 – Minimize the cost of watercourse asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels	2,093	4,218	3,728
Watercourse	System Conservation	Percent of jurisdictional watercourse with non-concrete streambeds	2.2.1.4.5 – Continue to be a leader in the effort to improve the area's waterways	82%	82%	82%
Watercourse	Customer Service	Percent inquiry documentation completed	2.2.1.4.6 – Provide information receipt, response activity, and feedback regarding customer inquiries on the watercourse system	100%	100%	100%

ATTACHMENT 2 – CHANGES TO CMOM MANAGEMENT PLAN

This Attachment intentionally left blank for the 2011 Report

ATTACHMENT 2 – CHANGES TO CMOM MANAGEMENT PLAN

ATTACHMENT 3 – CONSTRUCTED SANITARY SEWER OVERFLOW LOCATIONS

MMSD Site Number	WPDES Permit ID number	Location	Pump or Gravity	Current SCADA ⁱ	Current Portable ⁱⁱ	Notes
BS0101	220	S Howell Ave at E Grange Ave (ext'd)	Gravity	No	Yes	Installed portable meter on 3/15/06. Permanent meter scheduled to be installed in 2012 and added to SCADA system.
BS0302	233	W Fisher Pkwy at N 106th St	Gravity	Yes		
BS0303	247	W Oklahoma Ave, 100 feet w/o S 74th St	Pump	Yes		
BS0304	242	S 79th St (ext'd) & W Dickenson St (ext'd)	Gravity	No	Yes	Permanent meter scheduled to be installed in 2012 and added to SCADA system.
BS0401	235	N Honey Creek Pkwy & W Wisconsin Ave	Pump	Yes		
BS0402	237	N Menomonee River Pkwy, 300 feet e/o N 68th St	Gravity	No	Yes	Portable meter in outfall pipe
BS0403	234	N Honey Creek Pkwy & W Portland Ave	Gravity	No	Yes	Permanent meter scheduled to be installed in 2012 and added to SCADA system.
BS0404	263	W Green Tree Rd & Milwaukee River	Gravity	Yes		
BS0501	230	N Richards St & E Congress St	Gravity	Yes		Recently discovered information indicates combined sewage is tributary to this outfall. The District has requested to transfer this outfall to the CSO list in the discharge permit re-issuance process.
BS0503	226	W Roosevelt Dr & N 35th St	Pump	Yes		
BS0504	214	W Hampton Ave & N Lydell Ave	Gravity	No	No	Manually activated gate
BS0505	223	W Villard Ave & N 27th St	Pump	Yes		

ATTACHMENT 3 – CONSTRUCTED SANITARY SEWER OVERFLOW LOCATIONS

MMSD Site Number	WPDES Permit ID number	Location	Pump or Gravity	Current SCADA ⁱ	Current Portable ⁱⁱ	Notes
BS0506	231	N Range Line Rd & Milwaukee River (east side)	Pump	Yes		
BS0507	229	N 46th St & W State St	Gravity	Yes		
BS0508	213	W Hampton Ave at N Green Bay Rd (east side)	Gravity	No	Yes	Overflow was redirected to another MIS in 2009
BS0509	212	W Hampton Ave & N Green Bay Rd (west side)	Gravity	No	Yes	Site was abandoned on 1/29/09
BS0510	208	N 31st St (ext'd) & Lincoln Creek (north side)	Gravity	No	No	Site was abandoned with construction of Relief MIS in 2005
BS0511	207	N 31st St & W Fairmont Ave	Gravity	No	Yes	
BS0512	244	N Lydell Ave & W Lancaster Ave	Gravity	No	No	Manually activated gate
BS0513	245	N Lydell Ave & W Montclair Ave	Gravity	Yes	Yes	MS0508, and portable meter in overflow pipe
BS0514	209	N 27th St & W Silver Spring Dr	Gravity	No	Yes	
BS0515	N/A	200 E River Woods Parkway. [Manhole 02140 – s/o E Hampton Rd & N Lydell Ave, s/o Milwaukee River (formerly Pillsbury Silos)]	Gravity	No	No	Manholes modified as part of Northeast Side Flow Control Gates, level monitored at NS3 junction chamber. The District has requested to assign WPDES Permit ID number 266 to this overflow in the discharge permit re-issuance process.

ATTACHMENT 3 – CONSTRUCTED SANITARY SEWER OVERFLOW LOCATIONS

MMSD Site Number	WPDES Permit ID number	Location	Pump or Gravity	Current SCADA ⁱ	Current Portable ⁱⁱ	Notes
BS0516	N/A	4700 N Estabrook Parkway. [Manhole 02141 – s/o E Hampton Rd & N Lydell Ave, n/o Milwaukee River (formerly Pillsbury Silos)]	Gravity	No	No	Manholes modified as part of Northeast Side Flow Control Gates, level monitored at NS3 junction chamber. The District has requested to assign WPDES Permit ID number 265 to this overflow in the discharge permit re-issuance process.
BS0601	225	S 35th St & W Manitoba St	Pump	Yes		
BS0602	232	S Kinnickinnic Ave & E St Francis Ave	Gravity	Yes		
BS0603	243	W Lincoln Ave, 565 feet w/o S 43rd St	Gravity	No	Yes	
BS0604	221	S 1st St & W Layton Ave	Gravity	No	Yes	Abandoned in 2008
BS0701	250	S Water St & E Bruce St	Gravity	Yes	No	Abandoned during 1990s
DC0103	260	S 6th St & W Oklahoma Ave	Gravity	Yes		Under wet weather operating conditions of the District system, this site acts as a CSO. The District has requested to transfer this outfall to the CSO list in the discharge permit re-issuance process.
DC0402	262	N 59th St & W Trenton Pl	Gravity	Yes		Recently discovered information indicates combined sewage is tributary to this outfall. The District has requested to transfer this outfall to the CSO list in the discharge permit re-issuance process.
MS0409	206	RR Tracks 500' s/o Milwaukee/Ozaukee County border and 200' w/o Waverly Rd	Gravity	Yes		Level sensor in MS0409, which has a gravity overflow pipe

ATTACHMENT 3 – CONSTRUCTED SANITARY SEWER OVERFLOW LOCATIONS

MMSD Site Number	WPDES Permit ID number	Location	Pump or Gravity	Current SCADA ⁱ	Current Portable ⁱⁱ	Notes
PS0402	264	Ravine Lift Station	Gravity	Yes		
N/A	205	W Roosevelt Dr & W Scranton Pl	Gravity	No	No	42 inch bypass pipe is currently bulkheaded; The District has requested to remove this outfall from the SSO list in the discharge permit re-issuance process.

ⁱ Sites noted as yes indicate notification of an overflow at the site is received via a real time connection from the meter to our Supervisory Control and Data Acquisition (SCADA) system.

ⁱⁱ Sites noted as yes indicate a portable meter is installed at the site which requires a physical site inspection of the meter to confirm an overflow has occurred. Per DNR requirements, sites with only a portable meter are inspected within 24 hours of a rain event greater than 0.75in.

ATTACHMENT 4 – CONSTRUCTED COMBINED SEWER OVERFLOW LOCATIONS

Receiving water (of combined sewer overflow)	Combined Sewer Outfall Number	Diversion Structure Number	ISS Drop Shaft	Intercepting Structure Number	IS upstream of DS	Location	Notes
Burnham Canal	189	189	CT07	400	Yes	S 9th St	
Burnham Canal	190	190	CT07	400A	Yes	S 9th St	
Burnham Canal	191	191	CT07	399	Yes	S 11th St	
Burnham Canal	193	193	CT07	398	Yes	S 13th St	
Burnham Canal	194	194	CT07	396	Yes	S Muskego Ave	
Kinnickinnic River	019	85046	None	None	N/A	S 1st St at the Kinnickinnic River	MIS Overflow
Kinnickinnic River	148	148	CT08	369	Yes	E National Ave	
Kinnickinnic River	149	149	CT08	368A	Yes	S of E Walker St	
Kinnickinnic River	150	150	CT08	367	Yes	S of E Washington St	
Kinnickinnic River	151	151	CT08	346	Yes	E Greenfield Ave	
Kinnickinnic River	152	152	KK03	342	Same structure	S Kinnickinnic Ave	
Kinnickinnic River	153	153	KK03	339	Yes	S Kinnickinnic Ave	
Kinnickinnic River	154	154	KK03	341	Yes	S 1st St	
Kinnickinnic River	155	155	KK03	340	Yes	S 1st St	
Kinnickinnic River	156	156	KK03	345A	Yes	S 2nd St	
Kinnickinnic River	157	157	KK03	345/345A	Yes	W Rogers St	
Kinnickinnic River	158	158/159	KK03	343 & 344A	Yes	W Becher St	
Kinnickinnic River	159	158/159	KK03	343 & 344A	Yes	W Becher St	
Kinnickinnic River	160	160	KK04	None	Yes	E Lincoln Ave	
Kinnickinnic River	161	161	KK04	330	Same structure	W Lincoln Ave	
Kinnickinnic River	162	162	KK04	331	Same structure	W Lincoln Ave	
Kinnickinnic River	163	163	KK02	328	Yes	S Chase Ave	
Kinnickinnic River	164	164	KK02	327	Yes	S Chase Ave	
Kinnickinnic River	165	165	KK01	325	Same structure	W Cleveland Ave	
Kinnickinnic River	166	166	KK01	325	Same structure	W Cleveland Ave	
Kinnickinnic River	166A	KK1JC01	KK01	None	N/A	S 6th St at W Cleveland Ave	KK1 Junction Chamber overflow
Kinnickinnic River	167	167	KK01	City Manhole	Yes	S 8th St	

ATTACHMENT 4 – CONSTRUCTED COMBINED SEWER OVERFLOW LOCATIONS

Receiving water (of combined sewer overflow)	Combined Sewer Outfall Number	Diversion Structure Number	ISS Drop Shaft	Intercepting Structure Number	IS upstream of DS	Location	Notes
Kinnickinnic River	168	168	KK01	City Manhole	Yes	S 14th St	
Kinnickinnic River	169	169	KK01	City Manhole	Yes	S 27th St	
Lake Michigan	195	195	LMN	338	Same structure	E Bay St	
Lake Michigan	196	196	LMS	335, 336 & 337	Yes	E Russell Ave	
Lincoln Creek	145	145	NS12	500	Yes	N 35th St & W Congress St	
Lincoln Creek	197	BS0502	None	None	N/A	Hampton Ave at 32nd St	
Menomonee River	010	85047	None	None	N/A	W Canal St at 8th St	MIS Overflow
Menomonee River	170	170	CT08	404	Yes	S 2nd St	
Menomonee River	474	474	CT07	399	Same structure	N Ember La	Abandoned in 2007
Menomonee River	172	172	CT07	197B & 197C	Yes	N Ember La	Upsized in 2007
Menomonee River	173	173/174	CT07	388	Yes	N 15th St	
Menomonee River	174	173/174	CT07	388	Yes	N 15th St	
Menomonee River	174A	174	CT07	384B	Yes	N 16th St & Pittsburg St	Abandoned
Menomonee River	175	175	CT07	387	Yes	N 17th St	
Menomonee River	176	176	CT5/6	380	Yes	N 25th St	
Menomonee River	177	177	CT5/6	380	Yes	N 26th St	
Menomonee River	177A	CT5/6	CT5/6	None	N/A	123 N 25th St (CT5,6)	
Menomonee River	178	178	CT5/6	358 & 359A	Yes	S 27th St	
Menomonee River	179	179	CT5/6	359A	Yes	S 27th St	Outfall 179 was never built
Menomonee River	180	180	CT5/6	381 & 357	No	S 35th St	
Menomonee River	181	181	CT3/4	377	Same structure	W Wisconsin Ave	
Menomonee River	182	182	CT3/4	193A, 372 & 372A	Yes	N 43rd St	
Menomonee River	182A	C182A01	CT3/4	None	Yes	4251 W State St (CT3,4)	54" flow balance overflow

ATTACHMENT 4 – CONSTRUCTED COMBINED SEWER OVERFLOW LOCATIONS

Receiving water (of combined sewer overflow)	Combined Sewer Outfall Number	Diversion Structure Number	ISS Drop Shaft	Intercepting Structure Number	IS upstream of DS	Location	Notes
Menomonee River	183	183	CT3/4	183	Yes	N 45th St	IS183 goes to City of Milwaukee sanitary sewer
Menomonee River	184	DG08-03	CT02	188	Yes	N Hawley Rd	
Menomonee River	185	185	CT07	386	Yes	N 9th St (Ext'd)	
Milwaukee River	015	85043	None	None	N/A	N Marshall St at the Milwaukee River	MIS Overflow
Milwaukee River	016	85042	None	None	N/A	W Vliet St ext'd, east of N 3rd St	MIS Overflow
Milwaukee River	017	105/017	NS08	None	N/A	N Van Buren St at E Brady St	MIS Overflow
Milwaukee River	018	BS0701	None	None	N/A	S Water St at E Bruce St	Siphon protection
Milwaukee River	051	51	NS07	208	Yes	Point 300' west of N Humboldt Ave & N Weil ext'd	
Milwaukee River	089	NS11JC01	NS11	134	Yes	E Capitol Dr	
Milwaukee River	090	90	NS04	135A	Yes	E Keefe Ave	
Milwaukee River	091	91	NS04	73 & 74A	Yes	E Edgewood Ave	
Milwaukee River	092	92	NS05	135	Yes	E Auer Ave	
Milwaukee River	094	94	NS05	Unknown	Yes	E Burleigh St	
Milwaukee River	096	NS5A02	NS05	None	Yes	E Locust St	
Milwaukee River	097A	97A	NS06	136	Yes	E Park Pl	DS and CSO modified in 2007; updated to 97A
Milwaukee River	098	98	NS06	228	Yes	E Bradford Ave	
Milwaukee River	099	99	NS07	141 & 228A	Yes	E Boylston St	
Milwaukee River	101	101	NS07	230	Yes	N Pulaski St	
Milwaukee River	102	102	NS07	207	Yes	N Humboldt Ave	
Milwaukee River	103	103	NS07	231	Yes	N Marshall St	
Milwaukee River	103A	NS7	NS07	None	N/A	1944 N Commerce St	NS07 Junction Chamber

ATTACHMENT 4 – CONSTRUCTED COMBINED SEWER OVERFLOW LOCATIONS

Receiving water (of combined sewer overflow)	Combined Sewer Outfall Number	Diversion Structure Number	ISS Drop Shaft	Intercepting Structure Number	IS upstream of DS	Location	Notes
Milwaukee River	104	104	NS07	199/200A	Yes	N Holton St	
Milwaukee River	105	105/017	NS08	232	No	E Brady St	Abandoned in 2011; flow is relieved at CSO017
Milwaukee River	106	106	NS08	209	Yes	N of E Pleasant St	
Milwaukee River	107	107	NS08	210	Yes	E Walnut St	
Milwaukee River	108	108	NS08	233	Yes	E Pleasant St	Abandoned in 2007
Milwaukee River	108A	NS8B01	NS08	None	N/A	E Pleasant St at N Water St	96" flow balance overflow Abandoned in 2007
Milwaukee River	108B	108	NS08	233	Yes	E Pleasant St at N Water St	Constructed in 2007 to replace 108 and 108A
Milwaukee River	109	109	NS08	211	Same structure	N of W Cherry St	
Milwaukee River	110	110	NS08	201 & 201A	Yes	W Cherry St	
Milwaukee River	110A	110A	NS08	212	Same structure	W Cherry St	Outfall 110A does not exist
Milwaukee River	111	111	NS08	234	Yes	E Lyon St	
Milwaukee River	112	112	NS09	235	Same structure	E Ogden Ave	
Milwaukee River	113	113	NS09	213	Yes	W McKinley Ave	
Milwaukee River	113A	113A	NS09	214A	Yes	W Juneau Ave (Park West Freeway)	
Milwaukee River	114	114	NS09	215	No	W Juneau Ave	
Milwaukee River	115	115	NS09	216	No	W Highland Ave	
Milwaukee River	116	116	NS09	237	No	E Highland Ave	
Milwaukee River	117	117	NS09	217	No	W State St	
Milwaukee River	118	118	NS09	238A	No	E State St	
Milwaukee River	119	119	NS09	218	Yes	W Kilbourn Ave	
Milwaukee River	120	120N/120S	NS09	239, 239A & 239B	No, Same, Same	E Kilbourn Ave	
Milwaukee River	121	121	NS09	219 & 219A	Yes	N of W Wells St	
Milwaukee River	122	122	NS09	220	No	W Wells St	
Milwaukee River	123	123	NS09	240	No	E Wells St	

ATTACHMENT 4 – CONSTRUCTED COMBINED SEWER OVERFLOW LOCATIONS

Receiving water (of combined sewer overflow)	Combined Sewer Outfall Number	Diversion Structure Number	ISS Drop Shaft	Intercepting Structure Number	IS upstream of DS	Location	Notes
Milwaukee River	124	124	NS09	221	Yes	N of W Wisconsin Ave	
Milwaukee River	125	125	NS09	222	No	W Wisconsin Ave	
Milwaukee River	126	126	NS10	241	Same structure	E Wisconsin Ave	
Milwaukee River	127	127	NS10	223	No	W Michigan St	
Milwaukee River	128	128	NS10	242	No	E Michigan St	
Milwaukee River	129	129	NS10	224	Yes	N of W Clybourn St	
Milwaukee River	130	130	NS10	225	Yes	W Clybourn St	
Milwaukee River	131	131	NS10	243	No	E Clybourn St	
Milwaukee River	133	NS10F05	NS10	227	Yes	W St. Paul Ave	
Milwaukee River	134	134	NS10	244	No	E St. Paul Ave	
Milwaukee River	135	135	NS10	245	Yes	E Buffalo St	
Milwaukee River	136	136	NS10	246	Same structure	E Chicago St	
Milwaukee River	137	137	CT08	405	Same structure	S 1st St	
Milwaukee River	139	139	CT08	406	Yes	E Pittsburgh Ave	
Milwaukee River	140	140	NS10	247	Yes	N Broadway	
Milwaukee River	141	141	CT08	403 & 403A	Yes	E Florida St	
Milwaukee River	142	142	NS10	248A	Yes	E Polk St	
Milwaukee River	143	143	CT08	370	Same structure	E Bruce St	
Milwaukee River	144	144	NS08	234A	Yes	E Lyon St	
Milwaukee River	146	146	NS07	142A	Yes	N Arlington Pl	
Milwaukee River	147	147	NS09	236	No	E Juneau Ave	
South Menomonee Canal	061	EWWE	None	None	N/A	3 rd & Seeboth	Emergency Wastewater Exit
South Menomonee Canal	187	187	CT08	401 & 402	Yes	S 4th St	
South Menomonee Canal	188	188	CT08	384	Yes	S 6th St	

ATTACHMENT 4 – CONSTRUCTED COMBINED SEWER OVERFLOW LOCATIONS

ATTACHMENT 5– SATELLITE MUNICIPALITY PHONE LIST

Municipality	Business Hours	After hours / weekends
Bayside	414-351-8811	414-351-8800
Brookfield	262-782-0199	262-782-0199 or 262-787-3700
Brown Deer	414-357-0120	414-371-2900
Butler	262-783-2525	262-783-2525
Caledonia	262-681-3900	262-939-3409
Cudahy	414-769-2216	414-769-2260
Elm Grove	262-782-6700	262-786-4141
Fox Point	414-351-8900	414-351-9900
Franklin	414-425-7510	414-425-2522
Germantown	262-250-4721	262-253-7780
Glendale	414-228-1710	414-228-1753
Greendale	414-423-2133	414-423-2121
Greenfield	414-761-5301	414-761-5301
Hales Corners	414-529-6140	414-529-6140
Menomonee Falls	262-532-4800	262-532-1700
Mequon	262-236-2913	262-242-3500
Milwaukee	414-286-2489	414-286-2489
Muskego	262-679-4128	262-679-4130
New Berlin	262-786-7086	262-782-6640
Oak Creek	414-768-7060	414-768-7060
River Hills	414-352-0080	414-247-2300
St. Francis	414-481-2300	414-481-2232
Shorewood	414-847-2650	414-847-2610
Thiensville	262-242-3720	262-242-2100
Wauwatosa	414-471-8422	414-471-8422
West Allis	414-302-8800	414-302-8000
West Milwaukee	414-645-6238	414-645-2151
Whitefish Bay	414-962-6690	414-962-6690

ATTACHMENT 5– SATELLITE MUNICIPALITY PHONE LIST

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ATTACHMENT 6 – DISTRICT SITUATIONAL CONTACT LIST

Situation	Urgency	Direct to	Phone number
Water in basement	Critical	Central Control Operator (Veolia)	282-7200 (internal x3491)
Sewage overflow	Critical	Central Control Operator (Veolia)	282-7200 (internal x3491)
Spill of a hazardous substance into the sewer system	Critical	Central Control Operator (Veolia)	282-7200 (internal x3491)
Clogged MIS or structure	Critical	Central Control Operator (Veolia)	282-7200 (internal x3491)
Illegal dumping into a sewer	Urgent	Central Control Operator (Veolia)	282-7200 (internal x3491)
Illegal dumping into catch basin	Urgent	Central Control Operator (Veolia)	282-7200 (internal x3491)
Contractor hit District facility	Urgent	Debra Jensen (District) (Backup is Larry Anderson)	225-2143 (Backup 617-1429)
Manhole cover missing	Urgent	Central Control Operator (Veolia)	282-7200 (internal x3491)
Blockage/major debris in the river	Urgent	Dave Fowler (District) (Backup is Patrick Elliott)	277-6368, cell – 559-9883 (Backup 225-2168, Backup Cell – 313-1608)
Facility ownership question	Non-emergency	Debra Jensen (District)	225-2143
Municipal request regarding sewer system	Non-emergency	Debra Jensen (District)	225-2143
How much water is in the deep tunnel	Non-emergency	District Public web site	www.mmsd.com – click on storm update
How much rainfall have we received	Non-emergency	District Public web site	www.mmsd.com – click on storm update
Odor complaint	Non-emergency	Central Control Operator (Veolia)	282-7200 (internal x3491)
Maintenance of a District conveyance facility	Non-emergency	Central Control Operator (Veolia)	282-7200 (internal x3491)
Watercourse maintenance issue (e.g. grass cutting, graffiti, snow plowing)	Non-emergency	Dave Fowler (District)	277-6368, cell – 559-9883
Construction site complaint	Non-emergency	Rick Niederstadt (District)	225-2173, cell – 617-6859
Notice of Intent to Discharge into MMSD system	Non-emergency	Peter Topczewski (District)	225-2176

Note: All phone numbers are (414)

ATTACHMENT 6 – DISTRICT SITUATIONAL CONTACT LIST