



Capacity, Management, Operation and Maintenance (CMOM) Program Annual Report for 2008

Milwaukee Metropolitan
Sewerage District

June 2009

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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. Changes to the Program are made through consensus of the committee. The CMOM Committee also provided 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 second 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; and
3. To describe the activities that are planned or currently being undertaken under the CMOM Program.
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 (Management Plan, Asset Management Plan, Overflow Response

Plan, System Evaluation and Capacity Assurance Plan, Communication Plan, and Audit Plan).

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. Activities that took place in 2008 under each of these plans are discussed below. Performance measures are included in the CMOM Program under the Management Plan, but are discussed separately below.

Performance Measures

A complete list of the performance measures and the value/status for 2007 and 2008 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 these 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 below in Table 1. Note that the performance measures relating to Satellite Municipalities evolve over time.

Two performance measures were eliminated from, and three were added to, the CMOM Program for this report. The performance measures were changed to better measure the intent of the objective and to ensure the data can be easily collected and interpreted. Further description of the changes made to the performance measures is included in Section 2.1.2 of this report and shown in Attachments 1 and 2.

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.

One of the objectives in the management plan was slightly modified to broaden the intent. The objective was originally written as:

Modify District Rules to address peak wet weather flows from satellite systems that impact District system operation

But was changed to:

Address peak wet weather flows from satellite systems that impact the District's system

The full text of the District's revised objectives, strategies, tactics and performance measures is included as Attachment 2 to this report.

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 contracts out the operation and maintenance of the conveyance and treatment facilities. Because of this, many of the District's asset management objectives related to these facilities were met by the contract operator. The agreement with the new contract operator (Veolia) went into effect on March 1, 2008. The District worked with Veolia in 2008 on implementing the near-term and long-term objectives of the Asset Management Plan related to conveyance and treatment facilities.

The previous contract operator (United Water) was responsible for watercourse inspection and maintenance and performed this work without a formal program. Veolia maintains the single stormwater pumping station (located at 42nd & Mt Vernon in the City of Milwaukee) that is owned by the District, but does 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 the watercourse assets. The District began implementation of this program and using this system in 2008. The District also completed considerable work in implementing a watercourse GIS in 2008 that shows the watercourse systems and watercourse assets (such as culverts, gabion walls, retaining walls, and drop structures) in an easy to use intranet-based mapping system.

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.

The contract operator 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. These plans are now in place and are implemented when responding to overflows and emergencies.

Veolia is not responsible for responding to watercourse issues beyond the stormwater pumping station. Therefore, in 2008, the District began development of a plan for responding to watercourse system problems and emergencies. Work will continue on this plan in 2009.

System Evaluation and Capacity Assurance Plan (SECAP)

The SECAP describes the actions that 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 (2020FP) to the WDNR in June of 2007. The 2020FP was a broad-scope effort and looked not only at the 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 2020FP 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 2020FP recommended that a detailed capacity analysis be performed of both treatment plants to assure the stated capacity is accurate, and recommended increasing the capacity of the South Shore Water Reclamation Facility (SSWRF), depending upon future conditions. The capacity analyses were begun in 2008.

In addition to the capacity studies resulting from the 2020FP, the District was, in 2008, evaluating capacity requirements in small portions of the conveyance system for various reasons.

The District also continued to evaluate capacity in the watercourse systems as it relates to reducing the impacts to habitable structures from the one-percent probability 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.

The District conducted several activities during 2008 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).

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.

The District updated the CMOM Program in 2008 through the preparation of the first annual report. The updates were described in the report submitted to the WDNR on June 30, 2008.

Table 1: Key Performance Measures

Performance Measure	2008 Value/Status	Evaluation
Organization		
1 <i>Organizational Best Practices Index¹</i>	27	District is better than 75 th percentile in benchmark survey of 25.5
2 <i>Bond Ratings</i>	AAA (Fitch), Aa1 (Moody's), AA+ (S&P)	Fitch is at top grade, Moody's and S&P are one step below top grade
3 <i>Employee Health and Safety Severity Rate (injury days per 100 FTE)</i>	9.9	Significant reduction from 2007 value of 27
System Performance		
4 <i>Volume of wet weather SSOs occurring more frequently than the WDNR approved Level of Protection</i>	Between zero and 0.18 MG ²	A capital project was completed in 2008 that provides relief to this overflow site.
5 <i>Percent of time effluent is in compliance with WPDES permit limits</i>	100%	
6 <i>Conveyance System Integrity (number of failures per 100 miles of piping)</i>	0.56	Better than 25 th percentile in benchmark survey of 4.3.
7 <i>Annual number of habitable structures removed from the District's one-percent probability floodplain</i>	2	
8 <i>Number of building backups caused by the loss of capacity or function of a District facility</i>	Undetermined at time of report preparation	Ongoing analysis of DC0408, DC0508, and PS0401
Satellite municipalities		
9 <i>Satellite CMOM & WWPFPMP development</i>		
2008 <i>WWPFMP development on schedule for target date of September 30, 2009</i>	Yes	
2009 <i>WWPFMP developed and implemented</i>	N/A for 2008	
<i>District review of satellite CMOM Programs</i>	N/A for 2008	
<i>District action taken for satellite CMOM plans not submitted</i>	N/A for 2008	
2010 <i>Review of annual satellite CMOM reports</i>	N/A for 2008	
<i>District action taken for satellite reporting issues</i>	N/A for 2008	
<i>Review of monitoring data</i>	N/A for 2008	
<i>District action taken with respect to peak flow performance standards</i>	N/A for 2008	
Customer Service		
10 <i>Percent of inquiry documentation completed (conveyance and watercourse)</i>	76.50%	Transition to in-house watercourse mgmt

¹ Organizational Best Practices Index is a benchmark defined by Qualserve. It is a self evaluation of strategic, financial, and risk management planning, performance measurement, optimized asset management, customer involvement, and continuous improvement programs.

² The April 10th, 2008 event caused an overflow at one location (KK/St Francis) in the District system. The recurrence interval for the event in the vicinity of the overflow is unknown.

1.3 SIGNIFICANT ACTIVITIES

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

Management Plan

Establish the Regional CMOM Program

The District has spent considerable effort in establishing the regional CMOM Program, which includes all twenty-nine municipalities (includes Milwaukee County) within the District's service area. Previous work included preparing the readiness reviews and strategic plans for the municipalities. In 2008, District staff conducted two CMOM workshops for municipal staff that went into detail on the preparation of each of the plans included in the CMOM Program. The purpose was to provide insight, gained by the District in the preparation of its CMOM Program, to the municipalities, as they are now preparing their programs and must have them submitted to the District by June 30, 2009.

Wet Weather Peak Flow Management Program

To proceed with wet weather peak flow management activities, including implementing the Chapter 3 Rule, the District is developing the Wet Weather Peak Flow Management Program (WWPFMP). This Program is guided by a committee made up of members of the Technical Advisory Team (TAT). The TAT consists of both District and satellite municipality representatives. In 2008, the WWPFMP identified the locations for the permanent meters and completed considerable work in defining the protocols for data review, among other tasks.

Asset Management Plan

Geographical Information System

The District expended considerable effort in 2008 in implementing a web-based Geographical Information System (GIS) for viewing District and municipal conveyance facilities. The development and deployment of a mobile application also allows users in the field to access system-wide data. Users are able to efficiently communicate data discrepancies to the GIS department, increasing the integrity of District data. A document management system was customized to manage electronic static materials including construction and record drawings. These drawings are accessible through the GIS.

Equipment Assets and Work Management System

Veolia implemented the use of two new computerized maintenance management systems (CMMS), one for equipment assets (Oracle-WAM) and one for underground assets (ICOM3). There was a transition from the single old system (MAXIMO) to the two new systems that began in September 2008. The new systems provide the ability to implement asset management techniques much easier than was previously capable, including system criticality, condition monitoring information, predictive maintenance information, etc.

Asset Risk

In 2008, Veolia grouped treatment plant assets into functional systems and performed a criticality review of all of the treatment plant systems. This information is stored within the CMMS and is used, in conjunction with asset condition, to determine asset risk.

Veolia began using the protocol for sewer televising and defect coding called Pipeline Assessment Certification Program (PACP) developed by the National Association of Sewer Service Companies (NASSCO). This protocol results in a condition rating for individual sewer pipes that are determined consistently throughout the District system.

Overflow Response Plan

Root Cause Failure Analyses

The District has been documenting and analyzing the causes of system failures, such as SSOs, pipe and equipment failures, and diversions in the conveyance system and at the treatment plants. The analyses conducted during 2008 were related to equipment failures that occurred during the June 7th through 15th extreme precipitation event, which has been characterized as being between a 100-year and 500-year recurrence interval. This event resulted in sanitary sewer overflows that lasted from June 7th through June 9th and combined sewer overflows that lasted from June 7th through June 15th.

Watercourse Emergency Response Plan

The District began preparing a watercourse emergency response plan in 2008. The purpose of the plan is to enable efficient communication (internal and external) and have a planned response to emergency situations that might arise in the watercourse system during extreme precipitation and flood flow events.

System Evaluation and Capacity Assurance Plan

2020 Facilities Plan Advanced Planning Activities

The 2020FP, completed and submitted to the WDNR in June 2007, was approved by the WDNR in December 2007. Advanced planning has been ongoing through 2007 and 2008 on a number of capacity-related issues. Discussion of individual initiatives is included below in Section 5.

Communication Plan

CMOM Conference

During 2008, the District held its second annual CMOM conference with the theme of managing and using data. The conference included a presentation of the District's CMOM program as well as information on GIS, flow monitoring, and sewer rehabilitation techniques. The District has already conducted the third annual CMOM conference in 2009.

SECTION 2: MANAGEMENT PLAN

This section of the report will discuss the changes to the defined performance measures, evaluation of the District's performance using the defined measures and changes to the Management Plan, including changes to the District's defined objectives. The review of the performance using the defined measures is intended to be an evaluation of the District's status with respect to achieving its 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 report submitted to the WDNR on June 30, 2008. There are additional modifications as described below in Section 2.1.1.

2.1.1 CHANGES TO THE DEFINED PERFORMANCE MEASURES

Performance measures were included in the CMOM Program as documented in the June 2007 submittal to the WDNR and were modified in the annual report submitted to the WDNR on June 30, 2008. As data was being gathered for the 2008 annual report, it became apparent that some additional performance measures needed to be modified to ensure they were a good measure of the objective. The performance measures have been changed as described below.

Under the Overall program goal, the District's second objective, stated in Section 2.2.1.1.2 of the CMOM Program is:

"Communicate the goals and objectives of the CMOM Program to internal and external stakeholders, monitor the CMOM Program implementation, and institute program modifications."

One of the performance measures originally stated in the CMOM Program was:

- Cost to date on the implementation of the regional CMOM Program activities.

This has been clarified to read:

- Annual cost for the implementation of the regional CMOM Program activities.

Under the Conveyance goal, the District's sixth objective, stated in Section 2.2.1.2.6 of the CMOM Program is:

"Enhance District level of knowledge and understanding of wet weather flows and system response to precipitation and other factors."

One of the performance measures originally stated in the CMOM Program was:

- Percent of portable flow monitors repaired within 5 business days after reporting problems.

This has been clarified to read:

- Percent of portable flow monitors repaired within 5 business days after problems are identified.

Under the Watercourse goal, the District's first objective, stated in Section 2.2.1.4.1 of the CMOM Program is:

"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."

The performance measures that were originally stated in the CMOM Program were:

- Number of habitable structures impacted by the District's one-percent probability flood.
- Watercourse Management Plan implementation is on schedule.

The following performance measure was added under this objective:

- Annual number of habitable structures removed from the District's one-percent probability floodplain

Determining whether the Watercourse Management Plan implementation was on schedule was difficult, since it was originally defined as being on target to remove 95% of habitable structures from the floodplain by 2009. The total number of habitable structures that are impacted by the one-percent probability flood was revised previously due to the District taking jurisdiction of the Milwaukee River main stem. It was revised again in 2008 due to updated analysis of flood flows by SEWRPC³ on the Milwaukee and Kinnickinnic Rivers. There are also minor changes that occur through time for other reasons. Since the total number of structures is a moving target, the percentage removal goal will also change. This makes it difficult to determine whether the objective is being achieved.

Therefore, the measure:

- Watercourse Management Plan implementation is on schedule

was replaced with:

- Percent of annual habitable structures removal goal achieved

The annual goal of the number of habitable structures to be removed from the floodplain is included in the budget document published each year by the District.

Additionally, there was a performance measure relating to auditing the District's fixed asset procedures that was included in all three areas (conveyance, treatment, and watercourse) since it related to all three. This measure has been achieved on time. The measure was defined as:

³ SEWRPC – Southeast Wisconsin Regional Planning Commission

- Fixed Asset SOPs⁴ audited by December 31, 2008

The audit determined that the procedures are generally still valid, but much of the language needs to be updated now that a new contract operator (Veolia) is in place and is using two new CMMSs⁵ that interface with the fixed asset system. Therefore, a performance measure is being added regarding updating the procedures. The new performance measure is stated as:

- Update the fixed asset SOPs by December 31, 2010

The new performance measure is being added to all three areas.

2.1.2 EVALUATION OF 2008 PERFORMANCE BASED ON THE DEFINED MEASURES

All of the individual performance measures and the value or status for 2008 are included as Attachment 1 to this report. The values that were reported for 2007 are also included for comparison. A review of all of these indicates that the District is meeting many of its objectives and should continue its tactics, but needs to focus some effort on: 1) Asset management (documenting condition information and developing watercourse inspection schedules); 2) Completing root cause of failure analysis (RCFA) documentation; and 3) Documenting responses to watercourse inquiries.

2.2 MANAGEMENT PLAN REVISIONS

The full text of the revised District's objectives, strategies, tactics and performance measures (section 2.2.1 of the original documentation) is included in this report as Attachment 2. A description of the changes made for 2008 is included below.

In the conveyance section of the Program, objective 2 (Section 2.2.1.2.2) was modified. The objective as originally stated was:

- Modify District Rules to address peak wet weather flows from satellite systems that impact District system operation.

The objective has been modified to be directed more at the target and allow inclusion of all tactics (besides rule modifications) under this objective. The objective is now stated as:

- Address peak wet weather flows from satellite systems that impact the District's system.

⁴ SOP – Standard Operating Procedure

⁵ CMMS – Computerized Maintenance Management System

SECTION 3: ASSET MANAGEMENT PLAN

The District has determined that a key component of its CMOM Program will be the development and implementation 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.

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 has received support from District management and the Commission, and the relationship between Level of Protection and cost has been addressed in the recently completed 2020 Facilities Plan.

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.

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 BCA process is to ensure that the projects that are undertaken have valid business objectives, that the project will meet the objectives, and that it is 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 language in the Agreement with Veolia. These objectives were under various states of activity in 2008 that 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 CMMSSs, 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 worked on, but not completed in 2008, and is expected to continue in 2009.

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. The plan is to follow this up with reliability-centered-maintenance (RCM) reviews.

The District plans to begin a criticality review of watercourse assets and equipment in 2009. 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.

RCM is a step-by-step method that is used to analyze a system's failure modes and effects and carefully looks at how to predict and prevent those failures through preventive or predictive maintenance strategies or through timing of capital improvements. RCM is a detailed study of things already known. Because RCM is intensive and takes significant amounts of time, only the systems that have been determined to be the highest rated for criticality go through the analysis.

Refining the asset hierarchy, determining system criticality and performing RCM 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 began televising sewers in 2008 using the PACP defect coding devised by NASSCO. This condition monitoring method is being used to determine the condition and probability of failure for sewer lines, which leads to rescheduling and reprioritization of maintenance and inspection activities, as well as the subsequent rehabilitation or replacement as necessary to keep the risk of sewer failures at or below acceptable levels.

The CMMS used by Veolia in 2008 generates preventive and predictive maintenance work orders for treatment plant and conveyance equipment generally in line with the maintenance recommended by the manufacturer. Future criticality and RCM reviews may add or remove preventive and predictive maintenance work orders and tasks.

Corrective maintenance work orders, which are generated by Veolia staff, are also tracked in the CMMS. 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.

Asset Inventory

The District conducted a fixed asset inventory and equipment condition assessment in 2007. The main purpose of this inventory was to compare the condition of fixed assets at the beginning and end of the operation and maintenance contract with United Water. This inventory used the accounting fixed asset list (Great Plains database), which was different from the CMMS list of assets. In 2008, these two asset lists were reviewed for consistency, with the intention of combining them and producing a single fixed asset list. Instead, it became clear that the purposes of the lists were different and they are too dissimilar to reconcile in a single attempt. Instead, revisions are being made in the gathering of information when construction projects are at substantial completion. This will allow the gradual reconciliation of the two fixed asset lists through time. The details for gathering data will be included in the Fixed Asset SOPs, which are to be updated by the end of 2010, as discussed above in Section 2.1.

The District expended considerable effort in 2008 in developing and implementing a new GIS for its conveyance facilities. This GIS provides greater accessibility to view District and municipal assets and has more asset information than was previously available. The development and deployment of a mobile application also allows users in the field to access system-wide data. Users are able to efficiently communicate data discrepancies to the GIS department, increasing the integrity of District data. A document management system was customized to manage electronic static materials including construction and record drawings. These drawings are accessible through the GIS

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.

4.1 CONSTRUCTED OVERFLOW POINTS

In 2008, one of the constructed SSO points listed in Appendix 4-1 of the CMOM Program documentation (included as Attachment 3 to this report) was abandoned. The overflow at S 1st St & W Layton Ave was bulkheaded, the manhole was cut down and the equipment was removed during May of 2008. The overflow is known as BS0604 and is SSO point 221 in the District's WPDES permit. There were no physical changes to any of the other SSOs or CSOs in 2008.

There were three overflow points listed at E Bruce St and S Water St in Appendices 4-1 and 4-2 of the CMOM Program documentation and in the District's WPDES permit: CSO 018; CSO 143; and SSO 250. In 2008, the District determined that SSO point 250 had been abandoned in the late 1990s. BS0701 is actually CSO 018 and is the siphon protection overflow pipe. CSO 143 is the outfall downstream of diversion structure 143. The SSO and CSO tables, included in this report as Attachments 3 and 4 have been corrected to reflect this.

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 2008, the contract operator responded to 22 reported spills, 32 reports of damage to system equipment and numerous reports of basement backups and system failures related to the June 7th through 15th extreme precipitation event.

With the transition of the operating contract from United Water to Veolia in 2008, the District removed the duties related to watercourse maintenance and watercourse

emergency response. With this change, the District began using the watercourse CMMS to track watercourse related emergencies and complaints. The District also began preparing a watercourse emergency response plan to enable efficient communication and response to flooding issues during extreme precipitation events.

4.4 FAILURE ANALYSIS

The District has been preparing documentation on failures, overflows, and in-plant diversions that are not consistent with the WPDES permit, generally called root cause of failure analyses (RCFAs).

2008 Failure Analysis

1. A wet weather SSO occurred on April 10th, 2008. A formal RCFA was not completed on this SSO because it occurred at a location (KK & St Francis, SSO point 232) that is a frequent overflow spot, was (at the time of the overflow) undergoing a construction project to provide relief to the MIS, and had a prior analysis conducted to determine if the relief sewer would solve the overflow problem at this location.
2. An extreme precipitation event occurred between June 7th and June 15th, 2008. During this event, the Beach Drive pump station (PS0401) became flooded and shut down. The District began preparing a RCFA in 2008 on the sequence of events that led to the station shutdown, an analysis of the hydraulics during the event, and potential actions that can be taken to reduce the probability of a shutdown occurring again. This RCFA is expected to be completed in 2009.
3. During the June 7th through 15th, 2008 extreme precipitation event, a District diversion chamber at N Green Bay Rd and W Fairy Chasm Rd (DC0408) suffered a gate malfunction. A RCFA was begun in 2008 to determine the cause of the gate malfunction.
4. During the June 7th through 15th, 2008 extreme precipitation event, a trash rack in the watercourse system at S 81st St & W Arthur Ave became plugged and may have contributed to flooding in the nearby area. A consultant was hired in 2008 to determine solutions to reduce the potential for the trash rack to become clogged in the future.
5. In October of 2008, the District identified a concrete sewer in W College Ave, between S Forest Home Ave and Highway 100 that is 25 years old and is in need of rehabilitation. The District began a RCFA to identify the cause of the shortened life of the sewer (likely related to hydrogen sulfide corrosion) and potential solutions to prevent this from recurring.

Prior Failure Analysis

1. The RCFA for the 5/3/07 diversion that occurred at the Jones Island Water Reclamation Facility was completed in 2008. The recommendations included an investigation into plant hydraulics, standard operating procedures, and inspection and maintenance requirements for flap gates.

2. The RCFA for the Underwood Creek force main failure that occurred on 10/4/07 was essentially completed in 2008. The recommendations include an investigation of the force main condition and an assessment of cathodic protection requirements.

SECTION 5: SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN

The District completed the 2020FP 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 2020FP 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 those required by 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 completed in 2008 include:

- Determining that metersheds are the appropriate geographic unit for I/I assessment
- Defining the 204 metersheds that are required for long-term monitoring needs, which includes 156 for monitoring and enforcement of municipal flows
- Determining the permanent metering locations

Efforts that were underway in 2008 and are expected to be completed in 2009 include:

- Determining the types of flow meters to be used for both permanent and portable metering locations
- Defining the protocols to be used for ongoing review of meter data
- Evaluation of the rain gage system and determining required improvements
- Recruitment and employment of a hydraulic modeler and analyst
- Development of a Request for Proposals for the design of the metering facilities needed to implement the WWPFMP

Flow Metering for Potential Conveyance Relief Projects

Investigation of locations and types of meters that will be used to evaluate the timing and need for potential conveyance relief projects was conducted in 2008 and is expected to be finalized in 2009.

Evaluation of a Second Force Main from the Inline Storage System to South Shore

This evaluation was recommended to assess the feasibility, costs and potential benefits of constructing a second force main to pump wastewater from the Inline Storage System to the SSWRF. The evaluation was initiated in 2007 and completed in 2008. The second force main was not justified for wet or dry weather scenarios.

Evaluation of Improvements to the S 6th St and W Oklahoma Ave Diversion Chamber

This evaluation is an element of increasing the capacity of the SSWRF. It may be necessary to improve the diversion chamber to obtain adequate hydraulics for the flow rates that are projected to be sent to SSWRF through this chamber. Alternatives for diversion chamber improvements will be evaluated. The evaluation was initiated in 2007 and was completed in 2008. However, an additional hydraulic analyses has been recommended to commence in 2009 that involves the impact of upgrading the capacity of the Inline Pump Station and its impact on the South Shore Head Tank, the South Shore Force Main and the Diversion Chamber at S 6th St and W Oklahoma Ave.

Advanced Facilities Plan to Address Franklin/Muskego Future Flows

This evaluation will make a recommendation for conveying future flows from the Franklin/Muskego area. This effort is confirming future growth areas and assessing the basis for sizing local facilities proposed to accommodate the future flows. The evaluation was initiated in 2007 and a draft report was prepared and distributed in December 2008. Preparation of a final report is expected to be completed in 2009.

Root Cause of Failure Analysis of the Beach Drive Pump Station

The Beach Drive pump station became flooded and shut down during the June 7, 2008 rain event. A Root Cause of Failure Analysis (RCFA) was begun in 2008 on the station shutdown. The RCFA is reviewing the circumstances of the event and specifics of the pump station to determine if additional hydraulic capacity is required. The analysis is expected to be finalized in 2009.

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 and report are expected to be completed in 2009.

Collector System and CSO Evaluation

This evaluation began in 2008. The purpose of this study is to determine if the existing capacity of the near-surface collector system (that delivers flow to the inline storage system) and combined sewer outfalls is adequate for providing the desired levels of protection against overflows and building backups. The study is continuing in 2009.

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

With the completion of wet weather capacity improvements at both JIWRP and SSWRF, a detailed capacity analysis is included in the District's 2008 capital budget. This analysis included gathering samples and hydraulic surveys during precipitation events. The samples and survey data was and is being used to calibrate models of the hydraulic and treatment processes. The capacity analysis is expected to be completed in 2009.

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

The demonstration project is intended to evaluate the feasibility of installing a physical-chemical treatment process at SSWRF for wet weather flows. The installation project will be the full scale implementation of the physical-chemical treatment process necessary to increase the capacity of SSWRF to the level required for year 2020 conditions. These projects will follow the capacity analysis listed above and will use the results of the capacity analysis to properly size the physical-chemical treatment process.

Milwaukee River Flood Management - Main stem

The evaluation portion of this project continued in 2008. The purpose of this part of the project is to determine the one-percent flood flows along the main stem of the Milwaukee River and the areas where the flood-flows impact habitable structures. A District-funded study by SEWRPC was delivered in 2008 outlining the floodplain and the habitable structures within it. The June 2008 precipitation event, while not a one-percent event in the Milwaukee River watershed, was significant enough to verify numerous flooded structures. Work will continue to determine the potential solutions for reducing the impacts to habitable structures.

Kinnickinnic River Flood Management - Main stem

The evaluation portion of this project continued in 2008. The purpose of this part of the project is to determine the one-percent flood flows along the main stem of the Kinnickinnic River and the habitable structures that are currently being impacted by the flood flows. A District-funded study by SEWRPC was delivered in 2008 outlining the floodplain and the habitable structures within it at risk of flooding during a one-percent probability flood flow. Work has been ongoing to identify river capacity improvements and other solutions for reducing the impacts to habitable structures.

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.

Discussed below are the activities of the communication plan that have been completed during 2008:

- Staff gave a presentation regarding CMOM information to the Technical Services Division at the District on February 14th, 2008.
- The District held a CMOM conference on March 6th, 2008. Public works staff from the District's satellite municipalities attended. The topics covered included District and municipal CMOM Program components, managing and using data (asset information, GIS, flow monitoring data), and rehabilitation technologies.
- Staff gave a presentation regarding CMOM information to the Water Quality Protection Division on April 9th, 2008.
- The CMOM Program Annual Report for 2007 was submitted to the WDNR on June 30, 2008.
- Staff submitted a memorandum to the Commission in July, 2008, which provided a summary and description of the 2007 CMOM Program Annual Report.
- The District's publicly accessible CMOM web page was updated to include the 2007 CMOM Program Annual Report.
- The District's publicly accessible community exchange web page was updated to include the presentations from the District's CMOM workshops and supporting documents.
- The District added a CMOM page to its internal web site that includes the CMOM Program documentation and the 2007 CMOM Program Annual Report, among other items.

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 2007 CMOM Program Annual Report was completed in 2008 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 2008.

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2007 Status/Value	2008 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
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
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
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
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
Overall	Program Organization	Annual cost for the implementation of the regional CMOM Program activities ¹	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	\$ 31,310.10	\$ 121,289.58
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	No	Yes

¹ This does not include \$775,600 spent in 2007 or the money spent in prior years on the development of the regional CMOM Program. Development is considered to end with the formal documentation and submittal of the CMOM Program (6/30/07). All activity beyond development is implementation.

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2007 Status/Value	2008 Status/Value
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
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	Yes	No
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
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	No	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	N/A for 2007	100%
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%

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2007 Status/Value	2008 Status/Value
Overall	Finance	Establish a method for benchmarking operation and maintenance costs by December 31, 2008	2.2.1.1.3 – Continue to maintain adequate financial planning	In Progress	Completed
Overall	Finance	Percent of cash financing (six-year average)	2.2.1.1.3 – Continue to maintain adequate financial planning	25%	28%
Overall	Finance	Outstanding Debt	2.2.1.1.3 – Continue to maintain adequate financial planning	1.29%	1.36%
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
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), Aa1 (Moody's), AA+ (S&P)
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%
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%
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%
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	98.24%	91% ²
Overall	System Performance	Number of wet weather sanitary sewage overflows occurring more frequently than the WDNR approved Level of Protection ³	2.2.1.1.4 – Continue to comply with regulatory requirements	0	Zero or one ⁴

² The June extreme event caused 93% of the overflow volume for the year.

³ Level of Protection is defined as the 5-year wastewater recurrence interval, as stated in the approved 2020FP.

⁴ The April 10th, 2008 event caused an overflow at one location (KK/St Francis) in the District system. The recurrence interval for the event in the vicinity of the overflow is unknown. The Warnimont Relief Sewer is a stipulated project that provides relief at this location and was put on-line after the 4-10-08 event.

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2007 Status/Value	2008 Status/Value
Overall	System Performance	CMAR overall score*	2.2.1.1.4 – Continue to comply with regulatory requirements	JI = 4.0; SS = 3.84	JI =; SS = ⁵
Overall	Satellite systems	All satellite CMOM readiness reviews completed by December 31, 2007	2.2.1.1.5 – Establish a regional CMOM program	Yes	Completed by 2007 deadline
Overall	Satellite systems	All satellite CMOM compliance strategies completed by December 31, 2007	2.2.1.1.5 – Establish a regional CMOM program	27 completed. Other two in progress	All completed in 2008
Overall	Satellite systems	District has taken appropriate action for each satellite system that has not submitted a Management Plan, Overflow Response Plan, Communication Plan, Audit Plan, System Evaluation and Capacity Assurance Plan (where required) and I/I management plan by June 2009	2.2.1.1.5 – Establish a regional CMOM program	N/A for 2007	N/A for 2008
Overall	Satellite systems	District sewer plan review process defined and documented by December 31, 2008	2.2.1.1.5 – Establish a regional CMOM program	In Progress	Yes
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%
Overall	Satellite systems	District municipal sewer construction Quality Assurance program defined and documented by June 30, 2008	2.2.1.1.5 – Establish a regional CMOM program	Yes	Yes
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%

⁵ The final CMAR scores have not been determined as of the time of completion of this report.

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2007 Status/Value	2008 Status/Value
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
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	14.5 hrs per employee	11.4 hrs per 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	27 injury days per 100 FTEs	9.9 injury days 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	4	3
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	4/3/07 - 8.8% 8/20/07 - 145%	4/10/08 - 17% 6/7/08 – 0% 12/27/08 - 160%
Conveyance	System Performance	District rules regarding CMOM Program requirements and I/I controls for satellite systems adopted by June 30, 2007	2.2.1.2.2 – Address peak wet weather flows from satellite systems that impact the District's system	Yes	Completed by 2007 deadline
Conveyance	System Performance	Development of the Wet Weather Peak Flow Management program by September 30, 2009	2.2.1.2.2 – Address peak wet weather flows from satellite systems that impact the District's system	In Progress	In Progress
Conveyance	System Performance	Development of the Wet Weather Peak Flow Monitoring Plan by December 31, 2008	2.2.1.2.2 – Address peak wet weather flows from satellite systems that impact the District's system	N/A for 2007	Yes
Conveyance	System Performance	Number of dry weather overflows	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures	1	0

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2007 Status/Value	2008 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	0	Zero or one ⁶
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	1	2
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	0	Between zero and 0.18 MG ⁶
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	0.087 MG	686 MG ⁷
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	0 (5 investigated)	Undetermined at time of report preparation due to ongoing analysis ⁸
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	99.24%	95.1%
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

⁶ The April 10th, 2008 event caused an overflow at one location (KK/St Francis) in the District system. The recurrence interval for the event in the vicinity of the overflow is unknown. The Warnimont Relief Sewer is a stipulated project that provides relief at this location and was put on-line after the 4-10-08 event..

⁷ All but 0.18 mg of this amount was caused by the June extreme precipitation event.

⁸ Ongoing analysis related to operations at PS0401, DC0408, and DC0508 during the June extreme precipitation event.

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2007 Status/Value	2008 Status/Value
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
Conveyance	Asset Management	Develop a plan for periodic operational readiness testing of sanitary sewer overflow facilities by June 30, 2009	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures	In Progress	In Progress
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	N/A for 2007	60%
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
Conveyance	Asset Management	Fixed Asset SOPs audited by December 31, 2008	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	Yes
Conveyance	Asset Management	Fixed Asset SOPs updated by December 31, 2010	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 2008
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	12 contracts	34 contracts

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2007 Status/Value	2008 Status/Value
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	44 contracts ⁹	0 contracts
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	0%	10.3%
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
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 2007	N/A for 2007
Conveyance	Asset Management	Conveyance system integrity* [#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	0.9 failures per 100 miles of piping	0.56 failures per 100 miles of piping
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	80	51
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	45	65

⁹ This number was a high estimate for the consultant effort required in transitioning to a new GIS and overstated the actual number of contract updates that needed to be completed..

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2007 Status/Value	2008 Status/Value
			protection levels		
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	85.40%	67%
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	84.20%	67%
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	95.20%	92%
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	77.40%	71%
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	75.80%	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	85.90%	86%

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2007 Status/Value	2008 Status/Value
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	94%	100%
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	76%	77% ¹⁰
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%
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	100%	94%
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	90%	90%
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	98.50%	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	4.1 MG	0 MG
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	1	0

¹⁰ Remainder of these sites will be abandoned or replaced as part of WWPFPMP

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2007 Status/Value	2008 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
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	0	686 MG ¹¹
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
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	0	1
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 ¹²
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%
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%
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%

¹¹ 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.

¹² As of the time of this report, the District has applied for award, but has not yet received it

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2007 Status/Value	2008 Status/Value
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%
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%
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	74% ¹³	91% ¹⁴
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
Treatment	Asset Management	Fixed Asset SOPs audited by December 31, 2008	2.2.1.3.4 – Continue to establish and document levels of protection, design and performance standards for treatment plant assets	In progress	Yes
Treatment	Asset Management	Fixed Asset SOPs updated by December 31, 2010	2.2.1.2.4 – Continue to establish and document level of protection, design and performance standards for treatment plant assets		N/A for 2008
Treatment	Asset Management	Percent of treatment plant assets with defined condition and management method 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%
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

¹³ All of the biosolids that were landfilled in 2007 were due to PCB contamination.

¹⁴ Remaining biosolids were landfilled due to PCB contamination or because they were bottom sludge from digester

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2007 Status/Value	2008 Status/Value
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 2007	N/A for 2008
Treatment	Asset Management	Number of open 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	814	564
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	86.25%	89%
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	\$920/MG ¹⁵	\$920/MG
Treatment	Asset Management	Number of open 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	619	257
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	46.20%	47%

¹⁵ This was revised from \$1,082/MG to \$920/MG for 2007 because the previously reported value was based on estimated flow volume, not actual

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2007 Status/Value	2008 Status/Value
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	53.00%	56%
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	98.20%	79%
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
Watercourse	Capital Program Implementation	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	508 structures	861 structures ¹⁶
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	43	2
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	100%	33%
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%

¹⁶ The number increased due to recent analysis conducted by SEWRPC on the Milwaukee and Kinnickinnic Rivers

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2007 Status/Value	2008 Status/Value
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	460.7 acres (1,600 acres to date)	228 acres
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%
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	7 projects	5 projects
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	2,700 rain barrels ordered	2,854 rain barrels ordered
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	57 presentations	60 presentations
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
Watercourse	Asset Management	Fixed Asset SOPs audited by December 31, 2008	2.2.1.4.3 – Establish and document level of protection, design and performance standards for new assets in the watercourse system	In Progress	Yes
Watercourse	Asset Management	Fixed Asset SOPs updated by December 31, 2010	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 2008
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	0%	13%

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2007 Status/Value	2008 Status/Value
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
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 2007	N/A for 2008
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	0%	0%
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	0	9 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	12 contracts ¹⁷	0 contracts
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	N/A for 2007	100% ¹⁸
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	N/A for 2007	100%

¹⁷ This number was a high estimate for the consultant effort required in transitioning to a new GIS and overstated the actual number of contract updates that needed to be completed.

¹⁸ Schedule was not fully developed – inspections were scheduled on an as-needed basis and completed immediately.

ATTACHMENT 1 – CMOM PERFORMANCE MEASURES

Service Area	Functional Area	Measure * indicates the measure is also a benchmark	Reference Objective	2007 Status/Value	2008 Status/Value
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	N/A for 2007	\$228,240
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	N/A for 2007	2,776
Watercourse	Customer Service	Percent of documented inquiries with a documented response	2.2.1.4.6 – Provide information receipt, response activity, and feedback regarding customer inquiries on the watercourse system	100% (10/10)	44% (27/62) ¹⁹

¹⁹ District transitioned to in-house receipt and response to watercourse inquiries in 2008.

ATTACHMENT 2 – CMOM MANAGEMENT PLAN OBJECTIVES

2.2.1 Goals and Objectives

This first section of the Management Plan defines the District goals. In support of these goals are specific objectives, as well as the strategies and tactics that have already been or will be employed to achieve each objective. Also included in this section are the performance measures that the District will use to gauge achievement of each objective. The performance measures are regrouped and discussed again in section 2.2.6, with additional detail provided on the data requirements for determining the value of the performance measures.

The District is responsible for:

- 1) The regional collection, conveyance and storage (hereinafter referred to as conveyance) system;
- 2) The wastewater treatment plants; and
- 3) A large portion of the watercourse systems in the region.

The District is applying CMOM principles to all three service areas and has divided the CMOM Program into an overall component and a component for each of the three service areas. Goals, objectives, strategies, tactics and performance measures have been prepared for each component.

The overall component is discussed first, followed by the conveyance, treatment and watercourse components, in that order.

2.2.1.1 Overall Program Goal

The overall CMOM Program goal, as developed by the District, in accordance with its Mission, and documented in the *CMOM Strategic Plan*, is “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.”

To achieve the overall program goal, the District will pursue the following objectives:

1. Enable implementation of the CMOM Program within the District organizational structure (2.2.1.1.1)
2. Communicate the goals and objectives of the CMOM Program to internal and external stakeholders, monitor the CMOM Program implementation, and institute program modifications (2.2.1.1.2)
3. Continue to maintain adequate financial planning (2.2.1.1.3)
4. Continue to comply with regulatory requirements (2.2.1.1.4)
5. Establish a regional CMOM program (2.2.1.1.5)
6. Continue to maintain a safe work environment and sustain a competent workforce (2.2.1.1.6)

ATTACHMENT 2 – CMOM MANAGEMENT PLAN OBJECTIVES

Each of these objectives is discussed in further detail below. The discussion includes the strategies and tactics that will be employed to achieve the objectives, as well as the performance measures defined to gauge achievement of the objectives.

2.2.1.1.1 Overall Objective 1*Objective:*

Enable implementation of the CMOM Program within the District organizational structure.

Achieving this objective requires dedicating and organizing human resources toward activities that reduce Sanitary Sewer Overflows (SSOs) and Combined Sewer Overflows (CSOs), and striving to improve water quality, both in treatment plant effluent and in watercourse management. To accomplish this, the District is creating, funding and filling the CMOM Program Manager position. The District is linking the CMOM Program with the Asset Management program by having a single person be the manager of both.

Strategies:

- Assign CMOM Program Management responsibilities for overseeing the CMOM Program. (Completed as of June 2006)
- Establish a CMOM work team consisting of key personnel from the Technical Services and Water Quality Protection divisions. (Completed as of June 2006)
- Assign responsibility for overseeing the AM Program. (Completed as of June 2006)
- Appoint a permanent asset management team (AMT). (Completed as of June 2006)

Tactics:

- Create, fund and fill the CMOM Program Manager position to oversee and guide the implementation of the program. Responsibilities of the CMOM Program Manager include documenting the CMOM Program, providing input, technical advice and guidance related to capital projects, and reviewing program standards and specifications to ensure compliance with established regulatory requirements. (Completed as of June 2006)
- Establish a CMOM work team consisting of the CMOM Program Manager and one person from the areas of: Contract Compliance, Capital Planning, Engineering Services, Industrial Waste Pretreatment Program, Systems Monitoring, Field Monitoring and one person from the contract operator (presently United Water Services.) The team will meet periodically to ensure implementation of the CMOM program at the District is being achieved. (Completed as of June 2006)
- Assign the CMOM work team the task of reviewing the CMOM responsibility in each division on a periodic basis.
- Create, fund and fill the Asset Manager position to oversee and guide the implementation of the Asset Management Plan (AMP). Responsibilities of the Asset Manager include, but are not limited to, providing input, technical advice

ATTACHMENT 2 – CMOM MANAGEMENT PLAN OBJECTIVES

and guidance related to AM. These responsibilities will be strongly related to the CMOM Program. (Completed as of June 2006)

- Establish an Asset Management Team (AMT) to continue the preparatory work done by the Asset Management Work Team. The Asset Management Team should consist of the Asset Manager and one person from the areas of: Contract Compliance, Capital Planning, Engineering Services, Budgeting, Accounting and one person from the contract operator. (Completed as of June 2006)
- The AMT has been charged with the responsibility to ensure a long-range AMP is developed, supported by top management, communicated to stakeholders, implemented, regularly audited, and updated as necessary

Performance Measures:

- Organizational Best Practices Index¹
- CMOM Manager responsibilities assigned
- CMOM work team established and functioning
- Asset Manager responsibilities assigned
- Asset Management Team established and functioning

2.2.1.1.2 Overall Objective 2*Objective:*

Communicate the goals and objectives of the CMOM Program to internal and external stakeholders, monitor the CMOM Program implementation, and institute program modifications.

The strategies formulated to achieve this objective involve communicating with District employees, satellite system owners, customers, regulators, and other stakeholders. The communication must be two way: receiving feedback and suggestions on the CMOM Program, and outputting information on various cycles regarding CMOM implementation. The strategies also must include the details on how the implementation will be monitored and the procedure for modifying program elements.

Strategies:

- Develop an internal communications program that brings together periodic CMOM Program tracking data and provides this information to District staff.
- Develop an external communications program that assembles CMOM program tracking data relevant to each stakeholder group and makes the information available to the group. This is an *ongoing and continuing effort* that will not change for the foreseeable future with the District's Technical Advisory Team² (TAT).
- Track the implementation of specific CMOM strategies and tasks, including deliverables and performance measures, on an annual basis and report the results.
- Establish protocols for input from District staff on improving the CMOM Program.

¹ Organizational Best Practices Index is also a Benchmark- see section 2.2.5 for further information

² The Technical Advisory Team consists of District, SEWRPC, WDNR and satellite system representatives

ATTACHMENT 2 – CMOM MANAGEMENT PLAN OBJECTIVES

- Prepare a procedure for modifying program elements.

Tactics:

- Establish performance measures that are easy to track and for which information is readily available. (completed as of June 2007)
- Prepare an annual CMOM report, detailing the work completed in the previous year
- Use the District's internal web site to create a CMOM page to post information on the elements accomplished, performance measures and trending of performance measures.
- Use the District's public web site to post CMOM reports
- Prepare annual presentations for division meetings on the status of the CMOM program. Develop a template to address the same items regularly.
- Prepare annual presentations to the TAT on the status of the CMOM Program. Develop a template to address the same items regularly. (ongoing and continuing effort)
- Prepare annual memoranda to the Commission on the status of the CMOM Program. Develop a template to address the same items regularly.
- Include on the CMOM web pages a tool for inputting suggestions regarding CMOM implementation. Include standard fields to get consistent information from each suggestion.
- Interview annually a sampling of personnel from the District and get their opinions on CMOM implementation. Prepare a set of standard questions that accompany questions tailored to each person.
- Prepare a standard report for modifying program elements that may include a precise statement of the change, details of the implications to the program, an analysis of the costs and benefits of the changes, and a recommendation for or against the change.
- Set up a charge number to allow charging time and materials for items related to CMOM implementation

Performance Measures:

- CMOM page on the District's internal web site updated annually to include new reports and communications
- CMOM page on the District's public web site updated annually to include new reports and communications
- Annual TAT briefing completed
- Annual Commission memorandum completed
- Annual staff briefing completed
- Percent of annual reports completed on time (for five-year program audit)
- Annual cost for the implementation of the regional CMOM Program activities

2.2.1.1.3 Overall Objective 3*Objective:*

Continue to maintain adequate financial planning

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The strategies formulated to achieve this objective involve using existing financial information that the District maintains and compiles.

Strategies:

- Compile and review a list of measures that indicate sound financial planning

Tactics:

- Compile a list of financial statistics that presently are or can be produced from existing data. (Completed as of June 2007)
- Prepare a list of financial measures for this objective. (Completed as of June 2007)
- Prepare recommendations for benchmarking operation and maintenance costs

Performance Measures:

- Establish a method for benchmarking operation and maintenance costs by December 31, 2008
- Percent of cash financing (six-year average)
- Outstanding Debt
- The six-year capital financing plan is updated and revised annually
- Bond Ratings

2.2.1.1.4 Overall Objective 4*Objective:*

Continue to comply with regulatory requirements.

This objective is included to ensure that as a main function, District compliance with its WPDES Permit (5) requirements is being fully addressed.

Strategies:

- Review the WPDES permit, existing and proposed State rules, and existing and proposed Federal rules for specific items that must be tracked and reported.

Tactics:

- Prepare annual compilation of statistics and trend results related to treatment plant effluent quality and sewage overflows

Performance Measures:

- Percent of time effluent biochemical oxygen demand (BOD) is in compliance with WPDES permit limits
- Percent of time effluent total suspended solids (TSS) is in compliance with WPDES permit limits
- Percent of time effluent fecal count is in compliance with WPDES limits
- Percent of flow into the system, resulting from wet weather events, that is captured and treated (calculated according to the formula stated in the District's 2003 WPDES permit, section 3.2.5)

ATTACHMENT 2 – CMOM MANAGEMENT PLAN OBJECTIVES

- Number of wet weather sanitary sewage overflows occurring more frequently than the WDNR approved Level of Protection
- Percent of overflow and in-plant diversion events for which a public notification was issued
- Compliance Maintenance Annual Report (CMAR) overall score

2.2.1.1.5 Overall Objective 5*Objective:*

Establish a regional CMOM program

Supporting strategies would relate to assisting satellite municipalities with CMOM compliance activities.

Strategies:

- Adopt rule changes consistent with the 2020 Facilities Plan that require and define CMOM compliance for satellite systems. (Revised Rule, Chapter 3 adopted on May 21, 2007)
- Provide assistance to District satellite municipalities on issues related to their compliance with District Rules and Regulations. (ongoing and continuing effort)
- Ensure that satellite municipalities are designing and constructing sewers and connections consistent with District Rules and Regulations. (ongoing and continuing effort)

Tactics:

- Adopt changes to Chapter 3 of the District's Rules. (Revised Rule, Chapter 3 adopted on May 21, 2007)
- Fund and complete the CMOM readiness review and compliance strategy development for each satellite system. This is a **current effort** that is expected to be completed by the end of 2007.
- Hold a series of workshops intended to assist the satellite municipalities in documenting and implementing their CMOM Programs
- Review annual reports submitted by the satellites for CMOM compliance related items (see section 2.2.3.3 below for further information)
- Provide feedback to satellite system owners based on their submitted reports
- Document and continue implementing the District sewer plan review process and Quality Assurance (QA) inspection process for satellite systems

Performance Measures:

- All satellite CMOM readiness reviews completed by December 31, 2007
- All satellite CMOM compliance strategies completed by December 31, 2007
- District has taken appropriate action for each satellite system that has not submitted a Management Plan, Overflow Response Plan, Communication Plan, Audit Plan, System Evaluation and Capacity Assurance Plan (when required), and Infiltration and Inflow Management Plan by June 30, 2009
- District sewer plan review process defined and documented by December 31, 2008

ATTACHMENT 2 – CMOM MANAGEMENT PLAN OBJECTIVES

- Percent of sewer plans reviewed by the District within deadlines established by District Rules
- District municipal sewer construction QA Program defined and documented by June 30, 2008
- Percent of municipal sewer construction projects receiving QA inspection as defined by the QA program

2.2.1.1.6 Overall Objective 6*Objective:*

Continue to maintain a safe work environment for District employees and sustain a competent District workforce.

Strategies:

- Maintain safety training programs (ongoing and continuing effort)
- Support development of the Succession Planning Program (Program implementation begun as of June 2007)

Tactics:

- Continue to provide assistance to employees related to certifications, licenses, etc. required by a position
- Continue to provide opportunities for employees to attend educational training seminars, conferences and classes.
- Continue to provide regular safety training including but not limited to CPR, confined space entry, first aid, and rescue training
- Continue to provide employees with Personal Protective Equipment (PPE)
- Continue to provide information and input to the development of the Succession Planning Program

Performance Measures:

- Annual regulatory training completed
- Annual training hours per employee
- Employee Health and Safety Severity Rate³

2.2.1.2 Conveyance Goal

The goal for the conveyance service area, as developed by the District, in accordance with its mission and documented in the *CMOM Strategic Plan* is “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.”

To achieve the conveyance goal, the District will pursue the following objectives:

³ Benchmark – see section 2.2.5 for further information

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1. Establish CMOM program elements specific to minimizing the number and volume of CSOs (2.2.1.2.1)
2. Address peak wet weather flows from satellite systems that impact the District's system (2.2.1.2.2)
3. Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures (2.2.1.2.3)
4. Continue to establish and document level of protection, design, and performance standards for new conveyance assets constructed in the District service area (2.2.1.2.4)
5. Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels (2.2.1.2.5)
6. Enhance District level of knowledge and understanding of wet weather flows and system response to precipitation and other factors (2.2.1.2.6)
7. Provide information receipt, response activity, and feedback regarding customer inquiries (2.2.1.2.6)

Each of these objectives is discussed in further detail below. The discussion includes the strategies and tactics that will be employed to achieve the objectives, as well as the performance measures defined to gauge achievement of the objectives.

2.2.1.2.1 Conveyance Objective 1*Objective:*

Establish CMOM program elements specific to minimizing the number and volume of Combined Sewer Overflows (CSOs)

Although combined sewer flow and separate sewer flow eventually commingle within the District system, CSOs are regulated differently from SSOs. The 2003 WPDES permit requires the District to include a long-term control plan (LTCP) in the 2020 Facilities Plan. The LTCP is specific to CSO discharges. The District plans to apply CMOM to CSOs and combined sewer systems even though CMOM principles were originally developed for SSOs and sanitary sewer systems. The strategies to achieve CSO control may mirror those for controlling SSOs.

Strategies:

- In accord with the compliance schedule in the District WPDES permit, document District status with respect to the USEPA CSO Control Policy and the Nine Minimum Controls.
- Incorporate into the CMOM Overflow Response Plan (ORP) any specific requirements for CSOs from the District system.
- Implement the 2020 Facilities Plan recommendations with respect to CSOs.
- Ensure operational readiness of all existing District overflow control facilities, including facilities constructed to prevent building sewer back-ups.

Tactics:

- Review the final documentation regarding the CSO Control Policy and the Nine Minimum Controls.

ATTACHMENT 2 – CMOM MANAGEMENT PLAN OBJECTIVES

- Ensure the Nine Minimum Controls are being implemented as documented.
- Develop and implement opportunistic sewer separation guidelines
- Continue to implement stormwater runoff reduction practices in the combined sewer area
- Continue to implement the rain barrel program
- Implement the facilities plan recommendations with respect to CSOs.
- Include requirements in the operations contract for inspecting and ensuring proper operation of combined sewer facilities (intercepting structures, diversion structures, and combined sewer outfalls)
- Provide details in the ORP that include overflows from the combined sewer service area

Performance Measures:

- Number of wet weather CSOs
- Ratio of unused volume of the Inline Storage System (ISS) to the wet weather CSO volume for each event

2.2.1.2.2 Conveyance Objective 2*Objective:*

Address peak wet weather flows from satellite systems that impact the District's system.

The District will use the 2020 Facilities Plan to manage satellite municipality flows via a sewershed capacity allocation process which considers base and peak flows. Chapters 2 and 7 of the District's Rules and Regulations articulate the current process for administering capacity. Chapter 3 of the District's Rules, which previously was titled "Infiltration and Inflow Control", but has been changed to "Management, Operation, and Maintenance of Tributary Sewers", has been rewritten and adopted by the District's Commission. The rule revisions include standards for sewersheds, including the maximum allowable I/I allocated by the 2020 Facilities Plan and requirements for CMOM implementation by the satellite system owners.

Strategies:

- Adopt rule changes as discussed in the 2020 Facilities Plan that provide for improved management of municipal discharges during peak wet weather flow conditions. (Revised Rule, Chapter 3 adopted on May 21, 2007)
- In collaboration with the TAT, establish a Wet Weather Peak Flow Management Program.

Tactics:

- Adopt rule changes, utilizing the input from the Technical Advisory Team, to implement I/I controls for satellite systems. (Revised Rule, Chapter 3 adopted on May 21, 2007)
- Adopt rule changes to define and require CMOM Program (Management Plan, Overflow Response Plan, Communication Plan, Audit Plan, System Evaluation and Capacity Assurance Plan when required, and I/I Management Plan)

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requirements and compliance for satellite systems. (Revised Rule, Chapter 3 adopted on May 21, 2007)

- Develop a Wet Weather Peak Flow Management Program (WWPFMP), which will include establishment of peak flow performance standards, methodologies for determining peak flows related to the District's approved level of protection, establishment of enforcement and/or incentive activities, continuing improvements to the District flow monitoring and rain gauge system and other necessary measures that will allow for consistent comparison of measured peak wet weather data to accepted standards and will provide methods for attaining compliance.

Performance Measures:

- District Rules regarding CMOM Program requirements and I/I controls for satellite systems adopted by June 30, 2007
- Development of the Wet Weather Peak Flow Management Program by September 30, 2009
- Development of the Wet Weather Peak Flow Monitoring Plan by December 31, 2008 (part of the Wet Weather Peak Flow Management Program)

2.2.1.2.3 Conveyance Objective 3*Objective:*

Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures.

Supporting strategies would relate to operations and maintenance, the industrial waste pretreatment program, real-time control systems and the ORP

Strategies:

- Evaluate standard operating and standard maintenance procedures for all critical conveyance facilities on an ongoing basis
- Complete implementation of the committed projects as identified in the 2020 Facilities Plan
- Implement the recommended studies and projects from the 2020 Facilities Plan for the conveyance system as defined by the 2020 Implementation Plan.
- Maintain beneficial use of real-time controls (RTC) to maximize effectiveness of wet weather conveyance capacity (ongoing and continuing effort)
- Continue to administer the District's approved industrial waste pretreatment program (IWPP) (District has had a regulatory-approved IWPP since 1983)
- Perform Root Cause Failure Analyses (RCFA) on SSOs
- Evaluate operational readiness of all existing District sanitary sewer overflow facilities, including facilities constructed to prevent building sewer back-ups.

Tactics:

- Complete a criticality review of conveyance assets
- Review standard operating procedures (SOPs) (District and contract operator's) regarding critical facilities

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- Review standard maintenance procedures (SMPs) (contract operator's) for critical facilities
- Complete and implement the comprehensive modeling and RTC Strategies project (has been implemented by the Stipulation-required 12/31/2004 deadline)
- Implement operator training on RTC (ongoing and continuing effort)
- Prepare list of recommendations to changes for SOPs and SMPs to reduce the risk of preventable SSOs, where possible
- Complete RCFA on SSOs to determine the root cause of the overflow, the Level of Protection provided, and corrective action plans for reducing the risk of overflows
- Include requirements in the operations contract to maintain the current inspection and testing of SSOs to ensure their operational readiness, to the maximum extent possible, without causing an SSO
- Include requirements in the operations contract to have procedures for responding to overflows
- Incorporate into the ORP a system for feedback from field personnel
- Maintain communications with satellite system owners, through the TAT, on operations and maintenance issues that affect the capacity and function of District facilities
- Analyze VRSSI⁴ predictions, post-event, for events that result in a CSO and/or SSO

Performance Measures:

- Number of dry weather overflows
- Number of wet weather SSOs
- Number of wet weather SSOs where wet weather event generated flow is less than the WDNR approved Level of Protection
- Volume of wet weather SSOs
- Volume of wet weather SSOs where wet weather event generated flow is less than the WDNR approved Level of Protection
- Number of building backups caused by the loss of capacity or function of a District facility
- Percent of total flow entering the conveyance system that is captured and treated
- Develop a plan for periodic operational readiness testing of sanitary sewer overflow facilities by June 30, 2009
- Percent completion of post-overflow review process within one-year of overflow occurrence
- Regulatory-approved IWPP in operation

⁴ VRSSI – Volume Reserved for Separate Sewage Inflow is a predicted volume of inflow that must be reserved for flow from the separate sewer area and is used to determine the appropriate time to close the gates that allow combined sewage into the inline storage system.

ATTACHMENT 2 – CMOM MANAGEMENT PLAN OBJECTIVES

2.2.1.2.4 Conveyance Objective 4*Objective:*

Continue to establish and document level of protection, design, and performance standards for conveyance assets constructed in the District service area.

This objective is timely as the District executes the 2020 Facilities Planning process. The 2020 Facilities Plan (6) will determine the level of protection against overflows to be provided by the District's conveyance, storage and treatment system (Wastewater System). Design and performance standards for all assets will be based on providing this protection level.

Strategies:

- Review 2020 Facilities Plan target level of protection for conveyance assets.
- Audit the implementation of procedures established for asset creation, modification, and removal (Fixed Asset SOPs) and make corrections to the procedures, as necessary, to improve capture of critical asset information.
- Include requirements in the District operation and maintenance (O&M) contract for capture of information necessary to make asset life-cycle decisions
- As a component of the Asset Management Plan (AMP), ensure asset management procedures identify assets, their condition, and their replacement schedule
- Update the District's Geographic Information System (GIS) as conveyance construction projects are completed (ongoing and continuing effort)
- Perform a business case analysis, as defined by the AMP, on new capital projects and throughout the life of the project to ensure the project satisfies standards for project objectives, relevant project data, development and evaluation of options including costs and benefits (tangible and intangible), project work plan and milestones, and financial and environmental issues.
- Track implementation of the capacity improvement facilities identified in the 2020 Facilities Plan.

Tactics:

- See the Asset Management Plan (Chapter 3 of this document)

Performance Measures:

- Level of Protection defined (by the 2020 Facilities Plan) and approved by the WDNR for the Wastewater System
- Fixed Asset SOPs audited by December 31, 2008
- Fixed Asset SOPs updated by December 31, 2010
- Number of conveyance construction project updates to the GIS
- Backlog of conveyance construction project updates to the GIS
- Percent of conveyance assets with defined condition and management method (condition based monitoring, economic based strategy, run to failure) documented in the Asset Information Management System (AIMS)
- Establish criteria and procedures for conducting Business Case Analysis (BCA) on conveyance projects by June 30, 2009

ATTACHMENT 2 – CMOM MANAGEMENT PLAN OBJECTIVES

- Percent of BCAs completed when required by District procedures
- Facilities Plan implementation on schedule

2.2.1.2.5 Conveyance Objective 5*Objective:*

Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels.

This objective essentially defines Asset Management (AM). To achieve the objective, the District will need to follow the steps related to establishing AM as a core business practice. These steps include defining current asset management activities, benchmarking them against industry best practices, identifying priority areas for improvement, and establishing a plan for implementing AM. This process will both lower the cost of asset ownership and help to better define protection levels for the systems the District owns and operates.

Strategies:

- Document and define the existing District AM business practices (completed as of December 2005)
- Benchmark current AM business practices (completed as of December 2005)
- Identify areas of CMOM compliance supported by AM implementation
- Prepare an Asset Management Plan (completed as of June 2007)
- Define an implementation process for AM
- Estimate implementation costs for action items
- Establish performance measures for implementation (completed as of June 2007)

Tactics:

- See the Asset Management Plan (Chapter 3 of this document)

Performance Measures:

- Conveyance system integrity⁵
- Number of open preventive maintenance (PM) work orders older than 90 days (sewers)
- Number of open PM work orders older than 90 days (conveyance equipment and pump stations)
- Planned maintenance ratio (preventive (PM) and predictive (PdM) maintenance vs all maintenance): hours (sewers)
- Planned maintenance ratio (PM and PdM vs all maintenance): costs (sewers)
- Planned maintenance ratio (PM and PdM vs all maintenance): count (sewers)
- Planned maintenance ratio (preventive (PM) and predictive (PdM) maintenance vs all maintenance): hours (conveyance equipment and pump stations)

⁵ Conveyance system integrity is also a benchmark, see section 2.2.5 for further information

ATTACHMENT 2 – CMOM MANAGEMENT PLAN OBJECTIVES

- Planned maintenance ratio (PM and PdM vs all maintenance): costs (conveyance equipment and pump stations)
- Planned maintenance ratio (PM and PdM vs all maintenance): count (conveyance equipment and pump stations)

2.2.1.2.6 Conveyance Objective 6*Objective:*

Enhance District level of knowledge and understanding of wet weather flows and system response to precipitation and other factors.

The strategies employed to meet this objective will involve the collection, management and availability of monitoring data. The objective may include District and satellite data regarding sewer flows, precipitation, river levels, lake levels, and groundwater levels.

Strategy:

- In cooperation with the TAT, develop and implement a Wet Weather Peak Flow Management Program
- Review the system of monitoring data collection and storage as practiced by the District.

Tactics:

- Review process of correcting problems with monitoring equipment, implement recommendations for preventing and correcting problems identified
- Review locations of portable flow monitoring stations on an ongoing basis to verify best use
- Review calibration logs of all monitoring and measuring equipment to ensure data collected is accurate
- Review procedures for collecting, converting, managing, storing and using data.
- Prepare recommendations for ensuring data integrity, usefulness and availability
- Review system and procedures for collection of precipitation data

Performance Measures:

- Development of the Wet Weather Peak Flow Management Program by September 30, 2009
- Percent of portable flow monitors repaired within 5 business days after problems are identified (unless problem requires replacement of equipment)
- Percent of permanent monitoring sites with less than 30 consecutive days of missing or bad data
- Percent of permanent monitoring sites calibrated [check and adjustment as necessary] annually
- Percent of rain gauges calibrated annually
- Percent of data reviewed for QA within 30 days

2.2.1.2.7 Conveyance Objective 7*Objective:*

ATTACHMENT 2 – CMOM MANAGEMENT PLAN OBJECTIVES

Provide information receipt, response activity, and feedback regarding customer inquiries.

Strategy:

- Review all typical points of contact with District customers and ensure that questions, complaints and requests are directed to the appropriate responding party in a timely manner.

Tactics:

- Review the procedures for recording, and responding to, customer inquiries (For the purposes of this objective, conveyance inquiries are defined as calls received concerning building backups, sewage overflows, spills into the system, clogged or collapsed sewers or structures, illegal dumping into sewers or catch basins, missing manhole covers or contractors interfering with or damaging District facilities, which are all potentially critical issues. The District is not always the responding party for these issues. Calls related to sewer extensions, connections, site development and other non-critical issues are not counted as inquiries for this objective.)
- Perform a review of customer inquiry documentation
- Prepare recommendations and implement procedures to maintain or improve service response for customers

Performance Measures:

- Percent of documented inquiries with a documented response

2.2.1.3 Treatment Goal

The goal for the treatment service area, as developed by MMSD, in accordance with its mission and documented in the *CMOM Strategic Plan* is “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 better than regulatory and permit requirements.
- Sustain operational readiness, reliability, and redundancy for liquid and solids processing.
- Achieve AM implementation.
- Improve coordination of wastewater treatment plant operations with collection system facilities and staff.
- Improve proper work management related to maintenance.”

To achieve the treatment goal, the District will pursue the following objectives:

1. Continue to provide effluent quality that meets or exceeds WPDES permit requirements and effluent quality goals (2.2.1.3.1)
2. Continue to optimize effectiveness of wet weather treatment capacity (2.2.1.3.2)
3. Continue to manage bio-solids in a manner that maximizes beneficial reuse (2.2.1.3.3)

ATTACHMENT 2 – CMOM MANAGEMENT PLAN OBJECTIVES

4. Continue to document level of protection, design and performance standards for new treatment plant assets (2.2.1.3.4)
5. Minimize the cost of wastewater treatment asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels (2.2.1.3.5)

Each of these objectives is discussed in further detail below. The discussion includes the strategies and tactics that will be employed to achieve the objectives, as well as the performance measures defined to gauge achievement of the objectives.

2.2.1.3.1 Treatment Objective 1*Objective:*

Continue to provide effluent quality that meets or exceeds WPDES permit requirements and effluent quality goals.

This objective is central to the District's mission statement of improving water quality and the state of the region's water resources. The District has a long track record for producing effluent quality better than the requirements of its WPDES permit. Both the Jones Island and South Shore water reclamation facilities have not violated monthly discharge permit effluent requirements for the period of 1998 through 2007.

Strategies:

- For each treatment process unit, continue to determine the data needed to make operational decisions that will maximize treatment effectiveness.
- Continue to optimize the number of treatment process units in operation at all times.
- Avoid in-plant diversions that do not meet WPDES requirements

Tactics:

- Require the contract operator to review treatment processes and determine data needed to make good operational decisions, including information on the status and availability of the various units for each treatment process
- Ensure required data is being collected, managed and distributed properly to enable good decision-making
- Review decision method for taking process units out of operation
- Review abilities for restoring operations in process units

Performance Measures:

- Receipt of NACWA Peak Performance Award⁶
- Percent of time effluent BOD is in compliance with WPDES permit
- Percent of time effluent TSS is in compliance with WPDES permit
- Percent of time effluent fecal count is in compliance with WPDES permit
- Percent of time effluent Phosphorous is in compliance with WPDES permit
- Percent of time effluent Ammonia is in compliance with WPDES permit

⁶ The National Association of Clean Water Agencies (NACWA) issues Silver, Gold and Platinum awards to participating agencies. Silver is awarded for five or less permit violations, Gold is awarded for zero permit violations, and Platinum is awarded after five continuous years of receipt of the Gold award.

ATTACHMENT 2 – CMOM MANAGEMENT PLAN OBJECTIVES

- Volume of in-plant diversions not consistent with the WPDES permit
- Number of in-plant diversions not consistent with WPDES permit requirements

2.2.1.3.2 Treatment Objective 2*Objective:*

Continue to optimize effectiveness of wet weather treatment capacity.

The effort behind this objective is to ensure treatment capacity is available and used effectively during wet weather. Maximizing the treatment capacity generally keeps the volume in the ISS minimized, which reduces the risk of causing combined sewer and sanitary sewer overflows

Strategies:

- Ensure treatment plants have adequate capacity for design flow.
- Ensure operational readiness of treatment process units in standby mode
- Use in-plant diversions from the Inline Storage System in accordance with the WPDES permit

Tactics:

- Construct, operate, and maintain treatment plant capacity improvement projects as determined in the District's Facilities Plan
- Complete hydraulic and process capacity evaluations of the water reclamation facilities
- Properly sequence maintenance and construction projects to minimize the impact to the capacity of unit processes
- Continue to periodically review and update wet weather operating procedures to reflect constructed capacity improvements or changes in operating procedures that impact treatment capacity
- .

Performance Measures:

- Volume of sanitary sewer overflows due to closure of the ISS separate sewer gates
- Volume of sanitary sewer overflows due to closure of the ISS separate sewer gates where the event generated flow is below the approved Level of Protection⁷
- Number of sanitary sewer overflow events due to closure of the ISS separate sewer gates
- Number of sanitary sewer overflow events due to closure of the ISS separate sewer gates where the event generated flow is below the approved Level of Protection

⁷ The method for determining the event generated flow for the approved Level of Protection will be developed after approval of the 2020 Facilities Plan.

ATTACHMENT 2 – CMOM MANAGEMENT PLAN OBJECTIVES

2.2.1.3.3 Treatment Objective 3*Objective:*

Continue to manage biosolids in a manner that maximizes beneficial reuse

This objective reflects the role of biosolids management in protecting the effective wastewater treatment capacity and providing for disposal of biosolids. The District has a long standing practice of generating biosolids reuse products at the two wastewater treatment plants. Since 1926, The District has produced Milorganite® at the Jones Island plant, which is used in many residential and commercial landscaping programs. Since 1975, the South Shore Plant has produced the Agri-Life product, which is hauled to area farms where it is injected into the soil. Strategies should deal with adequate capacity of the biosolids handling processes and the effectiveness of the biosolids reuse program. MMSD should continue to review the reuse program both on a short- and long-term basis in order to protect its long-term viability.

Strategies:

- Continue to ensure that adequate solids handling capacity exists at both the Jones Island and South Shore Water Reclamation Facilities such that effluent quality is not negatively affected.
- Continue to ensure that the contract operator is collecting all necessary characteristic data to maintain biosolids product quality.
- Closely monitor the beneficial biosolids reuse program in accord with WPDES requirements so that program effectiveness can be maintained.
- Continually review beneficial reuse options, on a near-term and long-term basis, in order to ensure a viable reuse program.

Tactics:

- Implement the biosolids recommendations of the 2020 Facilities Plan
- Monitor contract operator performance regarding biosolids production, quality and storage

Performance Measures:

- Percent of biosolids produced that are beneficially reused

2.2.1.3.4 Treatment Objective 4*Objective:*

Continue to establish and document levels of protection, design and performance standards for treatment plant assets.

The same AM strategic concepts discussed under Section 2.2.1.2.4 (conveyance) apply to the wastewater treatment assets.

Strategies:

- Review the 2020 Facilities Plan target Level of Protection for the Wastewater System and the impacts for the treatment plants (hydraulic and process capacities necessary to achieve the target Level of Protection)

ATTACHMENT 2 – CMOM MANAGEMENT PLAN OBJECTIVES

- Prepare the Asset Management Plan
- Audit the implementation of procedures established for asset creation in 2001 (Fixed Asset SOPs) and make corrections to the procedures, as necessary, to improve capture of critical asset information.
- Include requirements in O&M contract for capture of information necessary to make asset life-cycle decisions
- As a component of the AM Program, ensure asset management procedures identify the asset, its condition, and replacement schedule.
- Perform a business case analysis, as defined by the AM Program, on new capital projects and throughout the life of the project to ensure the project satisfies minimum standards for project objectives, relevant project data, development and evaluation of options including costs and benefits (tangible and intangible), project work plan and milestones, and financial and environmental issues.
- Implement the capacity improvement facilities identified in the 2020 facilities plan.

Tactics:

- See the Asset Management Plan

Performance Measures:

- Level of Protection defined (by the 2020 Facilities Plan) and approved by the WDNR for the Wastewater System
- Fixed Asset SOPs audited by December 31, 2008
- Fixed Asset SOPs updated by December 31, 2010
- Percent of treatment plant assets with defined condition and management method (condition based monitoring, economic based strategy, run to failure) documented in the Asset Information Management System
- Establish criteria and procedures for conducting Business Case Analysis on treatment plant projects by June 30, 2008
- Percent of Business Case Analyses completed where required by District procedures
- Facilities Plan implementation on schedule for treatment plant studies and projects

2.2.1.3.5 Treatment Objective 5*Objective:*

Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels.

The same AM strategic concepts discussed above in section 2.2.1.2.5 (conveyance) apply to the wastewater treatment plants.

Strategies:

- Determine the cost of asset ownership of each treatment process.

ATTACHMENT 2 – CMOM MANAGEMENT PLAN OBJECTIVES

- Determine an asset replacement schedule according to evaluation methods adopted by the AMT.
- Document and define District AM business practices.
- Benchmark current AM business practices.
- Identify areas of CMOM compliance supported by AM implementation.
- Prepare an Asset Management Plan
- Define an implementation process for AM.
- Estimate implementation costs for action items.
- Establish performance measures for implementation.

Tactics:

- See the Asset Management Plan

Performance Measures:

- Percent of Preventive Maintenance (PM) tasks completed
- O&M cost per Million Gallons per Day (MGD) treated
- Corrective Maintenance (CM) completion status
- Planned maintenance ratio⁸: cost
- Planned maintenance ratio: hours
- Planned maintenance ratio: count of work orders
- Number of open PM work orders older than 90 days (plant equipment)

2.2.1.4 Watercourse goal

The goal for the watercourse management service area, as developed by the District, in accordance with its mission and documented in the *CMOM Strategic Plan* is “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.”

To achieve the watercourse goal, the District has stated the following 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 (2.2.1.4.1)
2. Reduce the likelihood of new habitable structures being added to the District’s one-percent probability floodplain (2.2.1.4.2)
3. Establish and document level of protection, design, and performance standards for new assets in the watercourse system (2.2.1.4.3)
4. Minimize the cost of watercourse asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels (2.2.1.4.4)
5. Continue to be a leader in the effort to improve the area’s water quality (2.2.1.4.5)

⁸ Planned maintenance ratios indicate the amount of preventive and predictive maintenance to all maintenance, which includes corrective maintenance

ATTACHMENT 2 – CMOM MANAGEMENT PLAN OBJECTIVES

6. Provide information receipt, response activity, and feedback regarding customer inquiries on the watercourse systems (2.2.1.4.6)

Each of these objectives is discussed in further detail below. The discussion includes the strategies and tactics that will be employed to achieve the objectives, as well as the performance measures defined to gauge achievement of the objectives.

2.2.1.4.1 Watercourse Objective 1*Objective:*

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

This objective addresses meeting the District level for flood protection. Strategies to accomplish it will include updating watercourse system plans, implementing recommended projects, and measuring the effectiveness of the solutions.

Strategies:

- Undertake updates to the Watercourse Management Plans (7) on a scheduled basis.
- Design and construct solutions that provide watercourse conveyance and storage capacities to minimize the damage to habitable structures from the District's one-percent probability flood event.

Tactics:

- Identify all habitable structures in the one-percent probability floodplain area.
- Update the watercourse GIS to include the District's floodplain, habitable structures and other features associated with watercourse conveyance and storage capacity
- Complete Phase II Watercourse Management Plan studies
- Determine likely projects for removal or risk reduction of habitable structures
- Complete preliminary engineering studies of proposed removal and risk reduction projects
- Implement solutions to watercourse conveyance and storage capacity issues

Performance Measures:

- Number of habitable structures impacted by the District's one-percent probability flood⁹
- Annual number of habitable structures removed from the District's one-percent probability floodplain
- Percent of annual habitable structure removal goal achieved¹⁰

⁹ Impacted means low water entry into a habitable structure

¹⁰ The annual number of habitable structures removal goal is identified in the budget document published each year by the District

ATTACHMENT 2 – CMOM MANAGEMENT PLAN OBJECTIVES

2.2.1.4.2 Watercourse Objective 2*Objective:*

Reduce the likelihood of new habitable structures being added to the District's one-percent probability floodplain. The District adopted Chapter 13 of its Rules, the Surface Water and Storm Water rule, effective January 1, 2002. The rule is intended to mitigate the effects of new development and redevelopment on potential flooding. This objective is mainly addressed with Chapter 13 implementation, including the District's role in supporting and collaborating with municipalities as they work toward compliance.

Strategies:

- Continue to require watercourse designs to project out to future hydrologic conditions
- Continue to work with municipalities in ensuring new development and redevelopment meet the intent of Chapter 13 requirements.
- Continue to work with municipalities to ensure stormwater discharges to watercourses do not increase flood risk.
- Continue to acquire ownership or conservation easements on land identified as providing natural water quantity and quality benefits.
- Continue to promote and implement storm water best management practices that reduce runoff volumes and rates
- Continue the District's information and education campaign related to stormwater runoff reduction practices

Tactics:

- Review all stormwater management plans required to be submitted by the Chapter 13 rule
- Identify watersheds that have had a significant number of plans required by Chapter 13
- Consider additional investigation and analysis of watersheds with significant numbers of stormwater management plans
- Review local storm sewer construction plans
- Identify areas that are cost-effective to purchase or obtain easements on for providing natural storm water storage
- Investigate methods for ensuring development does not occur in the District-defined floodplain (may differ from the regulatory floodplain)
- Implement the Stormwater Best Management Practices Partnership Program
- Continue to promote stormwater runoff reduction practices¹¹ to developers, special interest groups, students, and the public

Performance Measures:

¹¹ Stormwater runoff reduction practices includes downspout disconnection, rain barrels, cisterns, rain gardens, green roofs, rooftop storage, green parking lots, stormwater trees, porous pavement, pavement storage, bioretention, onsite filtering, pocket wetlands, french drains and dry wells, infiltration sumps, and compost amendments

ATTACHMENT 2 – CMOM MANAGEMENT PLAN OBJECTIVES

- Percent of stormwater management plans reviewed within timeframe allowed
- Area of property protected/preserved through District ownership or conservation easements
- Number of stormwater runoff reduction projects with District financial participation
- Number of rain barrels sold by the District
- Number of presentations, by District personnel, that included information on stormwater runoff reduction practices

2.2.1.4.3 Watercourse Objective 3*Objective:*

Establish and document level of protection, design, and performance standards for new assets in the watercourse system.

The same AM strategic concepts discussed under Section 2.2.1.2.4 (conveyance) apply to the watercourse system.

Strategies:

- For each watercourse, determine the actual level of protection and establish what constraints exist for meeting the required level, if any.
- Audit the implementation of procedures established for asset creation in 2001 (Fixed Asset SOPs) and make corrections to the procedures, as necessary, to improve capture of critical asset information.
- Include requirements in O&M inspection procedures for capture of information necessary to make asset life-cycle decisions
- As a component of the AM Program, ensure asset management procedures identify the asset, its condition, and replacement schedule.
- Perform a business case analysis, as defined by the AM Program, on new capital projects and throughout the life of the project to ensure the project satisfies minimum standards for project objectives, relevant project data, development and evaluation of options including costs and benefits (tangible and intangible), project work plan and milestones, and financial and environmental issues.
- Update the GIS as watercourse construction projects are completed
- Implement the capacity improvement facilities identified in the Watercourse Management Plans (see Chapter 5 of this document for further information on the Watercourse Management Plans.)

Tactics:

- See the Asset Management Plan

Performance Measures:

- Level of Protection defined and accepted by Stakeholders (completed as of August 2000 with the completion of the Watercourse Management Plans)
- Fixed Asset SOPs audited by December 31, 2008
- Fixed Asset SOPs updated by December 31, 2010

ATTACHMENT 2 – CMOM MANAGEMENT PLAN OBJECTIVES

- Percent of watercourse assets with defined condition and management method (condition based monitoring, economic based strategy, run to failure)
- Establish criteria and procedures for conducting Business Case Analysis on watercourse projects by June 30, 2009
- Percent of Business Case Analyses completed where required by District procedures
- Linear feet of jurisdictional watercourse stream bank with a current condition assessment
- Number of jurisdictional watercourse construction project updates to the GIS
- Backlog of jurisdictional watercourse construction project updates to the GIS

2.2.1.4.4 Watercourse Objective 4*Objective:*

Minimize the cost of watercourse asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels

The same AM strategic concepts discussed under Section 2.2.1.2.5 (conveyance) apply to the watercourse system.

Strategies:

- Determine the cost of asset ownership of each watercourse project.
- Determine needed maintenance schedule according to evaluation methods adopted by the AMT.
- Document and define the MMSD AM business practices.
- Benchmark current AM business practices.
- Identify areas of CMOM compliance supported by AM implementation.
- Define an implementation process for AM
- Estimate implementation costs for action items.
- Establish performance measures for implementation.

Tactics:

- See the Asset Management Plan

Performance Measures:

- Percent of scheduled jurisdictional watercourse inspections completed
- Percent of scheduled culvert and structure inspections completed
- Jurisdictional watercourse O&M costs
- Jurisdictional watercourse O&M hours

2.2.1.4.5 Watercourse Objective 5*Objective:*

Continue to be a leader in the effort to improve the area's waterways

ATTACHMENT 2 – CMOM MANAGEMENT PLAN OBJECTIVES

This objective deals directly with the District's mission to improve the quality of the regional waterways. Strategies will address the topics of habitat improvement, water quality improvement, and runoff reduction.

Tactics:

- Continue to rehabilitate concrete channels along jurisdictional watercourses consistent with the District Mission Statement and Commission Policy.
- Reduce the pollutant loading in the watercourse by (1) utilizing best management practices at District construction jobs, (2) undertaking maintenance programs on jurisdictional streams, (3) working with local municipalities, SEWRPC, WDNR, and conservation groups on regional water pollution identification and erosion control issues.
- Encourage and promote stormwater runoff reduction practices.
- Continue to include habitat features and natural vegetation where possible on District capital projects.

Performance Measures:

- Percent of jurisdictional watercourse with non-concrete stream beds
- Number of presentations, by District personnel, that included information on stormwater runoff reduction practices

2.2.1.4.6 Watercourse Objective 6*Objective:*

Provide information receipt, response activity, and feedback regarding customer inquiries on the watercourse systems.

Strategy:

- Review all typical points of contact with District customers and ensure that questions, complaints and requests are handled quickly and appropriately.

Tactics:

- Review the procedures for recording and responding to customer inquiries (For the purpose of this objective, watercourse inquiries include calls received related to debris in a channel or flooding issues which are potentially critical issues. It does not include calls received related to vegetation management, graffiti or other non-critical issues.)
- Perform a review of customer complaint logs
- Prepare recommendations and implement procedures to maintain expected service response for customers
- Implement the use of the watercourse maintenance management system for tracking and responding to customer inquiries

Performance Measures:

Percent of documented inquiries with a documented response

ATTACHMENT 3 – CONSTRUCTED SANITARY SEWER OVERFLOW LOCATIONS

MMSD Site Number	WPDES Permit ID number	Location	Pump or Gravity	Current SCADA	Current Portable	Proposed SCADA	Notes
BS0101	220	S Howell Ave at E Grange Ave (ext'd)	Gravity	No	Yes	Yes	Installed portable meter on 3/15/06
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	Yes	
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	Yes	Portable meter in outfall pipe
BS0403	234	N Honey Creek Pkwy & W Portland Ave	Gravity	No	Yes	Yes	
BS0404	263	W Green Tree Rd & Milwaukee River	Gravity	Yes			
BS0501	230	N Richards St & E Congress St	Gravity	Yes			
BS0503	226	W Roosevelt Dr & N 35th St	Pump	Yes			
BS0504	214	W Hampton Ave & N Lydell Ave	Gravity	No	No	No	Manually activated gate
BS0505	223	W Villard Ave & N 27th St	Pump	Yes			
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	No	
BS0509	212	W Hampton Ave & N Green Bay Rd (west side)	Gravity	No	Yes	No	
BS0510	208	N 31st St (ext'd) & Lincoln Creek (north side)	Gravity	No	No	Yes	Site was abandoned with construction of Relief MIS in 2005
BS0511	207	N 31st St & W Fairmont Ave	Gravity	No	Yes	No	

ATTACHMENT 3 – CONSTRUCTED SANITARY SEWER OVERFLOW LOCATIONS

MMSD Site Number	WPDES Permit ID number	Location	Pump or Gravity	Current SCADA	Current Portable	Proposed SCADA	Notes
BS0512	244	N Lydell Ave & W Lancaster Ave	Gravity	No	No	No	Manually activated gate
BS0513	245	N Lydell Ave & W Montclair Ave	Gravity	Yes	Yes	No	MS0508, and portable meter in overflow pipe
BS0514	209	N 27th St & W Silver Spring Dr	Gravity	No	Yes	No	
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	Yes	Manholes modified as part of Northeast Side Flow Control Gates, level monitored at NS3 JC
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	Yes	Manholes modified as part of Northeast Side Flow Control Gates, level monitored at NS3 JC
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	No	
BS0604	224	S 1st St & W Layton Ave	Gravity	No	Yes	No	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 certain operating conditions of the District system, this site can act as a CSO
DC0402	262	N 59th St & W Trenton Pl	Gravity	Yes			
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
PS0402	264	Ravine Lift Station	Gravity	Yes			
N/A	205	W Roosevelt Dr & W Scranton Pl	Gravity	No	No	No	42 inch bypass pipe is currently bulkheaded; site is under evaluation

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	390	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	474	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	178 and 179 are one outfall
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	097	97	NS06	136	Yes	E Park Pl	
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
Milwaukee River	104	104	NS07	199/200A	Yes	N Holton 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	105	105/017	NS08	232	No	E Brady St	
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	
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	
Milwaukee River	124	124	NS09	221	Yes	N of W Wisconsin Ave	

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	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 Pl	
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 5– SATELLITE MUNICIPALITY PHONE LIST

Municipality	Business Hours	After hours / weekends
Bayside	414-351-8811	414-351-8811
Brookfield	262-782-0199	262-782-0199
Brown Deer	414-357-0120	414-371-2900
Butler	262-783-2525	262-783-2525
Caledonia	262-835-7765	262-835-4423
Cudahy	414-769-2216	414-769-2260
Elm Grove	262-782-6700	262-786-4141
Fox Point	414-351-8900	414-351-8914
Franklin	414-421-2613	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	414-761-5374	414-761-5300
Hales Corners	414-529-6161	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 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/debris in the river	Urgent	Dave Fowler (District) (Backup is Urbain Boudjou)	277-6368 (Backup 225-2159)
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
Construction site complaint	Non-emergency	Tom Zimmerman (District)	225-2147

Note: All phone numbers are (414)