

## 2.1 Management Plan Development

The Milwaukee Metropolitan Sewerage District (MMSD or District) has prepared this Management Plan in response to a stipulation agreement (Stipulation) (1) entered into between the District and the State of Wisconsin in May of 2002. The Management Plan describes the means and methods that the District has in place to ensure complete execution of the Capacity, Management, Operations and Maintenance (CMOM) program.

CMOM principles were proposed by the United States Environmental Protection Agency (USEPA) as a part of the draft Sanitary Sewer Overflow (SSO) rule (2) that was subsequently withdrawn. The withdrawn SSO rule, although never formally adopted, was considered, in the absence of other guidance, in the development of the District CMOM Program.

This Management Plan is a further development of the Management Plan Strategy that was documented in the *MMSD CMOM Readiness Review and Implementation Strategy Development (CMOM Strategic Plan)* (3) completed in December 2005. There are many items that were identified during the readiness review and strategy development and documented in the *CMOM Strategic Plan* that have been partially or completely addressed as of the completion of this document. These items are still included to provide background information and continuity to the evolution of the Management Plan from readiness review to strategy development to final plan. In addition, the strategies, tactics and performance measures described in this Management Plan will be subject to change and refinement as the District continues implementing and gains experience with the CMOM Program.

The Stipulation requirements, withdrawn SSO rule and District goals related to CMOM are discussed below.

### 2.1.1 Stipulation Requirements

The Wisconsin Department of Natural Resources (WDNR) has outlined certain requirements for the District CMOM program within the Stipulation. WDNR is also incorporating CMOM program requirements in its rules and in Wisconsin Pollutant Discharge Elimination System (WPDES) permits. The District CMOM Program has been developed to comply with the Stipulation requirements, but will also comply with the permit requirements.

The Stipulation states in item 7;

“7. While sanitary sewer overflows in the District’s system have been significantly reduced, there are still sanitary sewer overflows within the District’s and its satellite municipalities’ sanitary sewer systems. To continue the District’s program to reduce with the goal of eliminating all non-permitted sanitary sewer overflows, the District shall implement the regional Capacity, Management, Operation and Maintenance (CMOM) program. The regional CMOM shall be comprised of four integrated components:”

The first component listed is:

“A. *Management Plan.* A plan that outlines the goals of the CMOM, the organizational structure to manage it, the legal authority to control infiltration and inflow (I/I), design criteria, benchmarking data, and performance measures to attain the goals. A significant effort associated with the Management Plan shall be the development of an asset management (AM) program that provides for both programmed maintenance and tracking of the asset condition to enable early recognition of expansions or major rehabilitation necessary to avoid capacity limitations.”

This description written into the Stipulation spells out in detail what must be in the District’s CMOM Management Plan.

### **2.1.2 Principles from Withdrawn SSO Rule**

The USEPA proposed the draft SSO rule in 2001. Although the draft SSO rule was later withdrawn and never promulgated, in the absence of other guidance, the District has considered this withdrawn rule in developing its CMOM Program. Within this withdrawn rule, there were five general principles described that indicate CMOM compliance for a wastewater utility. The following is the text from § 122.42 (e) (1) of the withdrawn SSO Rule:

“General Standards. You, the permittee, must:

- i. Properly manage, operate, and maintain, at all times, all parts of the collection system that you own or over which you have operational control;
- ii. Provide adequate capacity to convey base flows and peak flows for all parts of the collection system you own or over which you have operational control;
- iii. Take all feasible steps to stop, and mitigate the impact of, sanitary sewer overflows in portions of the collection system you own or over which you have operational control;
- iv. Provide notification to parties with a reasonable potential for exposure to pollutants associated with the overflow event; and
- v. Develop a written summary of your CMOM Program and make it, and the audit under paragraph (e) (2) (ix) of this section, available to any member of the public upon request.”

These five principles outline the purpose of a CMOM program and its impacts to the community.

### **2.1.3 District-specific goals**

The District operates according to its mission statement (shown below). The District develops 3-year strategic plans that outline goals and strategies for the entire organization that contribute to achieving its mission. The goals of the 2007-2009 Strategic Plan (4) are shown below. All programs that are developed by the District are geared towards contributing to the mission, which includes the CMOM Program.

**District Mission Statement**

*To cost-effectively protect public health and the environment, prevent pollution and enhance the quality of area waterways.*

**District Strategic Plan Objectives (from 2007-2009 Strategic Plan)**

*Continue to provide District services to improve water quality, protect the environment, public health, and property.*

*Maintain the District's contribution to a competitive regional economy, consistent with its role in environmental protection.*

*Continue to provide leadership in educating the public to understand the various causes and impacts of water pollution.*

From the District's organizational mission statement and strategic plan objectives, the following three criteria were established as guidance for the creation of the CMOM program.

1. Establish an overall CMOM mission statement that encompasses a desired program outcome for all three service areas: wastewater collection, conveyance and storage, wastewater treatment, and watercourse management.
2. Establish individual CMOM Program goal statements for wastewater collection, conveyance and storage, wastewater treatment, and watercourse management. Separating the goals for each service area will allow the District to state focused objectives and define performance measures.
3. Establish a set of objectives supporting the CMOM goal for each service area. MMSD must develop strategies and performance measures that support the objectives.

**2.1.4 Components of the Management Plan**

The components of the Management Plan are derived from the Stipulation and the withdrawn USEPA guidance and are the following:

- District CMOM goals and objectives (2.2.1)
- Organizational Structure to manage the CMOM program (2.2.2)
- Legal authority to control I/I (2.2.3)
- Design criteria (2.2.4)
- Benchmarking data (2.2.5)
- Performance measures (2.2.6)
- Reporting methods for CMOM compliance reviews (2.2.7)
- Management Plan Updates (2.2.8)

The Management Plan serves to outline and document the District CMOM Program, which will satisfy the Stipulation language and other District goals.

## 2.2 The CMOM Management Plan

The Management Plan is the guiding document of the District CMOM Program. The first and most important items included in the Management Plan are the District goals (2.2.1). All other standards, rules and activities that are defined in the Management Plan and the other plans of the CMOM Program are supporting the achievement of the goals.

Also included in the Management Plan are: the District's organizational structure (2.2.2), which includes a CMOM program manager; the District's Rules that are in place to manage infiltration and inflow (I/I) (2.2.3); design criteria for sewers (2.2.4); the benchmarks that the District will use to compare itself to other agencies (2.2.5); the internal performance measures that the District will use to gauge effectiveness of its programs (2.2.6); reporting methods for CMOM compliance (2.2.7); and Management Plan Updates (2.2.8).

Each of these activities is fully described in the sections that follow.

### 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)

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 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 Index<sup>1</sup>
- 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.

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

*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 Team<sup>2</sup> (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.
- 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

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<sup>2</sup> The Technical Advisory Team consists of District, SEWRPC, WDNR and satellite system representatives

*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)
- Cost to date on CMOM activities

**2.2.1.1.3 Overall Objective 3***Objective:*

Continue to maintain adequate financial planning

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 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)
- Number of sanitary sewage overflows occurring more frequently than the WDNR approved Level of Protection
- Percent of overflow 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.

- 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
- Percent of sewer plans reviewed by the District within deadlines established by District Rules
- District sewer construction QA Program defined and documented by June 30, 2008
- Percent of 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 Rate<sup>3</sup>

### 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:

1. Establish CMOM program elements specific to minimizing the number and volume of CSOs (2.2.1.2.1)
2. Modify District Rules to address peak wet weather flows from satellite systems that impact District system operation (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.

<sup>3</sup> Benchmark – see section 2.2.5 for further information

*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.
- Ensure the Nine Minimum Controls are being implemented as documented.
- 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 dry weather CSOs
- Number of wet weather CSOs
- Ratio of event unused volume of the Inline Storage System (ISS) to event wet weather CSO volume

**2.2.1.2.2 Conveyance Objective 2***Objective:*

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

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) 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 June 30, 2009
- Percent of sewersheds exceeding the Maximum Allowable Infiltration and Inflow Rate, as defined by District Rules, Chapter 3 (see section 2.2.3.3 below)

**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.
- Develop a CMOM ORP that identifies critical facilities, details response procedures, and provides a system for updating the ORP

*Tactics:*

- Prepare a list of critical conveyance facilities
- Review standard operating procedures (SOPs) (District and contract operator's) regarding critical facilities
- 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 at critical facilities
- 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 VRSSI<sup>4</sup> predictions, post-event, for events that result in a CSO and/or SSO

*Performance Measures:*

- Number of dry weather SSOs

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<sup>4</sup> 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.

- 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 wet weather building backups caused by District facility capacity or function
- 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

#### 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
- 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)
- Document requirements and procedures for conducting Business Case Analysis (BCA) on conveyance projects by June 30, 2008
- 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 integrity<sup>5</sup>
- Preventive Maintenance (PM) backlog (sewers)
- PM backlog (conveyance equipment and pump stations)
- Planned maintenance ratio (preventive (PM) and predictive (PdM) maintenance vs all maintenance): hours (total for all conveyance facilities)
- Planned maintenance ratio (PM and PdM vs all maintenance): costs (total for all conveyance facilities)

**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 June 30, 2009
- Percent of portable flow monitors repaired within 5 business days after reporting problems (unless problem requires replacement of equipment)
- Percent of monitoring sites with less than one month of missing or bad data
- Percent of monitoring sites calibrated [check and adjustment as necessary] annually

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<sup>5</sup> Conveyance system integrity is also a benchmark, see section 2.2.5 for further information

- Percent of rain gauges calibrated annually
- Percent of data reviewed for QA within 30 days

### 2.2.1.2.7 Conveyance Objective 7

*Objective:*

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 inquiry documentation completed

### 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 minimize process diversion events, consistent with the discharge permit (2.2.1.3.1)
2. Continue to optimize effectiveness of wet weather treatment capacity (2.2.1.3.2)
3. Continue to provide effluent quality that meets or exceeds WPDES permit requirements and effluent quality goals (2.2.1.3.3)
4. Continue to manage bio-solids in a manner that maximizes wastewater treatment and provides beneficial reuse of the bio-solids (2.2.1.3.4)
5. Continue to document level of protection, design and performance standards for new treatment plant assets (2.2.1.3.5)
6. Minimize the cost of wastewater treatment asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels (2.2.1.3.6)

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.

### 2.2.1.3.1 Treatment Objective 1

#### *Objective:*

Continue to minimize process diversion events, consistent with the discharge permit.

#### *Strategies:*

- Upon completion of process improvements that impact capacity at either the Jones Island wastewater treatment plant (JIWWTP) or the South Shore wastewater treatment plant (SSWWTP), complete hydraulic and/or process capacity calculations to update the stated capacity of the treatment plant unit processes.
- Maintain periodic review and update as necessary the comprehensive wet weather flow operating plan for the JIWWTP and SSWWTP. The District will update this plan as necessary to reflect the operating plan for the conveyance system.

#### *Tactics:*

- Review the wet weather strategy documents<sup>6</sup> (Appendix 2-1) to ensure the conveyance and treatment strategies are synchronized
- Investigate avenues for completing treatment process and hydraulic capacity calculations as projects are completed, maintained and refurbished
- Continue to require contract operator to implement training and skills requirements for process operators and supervisors for all shifts at both plants.

#### *Performance Measures:*

- Percent of plant influent flow volume receiving secondary treatment
- Number of in-plant diversions
- Number of in-plant diversions during conditions not consistent with permit requirements

<sup>6</sup> Wet weather strategy documents consists of Deep Tunnel Gate Operation, Excess Flow Decision Tree, JIWWTP Wet Weather Strategy, SOPs for High Flow Procedure at JIWWTP (Primary Area), SOPs for High Flow Procedure at JIWWTP (Secondary Area), Checklist for High Flow Operations South Shore Primary Operators, Checklist for High Flow Operations South Shore Secondary Operators

### 2.2.1.3.2 Treatment Objective 2

*Objective:*

Continue to optimize effectiveness of wet weather treatment capacity.

This objective is closely tied with the previous objective. The District has made recent capital investments and operational changes that should increase wet weather treatment capacity at both plants (J02001: JI Wet Weather Capacity Improvement and S02003: SS Wet Weather Capacity Improvement). The strategies involved will deal with maximizing treatment capacity available to operations staff for managing wet weather flows.

*Strategies:*

- Define this strategy according to the wet weather strategies mentioned above.
- According to recommendations of the current facilities plan, construct, operate, and maintain in operational readiness new wet weather flow treatment facilities.
- Ensure operational readiness of treatment process units in standby mode

*Tactics:*

- Continue to evaluate methods for estimating the necessary VRSSI during wet weather events.
- Continue to evaluate the RTC system to assist in prediction of the necessary VRSSI for each wet weather event.
- For each overflow event where tunnel capacity or treatment capacity was available at the time of overflow, analyze how to improve decision making for future events.

*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 Protection<sup>7</sup>
- 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

### 2.2.1.3.3 Treatment Objective 3

*Objective:*

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

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

This objective is critical to satisfying the wastewater treatment CMOM goal statement. The District has a long track record for producing effluent quality beyond the requirements of its WPDES permit. Both the Jones Island and South Shore treatment plants have not violated discharge permit effluent requirements for the period of 1998 through 2006. Supporting strategies for this objective should address the operational readiness of treatment processes and the operational data needed to determine the state or capacity of all treatment processes that affect effluent quality.

*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.

*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 Award<sup>8</sup>
- 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

#### **2.2.1.3.4 Treatment Objective 4**

*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<sup>®</sup> 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

<sup>8</sup> 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.

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 JIWWTP and SSWWTP 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

### **2.2.1.3.5 Treatment Objective 5**

*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)
- 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
- Percent of treatment plant assets with defined condition and management method (condition based monitoring, economic based strategy, run to failure)
- Document requirements 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

### **2.2.1.3.6 Treatment Objective 6**

*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.
- 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 ratio<sup>9</sup>: cost
- Planned maintenance ratio: hours

**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 protect or remove habitable structures from flooding associated with the one-percent probability flood event (2.2.1.4.1)
2. Ensure that new development and redevelopment do not result in habitable structures being added to the one-percent floodplain or diminish the protection provided by the District’s watercourse projects (2.2.1.4.2)
3. Provide efficient coordination for system-wide watercourse maintenance (2.2.1.4.3)
4. Establish and document level of protection, design, and performance standards for new assets in the watercourse system (2.2.1.4.4)
5. Minimize the cost of watercourse asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels (2.2.1.4.5)
6. Continue to be a leader in the effort to improve the area’s water quality (2.2.1.4.6)
7. Provide information receipt, response activity, and feedback regarding customer inquiries on the watercourse systems (2.2.1.4.7)

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 habitable structures from flooding associated with the one-percent probability flood event

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<sup>9</sup> Planned maintenance ratios indicate the amount of preventive and predictive maintenance to all maintenance, which includes corrective maintenance

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.
- Develop and implement design and construction of solutions that ensure watercourse conveyance and storage capacities will minimize the damage from the one-percent probability flood event.

*Tactics:*

- Identify all habitable structures in the one-percent probability floodplain area.
- Update the watercourse GIS to include District 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/protection
- Complete preliminary engineering studies of proposed removal and protection projects
- Implement solutions to watercourse conveyance and storage capacity issues

*Performance Measures:*

- Number of habitable structures impacted by the one-percent probability flood
- Watercourse Management Plan implementation is on schedule<sup>10</sup>

## 2.2.1.4.2 Watercourse Objective 2

*Objective:*

Ensure that new development and redevelopment do not result in structures being added to the one-percent floodplain or diminish the protection provided by the District's watercourse projects

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 addresses the topic of Chapter 13 compliance, including the District's role in supporting and collaborating with municipalities as they work toward compliance.

*Strategies:*

- 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 discharges to watercourses do not increase flood risk.

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<sup>10</sup> Watercourse Management Plan project implementation has a goal of removing 95% of habitable structures from the District's floodplain by 2009. If implementation is on target to meet that goal, it is considered to be on schedule.

- Continue to acquire ownership or conservation easements on land identified as providing natural water quantity and quality benefits.

*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)
- Continue to promote Low Impact Development (LID)

*Performance Measures:*

- Percent of stormwater management plans reviewed within timeframe allowed
- Area of property protected/preserved through District ownership or conservation easements

### **2.2.1.4.3 Watercourse Objective 3**

*Objective:*

Provide efficient coordination for system-wide watercourse maintenance

A significant amount of watercourse capital construction has occurred in recent years, and initially much of the asset maintenance is included in the contract to the respective construction firm. Eventually, the District will need to take over these maintenance responsibilities or communicate the maintenance responsibilities to riparian owners. This maintenance is critical to protecting the constructed flood protection level. It will also be important for the District to employ these maintenance practices on all jurisdictional streams in order to preserve their ability to convey flood flows and be a surface water resource to area residents.

*Strategies:*

- Continue inspection and maintenance of the watercourse systems

*Tactics:*

- Inspect jurisdictional watercourses and constructed capital projects at prescribed schedules.
- Work with riparian owners to ensure necessary activities are undertaken by the appropriate party.
- Ensure maintenance of constructed projects to achieve defined level of protection.
- Ensure maintenance of jurisdictional streams provides necessary conveyance and storage.

*Performance Measures:*

- Completeness of watercourse stream bank ownership in GIS database
- Percent of riparian owners aware of maintenance responsibilities when an issue has been identified
- Percent of riparian owners completing maintenance responsibilities after receiving District communication

**2.2.1.4.4 Watercourse Objective 4***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
- Percent of watercourse assets with defined condition and management method (condition based monitoring, economic based strategy, run to failure)

- Document requirements and procedures for conducting Business Case Analysis on watercourse projects by June 30, 2008
- Percent of Business Case Analyses completed where required by District procedures
- Linear feet of watercourse stream bank with a current condition assessment
- Number of watercourse construction project updates to the GIS
- Backlog of watercourse construction project updates to the GIS

#### 2.2.1.4.5 Watercourse Objective 5

*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 watercourse inspections completed
- Percent of scheduled culvert and structure inspections completed
- Watercourse O&M costs
- Watercourse O&M hours

#### 2.2.1.4.6 Watercourse Objective 6

*Objective:*

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

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, pollution control, and runoff reduction.

*Tactics:*

- Continue to remove concrete channels 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 low impact development techniques.
- Continue to include habitat features and natural vegetation where possible on District capital projects.

*Performance Measures:*

- Percent of jurisdictional watercourse with natural stream beds
- Percent of jurisdictional watercourse with habitat features and natural vegetation

**2.2.1.4.7 Watercourse Objective 7***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

*Performance Measures:*

- Percent of inquiry documentation completed

### **2.2.2 Organizational Structure to Manage the CMOM Program**

This second section of the Management Plan includes an organizational chart and a description of the organizational requirements necessary for implementing the District CMOM program.

The District organizational chart is shown in Figure 2-1. The two divisions that have primary involvement in implementing the CMOM Program are the Technical Services Division and the Water Quality Protection Team, both of which fall under the Executive Director's authority. Although the Executive Director is not involved in the daily aspects of implementing the CMOM Program, it is through his direction that it is being implemented. Therefore, the activities that will take place are all under his authority. In the Technical Services Division, the Planning & Business Administration area contains the CMOM Program Manager, the person responsible for day to day execution of the tactics discussed above. The job description for the District CMOM Program Manager is included as Appendix 2-2.

### Milwaukee Metropolitan Sewerage District Organizational Chart

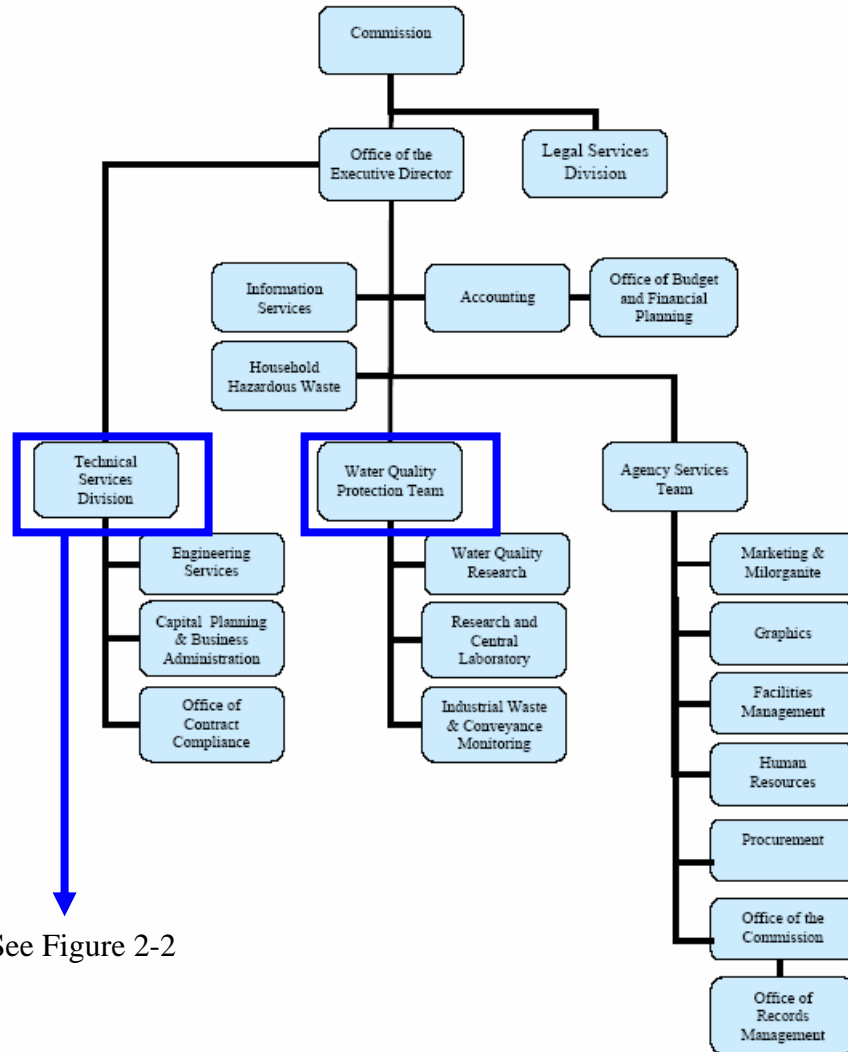


Figure 2-1: District Organizational Chart

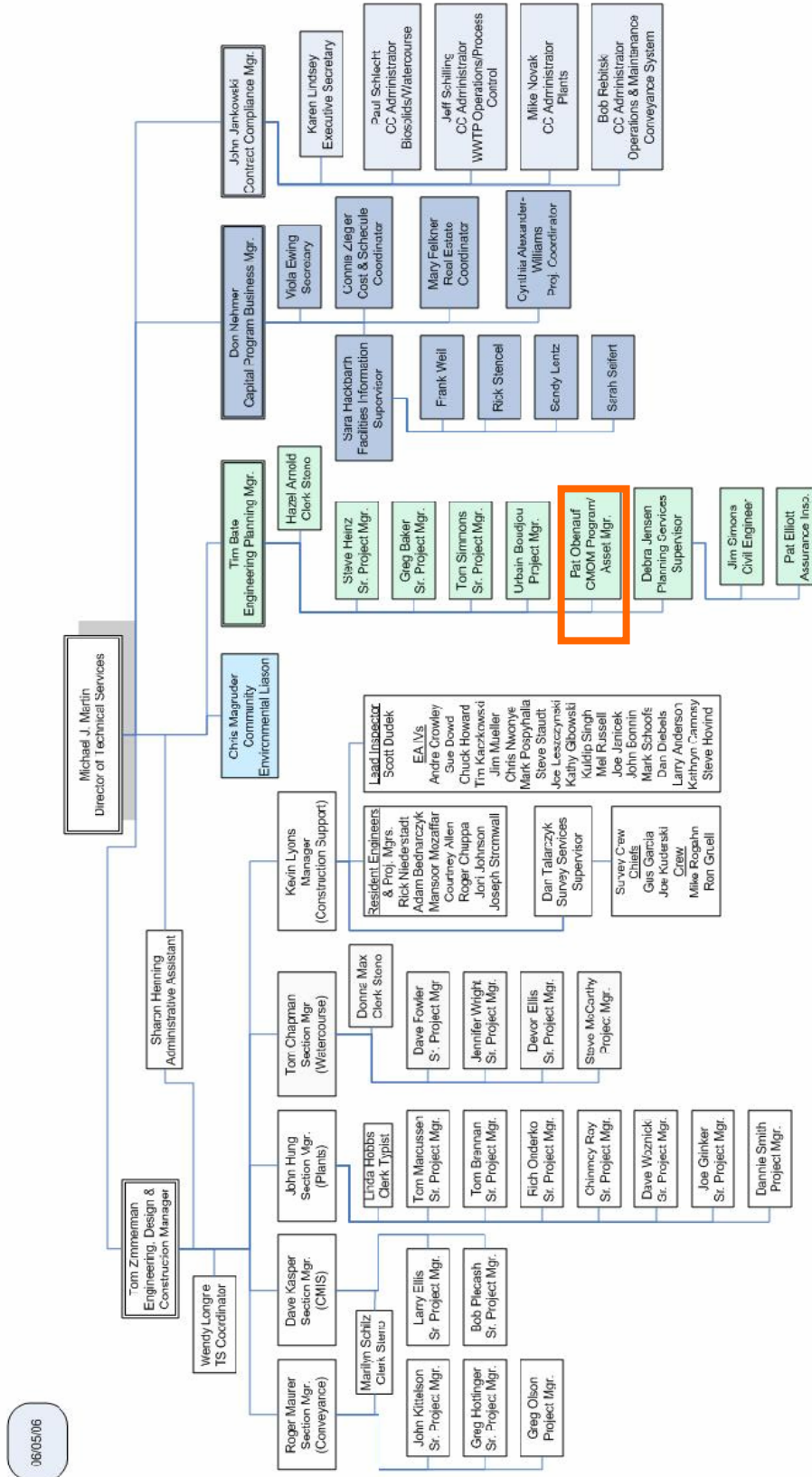


Figure 2-2: Technical Services Division Organizational Chart

### **2.2.3 Legal Authority to Control Infiltration and Inflow (I/I)**

This third section of the Management Plan describes the legal authority that the District has for defining allowable amounts of infiltration and inflow (I/I) into the District owned Metropolitan Interceptor Sewer (MIS) system.

The District has Rules and Regulations (Rules) that must be followed by any person, including governmental units, that discharges wastewater into the MIS system. Infiltration and inflow is addressed in various sections of the Rules.

I/I is addressed first through design requirements as specified in the Rules, section 2.405 and section 2.501. I/I is also addressed by standards, inspection and testing for construction of sewers and manholes in the Rules, Chapter 2, sections 2.501, 2.304, and 2.305, respectively. Each of these sections of the Rules is discussed below. The entire text of District Rules, Chapter 2 is included in Appendix 2-3.

Chapter 3 of the Rules has recently been revised and was adopted by the District Commission on May 21, 2007, with an effective date of May 27, 2007. The revisions incorporate standards for identifying those sewersheds that have excessive I/I, the process for control of excessive I/I, and the CMOM requirements for local municipalities. The entire text of District Rules, Chapter 3 is included in Appendix 2-4.

The entire set of District Rules is available online at <http://www.mmsd.com/rules/index.cfm>.

#### **2.2.3.1 Design requirements related to I/I Control**

Section 2.405 of the Rules addresses inflow sources through connection controls.

##### **2.405 Inflow Prevention**

1. No person or governmental unit may directly connect a new sewer or system of sewers to a District facility if the connecting sewer would contain wastewater prohibited by Sec. 3.202, MMSD Rules.
2. No person or governmental unit may directly connect a new sewer or system of sewers to a District facility if the governmental unit where the connection would be located has not adopted an inflow prevention ordinance as required by Sec. 3.203, MMSD Rules.
3. The District may require the disconnection of any existing sewer or system of sewers if the District determines that the governmental unit where the connection is located has an inadequate inflow prevention ordinance or has failed to effectively enforce its inflow prevention ordinance.
4. New permanent connections of local sewer bypasses to District facilities are prohibited except when a governmental unit has implemented all infiltration and inflow reduction measures recommended by the District's most recent *Facilities Plan* in the basin to be served by the bypass and the governmental unit demonstrates that the bypass continues to be necessary.

Section 2.501 of the Rules addresses infiltration as follows:

3. Sewers shall be designed to exclude infiltration to the maximum extent practicable and to exclude inflow as required by Chapter 3, MMSD Rules

### **2.2.3.2 Construction requirements related to I/I Control**

Sections 2.305 (1) and (2) and section 2.501 (2) of the Rules refers to The Standard Specifications for Sewer and Water Construction in Wisconsin (STANDARD SPECIFICATIONS) (8) for details on construction and testing specifications as follows:

#### 2.305 Sewer and Manhole Testing

1. For any sewer other than a relay sewer, passing a leakage test is required before any lateral sewer is connected. This leakage test shall conform to the requirements of The Standard Specifications for Sewer and Water Construction in Wisconsin, as amended at the time of the test.
2. For all new manholes, passing a vacuum test is required before the commencement of use. At a minimum, this vacuum test shall conform to the requirements of either The Standard Specifications for Sewer and Water Construction in Wisconsin, as amended at the time of the test, or standards established by the District, whichever are more restrictive.

#### 2.501 General

2. Specifications for sewers and ancillary facilities shall be based upon The Standard Specifications for Sewer and Water Construction in Wisconsin or other standards that provide an equivalent or better level of service and environmental protection.

The STANDARD SPECIFICATIONS includes specifications for construction of pipe joints (3.2.10), manholes, including frame to chimney seals (3.5.4), and pipe to manhole connections (3.5.7). There are also specifications for testing, including an infiltration test (3.7.2), an air test (3.7.3), and an exfiltration test (3.7.4) for sewers and a chimney inflow test (3.7.5) and a vacuum test (3.7.6) for manholes. These sections of the STANDARD SPECIFICATIONS are included as Appendix 2-5.

Section 2.304 of the Rules addresses inspection requirements for sewer construction.

#### 2.304 Inspections

1. During construction, governmental units shall inspect every sewer or ancillary facility listed in Sec. 2.201(2) [sanitary sewer extensions, sanitary relay sewers, sanitary relief sewers, combined relay sewers, combined relief sewers, sewage lift stations and force mains, private interceptor main sewers] of this chapter, except as provided in Sub. (9) [9 below]. Governmental units shall ensure that inspectors have sufficient qualifications and use effective inspection procedures and record-keeping forms.
2. The purpose of inspections shall be to determine whether the plans and specifications approved by the District have been followed during construction and to ensure that a sewer or ancillary facility, as constructed, excludes infiltration and inflow to the maximum extent practicable.

3. The inspector shall observe whether the sewer or ancillary facility complies with the applicable infiltration and inflow minimization provisions of:
  - a. The District's rules, and
  - b. The local sewer system and construction plans, as approved by the District.
4. If the sewer or ancillary facility fails to comply with this chapter, then the inspector shall require immediate reconstruction or modification to achieve compliance.
5. The inspector shall be present during all in-ground placement or assembly of the sewer or ancillary facility.
6. The inspector shall record observations on a form provided by the District or a substantially similar form. The inspector may record observations electronically. These observations shall describe the conditions relevant to determining whether the observed activity complies with the requirements of Sub. (2) [2 above]. At the conclusion of the inspection, the inspector shall sign the following certification:

*I certify that the information recorded here is true, accurate and complete and based upon my personal observations. To the best of my knowledge, the sewers and ancillary facilities I have inspected comply with all currently applicable infiltration and inflow minimization requirements.*
7. a. Governmental units shall maintain inspection records for at least five years from the date of the completion of construction.
  - b. Governmental units shall allow the District to review and copy these records at no charge to the District.
8. If the District finds that a governmental unit's inspection program is ineffective and if the District has notified the government unit of the District's findings, then the District may hold in abeyance its review of local sewer system plans, construction plans, or any other District action related to sewer construction in the governmental unit.
9. a. The District shall perform inspections instead of a governmental unit if the District has determined that a governmental unit has an ineffective inspection program or if an intergovernmental cooperation agreement provides for District inspections. If the District performs these inspections, then the governmental unit shall reimburse all of the District's costs.
  - b. An intergovernmental cooperation agreement may increase the scope of District inspections to include subjects beyond the subjects listed in Sub. (2). Potential subjects include, but are not limited to, construction management, engineering services, or surveying services. An intergovernmental cooperation agreement established according to this subsection shall require the governmental unit to reimburse all of the District's costs.
10. Any person or governmental unit constructing a sewer or ancillary facility subject to this chapter shall allow the District to inspect the sewer or ancillary facility during construction.

11. Inspections of private interceptor main sewers shall be equivalent to inspections of other similar facilities, with the inspector being present during all in-ground placement or assembly.

### **2.2.3.3 Investigation and Reduction requirements related to I/I**

The title of District Rules, Chapter 3 is “Management, Operation, and Maintenance of Tributary Sewers.” The purpose of the Chapter is stated in 3.101:

The purpose of this chapter is to ensure that all sewers tributary to the District’s sewerage system, including public sewers, private interceptor main sewers, and building sewers, are managed, operated, and maintained to:

- (1) maximize the efficiency and effectiveness of the District’s conveyance and treatment facilities;
- (2) minimize the probability, duration, and magnitude of overflows; and
- (3) reduce the exposure of the public to pathogens carried by wastewater.

Chapter 3 of the District Rules addresses I/I by:

1. Prohibiting the connection of clear water drains to sanitary sewers except foundation drains constructed prior to 1954 (District Rules, Chapter 3, sections 3.107 and 3.108)
2. Requiring manholes that are in the 100-year floodplain or are submerged for significant periods to have solid, non-vented covers and be sealed to effectively prevent infiltration (District Rules, Chapter 3, section 3.112)
3. Prohibiting the opening of sanitary manholes submerged in flooded areas (District Rules, Chapter 3, section 3.113)
4. Specifying maximum allowable I/I rates for sewersheds (District Rules, Chapter 3, section 3.201)
5. Requiring peak flow rate reduction if I/I rates exceed the maximum allowable (District Rules, Chapter 3, section 3.202)
6. Requiring all governmental units that discharge to District sewers to:
  - a. Have a CMOM program (District Rules, Chapter 3, section 3.105) that includes an I/I management plan
  - b. Have ordinances prohibiting the connection of clear water drains to sanitary sewers (District Rules, Chapter 3, section 3.109)
  - c. Perform inspections if it is suspected that prohibited connections are causing excessive I/I in an area (District Rules, Chapter 3, section 3.110)
  - d. Require remedial actions, and have enforcement mechanisms in place, to correct identified prohibited connections (District Rules, Chapter 3, section 3.111)
  - e. Prepare an annual report detailing the actions taken to control and reduce I/I in the previous year (District Rules, Chapter 3, section 3.301)

The entire text of District Rules, Chapter 3 is included in Appendix 2-4.

## **2.2.4 Design Criteria**

This fourth section of the management plan describes sewer design criteria in effect in the District service area.

District Rules, Chapter 2, sections 2.501 through 2.504 list requirements for designing sanitary sewers, combined sewers, private sanitary mains and manholes. Additional rules regarding design that are referenced and must be followed are the WDNR Administrative Code Chapter NR 110, Wisconsin Department of Commerce Administrative Code Chapter COMM 82, and the STANDARD SPECIFICATIONS.

### **2.2.4.1 Sanitary sewers**

District Rules, Chapter 2, Sections 2.501 and 2.502, state the requirements for design of sanitary sewers. In general, NR 110 is used as the standard, with additional MMSD requirements for determining flows and including drops where the sewer has an angle of divergence. Examples of the requirements included in NR 110 are for; 1) Sewers- required capacity, minimum size, depth, minimum slope, alignment, backfill, and testing; 2) Manholes- location, spacing, drop connections, size, materials, and water tightness; 3) Siphons- number of barrels, minimum size, and minimum velocity; 4) Construction- materials, quality, labeling, material types, non-pressure pipe and joint minimum standards, pressure pipe and joints minimum standards. The full text of sections 2.501 and 2.502 is included in Appendix 2-3. The full text of WDNR Chapter NR 110 is included as Appendix 2-6.

### **2.2.4.2 Combined sewers**

Chapter 2, sections 2.501 and 2.503, of the District's Rules state the requirements for design of combined sewers. The requirements of NR 110 also apply to combined sewers, except that the determination of required capacity is not specified. Since the required capacity for combined sewer design is based on storm sewer sizing, the required capacity is left up to the municipality owning the sewer. District Rules also include requirements for storm drainage structures connected to combined sewers. The full text of sections 2.501 and 2.503 is included in Appendix 2-3. The full text of WDNR Chapter NR 110 is included as Appendix 2-6.

### **2.2.4.3 Private Main sewers**

Chapter 2, section 2.501, of the District's Rules states that design of private main sewers must conform to section 2.504, which has the requirements for manholes, as discussed below. The design requirements listed in NR 110.13 apply to private sanitary main sewers as well as public sanitary main sewers. In addition, private sanitary mains must be approved by the Wisconsin Department of Commerce prior to District review and approval, per section 2.213 of the Rules. The full text of section 2.501 and 2.213 is included in Appendix 2-3. The full text of WDNR Chapter NR 110 is included as Appendix 2-6.

#### **2.2.4.4 Manholes**

Chapter 2, section 2.504 of the District's Rules states the requirements for manholes, in addition to the requirements of NR 110, discussed above. District Rules address the diameter of drops in drop manholes, the flow channel, manholes within the 100-year flood plain, the frame to chimney joint, and lids. The full text of section 2.504 is included in Appendix 2-3.

## 2.2.5 Benchmarking Data

This fifth section of the Management Plan describes the measures the District will use to compare and improve its performance relative to other agencies. The measures that will be used for benchmarking are also listed above as performance measures. The performance measures that are also benchmarks are indicated with an asterisk in section 2.2.6 (Performance Measures.)

A review of existing data sources was completed to determine what existing benchmarks are and what data is necessary for the District to use these benchmarks. There were four sources of information for which information was available and was reviewed for determining benchmarks. The four sources are Qualserve (USA), Water Services Association of Australia (Australia), National Benchmarking Initiative (Canada), and the National Association of Clean Water Agencies (USA.)

Comments on a review of the benchmarks available from each source are as follows:

- 1) **Qualserve**. This organization is the result of collaboration between the Water Environment Federation (WEF) and the American Water Works Association (AWWA). They have completed several annual performance surveys and have compiled the statistics into a report titled *Benchmarking Performance Indicators for Water and Wastewater Utilities* (9). These performance measures are in a form that is ready for comparison with many District measures.
- 2) **Water Services Association of Australia** [National Performance Framework.] Due to the differences in levels of service/levels of protection, these performance measures would be difficult to use.
- 3) **National Benchmarking Initiative** [Earth Tech in Canada.] This effort is similar to the Qualserve effort but in Canada. Since the Qualserve data is more comprehensive and provided by agencies in the United States, it is more useful than the National Benchmarking Initiative.
- 4) **National Association of Clean Water Agencies** (NACWA.) NACWA produced the 2005 Financial Survey: A National Survey of Municipal Wastewater Management Financing and Trends. This provides some useful measures and information for financial benchmarking. NACWA also provides awards to wastewater treatment plants for meeting all permit requirements. NACWA members can apply for these awards.

Of these four, the Qualserve report provided the most useful information and was comprehensive enough for the District to use some of the benchmarks. In addition, the District has applied for and received gold and platinum awards from NACWA under the Peak Performance Awards. These awards are considered benchmarks as they apply to various wastewater utilities across the country.

The compliance maintenance annual report (CMAR) overall score, which must be completed per the WPDES permit, is considered a benchmark in that all utilities from Wisconsin must complete the CMAR and thus, it can be used for comparison.

The Benchmarking performance measures are shown in Table 2-1.

Table 2-1: District Benchmarks

<b>Benchmark</b>	<b>Comparison Source</b>	<b>Data Requirements</b>	<b>Reference Objective</b>
Organizational Best Practices Index	Qualserve – Benchmarking Performance Indicators for Water and Wastewater Utilities	Self rating on a scale of 1 to 5 of seven areas: Strategic planning, Long-term financial planning, Risk management planning, Performance measurement system, Optimized asset management program, Customer involvement program, continuous improvement program	2.2.1.1.1 – Enable Implementation of the CMOM Program with the District Organization Structure
Bond Rating		Assigned by Rating Agencies	2.2.1.1.3 – Continue to maintain adequate financial planning
CMAR overall score	Wisconsin DNR	Determined through completing the CMAR form	2.2.1.1.4 – Continue to comply with regulatory requirements
Training hours per employee	Qualserve – Benchmarking Performance Indicators for Water and Wastewater Utilities	Total qualified formal hours of training for employees/total full time equivalent positions during the reporting period (District employees only)	2.2.1.1.6 – Continue to maintain a safe work environment for District employees and sustain a competent District workforce
Employee Health and Safety Severity Rate	Qualserve – Benchmarking Performance Indicators for Water and Wastewater Utilities	100 x total days away from work/total days worked by all employees during the reporting year (District employees only)	2.2.1.1.6 – Continue to maintain a safe work environment for District employees and sustain a competent District workforce
Conveyance system integrity	Qualserve – Benchmarking Performance Indicators for Water and Wastewater Utilities	100 x total number of collection system failures/total miles of pipe in collection system during reporting period (failures are defined as a loss of capacity resulting from a flow restriction (i.e. deposition of solids, structural failure, deterioration of	2.2.1.2.5 – Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels

		materials, or root intrusion)	
Planned maintenance ratio (conveyance): hours	Qualserve – Benchmarking Performance Indicators for Water and Wastewater Utilities	$100 \times (\text{hours of PM and PdM}) / (\text{hours of PM, PdM, and CM})$	2.2.1.2.5 – Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels
Planned maintenance ratio (conveyance): cost	Qualserve – Benchmarking Performance Indicators for Water and Wastewater Utilities	$100 \times (\text{cost of PM and PdM}) / (\text{cost of PM, PdM, and CM})$	2.2.1.2.5 – Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels
Receipt of NACWA Peak Performance Award	NACWA	Yes/No	2.2.1.3.3 – Continue to provide effluent quality that meets or exceeds WPDES requirements and effluent quality goals
Planned maintenance ratio (treatment): hours	Qualserve – Benchmarking Performance Indicators for Water and Wastewater Utilities	$100 \times (\text{hours of PM and PdM}) / (\text{hours of PM, PdM, and CM})$	2.2.1.3.6 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels
Planned maintenance ratio (treatment): cost	Qualserve – Benchmarking Performance Indicators for Water and Wastewater Utilities	$100 \times (\text{cost of PM and PdM}) / (\text{cost of PM, PdM, and CM})$	2.2.1.3.6 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels
O&M cost per MGD treated	Qualserve – Benchmarking Performance Indicators for Water and Wastewater Utilities	Total O&M costs for wastewater treatment/total volume processed during the reporting period	2.2.1.3.6 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels

## **2.2.6 Performance Measures**

This sixth section of the Management Plan lists all of the performance measures from the goals and objectives section. The performance measures are grouped in functional categories to allow easier viewing.

The performance measures are grouped first by whether they are in the overall component or one of the three service area components. The second grouping is by function.

For the overall component, the functional areas are:

- Program organization
- Communication
- Finance
- System performance
- Satellite systems
- Personnel & Safety

For the conveyance, treatment and watercourse components, the functional areas are:

- System performance
- System monitoring
- System conservation (watercourse only)
- Asset management
- Capital program implementation
- Customer service

The tables included below provide a listing of the performance measures for each component (Overall, Conveyance, Treatment and Watercourse) of the CMOM Program. Included in the tables are the functional area, performance measure name, data requirements, and the related objective.

All performance measures are on an annual basis, except for those with completion dates or otherwise noted. Evaluation of District performance, based on these measures, will be documented in the CMOM Program Annual Report and the Audit Report. For further information, see the Communication Plan (Chapter 6 of this document) and the Audit Plan (Chapter 7 of this document).

### 2.2.6.1 Overall Performance Measures

Table 2-2: Overall Performance Measures

<b>Functional Area</b>	<b>Measure</b> * indicates the measure is also a benchmark (see 2.2.5)	<b>Data Requirements</b>	<b>Reference Objective</b>
Program Organization	Organizational Best Practices Index*	See Benchmarking Data, Section 2.2.5 above	2.2.1.1.1 – Enable implementation of the CMOM Program within the District organizational structure
Program Organization	CMOM Manager responsibilities assigned	Yes/No	2.2.1.1.1 – Enable implementation of the CMOM Program within the District organizational structure
Program Organization	CMOM work team established and functioning	Yes/No	2.2.1.1.1 – Enable implementation of the CMOM Program within the District organizational structure
Program Organization	Asset Manager responsibilities assigned	Yes/No	2.2.1.1.1 – Enable implementation of the CMOM Program within the District organizational structure
Program Organization	Asset Management Team established and functioning	Yes/No	2.2.1.1.1 – Enable implementation of the CMOM Program within the District organizational structure
Program Organization	Cost to date on CMOM activities		2.2.1.1.2 – Communicate the goals and objectives of the CMOM Program to internal and external stakeholders, monitor the CMOM Program implementation, and institute program modifications
Communication	CMOM page on the District’s internal web site updated annually to include new reports and	Yes/No	2.2.1.1.2 – Communicate the goals and objectives of the CMOM Program to internal and external stakeholders, monitor the CMOM Program

<b>Functional Area</b>	<b>Measure</b> * indicates the measure is also a benchmark (see 2.2.5)	<b>Data Requirements</b>	<b>Reference Objective</b>
	communications		implementation, and institute program modifications
Communication	CMOM page on the District’s public web site updated annually to include new reports and communications	Yes/No	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
Communication	Annual TAT briefing completed	Yes/No	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
Communication	Annual Commission memorandum completed	Yes/No	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
Communication	Annual staff briefing completed	Yes/No	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

<b>Functional Area</b>	<b>Measure</b> * indicates the measure is also a benchmark (see 2.2.5)	<b>Data Requirements</b>	<b>Reference Objective</b>
			modifications
Communication	Percent of annual reports completed on time	CMOM Program Annual Report completion date	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
Communication	Percent of overflow events for which a public notification was issued	Overflow events, Overflow events with public notification	2.2.1.1.4 – Continue to comply with regulatory requirements
Finance	Establish a method for benchmarking operation and maintenance costs by December 31, 2008	Yes/No	2.2.1.1.3 – Continue to maintain adequate financial planning
Finance	Percent of cash financing (six-year average)		2.2.1.1.3 – Continue to maintain adequate financial planning
Finance	Outstanding Debt		2.2.1.1.3 – Continue to maintain adequate financial planning
Finance	Six-year capital financing plan is updated and revised annually	Yes/No	2.2.1.1.3 – Continue to maintain adequate financial planning
Finance	Bond Ratings*	See Benchmarking Data, Section 2.2.5 above	2.2.1.1.3 – Continue to maintain adequate financial planning
System Performance	Percent of time effluent BOD is in compliance with WPDES permit limits	Weekly and Monthly average of the effluent BOD results (count 7 days for each week out of compliance and 30 days for each month out of compliance)	2.2.1.1.4 – Continue to comply with regulatory requirements
System Performance	Percent of time effluent	Weekly and Monthly average of the	2.2.1.1.4 – Continue to comply with

Functional Area	Measure * indicates the measure is also a benchmark (see 2.2.5)	Data Requirements	Reference Objective
	TSS is in compliance with WPDES permit limits	effluent TSS results (count 7 days for each week out of compliance and 30 days for each month out of compliance)	regulatory requirements
System Performance	Percent of time effluent fecal coliform count is in compliance with WPDES permit limits	Monthly geometric mean of the fecal coliform count results	2.2.1.1.4 – Continue to comply with regulatory requirements
System Performance	Percent of flow from system resulting from precipitation that is captured and treated	Volume of flow discharged from treatment plants, volume of CSOs, average daily base flow (calculated according to the formula stated in the District’s 2003 WPDES permit, section 3.2.5)	2.2.1.1.4 – Continue to comply with regulatory requirements
System Performance	Number of sanitary sewage overflows occurring more frequently than the WDNR approved Level of Protection	Quarterly overflow reports contain documentation of overflow events	2.2.1.1.4 – Continue to comply with regulatory requirements
System Performance	CMAR overall score*	See Benchmarking Data, Section 2.2.5 above	2.2.1.1.4 – Continue to comply with regulatory requirements
Satellite systems	All satellite CMOM readiness reviews completed by December 31, 2007	Yes/No	2.2.1.1.5 – Establish a regional CMOM program
Satellite systems	All satellite CMOM compliance strategies completed by December 31, 2007	Yes/No	2.2.1.1.5 – Establish a regional CMOM program

<b>Functional Area</b>	<b>Measure</b> * indicates the measure is also a benchmark (see 2.2.5)	<b>Data Requirements</b>	<b>Reference Objective</b>
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 30, 2009	Yes/No	2.2.1.1.5 – Establish a regional CMOM program
Satellite systems	District sewer plan review process defined and documented by December 31, 2008	Yes/No	2.2.1.1.5 – Establish a regional CMOM program
Satellite systems	Percent of sewer plans reviewed by the District within deadlines established by the sewer plan review process	Sewer plans reviewed, Sewer plans submitted	2.2.1.1.5 – Establish a regional CMOM program
Satellite systems	District sewer construction Quality Assurance program defined and documented by June 30, 2008	Yes/No	2.2.1.1.5 – Establish a regional CMOM program
Satellite systems	Percent of sewer construction projects receiving QA inspection as	Sewer construction projects, Sewer construction projects visited at least once	2.2.1.1.5 – Establish a regional CMOM program

<b>Functional Area</b>	<b>Measure</b> * indicates the measure is also a benchmark (see 2.2.5)	<b>Data Requirements</b>	<b>Reference Objective</b>
	defined by the QA program		
Personnel & Safety	Annual regulatory training completed	Yes/No	2.2.1.1.6 – Continue to maintain a safe work environment for District employees and sustain a competent District workforce
Personnel & Safety	Annual training hours per employee*	See Benchmarking Data, Section 2.2.5 above	2.2.1.1.6 – Continue to maintain a safe work environment for District employees and sustain a competent District workforce
Personnel & Safety	Employee Health and Safety Severity Rate*	See Benchmarking Data, Section 2.2.5 above	2.2.1.1.6 – Continue to maintain a safe work environment for District employees and sustain a competent District workforce

### 2.2.6.2 Conveyance Performance Measures

Table 2-3: Conveyance Performance Measures

Functional Area	Measure * indicates the measure is also a benchmark (see 2.2.5)	Data Requirements	Reference Objective
System Performance	Number of dry weather CSOs	Annual number of Dry Weather CSO events	2.2.1.2.1 – Establish CMOM Program elements specific to minimizing the number and volume of CSOs
System Performance	Number of wet weather CSOs	Annual number of Wet Weather CSO events	2.2.1.2.1 – Establish CMOM Program elements specific to minimizing the number and volume of CSOs
System Performance	Ratio of event unused volume of the ISS to the wet weather CSO volume	Event volume of Wet Weather CSOs, Event volume remaining in ISS	2.2.1.2.1 – Establish CMOM Program elements specific to minimizing the number and volume of CSOs
System Performance	District rules regarding CMOM Program requirements and I/I controls for satellite systems adopted by June 30, 2007	Yes/No	2.2.1.2.2 – Modify District Rules to address peak wet weather flows from satellite systems that impact District system operation
System Performance	Development of the Wet Weather Peak Flow Management program by June 30, 2009	Yes/No	2.2.1.2.2 – Modify District Rules to address peak wet weather flows from satellite systems that impact District system operation
System Performance	Percent of sewersheds exceeding maximum allowable infiltration and inflow rate, as defined by District Rules, Chapter 3	Number of sewersheds determined to be exceeding the maximum allowable infiltration and inflow rate (defined in Chapter 3 - Rules (number determined by 2020 Facilities Plan and WWPFMP), Total number of	2.2.1.2.2 – Modify District Rules to address peak wet weather flows from satellite systems that impact District system operation

<b>Functional Area</b>	<b>Measure</b> * indicates the measure is also a benchmark (see 2.2.5)	<b>Data Requirements</b>	<b>Reference Objective</b>
		sewersheds	
System Performance	Number of dry weather SSOs	Annual number of dry weather SSO events	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures
System Performance	Number of wet weather SSOs where the event generated flow is less than the WDNR approved level of protection	Annual number of wet weather SSO events 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
System Performance	Number of wet weather SSOs	Annual number of wet weather SSO events	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures
System Performance	Volume of wet weather SSOs where the event generated flow is less than the WDNR approved level of protection	Annual 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
System Performance	Volume of wet weather SSOs	Annual 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
System Performance	Number of building backups caused by District	Annual review of building backup data, determination of those attributable to	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs,

<b>Functional Area</b>	<b>Measure</b> * indicates the measure is also a benchmark (see 2.2.5)	<b>Data Requirements</b>	<b>Reference Objective</b>
	facility capacity or function	District facilities	maintain or improve system performance, and avoid preventable failures
System Performance	Percent of total flow entering the conveyance system that is captured and treated	Total flow volume delivered to the treatment plants, SSO and CSO volumes	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures
System Performance	Regulatory-approved Industrial Waste Pretreatment Program in operation	Yes/No	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures
Asset Management	Develop a plan for periodic operational readiness testing of sanitary sewer overflow facilities by June 30, 2009	Yes/No	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures
Asset Management	Percent completion of post-overflow review process within one year	Total number of overflow events and system failures, number of reviews completed	2.2.1.2.3 – Where possible, establish additional practices to prevent SSOs, maintain or improve system performance, and avoid preventable failures
Asset Management	Level of Protection defined and approved by the WDNR for the wastewater system	Yes/No	2.2.1.2.4 – Continue to establish and document level of protection, design and performance standards for conveyance assets constructed in the

<b>Functional Area</b>	<b>Measure</b> * indicates the measure is also a benchmark (see 2.2.5)	<b>Data Requirements</b>	<b>Reference Objective</b>
			District service area
Asset Management	Fixed Asset SOPs audited by December 31, 2008	Yes/No	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
Asset Management	Number of conveyance construction project updates to the GIS	Number of completed conveyance construction projects updated in GIS. Includes whole conveyance projects. Does not include changes to attributes of existing assets.	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
Asset Management	Backlog of conveyance construction project updates to the GIS	Number of completed conveyance construction projects not updated in GIS. Includes whole conveyance projects. Does not include changes to attributes of existing assets.	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
Asset Management	Percent of conveyance assets with defined condition and management method	Total number of assets, Total number of assets with defined condition and management method	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
Asset Management	Document requirements for conducting Business Case Analysis on conveyance projects by June 30, 2008	Yes/No	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
Asset Management	Percent of Business Case	Number of Business Case	2.2.1.2.4 – Continue to establish and

Functional Area	Measure * indicates the measure is also a benchmark (see 2.2.5)	Data Requirements	Reference Objective
	Analyses completed where required by District procedures	Analyses/Preliminary Engineering Studies conducted when required by District procedures	document level of protection, design and performance standards for conveyance assets constructed in the District service area
Capital Program Implementation	Facilities Plan implementation on schedule	Yes/No	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
Asset Management	Conveyance system integrity*	See Benchmarking Data, Section 2.2.5 above	2.2.1.2.5 – Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels
Asset Management	PM backlog (sewers)	Number of open PM work orders for sewers older than 90 days	2.2.1.2.5 – Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels
Asset Management	PM backlog (conveyance equipment and pump stations)	Number of open PM work order for conveyance equipment older than 90 days	2.2.1.2.5 – Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels
Asset Management	Planned maintenance ratio (hours)*	Hours of PM, PdM, and CM (PM+PdM) / (PM+PdM+CM)	2.2.1.2.5 – Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection

Functional Area	Measure * indicates the measure is also a benchmark (see 2.2.5)	Data Requirements	Reference Objective
			levels
Asset Management	Planned maintenance ratio (cost)*	Cost of PM, PdM, and CM (PM+PdM) / (PM+PdM+CM)	2.2.1.2.5 – Minimize the cost of conveyance asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels
System Monitoring	Percent of portable flow monitors repaired within 5 business days after reporting problems	Number of portable flow monitors with reported repairs, number of portable flow monitor repairs taking longer than 5 days to complete (do not count repairs that require equipment replacement)	2.2.1.2.6 – Enhance District level of knowledge and understanding of wet weather flows and system response to precipitation and other factors
System Monitoring	Percent of permanent monitoring sites with less than one month of missing or bad data	Number of permanent monitoring sites, Number of permanent monitoring sites with more than one month 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
System Monitoring	Percent of monitoring sites calibrated	Number of permanent monitoring sites, Number of permanent monitoring sites calibrated	2.2.1.2.6 – Enhance District level of knowledge and understanding of wet weather flows and system response to precipitation and other factors
System Monitoring	Percent of rain gauges calibrated	Number of rain gauges, Number of rain gauges calibrated	2.2.1.2.6 – Enhance District level of knowledge and understanding of wet weather flows and system response to precipitation and other factors
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
Customer Service	Percent of inquiry	Number of sewer inquiries received,	2.2.1.2.7 – Provide information

<b>Functional Area</b>	<b>Measure</b> * indicates the measure is also a benchmark (see 2.2.5)	<b>Data Requirements</b>	<b>Reference Objective</b>
	documentation completed	number of sewer inquiry documentations completed. Sewer inquiries are defined as calls received of building backups, sewage overflows, spills into the system, clogged or collapsed sewer or structure, illegal dumping into a sewer or catch basin, missing manhole covers or contractors striking District facilities.	receipt, response activity, and feedback regarding customer inquiries

### 2.2.6.3 Treatment Performance Measures

Table 2-4: Treatment Performance Measures

<b>Functional Area</b>	<b>Measure</b> * indicates the measure is also a benchmark (see 2.2.5)	<b>Data Requirements</b>	<b>Reference Objective</b>
System Performance	Percent of plant influent flow volume receiving secondary treatment	Flow volume delivered to the treatment plants, Flow volume diverted around secondary treatment	2.2.1.3.1 – Continue to minimize process diversion events, consistent with the discharge permit
System Performance	Number of in-plant diversions	Number of diversion events	2.2.1.3.1 – Continue to minimize process diversion events, consistent with the discharge permit
System Performance	Number of in-plant diversions during conditions not consistent with permit requirements		2.2.1.3.1 – Continue to minimize process diversion events, consistent with the discharge permit
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	SSO Volume after ISS separate sewer gate closure, event classification (above or below LOP)	2.2.1.3.2 – Continue to optimize effectiveness of wet weather treatment capacity
System Performance	Volume of SSOs due to closure of the ISS separate sewer gates	SSO Volume after ISS separate sewer gate closure	2.2.1.3.2 – Continue to optimize effectiveness of wet weather treatment capacity
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	Number of SSO events occurring after ISS gate closure, event classification (above or below LOP)	2.2.1.3.2 – Continue to optimize effectiveness of wet weather treatment capacity

Functional Area	Measure * indicates the measure is also a benchmark (see 2.2.5)	Data Requirements	Reference Objective
	of Protection		
System Performance	Number of SSOs due to closure of the ISS separate sewer gates	Number of SSO events occurring after ISS gate closure	2.2.1.3.2 – Continue to optimize effectiveness of wet weather treatment capacity
System Performance	Receipt of NACWA Peak Performance Award	Yes/No	2.2.1.3.3 – Continue to provide effluent quality that meets or exceeds WPDES requirements and effluent quality goals
System Performance	Percent of time effluent BOD is in compliance with WPDES permit	Weekly and Monthly average of the effluent BOD results (count 7 days for each week out of compliance and 30 days for each month out of compliance)	2.2.1.3.3 – Continue to provide effluent quality that meets or exceeds WPDES requirements and effluent quality goals
System Performance	Percent of time effluent TSS is in compliance with WPDES permit	Weekly and Monthly average of the effluent TSS results (count 7 days for each week out of compliance and 30 days for each month out of compliance)	2.2.1.3.3 – Continue to provide effluent quality that meets or exceeds WPDES requirements and effluent quality goals
System Performance	Percent of time effluent fecal coliform count is in compliance with WPDES permit	Monthly geometric mean of the fecal coliform count results (count 30 days for each month out of compliance)	2.2.1.3.3 – Continue to provide effluent quality that meets or exceeds WPDES requirements and effluent quality goals
System Performance	Percent of time effluent Phosphorous is in compliance with WPDES permit	Monthly average of the effluent Total Phosphorous results (count 30 days for each month out of compliance)	2.2.1.3.3 – Continue to provide effluent quality that meets or exceeds WPDES requirements and effluent quality goals
System Performance	Percent of time effluent Ammonia is in compliance with WPDES permit	Weekly average of the effluent Total Ammonia Nitrogen results (count 7 days for each week out of compliance)	2.2.1.3.3 – Continue to provide effluent quality that meets or exceeds WPDES requirements and effluent quality goals

<b>Functional Area</b>	<b>Measure</b> * indicates the measure is also a benchmark (see 2.2.5)	<b>Data Requirements</b>	<b>Reference Objective</b>
System Performance	Percent of produced biosolids that are beneficially reused	Biosolids produced, Biosolids sent to landfill	2.2.1.3.4 – Continue to manage biosolids in a manner that maximizes beneficial reuse
Asset Management	Level of Protection is defined (by the 2020 Facilities Plan) and approved by the WDNR for the Wastewater System	Yes/No	2.2.1.3.5 – Continue to establish and document levels of protection, design and performance standards for treatment plant assets
Asset Management	Fixed Asset SOPs audited by December 31, 2008	Yes/No	2.2.1.3.5 – Continue to establish and document levels of protection, design and performance standards for treatment plant assets
Asset Management	Percent of treatment plant assets with defined condition and management method	Number of assets, number of assets with defined condition and management method	2.2.1.3.5 – Continue to establish and document levels of protection, design and performance standards for treatment plant assets
Asset Management	Document requirements for conducting Business Case Analysis on treatment plant projects by June 30, 2008	Yes/No	2.2.1.3.5 – Continue to establish and document levels of protection, design and performance standards for treatment plant assets
Asset Management	Percent of Business Case Analyses completed where required by District procedures	Number of business case analyses conducted	2.2.1.3.5 – Continue to establish and document levels of protection, design and performance standards for treatment plant assets
Capital Program Implementation	Facilities Plan implementation on	Yes/No	2.2.1.3.5 – Continue to establish and document levels of protection, design

Functional Area	Measure * indicates the measure is also a benchmark (see 2.2.5)	Data Requirements	Reference Objective
	schedule for treatment plant studies and projects		and performance standards for treatment plant assets
Asset Management	Percent of PM tasks completed	Number of PM tasks generated by CMMS, Number of PM tasks completed.	2.2.1.3.6 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels
Asset Management	O&M cost per MGD treated*	See Benchmarking Data, Section 2.2.5 above	2.2.1.3.6 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels
Asset Management	CM completion status	Number of open CM work orders older than 90 days	2.2.1.3.6 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels
Asset Management	Planned maintenance ratio: cost	Cost of PM, PdM, and CM (PM+PdM) / (PM+PdM+CM)	2.2.1.3.6 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels
Asset Management	Planned maintenance ratio: hours	Hours of PM, PdM, and CM (PM+PdM) / (PM+PdM+CM)	2.2.1.3.6 – Minimize the cost of wastewater treatment plant asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels

## 2.2.6.4 Watercourse Performance Measures

Table 2-5: Watercourse Performance Measures

<b>Functional Area</b>	<b>Measure</b>	<b>Data Requirements</b>	<b>Reference Objective</b>
System Performance	Number of habitable structures impacted by the one-percent probability flood	One-percent probability floodplain, current aerial photography	2.2.1.4.1 – Within jurisdictional streams, cost-effectively remove habitable structures from flooding associated with the one-percent probability flood event
Capital Program Implementation	Watercourse Management Plan implementation is on schedule	Yes/No	2.2.1.4.1 – Within jurisdictional streams, cost-effectively remove habitable structures from flooding associated with the one-percent probability flood event
System Conservation	Percent of stormwater management plans reviewed within the timeframe allowed	Number of stormwater management plans submitted, number of stormwater management plans reviewed with allowable timeframe	2.2.1.4.2 – Ensure that new development and redevelopment do not result in structures being added to the one-percent floodplain or diminish the protection provided by the District’s watercourse projects
System Conservation	Area of property protected/preserved through District ownership or conservation easement	Purchases and easements obtained through Conservation Fund and Greenseams	2.2.1.4.2 – Ensure that new development and redevelopment do not result in structures being added to the one-percent floodplain or diminish the protection provided by the District’s watercourse projects
Asset Management	Completeness of streambank ownership in GIS	Watercourse GIS, streambank parcels, streambank parcel ownership	2.2.1.4.3 – Provide efficient coordination for system-wide watercourse maintenance

<b>Functional Area</b>	<b>Measure</b>	<b>Data Requirements</b>	<b>Reference Objective</b>
Asset Management	Percent of riparian owners aware of maintenance responsibilities when an issue has been identified	Number of riparian parcel owners, Number of riparian parcel owners informed of maintenance responsibilities	2.2.1.4.3 – Provide efficient coordination for system-wide watercourse maintenance
Asset Management	Percent of riparian owners completing maintenance responsibilities after receiving District communication	Number of riparian parcels requiring maintenance, Number of riparian parcels completing maintenance	2.2.1.4.3 – Provide efficient coordination for system-wide watercourse maintenance
Asset Management	Level of Protection defined and accepted by Stakeholders	Yes/No	2.2.1.4.4 – Establish and document level of protection, design and performance standards for new assets in the watercourse system
Asset Management	Fixed Asset SOPs audited by December 31, 2008	Yes/No	2.2.1.4.4 – Establish and document level of protection, design and performance standards for new assets in the watercourse system
Asset Management	Percent of watercourse assets with defined condition and management method	Number of assets, number of assets with defined condition and management method	2.2.1.4.4 – Establish and document level of protection, design and performance standards for new assets in the watercourse system
Asset Management	Document requirements for conducting Business Case Analysis on watercourse projects by June 30, 2008		2.2.1.4.4 – Establish and document level of protection, design and performance standards for new assets in the watercourse system
Asset Management	Percent of Business Case Analyses completed where	Number of business case	2.2.1.4.4 – Establish and document level of protection, design and performance

<b>Functional Area</b>	<b>Measure</b>	<b>Data Requirements</b>	<b>Reference Objective</b>
	required by District procedures	analyses conducted	standards for new assets in the watercourse system
Asset Management	Linear feet of streambank with a current condition assessment	Footage of streambank assets, footage of streambank assets with condition assessment	2.2.1.4.4 – Establish and document level of protection, design and performance standards for new assets in the watercourse system
Asset Management	Number of watercourse construction project updates to the GIS	Number of watercourse construction project updates to the GIS. Includes whole projects. Does not include revision of attributes to existing assets.	2.2.1.4.4 – Establish and document level of protection, design and performance standards for new assets in the watercourse system
Asset Management	Backlog of watercourse construction project updates to the GIS	Number of completed watercourse construction projects not entered in watercourse GIS. Includes only whole projects. Does not include revision of attributes to existing assets.	2.2.1.4.4 – Establish and document level of protection, design and performance standards for new assets in the watercourse system
Asset Management	Percent of scheduled watercourse inspections completed	Number of scheduled watercourse inspections, number of scheduled watercourse inspections completed	2.2.1.4.5 – Minimize the cost of watercourse asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels
Asset Management	Percent of scheduled culvert and structure inspections completed	Number of scheduled culvert and structure inspections, number of	2.2.1.4.5 – Minimize the cost of watercourse asset ownership while maintaining necessary stewardship of

Functional Area	Measure	Data Requirements	Reference Objective
		scheduled culvert and structure inspections completed	assets and achieving defined protection levels
Asset Management	Watercourse O&M costs	Watercourse O&M costs	2.2.1.4.5 – Minimize the cost of watercourse asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels
Asset Management	Watercourse O&M hours	Watercourse O&M hours	2.2.1.4.5 – Minimize the cost of watercourse asset ownership while maintaining necessary stewardship of assets and achieving defined protection levels
System Conservation	Percent of jurisdictional watercourse with natural streambeds	Total length of jurisdictional watercourse, length of jurisdictional watercourse with natural streambeds	2.2.1.4.6 – Continue to be a leader in the effort to improve the area’s waterways
System Conservation	Percent of jurisdictional watercourse with habitat features and natural vegetation	Total length of jurisdictional watercourse, length of jurisdictional watercourse with habitat features and natural vegetation	2.2.1.4.6 – Continue to be a leader in the effort to improve the area’s waterways
Customer Service	Percent inquiry documentation completed	Number of watercourse inquiries received, number of watercourse inquiry documentations completed.	2.2.1.4.7 – Provide information receipt, response activity, and feedback regarding customer inquiries on the watercourse system

<b>Functional Area</b>	<b>Measure</b>	<b>Data Requirements</b>	<b>Reference Objective</b>
		Watercourse inquiries include debris in channel and flooding complaints. Does not include vegetation management or graffiti.	

## **2.2.7 Reporting Methods for CMOM Compliance Reviews**

This seventh section of the Management Plan discusses the means for documenting and reporting on CMOM compliance. The purpose of this section is to have defined methods for communicating activities, accomplishment and changes to the CMOM program to stakeholders, including regulatory authorities. The District will employ three methods of formal reporting regarding implementation and execution of the CMOM program. The three methods are the Compliance Maintenance Annual Report (CMAR), the CMOM Program Annual Report and the CMOM Program Audit Report. Each of these is discussed below.

### **2.2.7.1 Compliance Maintenance Annual Report**

The District is required by its WPDES permit from the WDNR to submit an annual CMAR. This submittal includes a specific section regarding the CMOM program documentation. However, it also includes more specific data regarding treatment plant flows, plant effluent quality, biosolids quality and disposal, plant maintenance, collection system maintenance, collection system overflows, and financial management. All of these items are related to the goals and performance measures included in the District CMOM program. Although the CMAR does not contain reporting for every area, it does act as an annual summary of the important goals and measures.

### **2.2.7.2 CMOM Program Annual Report**

The District will prepare a CMOM Program Annual Report each calendar year. This annual report will encompass the entire District CMOM program. The report will have short discussions regarding meeting of goals and objectives, and also have supporting data tabulated and analyzed.

Further discussion of the annual report is contained in the Communication Plan (Chapter 6, section 6.2.1.2 of this document).

### **2.2.7.3 CMOM Program Audit Report**

The District will conduct an audit of its CMOM program in the year 2012. The audit will include the following steps:

1. Reviewing District performance measures
2. Reviewing District benchmarks
3. Reviewing stakeholder input
4. Formation of chapter review teams with cross-divisional representation from the District
5. Completion of an update to the entire CMOM program

Further discussion of the auditing process is included in the Audit Plan (Chapter 7 of this document).

### **2.2.8 Management Plan Updates**

The Management Plan will receive annual updates through the annual review of the performance measures and preparation of the CMOM Program Annual Report.

For further information, see the Communication Plan (Chapter 6, section 6.2.1.2 of this document) and Audit Plan (Chapter 7, section 7.2.1 of this document).