EXECUTIVE SUMMARY 1
Introduction and Background 1
CMOM Program Development Process 1
Chapter 1 - Strategy Introduction 5
1.0 Program Background 5
1.1.0. CMOM Program Development Process 7
1.2.0. Strategy Outline 8
1.3.0 Potential Regulatory Expectations 9
1.3.1. MMSD Rules 9
1.3.2. Satellite Stipulation Requirements 9
1.4.0. CMOM Tactics Which the Village of Shorewood Is Already Practicing 11
1.4.1 Organizational Structure, Including Administrative and Maintenance Positions 11
1.4.2 Legal Authority to Control I/I and Construction Standards 12
1.4.3 Provide Adequate Maintenance Facilities and Information Management 12
1.4.4 Program to Assess the Current Capacity of the Collection 12
1.4.5 Identification of Structural Deficiencies and Implementation of Rehabilitation Actions 12
1.4.6 Design Requirements and Standards for the Installation of New Sewers 12
1.4.7 Monitor, Measure and Update Program Elements as Appropriate 13
1.4.8 Provide a Detailed SSO Emergency Response Plan 13
1.4.9 Provide for Public Notification of SSO Occurrences 13
1.4.10 Provide a System Evaluation and Capacity Assurance Plan to Address SSOs 13
1.4.11 Conduct a CMOM Program Audit as Part of the Permit Application 14
Chapter 2 - Management Plan Strategy 15
2.1.0. CMOM Program 15
2.1.1. CMOM Program Mission Statement 16
2.1.2. CMOM Program Goals 16
2.1.3. CMOM Program Objectives 17
Chapter 3 - Overflow Response Plan Strategy 25
Chapter 4 - System Evaluation and Capacity Assurance Plan Strategy 39
Chapter 5 - CMOM Program Communication Plan Strategy 53
Chapter 6 – CMOM Program Audit Plan Strategy 56
Chapter 7 - CMOM Program Implementation Strategy 59
7.1.0 Summary of Implementation Activities 60
7.2.0. Documents to Be Prepared As Part of CMOM Program Implementation 62

EXECUTIVE SUMMARY

Introduction and Background

In May 2002, the Milwaukee Metropolitan Sewerage District (MMSD) entered into a Stipulation (MMSD Stipulation) with the Wisconsin Department of Natural Resources (WDNR). Among other items, the Stipulation requires MMSD to implement a Capacity assurance, Management, Operations and Maintenance (CMOM) Program. The MMSD Stipulation also required MMSD to amend its rules to by June 30, 2007 to require CMOM Programs for all MMSD satellite municipalities.

In December 2005, the Village of Shorewood, along with other MMSD satellites, entered into a Stipulation with the WDNR (Satellite Stipulation), that committed the Village to develop and implement a CMOM Program.

The CMOM concept is set forth in a U. S. Environmental Protection Agency (USEPA) draft rule that addresses sanitary sewer overflow (SSO) control. A provision of the draft document is a requirement for a comprehensive collection system program that includes four key components, 1) Capacity assurance, 2) Management, 3) Operation, and 4) Maintenance; hence the acronym "CMOM." The goal of CMOM is to clearly define proper operation and maintenance of the collection system and a system owner's duty to mitigate SSOs. The USEPA CMOM draft would require a collection system owner to:

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

The WDNR is developing its CMOM regulations which closely follow the federal version. It is anticipated that the WDNR permit staff will have the authority to include CMOM provisions in individual Wisconsin Pollution Discharge Elimination System (WPDES) permits and the general collection system WPDES permits. Once this occurs, the Village would be required to follow WDNR CMOM permit requirements.

CMOM Program Development Process

The CMOM Program developed for Village followed a two step process. First, a CMOM Readiness Review of the Village was performed. Second, this CMOM Strategic Plan was developed.

For the CMOM Readiness Review, a consulting team led by Superior Engineering conducted a workshop with managers from the Village to familiarize them with the Readiness Review process. Afterward, the team collected information for the Readiness Review from documents, staff interviews, and field observations. The Readiness Review identified a number of required practices and documents were already in place, some areas needed to be improved to meet the CMOM Plan requirements. After evaluating its current status in each practice area, the Village selected a goal and a priority for progressing in each area.

The following list summarizes the highest priorities Village identified for developing its CMOM program:

1. Identify and reduce infiltration/inflow
2. Review and enhance the existing in-house cleaning and inspection program
3. Standardize O&M Procedures
4. Enhance safety program

Following the Readiness Review, the same consulting team guided Village staff through a process to develop the CMOM Strategic Plan. The first task in this process involved the Village reviewing a CMOM Program Mission Statement followed by program goals and objectives. The Village staff is developing a mission statement to guide development of the strategy which will be required to be approved by the Village Board. This will be one of the first steps in the development of the CMOM Plan.

Summary of Findings of Readiness Review

The Village of Shorewood has completed some of the tasks that are required to comply with a CMOM Plan. To complete the CMOM Plan, the Village will need to compile all the existing documents and programs, enhance the existing programs and incorporate them into one document. There will need to be several updates to the existing programs such as the Overflow Response Plan (ORP) to comply with all the CMOM requirements. Operations and Maintenance activities will need to be fully documented including O&M work practices and responsibilities. The Village has recently updated their safety program by using an outside contractor for safety training. For more details, refer to the Readiness Review Report submitted to the Village in January 2006.

Major CMOM Program Implementation Tasks

The Village of Shorewood has the majority of the CMOM Plan elements in place and compiling this information under one document will provide the framework for the CMOM Plan. The Village should designate a CMOM coordinator to be responsible for updating and following the Plan.

Management Programs -

1. **Safety Program**. The Village has recently contracted their safety training to an outside contractor. This program should continue on a regular basis and updated per the Village and contractors recommendations.

2. **Capital Improvements Plan (CIP).** The Village currently has completed many CIP projects and continues to address these improvements on a regular basis. The current program should be reviewed and enhanced to provide a 10 year CIP. Emergency repairs are performed by Village crews immediately. Rehabilitation projects are identified and implemented via the CIP.
3. **Fats Oil and Grease (FOG).** This program currently is not part of the Public Works department. Review of this program needs to be completed and updated in accordance with the CMOM Plan. Coordination of this program between the health department and the Public Works Department should be implemented. Inspections need to be documented and public education enhanced to educate Village departments regarding the impact of FOG on the sewer system.
4. **Legal Programs.** There are many legal programs that enable the Village to legally enforce ordinances.
    a. The current Sewer Use Ordinance has been updated and enhanced.
    b. The ability to adequately address private property problems should be reviewed and incorporated in the ordinance as recommended by Village staff.
    c. FOG. Review program and determine if any revisions to ordinances will be required.
5. **Training.** Most of the Village training is done on the job. Manufacturer training for the equipment and training to review pipeline and manhole condition assessments should be performed on a regular basis.
6. **System Evaluation and Capacity Assurance Plan** (SECAP). Currently, the Village is not experiencing any major capacity restrictions.

- Use the template provided by MMSD to provide guidance for the plan.
- Identify critical areas that should be further evaluated.

Operation and Maintenance Programs

1. **Inspection Programs**. Review the existing sewer and manhole inspection programs that are currently in place. These programs will need to be reviewed, modified for consistency and documented. The sewers and manholes are inspected on a regular basis, but documentation of the results needs to be enhanced. The programs should include:
    a. Review and update the sewer and manhole inspection programs including condition assessment guidelines.
    b. Review and update inspection forms for sewers and manholes. Review existing inspection codes and update as necessary. Document inspections on a consistent basis.
    c. Review existing sewer inspection schedule and modify as necessary based on the results of the inspections.
    d. Develop an inspection program for manholes including standard forms and documentation of inspections and repairs.
    e. Continue to use the condition assessment information to provide recommendations for repairs, rehabilitation and replacement
    f. Develop an inspection program for maintenance of right of ways and easements.
2. **Cleaning Program**. Sewer cleaning is currently performed by Village staff. One third of the system is completed each year with the entire system completed every three years. The documentation is not complete and there need to be procedures in place to ensure that the cleaning program is operating effectively. The program should be reviewed and enhanced to include:
    a. Documentation for this program needs to be reviewed and enhanced.

b. Develop a form to document sewers cleaned and debris removed.
c. Develop guidelines to determine cleaning schedule/cycle for each basin and review on an annual basis. Develop procedures to verify if the sewers have been cleaned properly via inspection spot checks. The Village currently cleans one-third of the sewers every year to prevent debris build-up and this cycle should be reviewed to determine if some areas do not have to be cleaned as frequently.

Overflow Response Plan.

1. Overflow Response Plan The Village has unwritten procedures to address wet weather responses. These procedures need to be documented and mock drills performed to address any responses. Use the template provided by MMSD as a guideline for this plan.

Communication Program.

1. **Communications Program.** The existing communication program is in place including customer service and complaints, but more documentation is needed to ensure that the complaints are addressed in a timely manner and that the root cause of the complaint is identified. The program should include standard complaint forms and procedures to identify the problem and address via inspection, cleaning or a CIP project. The Village is currently investigating a customer service software program.

The MMSD Stipulation and amended rules require satellite municipality CMOM adoption within two years of MMSD initiating its CMOM Program. MMSD will complete all activities essential to CMOM Implementation, including CMOM Rule adoption, by June 30, 2007, the Village must implement its CMOM Program by June 30, 2009. At a minimum, the Village will need to develop the following documents by that date:

- Management Plan
- Overflow Response Plan
- Communications Plan
- Audit Plan
- Annual CMOM Report
- Operation and Maintenance Plan including procedures for the sewer collection system

The above documents do not represent completion of the Village CMOM Program. As CMOM is a cyclical process, the Village will regularly update these documents as necessary so they accurately reflect how the system is being managed, operated, and maintained. In addition, the Village will work to make the improvements identified in the Readiness Review according to the priorities established during that process. The 5-Year CMOM Audit will serve to evaluate the progress that has been made in these areas.

Chapter 1 - Strategy Introduction

The Village of Shorewood has initiated a Capacity assurance, Management, Operations and Maintenance (CMOM) program in order to determine a strategic direction for developing and implementing best business practices in the areas of capacity management, organizational management, and operations and maintenance (O&M). These desired best business practices are fundamental to delivering wastewater collection services. Other practices that would address larger Village organizational issues (e.g., personnel management and asset management) are not included in this project. The Village may consider developing a process or procedure to address these other organizational issues. Section 1.3 summarizes specific activities the Village currently practices which fulfill the likely CMOM Program requirements.

1.0 Program Background

The concept of CMOM started as a program for wastewater collection that would result in reduced sanitary sewer overflows (SSOs). A group of wastewater utilities, working with United States Environmental Protection Agency (USEPA) Region IV (which covers the southeast United States), started CMOM in 1994 as MOM (management, operations, and maintenance). These utilities and USEPA believed that many wastewater collection and treatment agencies lacked the tools for effective planning and management and that having and using such tools would lead to a significant reduction in SSOs. These utilities also believed that they lacked the financial support they needed to adequately fund wastewater collection activities and infrastructure. These utilities expected that CMOM would provide an additional communication tool for the budget planning process and lead to more appropriate funding for wastewater collection services.

With MOM working successfully in Region IV, USEPA considered adding capacity assurance in 1996 to MOM so that regulations would also address capacity issues. Consequently, the draft version of federal CMOM regulations would require agencies to evaluate the capacity of the wastewater collection system and compare that capacity to current and expected flows during dry and wet weather conditions. Furthermore, adding the capacity assurance piece would ensure that utilities would identify adequate capital improvements for alleviating capacity bottlenecks that cause SSOs.

Through a Stipulation with the State of Wisconsin (MMSD Stipulation), the Milwaukee Metropolitan Sewerage MMSD (MMSD) has agreed to initiate its own CMOM Program by June 30, 2007, and pass rules requiring the 29 MMSD satellite municipalities to develop CMOM Programs within two years afterward. Shorewood and MMSD are already cooperating to reduce wet weather flows that contribute to MMSD system SSOs.

The CMOM Strategic Planning Project activities include reviewing Village activities, documents, and organizational structure from a CMOM perspective. Based upon this review, the Village can determine which specific areas for improvement exist with respect to proposed CMOM regulations. Knowing these gaps and Village's ongoing activities will enable Shorewood to develop a strategic plan for its CMOM Program.

Overview of Municipal System

The Village of Shorewood (the Village), located in Milwaukee County, is a satellite municipality served by the MMSD through 5 Metropolitan Interceptor System (MIS) connections, three connections directly via the Village of Shorewood sewers, one connection to the MIS via Village of Whitefish Bay and one connection to the MIS via the City of Milwaukee sewers. The Village serves approximately 13,700 people through its collection system which consists of approximately 156,000 lineal feet of 6- to 78-inch diameter sanitary and combined sewers. Of the approximate 156,000 total lineal feet of sewer 95,000 feet are combined sanitary and storm sewers and the remaining 61,000 are sanitary sewers. The Village does not have lift stations.

The Village's government is headed by the Village President, who oversees the Village Board. The Board is the elected body that is fundamentally responsible for making policy decisions for the Village based upon information received from the Village Manager and Village staff. There is one committee – Streets and Buildings within the within the Board that reviews projects and programs regarding water utility operations.

The Sewer and Water Utility are principally responsible for the operation and maintenance of the sewer collection system.

Presently the Village projects capital needs ten years into the future during each budget/rate cycle. Rates and the budgets are reviewed on an annual basis. Funding is provided via the sewer rates.

1.1.0. CMOM Program Development Process

The CMOM Program is intended to be a continuous cycle, as illustrated in Figure 1-1. The Village's CMOM Program will become fully mature only after completing several cycles. The stages of the CMOM cycle are further described in general terms below:

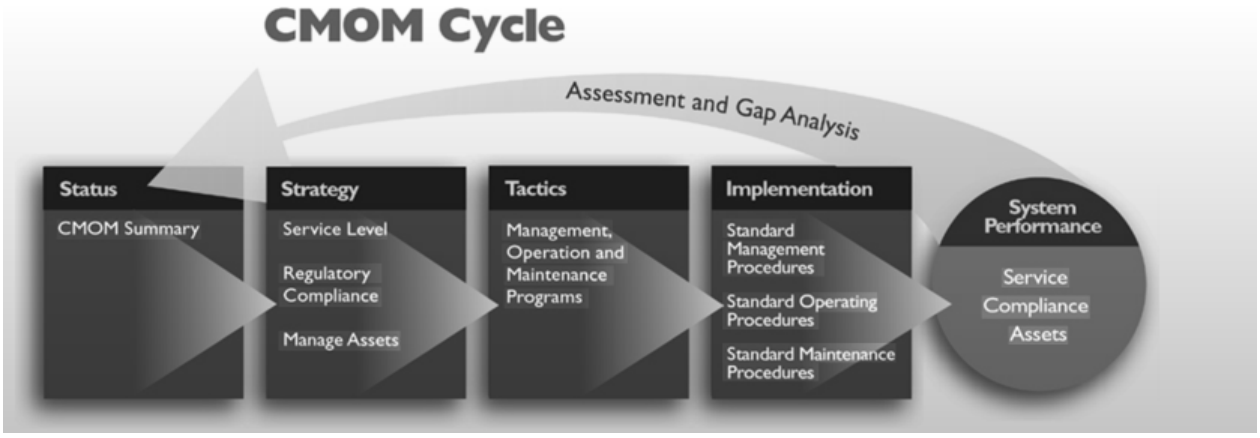


Figure 1-1. The CMOM Cycle

Status – The Village has participated in a readiness review for CMOM implementation. The review determined activities and accomplishments that satisfy draft CMOM requirements and areas for improvement relative to draft state or federal CMOM regulations. The status includes a CMOM summary of the review.

Strategy – The Village will prepare a strategic plan (the subject of this document) that articulates how the organization will implement change to satisfy proposed CMOM requirements. The plan will include the core CMOM topics of service level and regulatory compliance. Service level describes how the organization will deliver service to its customers and what performance measures the organization will establish to determine whether the service level goals have been met. Each of these descriptions explores the options available to the organization for achieving compliance with the proposed CMOM regulations, but a clear strategic direction is provided for a smooth transition to the tactics phase. The strategy includes a process for identifying the organization's CMOM Program goals and objectives. The strategy also describes how the Village will use asset management practices to achieve and sustain many of the defined CMOM goals and objectives.

Tactics –During this phase, the organization would develop a Management Plan, Overflow Response Plan (ORP), Communication and Program Audit Plan, and System Evaluation /Capacity Assurance Plan (SECAP). As discussed later in this chapter, the Village has already implemented many aspects of these plans and needs only to document its actions and further improve its efforts to align with the requirements of the proposed regulations**.** These plans would provide specific implementation activities or projects, including adding personnel, modifying information systems, constructing facilities, or changing organizational structure.

Implementation – During the implementation phase, the Village will undertake a variety of activities to address the gaps identified in the Strategy phase; including, constructing facilities,

adopting or refining standards and work processes, and developing data to measure its performance in carrying out the identified tactics. This phase would also involve implementing standard management, operations, and maintenance procedures that support compliance with proposed CMOM regulations.

System Performance – In conjunction with the on-going CMOM phases, the Village will improve or develop information systems to record and track specific activities and results.

Assessment and Gap Analysis – This phase completes the cycle and results in a status report which shows the progress made toward complying with the proposed regulations and satisfying the organization's CMOM goals.

Following completing the cycle, the process starts again with the Village revisiting its CMOM status, goals, and objectives. Doing so will ensure that the CMOM Program follows a process of continual improvement.

The activities covered in this Strategic Plan include the status and strategy phases. Subsequent contracts or internal Village processes would accomplish the tactics, implementation, and system performance phases.

1.2.0. Strategy Outline

This Strategic Plan establishes the CMOM strategy for the Village. The remaining chapters comprising this report define individual strategies for satisfying the strategy phase of CMOM:

Chapter 2 - Management Plan Strategy

The management plan strategy describes the approach the Village is employing to establish the management plan that meets CMOM Program requirements. The chapter also explains the compliance readiness review process. A key feature of this chapter documents the goals and objectives for the Village's CMOM Program.

Chapter 3 - Overflow Response Plan Strategy

Chapter 3 presents a strategy for a comprehensive overflow response plan that addresses dry weather and wet weather SSOs.

Chapter 4 - System Evaluation and Capacity Assurance Plan Strategy

The SECAP Strategy explains the need to perform system evaluations and to have in place appropriate capacity assurance tools for wastewater conveyance in order to comply with the draft CMOM regulations. Components include what is valuable to the Village for this aspect of the CMOM Program. The chapter explains how the Village will make use of MMSD's limited satellite SECAP. This project provides initial steps for an eventual full SECAP if ever required of Village by WDNR or MMSD.

Chapter 5 - CMOM Program Communication Plan Strategy

Chapter 5 presents the strategy for communicating the Village's CMOM Program activities and plans to all appropriate stakeholders, including customers, regulators, and other interested parties. The strategy discusses the potential forms and frequency of communication. The Village will need

to closely coordinate implementing the communications plan strategy with the audit strategy, presented in Chapter 6.

Chapter 6 – CMOM Program Audit Plan Strategy

The program audit strategy is intended to provide credibility to the Village's CMOM Program and establishes a systematic review to determine continuous improvement. The audit plan involves a rigorous evaluation of the CMOM Program on a regular cycle. Chapter 6 describes the audit strategy and the time intervals at which audits would take place.

Chapter 7 - CMOM Program Implementation Strategy

Chapter 7 presents the timing for completing each phase of the CMOM Program such that the Village would satisfy Satellite Stipulation requirements. The CMOM Program will establish performance measures which include tracking progress in achieving these implementation milestones.

1.3.0 Potential Regulatory Expectations

Potential regulatory expectations for the Village program are derived from two sources: MMSD Rules and the Satellite Stipulation. The following text discusses each of these topics separately.

1.3.1. MMSD Rules

In 2007, the MMSD rules will be revised to contain provisions relating to CMOM. The rules will specifically require all satellite municipalities to have a CMOM Program in place that includes all of the components identified and discussed in the Satellite Municipality CMOM Strategic Plan.

1.3.2. Satellite Stipulation Requirements

In December 2005, the State of Wisconsin and the Village entered into a Stipulation and Order for Judgment (Satellite Stipulation). This Satellite Stipulation, unrelated to the previously referenced MMSD Stipulation, requires that all 29 MMSD satellite municipalities (or "Tributaries" in the Satellite Stipulation document) would perform or agree to several general activities that would serve the purpose of reducing SSOs. The following page shows the relative portions of the Satellite Stipulation.

[The following is from the Satellite Stipulation between the State of Wisconsin and the Village of Shorewood

FLOW MONITORING SYSTEM, RAIN GAUGE SYSTEM AND PEAK FLOW PERFORMANCE STANDARD

17. The Plaintiff and the Tributaries agree that the establishment of appropriate flow monitoring and rain gauge systems and peak flow performance standards for the Milwaukee Metropolitan Sewerage District ("MMSD Activities") will be useful and important parts of the Tributaries' efforts to avoid future SSOs. The Plaintiff and the Tributaries further agree, however, that the only practical way for such MMSD Activities to be successfully established and administered is if they are constructed and managed by MMSD. To that end, the Tributaries agree that they will encourage and support MMSD's continuing development, implementation, and management of flow monitoring and rain gauge systems and peak flow performance standards. Each Tributary retains all legal rights to object to and appeal any rules and standards implementing such MMSD Activities.

ENFORCEMENT OF SEWER USE ORDINANCES

18. The Tributaries (other than Milwaukee County) shall maintain local sewer use ordinances. By March 1, 2006, or such other dates as may be provided in applicable WPDES permits, and annually thereafter, each of these Tributaries shall submit a report to MMSD and DNR documenting that Tributary's actual and effective efforts to enforce its sewer use ordinance so as to identify and remove illegal connections, including but not limited to downspouts and footing drains, where applicable.

WASTEWATER STORAGE CAPACITY IMPROVEMENT PROJECTS, SEWER IMPROVEMENT PROJECTS, AND SEWER MANAGEMENT PROJECTS

19. By no later than December 31, 2006, the Tributaries, except Greendale, shall complete the correction of all defects identified for correction in the 2010 Limited Sewer Service Evaluation Survey and that are required to be corrected by current MMSD rules. By no later than December 31, 2007, Greendale shall complete the correction of all defects identified for correction in the 2010 Limited Sewer Service Evaluation Survey and that are required to be corrected by current MMSD rules. No later than December 3 1, 2006, however, Greendale shall submit to the DNR an interim report describing in detail its progress towards completing these corrections.

20. By no later than September 30, 2006, the Tributaries shall inspect externally all sanitary sewer manholes to identify those subject to surface water ponding and install as needed solid gasketed manhole covers and manhole frame seals to prevent surface water inflow.

21. By no later than June 30, 2006, each of the Tributaries shall develop and begin implementing a program under which it will internally inspect each of its sanitary sewer manholes at least once every five years to identify defects which may contribute to leakage. Furthermore, the program shall require, where cost-effective (as that term is defined in Wis. Admin. Code I$ NR 110.03(1 I)), the correction of each such defect within eighteen months of discovery unless demonstrated extraordinary circumstances indicate that a longer period, not to exceed twenty-four months from discovery, is necessary.

MUNICIPAL CAPACITY, MANAGEMENT, OPERATION AND MAINTENANCE ("CMOM") PROGRAM DEVELOPMENT AND IMPLEMENTATION

22. No later than June 30, 2009, all Tributaries shall develop and implement Capacity, Management, Operation and Maintenance (CMOM) programs reflecting the requirements of MMSD1s regional CMOM program, as contemplated by paragraphs 6-7 of the settlement stipulation in the case of State of Wisconsin v. Milwaukee Metropolitan Sewerage District, Milwaukee County Circuit Court Case No. 02-CV-270 1.

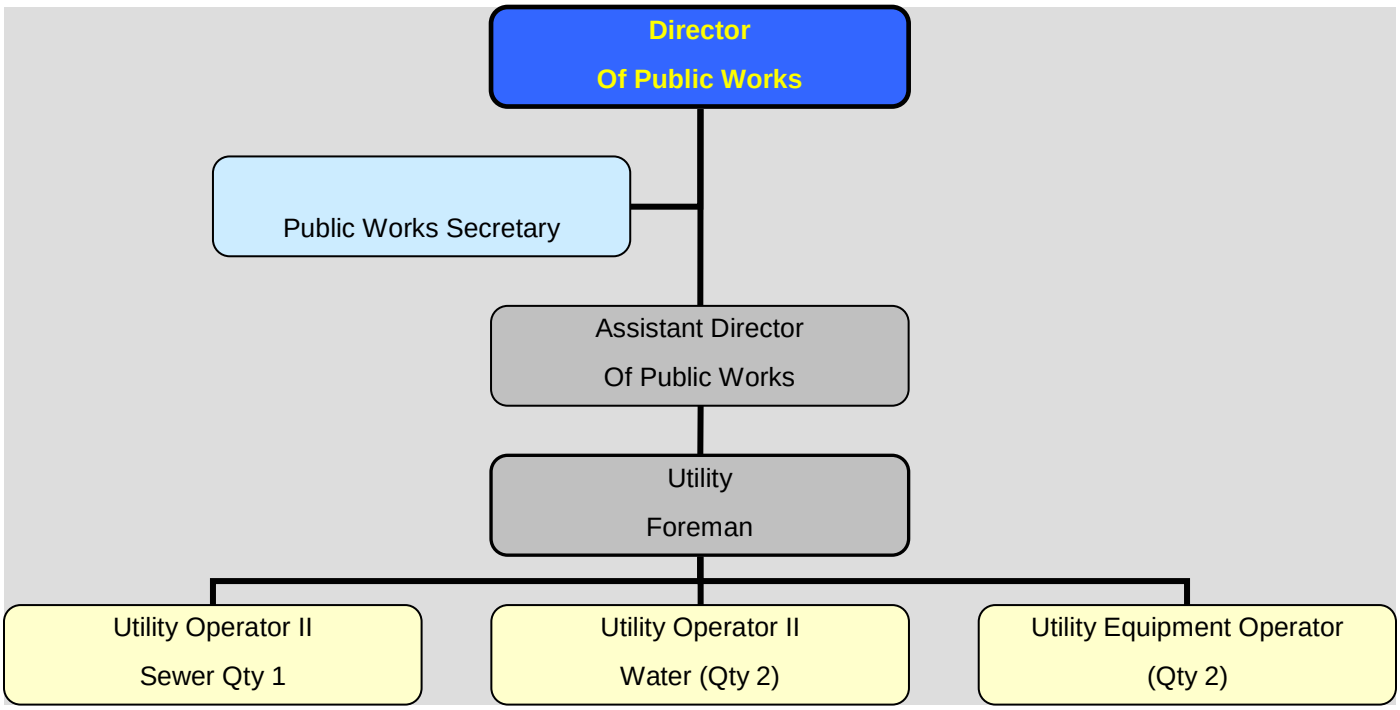
1.4.0. CMOM Tactics Which the Village of Shorewood Is Already Practicing

Many of Shorewood's existing services and activities already comply with anticipated CMOM requirements. This section identifies those CMOM wastewater conveyance services and activities. This narrative solely focuses on the existing wastewater conveyance services that state or federal SSO/CMOM regulations would likely address, should those regulations ever be promulgated.

1.4.1 Organizational Structure, Including Administrative and Maintenance Positions

The Department of Public Works is responsible for operating and maintaining the sanitary sewer collection system as well as many other duties such as snow plowing, landscaping, street sweeping and other typical public works duties. Currently there is not one person assigned to the collection system, however several employees have standard job duties that include inspection, cleaning, minor repairs and replacements of sewers and manholes. The Director of Public Works is responsible for managing all work including external contracts. The current organization structure for the Village is shown in Figure 1-2.

Figure 1-2 Village of Shorewood Organization



1.4.2 Legal Authority to Control I/I and Construction Standards

The Village ordinances include:

- Sewer Use Ordinance
- MMSD Discharge Requirements

The Village also uses and adheres to State of Wisconsin construction standards and design standards and MMSD rules.

1.4.3 Provide Adequate Maintenance Facilities and Information Management

The Village currently has a scheduled sewer and manhole inspection program for the entire system. Each year a portion of the system or basin is televised. Village staff reviews and analyzes the data and provides recommendations for repairs, rehabilitation and replacement information are provided. Typically repairs are completed immediately. The Village currently cleans one third of the sewers with the entire system cleaned approximately every three years. The frequency is determined by historical data and a preventive program to ensure no overflows occur to debris.

Flow monitoring is done through MMSD flow monitors. Permanent flow monitors have not been installed and based on historical data and information will not have to be installed at this time.

Village records documenting maintenance activities are completed on paper and maps.

1.4.4 Program to Assess the Current Capacity of the Collection

The CMOM requirements for capacity assurance planning require establishing the existing capacity of the conveyance facilities, determining what obstacles exist for eliminating separate sewer overflows, and outlining recommendations for implementing improvements. However, properly constructed models can allow engineers to evaluate the ability of built system capacity to handle a variety of simulated flow conditions.

The Village of Shorewood participated in the MMSD Limited Satellite SECAP project. Based on these results and inspecting their system during rain events, the Village has determined that there are no current capacity issues in their system.

1.4.5 Identification of Structural Deficiencies and Implementation of Rehabilitation Actions

Inspections are reviewed on an on-going basis by Village Staff and recommendations provided to repair, replace or rehabilitate the system on a regular basis.

1.4.6 Design Requirements and Standards for the Installation of New Sewers

The Village uses and adheres to Standard Specifications for Sewer and Water – State of Wisconsin standards and MMSD rules.

1.4.7 Monitor, Measure and Update Program Elements as Appropriate

This element of CMOM pertains to the management of the CMOM Program itself. When implemented, the process will involve reviewing the CMOM Program to determine where improvements are necessary and establish priorities for those improvements.

As the Village of Shorewood has not fully implemented its CMOM Program, a thorough updating process has not done. The Village is reviewing the program elements on a regular basis to revise inspection and cleaning schedules and to provide recommendations for repair, replacement or rehabilitation for sewers and manholes. In addition to this, the Village is familiar with processes that measure performance.

1.4.8 Provide a Detailed SSO Emergency Response Plan

The Village currently has a verbal emergency response plan for SSOs. The Director of Public Works or a designated representative will be completing a written response plan to comply with CMOM. The plan guidelines provided in the MMSD template will be reviewed and incorporated as applicable to the Village. The Plan will include instructions on how to respond, contract information, staff responsibilities, and notification requirements per WDNR instructions. It will provide recommendations for developing SOPs such as responding, eliminating, and cleaning up overflows as necessary.

1.4.9 Provide for Public Notification of SSO Occurrences

The Village of Shorewood uses the WDNR overflow response notification form and currently does not provide public notification. The Village has not had overflows in years. This procedure will be expanded to include public notification.

1.4.10 Provide a System Evaluation and Capacity Assurance Plan to Address SSOs

Although the SECAP provision of the draft USEPA SSO rule is not mandatory, the WDNR may eventually require the Village to develop a SECAP if included in an individual WPDES permit. MMSD SECAP requirements may also be considered during the development of the Wet Weather Peak Flow Management Plan. Currently, the Village has not identified any capacity limitations within their system.

As part of the MMSD's 2020 Facilities Plan project, the MMSD undertook a limited SECAP of each of the 28 municipalities it serves. The hydraulic evaluations that were performed are limited in that they analyze only those portions of the local sanitary sewer systems necessary to provide required information for the 2020 Facilities Plan project. The limited SECAP, which has been provided to the municipalities, may be used as a starting point for further investigation by the Village if such investigation is deemed warranted.

The modeling results of the limited SECAP are being used to validate flow development and overflow volumes for the regional water quality and conveyance models of the 2020 Facilities Plan. MMSD recommends that the results should not be used qualitatively within the Village system without further additional analysis. If the Village is required to complete a SECAP at a later date, and determines that a more complete SECAP will be required, analysis by the Village may need to

include further definition of local flows and sewer system details to support local planning and design efforts.

1.4.11 Conduct a CMOM Program Audit as Part of the Permit Application

The Readiness Review effort conducted in support of this CMOM Program Strategy was an initial audit of CMOM activities by the Village. Upon implementing this CMOM Strategy, the Village will be able to conduct future audits. This CMOM Strategy outlines a best practice for performing such an audit.

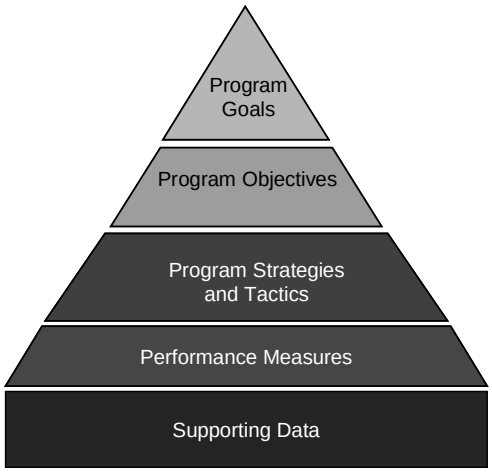
Chapter 2 - Management Plan Strategy

The CMOM Management Plan (MP) describes the means and methods the organization has in place to ensure complete execution of a CMOM Program. This is the general description of the MP based on the draft United States Environmental Protection Agency (USEPA) SSO rule and component CMOM regulations. Although using the draft CMOM regulations as guidelines, this Management Plan Strategy does not recognize them as a regulation. To the best of the ability of the CMOM project team, this MP Strategy reflects these draft regulations and industry best practices. In 2003, MMSD provided all satellite municipalities with an electronic document template for an MP. The strategy provided on the following pages addresses the content of that template, but the Village will ultimately need to develop the actual CMOM MP as a stand-alone document.

The MP must satisfy two primary purposes. First, it must serve to achieve the larger CMOM Program goals that the Village has established. Second, it must satisfy the requirements of MMSD's Rules concerning a satellite municipality CMOM Program (currently under development). This chapter of the CMOM Strategic Plan contains a strategy which outlines the necessary components of a MP to be subsequently developed by the Village. The Village structured the information for clear linkage between CMOM Program elements, CMOM Program requirements of MMSD, and draft state and federal regulations concerning SSOs.

2.1.0. CMOM Program

In the process of performing its first CMOM Readiness Review, the Village developed goals and objectives for its CMOM Program. As illustrated in the figure to the right, the goals are the highest level outcomes that the Village wants to accomplish through the CMOM Program. **Objectives** are statements of how these goals will be achieved. Typically there are several objectives that better define each goal. **Strategies** articulate the specific steps and tactics involved in achieving each objective. **Performance measures** will be used by the Village to evaluate progress toward achieving each of the strategies, objectives, and goals.



The MP documents the goals of the program; however, the Village will periodically review the goals to confirm whether updates are necessary with respect to customer service, regulatory requirements, and financial considerations. This MP Strategy provides the goals, objectives, strategies that the Village has chosen for its CMOM Program.

Specifically, the draft federal and state regulations express five general principles that indicate CMOM compliance for a wastewater utility:

- Properly manage, operate, and maintain, at all times, all parts of the collection system that the utility owns or over which the utility has operational control.
- Provide adequate capacity to convey base flows and peak flows for all parts of the collection system the utility owns or has operational control.

- Take all feasible steps to stop, and mitigate the impact of, SSOs in portions of the collection system the utility owns or over which it has operational control.
- Provide notification to parties with a reasonable potential for exposure to pollutants associated with the overflow event.
- Develop a written summary of the utility CMOM Program and make it available to any member of the public upon request.

These five general principles serve as a minimum set of objectives for the Village CMOM Program.

The Village has therefore established CMOM goals and objectives in the following fashion:

1. Establish an overall mission statement that encompasses a desired CMOM program outcome for the wastewater collection system.
2. Establish specific CMOM Program goals for the wastewater collection system.
3. Establish a set of objectives supporting each CMOM goal.
4. Establish strategies and performance measures that support the objectives.

2.1.1. CMOM Program Mission Statement

As a result of this process, the following are recommendations for the Village's overall CMOM Program Mission Statement:

Option 1:

> "By June 2009, develop and implement a cost-effective CMOM Program based upon best practices for wastewater collection, which results in cost-effective I/I reduction and maximizing the ability of the collection system to convey wastewater to the MMSD system without overflow. The program must be consistent with goals from other Village policies and ordinances and MMSD Rules and Regulations."

Option 2:

> "To efficiently collect and convey all of our customers' wastewater in the most cost-effective manner while remaining in compliance with WPDES permits, Clean Water Act, Wisconsin Law, and MMSD Rules and Regulations."

The Village will develop a CMOM mission statement during the development of their CMOM Plan. Currently, Village Board approval for the statement is not required.

2.1.2. CMOM Program Goals

The following CMOM Program Goals were established by Village through this process

1. Comply with the conditions of the WPDES permit

2. Minimize the occurrence of preventable overflows
3. Maintain assets cost-effectively
4. Improve or maintain the level of customer service
5. Improve or maintain system reliability
6. Reduce the potential threat to human health from sewer overflows
7. Provide adequate capacity to convey peak flow
8. Manage infiltration and inflow
9. Protect collection system worker health and safety
10. Operate a continuous CMOM Program

2.1.3. CMOM Program Objectives

Each of the CMOM Program Goals identified in Section 2.1.2. requires further definition in terms of objectives necessary to achieve each goal. Table 2-1 provides the details of the objectives as well as regulatory expectations that relate to each goal.

Table 2-1. CMOM Program Goals, Objectives, and Regulatory Expectations

Program Goal	Objectives	Regulatory Expectations
1.Comply with the WPDES permit concerning sanitary sewer overflows	Ensure procedures are in place to identify SSOs, report SSOs to the WDNR, and mitigate impacts from the SSOs per the WPDES permit.	Untreated wastewater discharges from the system are a violation of the WPDES permit.
2.Minimize the occurrence of preventable overflows	Ensure procedures are in place including O&M practices to minimize overflows	The WDNR General Permit for SSOs provides specific circumstances under which the WDNR may not take enforcement action against the discharger. These circumstances include situations where the SSO occurred to prevent loss of life, personal injury, or severe property damage.

Table 2-1. CMOM Program Goals, Objectives, and Regulatory Expectations

Program Goal	Objectives	Regulatory Expectations
3. Maintain assets cost effectively	Ensure preventive maintenance is performed (manholes and sewer pipes) Continue to conduct condition assessments on sewer assets.	State statutes require wastewater rates to include a component for equipment replacement.
4. Maintain the level of customer service	Ensure Customer Service program is meeting the Village needs	
5.Improve or maintain system reliability	Confirm the existence of any system components that do not function according to established reliability standards.	
6.Reduce the potential threat to human health from sewer overflows	Identify potential overflows • Confirm the existence of locations where system overflows could pose a threat to human health. • If such locations exist, develop response measures and investigate alternatives for eliminating the potential threat.	Overflows from the system are a violation of the WPDES permit, Clean Water Act, and Wisconsin State law.
7.Provide adequate capacity to convey peak flow	Gain an understanding of the current system's ability to convey peak flows and what steps are necessary to address system inadequacies.	The State would require a System Evaluation/Capacity Assurance Plan for the Village if the evidence shows that the system does not possess the capacity to convey peak flows .

Table 2-1. CMOM Program Goals, Objectives, and Regulatory Expectations

Program Goal	Objectives	Regulatory Expectations
8.Manage infiltration and inflow	Reduce I/I • Understand the current level of I/I in the system, the extent to which it poses a threat to the regional or municipal system operation, sources of I/I, and potential remedial measures. • Establish a program to reduce I/I in situations where I/I results in service problems, overflows and building sewer backups or exceeds peak flow performance standards established by MMSD. Such performance standards may include those that would prevent I/I from increasing in the future.	If the State or MMSD determines a SECAP is required of the Village, a component of this plan will include I/I evaluation and reduction.
9.Protect collection system worker health and safety	Provide a safe working environment for all employees.	
10. Operate a continuous CMOM Program	Establish procedures for monitoring CMOM Program implementation and initiating program modifications.	

2.1.4 CMOM Program Strategies

Each of the established objectives needs one or more strategies for implementation. This section details the strategies developed for the Village. These strategies will be reviewed and revised as necessary.

1. *Ensure procedures are in place to identify SSOs, report SSOs to the WDNR, and mitigate impacts from the SSOs per the WPDES permit.*

- Develop a ORP that addresses the requirements of the WPDES permit and with Applicable Law. Use the ORP template as a guideline.

- Review procedures for identifying, reporting, and mitigating SSOs with sewer system staff.
- Continue to use the standard procedure for reporting SSOs

2. *Ensure procedures are in place including O&M practices to minimize overflows.*

- Review and update manhole and sewer inspection and cleaning programs as necessary
- Review and enhance on-going repair program including manhole and sewer rehabilitation
- Continue to perform condition assessments in manholes and sewers to identify areas of I/I and structural defects
- Continue to provide recommendations to resolve problem areas and provide recommendations for future projects as necessary
- Review locations of potential overflow or basement backups and provide recommendations as necessary
- Review FOG program and enhance as necessary
- Implement projects that impact operations and overflows

3. *Ensure preventive maintenance is performed on manholes and sewer pipes on regular intervals.*

- Review sewer cleaning programs and update as necessary to maintain the assets.
- Review manhole repair program and update as necessary
- Continue to provide recommendations for the CIP based on condition assessments of manholes and sewer pipes.

4. *Ensure Customer Service program is meeting the Village needs.*

- Review existing program and provide recommendations for revisions if necessary.
- Coordinate with other Village Departments as necessary

5. *Confirm the existence of any system components that do not function according to reliability standards established by the Village.*

- Continue to provide recommendations to the CIP based on the condition assessments. Other emergency repairs are performed immediately by Village crews.
- Review the system to ensure that the sewers and manholes are functioning as designed.

6. *Confirm the existence of locations where system overflows could pose a threat to human health.*

- Document locations of reported overflows, including basement backups.
- Review each location for the potential to threaten human health and document findings.

7. *If such locations exist, develop response measures and investigate alternatives for eliminating the potential threat.*

- Document response measures to be used by municipality staff and contractors in the event of system overflow. Documentation should be site specific or specific to the type of overflow (such as a basement backup).
- Review alternatives, construction-related and operation-related, for eliminating the threat and document the findings.

8. *Identify potential overflows.*

- Review system with staff and determine any potential overflow spots
- Provide recommendations for eliminating these overflows if necessary
- Develop response measures if these locations exist
- Develop ORP plan to respond and mitigate overflows

9. *Gain an understanding of the current system's ability to convey peak flows and what steps are necessary to address system capacity inadequacies.*

- Review flow data
- Review basement backup logs
- Identify potential problems through condition assessments
- Develop and implement a SECAP if required to address any identified capacity related overflows.

10. *Reduce I/I.*

- Understand the current level of I/I in the system which may include: identifying additional flow monitoring sites in areas suspected of generating I/I and a wet weather program to identify areas of I/I
- Implement I/I reduction efforts
- Continue the CIP program to repair, rehabilitate and replace pipe based on the condition assessments.
- Identify areas of high flows and determine methods to identify specific points of I/I, particularly in areas that exceed peak flow performance standards established by the MMSD 2020 Facilities Plan and subsequent facilities plans.
- Provide recommendations for addressing private property laterals and other connections if necessary
- Identify and implement projects to reduce peak flows

11. *Provide a safe working environment for all employees.*

- Continue to provide Village collection system worker training on sewer system hazards.
- Continue the existing safety program specific to sewer system work and include specifics such as sewer system hazards and safety gear.

12. *Establish procedures for monitoring CMOM Program implementation and initiating program modifications.*

- Track the closing of opportunities for improvement identified and prioritized by the CMOM review (see Appendix B).
- Update the CMOM Program as necessary or as required by Applicable Law.

2.2.0 CMOM Readiness Review

In 2004, MMSD hired a consulting team led by Brown and Caldwell to conduct a CMOM Readiness Review of all 29 MMSD satellite municipalities, including Village of Shorewood. This process, now completed, involved reviewing documents, interviewing staff, and performing field observations.

The consulting team developed a framework for the CMOM Readiness Review based on a variety of sources, including draft CMOM regulations, the MOM checklist from the USEPA Region IV web site, and information from CMOM experts within Brown and Caldwell. The consulting team conducted a workshop with managers and collection system staff from the Village to familiarize them with the audit process and to determine primary contacts for the review.

The consulting team collected information for the Readiness Review from documents, staff interviews, and field visits, using the CMOM checklists as guidelines.

Documents. Village staff provided documents and other information on current practices, including contract compliance reports, overflow notifications, maintenance activity reports from the Village's computerized maintenance management system, and standard operating and maintenance procedures. Appendix A presents a list of reviewed documents.

Interviews. The consulting team conducted a series of interviews with Village staff . The interview process encouraged input from all departments that affect the delivery of sewer service in the Village. The interviews included all Public Works employees involved in sewer work as shown in the organization chart Figure 1-1.

Field Visits. The consulting team conducted field visits with the collection system staff. The purpose of these visits was to observe field staff work practices and equipment usage. Below is a listing of the activities observed:

- Inspection of sewers
- Cleaning sewers
- Repair of pipe

Other. The consulting team also toured the Village yard to observe the location and quantity of spare parts, tools, materials, and equipment used for work and for emergencies. They also observed the condition of the equipment including safety equipment such as trench boxes.

2.2.1 Areas of Improvement and Priorities

Although the Village has a number of documented practices that would meet CMOM requirements, the Readiness Review of existing practices identified a number of areas for improvement. The consulting team used knowledge of other collection system agencies and results from benchmarking studies to identify practices that need improvement and documentation. Finally, Village staff provided their views on practices and areas for improvement during interviews.

Following this data collection phase, the Readiness Review team reviewed the gathered information and compared it to prepared checklists to determine specific areas for improvement in practices, policies, staffing, equipment, facilities, and contracts. Appendix B lists the issues identified by the Readiness Review and documented in the 2006 CMOM Readiness Review Report. Village staff established preliminary timing for resolving these issues relative to finalizing the CMOM Strategic Plan. Village staff intends to address near-term issues within 3 years or less, intermediate within 5 years, and long-term issues within 10 years or less. Appendix B summarizes the timing that the Village selected for resolving each item.

During the development of the CMOM Plan, the Village will also identify certain activities that will require the development Standard Operating Procedures (SOPs). The Village will also continue to identify and implement projects to improve the condition of the assets and reduction of peak flows.

Chapter 3 - Overflow Response Plan Strategy

The purpose of a Capacity assurance, Management, Operations, and Maintenance (CMOM)-based Overflow Response Plan (ORP) is to document a standardized course of action that the Village of Shorewood wastewater collection system personnel will follow in the event of a sanitary sewer overflow (SSO) event. To match the recommendations within the U.S. Environmental Protection Agency's (USEPA) draft CMOM regulations, the Village would need to design its ORP to ensure that designated personnel immediately dispatch every report of a confirmed sewage overflow to appropriate field crews to minimize the effects of the overflow with respect to impacts to public health, beneficial uses and water quality of surface waters, and customer service. Further, the Village of Shorewood's ORP would need to include provisions to ensure safety of collection system workers. Finally, the ORP ensures that the Village notifies and reports overflows to the public and appropriate local, state, and federal authorities in order to meet Wisconsin Pollution Discharge Elimination System (WPDES) permit compliance requirements as stated in WI-0047341-04-0 Sanitary Sewer Overflows from Sewage Collection Systems. This chapter of the CMOM Strategic Plan documents what the Village should incorporate into its ORP. The actual ORP will be developed by the Village.

In 2003, MMSD provided all satellite municipalities with an electronic document template for an ORP. The strategy provided on the following pages addresses the content of that template, but the Village will ultimately need to develop the actual CMOM ORP as a stand-alone document.

Based on a review of documents, including overflow reports, the Village of Shorewood appears to have a set of operating strategies and documents that meet the intent of the draft CMOM regulations. Therefore, a CMOM-based ORP for the Village of would consist of assembling these documents, SOPs and verbal procedures in a single plan, available for review by regulatory staff and the public.

3.1.0. Regulatory Objectives

The objectives of an ORP, according to the draft CMOM regulations, are as follows:

1. Reducing sewer system overflow frequencies and volumes.
2. Protecting public health and safety.
3. Minimizing adverse water quality and other environmental impacts due to an overflow.
4. Avoiding WPDES permit violations.
5. Complying with all local, state, and federal rules and regulations.
6. Protecting public and private property.
7. Minimizing the liability of the collection system owner.
8. Improving the quality of customer service.

3.2.0. Current Activities

Developing and implementing a comprehensive ORP requires a thorough understanding of the Village of Shorewood's critical facilities, development of an organizational structure to facilitate quick response, development of a comprehensive ORP communication plan, maintaining adequate dedicated staff and

equipment, establishing a panel of outside contractors who can respond to overflow events, establishing comprehensive reporting procedures, and distributing the plan and making customers, agencies, and Village personnel aware of the ORP requirements and provisions. The following is an overview of these topics. The actual Village ORP will provide specific activities the Village will follow in the event of an overflow.

3.2.1. Critical Facilities Identification

The Village of Shorewood must base its system-wide and site-specific overflow response and notification procedures on knowledge of Village's critical facilities and areas of potential impact. The ORP will identify and list of the critical facilities within the collection system. A critical facility is any structure or component of the collection system that could allow an overflow that would result in significant impact to public health or the environment. Examples of critical facilities may include pumping stations, siphons, collector sewers, and areas that may require maintenance on a frequent or routine basis. Having an ORP that is based on comprehensive knowledge of critical facilities helps collection system staff to understand the possible cause(s) and potential impacts resulting from a failure that results in an SSO. While many existing Village operations staff members likely have a thorough understanding of critical facilities, a properly prepared and updated ORP will serve as an excellent training tool for new staff.

Thorough documentation of the operational characteristics of each critical facility will assist Village staff responding to a situation, resulting in a quicker and more efficient overflow response and timely mitigation of a release. The following section provides brief descriptions of some typical critical facilities. These descriptions will help Village staff complete the ORP document.

3.2.1.1. Pump Stations

Two types of pump stations covered by this definition are conventional and bypass pump stations. Conventional pump stations are those that convey flow to a wastewater treatment facility from low-lying areas in the collection system. Conventional pump stations typically exist in areas where flow is unable to reach the treatment facility via gravity. Conventional pump stations are considered critical facilities because a performance failure can result in significant impacts to public health and the environment. Bypass pumping stations are used in emergency flow conditions to relieve the hydraulic grade line in the sewer system and prevent basement backups. *There are no pump stations in the Village*. At times, the temporary bypass pumps can be used to relief hydraulic pressures in the system where there is no permanent pumping station. Utilizing bypass pumping stations ordinarily result in SSOs, although some such systems can discharge to a storage facility, or a nearby sanitary sewer, if properly equipped.

Mechanical, instrumentation, power, and structural failures at either type of pumping station can result in basement flooding, surcharged manholes, and overflows of untreated wastewater that may directly impact public health and receiving water quality.

3.2.1.2. Collection System

The collection system collects and conveys the wastewater from domestic, commercial, and industrial sources to a WWTP. Collection system deficiencies (e.g., plugged lines, grease build up, root intrusion, flat slopes, collapsed pipe, hydraulic inefficiencies, etc.) may cause wastewater backups, resulting in untreated wastewater discharges which can produce adverse public health and environmental impacts. According to as-built drawings, the Village owns, operates and maintains over 156,000 feet of sanitary

sewer collection system mains and interceptors. The most critical elements of a gravity system are shallow manholes and pipes at elevations very close to those of nearby basements.

3.2.1.3. Siphon

Inverted siphons are sewer lines installed lower than the normal gradient of the sewer line to pass under obstructions such as watercourses and depressed roadways. Wastewater is "pushed" through the siphon when the hydraulic pressure exerted by the wastewater in the upstream sewer is higher than the pressure exerted by the wastewater in the downstream sewer. Siphons generally require more maintenance than gravity sewers since the velocity of the wastewater carries solids in the conveyed wastewater up the downstream segment of the siphon. Low velocities will leave heavy solids at the bottom of the siphon, and maintenance crews must remove these solids by one of several cleaning methods. For this reason, many organizations construct siphons with two parallel barrels (pipes) to provide an alternative route for wastewater if one barrel becomes blocked. The Village of Shorewood does not own any siphon facilities.

3.2.1.4. Diversion Structures

Diversion structures help manage the flow within the system, typically by using gates in open, closed, or partially open positions. Such structures allow operators to route flow to other portions of the system that have available flow capacity. The Village of Shorewood does not own any diversion structures.

3.2.1.5.Overflow Gate

An overflow gate (for example, a flap gate) is a mechanism within a regulator used to direct the flow of wastewater out of the collection system. Overflow gates are critical facilities since failure of the gate, even during dry weather flow, may allow untreated or partially treated wastewater to be discharged to a receiving water body. The Village of Shorewood has five (5)bypass gates that are closed.

3.2.1.6.Storage Tank

A storage tank (or other similar "storage facilities") can be used in a sewer system to hold back peak flows during dry or wet weather conditions, effectively reducing the peak flow demands on downstream sewer infrastructure, such as pumping stations. Such tanks can be constructed above or below ground. They can be designed to operate with a combination of pumping into and flow by gravity into and out of the tank. Such facilities can also be a cost-effective means to control overflows and consequently qualify as critical facilities. The Village of Shorewood does not own, operate, or maintains any sewage storage tanks.

3.2.2. Organizational Structure to Respond to Overflows and Emergencies

The CMOM-based ORP should contain an organizational chart that provides the names and telephone numbers of key personnel, the chain of command, and the relationships among various program components and departments. In addition, the organizational chart should show clear lines of authority, including the chain of command for responding to SSOs from the receipt of the complaint to the person responsible for reporting to the WPDES authority. For the Village, the permit authority reporting responsibility falls on the Director of Public Works (DPW).

3.2.3. Comprehensive ORP Communication Plan

In an overflow situation within the system, the DPW or designated representative will notify others within the Village, local and state public health agencies, and the public of the situation. Agencies may

require different methods of notification, such as beeper, telephone, fax, and/or written notification. A comprehensive communication plan allows quick identification of the contact person and notification procedures. A flow chart should be developed for notification procedures for spills, accidental discharges, and unidentified releases to the Village's collection system. The Village has not had a sanitary sewer overflow in over ten (10) years.

The Current notification plan is as follows:

- Incident is called in to Village (Department of Public Works Director or Police)
- Incident is investigated by Foreman (cause/extent of incident)
- Foreman dispatches Department of Public Works (DPW) workers as necessary and reports findings to the DPW
- Work is directed to resolve problem either via DPW workers or outside contractor depending upon the severity of the problem. DPW is notified when work is complete and updates others as necessary depending upon the severity of the problem.
- If an overflow, the Village uses the WDNR form to report the overflow and will continue to use this for internal debriefing. A sample debriefing form is found in Figure 3-1.

Public notification is a key component of the communication plan, and a requirement under the new WDNR general discharge permit, effective March 1, 2006. Also, the draft CMOM regulations require "notification to parties with a reasonable potential for exposure to pollutants associated with the overflow event." SSOs can include bacteria, viruses, toxic constituents, and metals. While bacteria may die within hours to days following an overflow event, viruses and toxic compounds can persist in sediments for months after the discharge. Public health concerns arise in areas where humans, animals, or fish come in contact with overflows.

Public notification often also includes an overflow signage component. Typically, organizations will use a combination of sign types including: Informational signs at some locations, such as access points to water bodies; and warning signs at outfall locations. These signs are either fixed (year round) or event-oriented (e.g., flipped over or inserted into a base or structure during or immediately following an overflow event). In some cases, organizations will install signs on a seasonal basis. Implementation issues have included the potential visibility of signs, the ability of agencies to respond rapidly in the case of event-oriented signage, and the information presented on the signs. If Village uses warning signs, they should contain universal symbols easily understandable by the non-English speaking public. Signs should warn the public to avoid contact with the water after a rainstorm and should include the phone number for contact information. At this time, Village does not intend to implement a signage program for SSO outfalls due to the infrequent discharge from these sites but will review requirements as required by Applicable law.

In addition to signage, organizations use other methods of notifying the public of overflows. These methods include media advisories following SSO events, web pages, regular newsletters, and hotline (recorded messages) programs. The Village of has not used these additional methods due to the infrequent number of overflows. Public notification requirements will be reviewed under the development of the ORP.

State regulations view scheduled (typically related to construction) and unscheduled overflows differently. The Village must report unscheduled overflow occurrences to the WDNR according to the following WPDES permit requirements according to the newly reissued General Permit WI-S061565-2 (effective March 1, 2006) for bypasses and overflows from sewage collection systems:

- Telephone, fax or by e-mail within 24 hours
- Submit a written report within five days using WDNR form or equivalent
- By March 31 of that year, document whether or not there was a bypass or overflow in an annual report.

Additionally, the WPDES permit requires Village to monitor water quality during and after overflow events. Appendix C includes a summary of the reporting and monitoring requirements of the WPDES permit.

This section of the ORP should include requirements and copies of the forms and reports.

3.2.4. Staffing and Equipment Needs

This section describes the types of staffing, staff training, equipment, and collection system information that the Village of Shorewood should gather, develop, and include in the ORP.

3.2.4.1. Staffing

In order to understand Village staffs' ability to adequately respond to various overflow situations, Village should perform an annual inventory of collection systems operations staff levels, shortly after the start of the calendar year, or sooner if there are significant changes to the organization. An update at this time will allow the Village to determine if there are critical gaps in human resources needed for overflow response. The information collected will directly reflect the ability of staff members to respond to various overflow scenarios. A job description for each position should indicate the required capabilities of the individual and any additional training or unique certifications that individuals will need to perform those duties.

Ideally, the staffing information should include the following information for each individual:

- Staff name
- Department
- Years of experience
- Qualifications
- Day, night, and weekend availability
- Phone numbers (home, work, cell, and pager)
- Job description
- Special training (i.e. confined space entry training)
- Certifications

At the same time as it is updating its staffing inventory, Village should update annual organizational charts that provide the names of individuals and their titles. If appropriate, the annual staff update should also include agreements with all outside and specialized contractors. Section 3.2.5 provides further

details of this aspect of the ORP. After normal working hours, staff respond as necessary to all emergencies.

3.2.4.2. Equipment

Before responding to an overflow situation, the responders would need to know the operating condition of all available portable equipment needed to successfully carry out an overflow response action. The Village of Shorewood may not need to dedicate equipment to emergencies, making it available for daily use. The inventory should include the following information describing the emergency equipment available for overflow response use:

- Name and ID number
- Location
- Age
- Key operating characteristics (voltage, horsepower, etc.)
- Contact person responsible for item
    - Phone number
    - Pager number
- Operational status of item

The inventory should include all service and equipment vendors used by Village, phone numbers, pager numbers, and approximate time to obtain the equipment in the event of an overflow. The inventory of information should include a copy of each formal agreement.

The ORP must identify the location of the emergency equipment and spare parts. The Village should also maintain an inventory of all critical spare parts for the emergency equipment. The list should include the location of the critical spare parts, the contact person and phone number, in case field crews need that part. In some cases, Village may find it more practical to have a redundant piece of equipment rather than spare parts.

3.2.4.3. Staff Training

The ORP will identify specific training activities that will be required of key individuals responsible for aspects of ORP implementation. Training will include classroom sessions to review the ORP contents, conduct desktop training exercises for determining root causes of an overflow, and reviewing responsibilities for reporting SSOs to appropriate authorities. Field training will also be included if the Village uses staff to respond to SSO incidents.

3.2.5. External Contractor Support Options

After evaluating the staff and equipment, the instances where outside assistance is required or beneficial will be evident to the Village. Vendors and contractors are perennial options for equipment rental or purchase.

As mentioned above, the Village must identify all of its emergency overflow equipment and staffing needs and then identify all potential vendors and contractors that can supply the equipment and services. Additionally, surrounding municipalities might make staff and equipment available for responding to a large overflow. The ORP should also include this information.

Village should require its vendors and contractors to provide, in writing, the time interval required for their response and the liability coverage that they carry. The vendors or contractors should have considerable expertise, and, in some instances, certification in the service they provide.

It is difficult to predict emergency expenditures for the coming year, yet the Village must make funding available for emergencies in order to rectify situations that arise. Village should adjust the remaining budget amount in the emergency account throughout the year as needed so the ability to contract for external support is not hindered.

3.2.6. Overflow Response Review

This section describes the review process, root cause of failure analysis (RCFA), and the process for developing abatement activities. The ORP will include specific reviews that will occur and who will be responsible for the reviews following an SSO event.

3.2.6.1. Overflow Response Review Process

Following the overflow event, the Village of Shorewood should conduct a debriefing meeting to review the response. The purpose of this meeting is to review the response, identify aspects of the response that went well, problems that arose, and to identify future action all parties should take to improve the response. Questions that Village should address at the meeting include the following:

- What lessons were learned from this overflow event?
- Are additional supplies needed?
- Are any staffing changes needed?
- Are changes needed to the ORP procedure?

After responding to an overflow, it is important to record data about the overflow and the response. A standardized internal debriefing summary form will help record the information and the Village should keep the form on file.. Figure 3-2 (found at the end of this chapter) shows an example form. Additionally, staff should prepare an internal report to document the quantity of rainfall. Subsequently, staff should conduct an RCFA as described below. MMSD generates a substantial amount of information that may be helpful for overflow event evaluation.

3.2.6.2. Root Cause of Failure Analysis

The manufacturing industry developed the RCFA concept for analyzing process equipment failures. For wastewater collection systems, the concept can guide development of a methodical and documented process of determining the root cause of a system failure or overflow with the ultimate objective of preventing similar failures.

The main elements of a RCFA are as follows:

1. Locating and preserving failure data (such as duration and extent of overflow; monitored indicators, such as rainfall data, flow data, and water quality data; time of last facility inspection; and information on previous failures at the specific location).
2. Assembling a RCFA committee to analyze data and develop hypotheses for cause of failure.

3. Verifying hypotheses. The RCFA committee may verify a hypothesis by simply establishing consensus that existing data confirm a particular hypothesis. Alternatively, the RCFA may recommend methods requiring further effort, such as hydraulic modeling, for testing a hypothesis.
4. Determine underlying cause of failure (physical, mechanical, human).
5. Communicate and document RCFA results to management and/or regulating agencies, along with recommended strategies for preventing similar failures in the future.

The Village's current practice of analyzing, documenting, and reporting an overflow is thorough, but Village has not formally documented the procedure. The Village should develop an SOP for RCFA using the principles outlined above. Such a procedure would provide a more robust response to establish an affirmative defense in the event of an overflow.

As a result of the RCFA, the Village may need to perform abatement activities to prevent the recurrence of the overflow. The nature of the overflow determines what the immediate and long-term abatement activities are, if any. Short-term steps may be as simple as jetting the sewer pipe to clean out a grease build-up, or as involved as re-routing the flow of sewage over the course of a few days in order to repair a pipe.

Long-term abatement activities imply some type of preventive maintenance (PM) on the pipeline. PM includes cleaning grease build-up from the sewers, I/I removal, clearing out tree roots, or inspecting sewers with a remote sewer camera. The Village has a PM program for maintaining problem pipelines and manholes and routinely reviews and updates the list of pipes included in this program.

The Village of Shorewood can use this information to direct overflow correction activities and prioritize maintenance activities. A system for retrieving this information could be a particularly useful resource to those people responsible for preparing collection systems PM programs and capital improvement plans for sewer rehabilitation and hydraulic capacity projects.

3.2.7. Maintenance and Distribution of the ORP

The Village of Shorewood should make annual reviews and updates, as necessary, to the ORP to reflect all changes in the system, policies, and procedures in order to achieve the ORP's objectives. The Village must distribute the updated ORP to all personnel who have duties and responsibilities under the ORP.

3.2.7.1. Review and Update of ORP

The Village should review the ORP annually and amend it as appropriate. In particular, the DPW or designated representative, who has primary responsibility for the CMOM Program will:

- Update the ORP with the issuance of a revised or new WPDES permit;
- Conduct annual training sessions with appropriate personnel; and
- Review and update, as needed, the various contact person lists included in the ORP.

3.2.7.2. Distribution of ORP

The Village should distribute copies of the ORP and any amendments to the following organizations/functional positions:

- Wisconsin Department of Natural Resources (WDNR)

- Village
  - Village Manager
  - Department of Public Works
  - Health Department

All other personnel who may become incidentally involved in responding to overflows should be familiar with the ORP. Additionally, the Village should laminate and distribute copies of the appropriate ORP procedures and contact information to all sewer crews or have them available for contractors and place them in Village vehicles for reference during an overflow event.

3.3.0. ORP Strategy Considerations

This section outlines more specifics that the Village CMOM-based ORP should contain.

3.3.1. Determine Level of Detail

The Village needs the ORP to include a level of detail for its system-wide and site-specific procedures for effective response to SSOs. System-wide procedures provide a description of how the system operates and operational guidance during high flow events. The site-specific procedures include response procedures for each critical facility.

3.3.1.1. System-wide Response Procedures

The Village has a verbal procedure to respond to overflows. This procedure should be enhanced to include additional CMOM requirements including documentation.

The CMOM-based ORP will require a detailed description of the system-wide operational procedures for the collection system.

3.3.1.2. Site Specific Overflow Response Procedures

Site specific overflow response procedures consist of one overflow response procedure matrix and one notification procedure matrix for each type of critical facility. The following information will serve as the basis for the site-specific matrices.

- List of all types of critical facilities
- Location of all critical facilities
- Potential critical facility failures
- Potential areas of impact in the event of a critical facility failure
- References of the overflow response and notification procedures for each possible failure and affected area

Figure 3-3, at the end of this chapter, provides an example of a site specific overflow response procedure. As stated in Section 3.2.1, the overflow response procedures will identify the critical facilities for which the Village will develop site-specific procedures.

3.3.2. ORP Format

The Village of Shorewood has decided to present the information contained in the ORP to different audiences in a single formats. Village should prepare and distribute a comprehensive plan to staff and

regulatory agencies. A web-based format with links to the appropriate procedures, contact information, and templates for the required paperwork could also present this information. Village should prepare, laminate, and distribute copies of appropriate ORP procedures and contact information to each sewer crew and vehicle for reference during overflow events. Appendix D includes an example outline for the ORP.

3.4.0. Coordination with MMSD and Neighboring Municipalities

Where possible, the ORP should note how and when to involve the MMSD and neighboring municipalities in response to SSOs. Coordination can range from borrowing of equipment to notification that an SSO has occurred. The Village has determined that the following coordination activities will apply to the ORP:

- Public Works Emergency Response Mutual Aid Agreement
- Village of Whitefish Bay diversions to and from the Village of Shorewood and Whitefish Bay

3.5.0. Performance Measures for Strategy Implementation

As with other aspects of the CMOM Strategic Plan, the Village of Shorewood has developed performance measures related to implementing a CMOM-based ORP. The following section describes these performance measures.

3.5.1. Measurement Parameters

There are two considerations for establishing performance measures for the ORP: effectiveness of the overflow response and annual review of the ORP. Both are important as several years may pass between SSO events, making an annual review of the ORP important for ensuring operational readiness.

Once the Village has completed the ORP and trained staff on its use, the primary measurement parameters will consider the effective implementation of the ORP procedures during an overflow event. Also, as the ORP is a living document, the Village should review and update it annually or more frequently if necessary, to reflect changes in staff, procedures, and general information. The annual review of the ORP will be conducted by the DPW or designated representative with input from the staff.

The Village will need an evaluation process for the performance measures in order to determine if the implementation of the ORP is successful. Table 3-1 organizes six performance measures into topic areas related to the ORP.

Table 3-1. Desired Results of Performance Measures Overflow Response

Topic	Performance Measure
1. ORP Communication Plan	Were the proper personnel and agencies notified?
2. Availability of Staff and Equipment	Were the necessary staff and equipment available? Were the responding crews sufficiently qualified to perform the necessary tasks? Was the equipment in proper working order?
3. Response Time and Efficiency	How quickly were the crews dispatched to the overflow area? How quickly were they able to contain, control, and mitigate the overflow?
4. Overflow Response Procedures	Were the ORPs followed by the responding staff? Were the ORPs adequate technically to contain, control, and mitigate the overflow? Were water quality samples obtained? Were overflow-specific samples taken? An Example of a Site Specific Overflow Response Procedure is found in Figure 3-2
5. Root Cause of Failure Analysis	Were adequate data available to determine the root cause of failure? Was the RCFA committee adequately staffed to quickly evaluate the failure? Was the underlying cause of failure determined? Were conclusions and strategies for action communicated according to the RCFA policy?
6. Annual ORP Reviews and Updates	Has the Village updated the communications plan to reflect changes in staff and contact information? Has the equipment inventory been reviewed and updated? Has the Village documented any changes in the response procedures?

3.5.2. Communication of Evaluation to Stakeholders

In addition to the normal submission process to the regulatory agencies and MMSD, the Village will need to make the results of the annual review of ORP performance measures available to all stakeholders and the general public. The Village may disseminate these updates, and other ORP-related information, on an internal web site dedicated to CMOM.

Sample Internal Debrief Summary

Caller/Incident Report

Date Spill Started	Time	Quantity Released		Duration hours	Ref. Num	Reported By	Callback Number
		Amount	Units				

Type of Spill (check one)	Status of Overflow or Bypass (check one)
☐ SSO ☐ Petroleum Product ☐ Chemical ☐ Biosolids ☐ Other Spill	☐ Suspected ☐ Confirmed

Location/Address Information

Overflow Information

Permit Number	Regulatory Contact Person and Title	Contact Phone Number

Receiving Stream Name or Segment Number (if applicable)

SSO Cause	Describe Remedial Measures or Cleanup

Other Comments	SSO Preventative Maintenance

Report Taken By	Date	

Signature x

Reviewer Initials x

INTERNAL USE ONLY

☐ AdequateResponse ☐ Follow Up Required ☐ Site Visit Needed ☐ Referred for Enforcement

Figure 3-1. Sample Internal Debrief Summary Form

CS-2 PROBLEM: ***Overflowing Sewer Manhole Resulting from Surcharged Sanitary Sewer***

OVERFLOW RESPONSE PROCEDURES:

- Survey the Scene

Look for any water on the street, sidewalk, grass, dirt, etc. After confirming that the visible water is likely to contain sewage, look for a receiving storm drain. Follow the path of the sewage overflow to find storm drain entry. Ask for assistance as needed. Take pictures.

- Communicate Findings and Request for Assistance.

Contact the Public Works Department to request assistance for additional staff, equipment, and/ or other agencies. Report findings to start notification. Call in an additional crew to set up flotation booms across streams, brooks, etc., by-pass pumping as necessary.

- Set-up of Traffic and Crowd Control

If needed, use cones, barricades, and vehicle(s) to block and divert traffic around the spill and workers. If the wastewater should jeopardize a playground or park, cordon off the entire area. Close the park to the public until the issue has been remedied to the satisfaction of the local and state boards of health and the local park superintendent. If ponding should occur on the street or easement (public or private), cordon off the area.

- Attempt Containment

Place rubber sheet at the entrance to storm drain. In some cases you may use two or more rubber sheets if you find that the storm drain entry is very wide.

- Secure Containment in Place

Lay sand bags, sand, dirt, spill pillows or heavy objects at the corners of the rubber mat to keep it in place—thus, eliminating sewage leaks around the mat and for securing the two overlapping sheets of rubber. Take measurement for your "Field Spill Report."

- Higher Velocity Spill Flow Downhill

Use absorbent booms/socks, dirt, or sand to build a dam or berm to slow down sewage flow. Install at/or before storm drain entry.

- Divert Spill Back to Sewer Line

By building a small berm to change direction of flow back to downstream sewer manhole.

- Constantly Monitor Diverted Spill

Watch for berm leaks and traffic. Keep public out of area.

- Divert Spill

Divert spill by pumping out containment area and return sewage to sewer. This set-up requires power source (generator) and trash (sump pump) and the setting up of traffic control.

- Postpone Recovery

Capture spill for later recovery by letting it collect in a natural low area. Recover sewage as soon as time permits.

Figure 3-2. Example of a Site Specific Overflow Response Procedure

- Control Spill

Inspect the terrain configuration. Try to find the lowest area with concrete or asphalt base. (Example: empty parking lot surrounded by curbs).

- Control: Relieve Stoppage

Inspect the downstream manholes until a dry manhole is found and then start jetting or rodding. See standard procedures for use of combination trucks, vactor trucks, and pumped bypass (emergency power).

- Clean-up

Gather and remove debris and organic matter from the affected area. Remove as much of the contaminant as possible. Remove containment, clean catch basin, and clean channel and creek. Disinfect the ponding areas with an industry standard disinfectant and notify the surrounding homes.

- Assess Damage to Public and Private Property

While the crew is restoring the site, the supervisor/inspector should conduct a preliminary assessment of damage to private and public property. The focus is to resolve the problem. The supervisor/inspector should use discretion if advising or assisting the homeowner. The supervisor/inspector should take appropriate still photographs and video footage, if possible, of the outdoor area of the sewer overflow and impacted area to thoroughly document the nature and extent of the impacts.

- Complete Field Report

Create a field report including sketches of flow path, width, length, and depth. Indicate size and number of manholes, take pictures.

CS-2 Minimum Levels of Staffing (people): 2-3	
TOOLS AND EQUIPMENT	**SAFETY AND OTHER CAUTIONS**
■ Jet flushing unit if available (sand trap)	■ CCTV camera unit
■ Rodding machine & associated cleaning/cutting attachments (sand trap)	■ Truck with hoist
■ Standard disinfectants	■ Vactor unit
■ Safety harness and lifeline if applicable	■ Power saw (circular)
■ Air blower with hose	■ Pipe cutter (hydraulic)
■ Power vacuum	■ Caution tape
■ Portable pumps	■ Sand trap
■ Portable generators	■ Floatation booms, if necessary
■ Safety cones/barricades	■ Self Contained Breathing Apparatus (SCBA)
■ Tritector — for oxygen deficient, explosive or toxic gases	

Figure 3-2. Example of a Site Specific Overflow Response Procedure (continued)

Chapter 4 - System Evaluation and Capacity Assurance Plan Strategy

This chapter provides the strategy for the Village's satellite municipality System Evaluation /Capacity Assurance Plans (SECAP) in the event that one is eventually required by MMSD or the Wisconsin Department of Natural Resources (WDNR). If the Village were to complete its SECAP according to this strategy, it would meet the requirements for these plans as stated in the anticipated changes to the MMSD Rules & Regulations concerning satellite municipality CMOM programs. Such a plan would also likely fulfill federal and state requirements for SECAP. In 2003, MMSD provided all satellite municipalities with an electronic document template for a SECAP (see Appendix E). The strategy provided on the following pages addresses the content of that template, but the Village will ultimately need to develop the actual CMOM SECAP as a stand-alone document, if required.

4.1.0. Purpose of SECAP

The draft CMOM regulations encompass all aspects of the Village's wastewater collection operations. Specifically, the draft regulations state that for Village to be CMOM-ready, it must, as a minimum, implement or perform the following activities:

1. Properly manage, operate and maintain, at all times, all parts of the collection system that it owns or over which it has operational control.
2. Provide adequate capacity to convey or store base flows and peak flows for all parts of the collection system that it owns or over which it has operational control.
3. Take all feasible steps to stop, and mitigate the impact of, sanitary sewer overflows (SSO) in portions of the system it owns or has operational control as soon as possible.
4. Provide notification that will be available to parties with a reasonable potential for exposure to pollutants associated with the overflow event.

The draft CMOM Regulations would require that the Village prepare and implement a SECAP if peak-flow conditions within the separate sewer collection system are contributing to either sanitary sewer overflow (SSO) discharges or noncompliance at the Jones Island or South Shore Wastewater Treatment Plants (WWTPs). An SSO occurs when overflow from a sanitary sewer results in a discharge of untreated or partially-treated wastewater to the waters of the United States. Exceptions to the SECAP requirement are allowed if the Village has either (1) already taken steps to correct the hydraulic deficiency or flow conditions causing SSO discharges or (2) the discharges meet appropriate effluent quality and water quality criteria.

The draft CMOM regulations, which serve as guidance for this strategy, require that the CMOM Program must include a program to assess the current capacity of the collection system. If the assessment establishes that the system does not have capacity to convey base and peak flow, then a SECAP may be necessary. Additionally, the WDNR draft requirements for SECAP 210.24, indicate that the Department may require permittees to prepare and implement a SECAP, if it is determined that:

a) peak flows are contributing to SSO discharges, to frequent and recurring basement incidents or to non-compliance with effluent limits at the treatment plant.

b) implementation of CMOM Program is not sufficient to attain NR 210.21(1) (SSOs)

The draft CMOM Regulations recognize that there are both legal and hydraulic relationships and interactions between sewer systems that are connected. While the regulations are not specific as to how owner/operators of two connected systems should interact, they do require that adequate legal authority be in place, or be developed, to ensure overall CMOM compliance for both parties.

The latest MMSD Chapter 3, adopted in May 2007, state that a SECAP could be required by MMSD if "hydraulic information is necessary to evaluate a sewer design decision or understand sewer performance."

At a minimum, SECAP must include four required elements as specified in the draft CMOM Regulations. These include:

- An evaluation of the capacity of the wastewater collection system.
- Capacity evaluation measures, documented in a SECAP
- Review of the satellite municipality systems (applicable only to the Village system).
- Scheduled SECAP updates.

If required by MMSD through the Rules or WDNR by permit, the Village would need to evaluate the capacity of those portions of the collection system which it owns, or over which it has operational control. The required evaluations of the system must include the following:

- Provide estimates of peak flows, including flows from SSOs that escape from the system, associated with conditions similar to those causing overflow events.
- Provide estimated capacity of key system components.
- Identify hydraulic deficiencies, including components of the system with limiting capacity.
- Identify the major sources that contribute to the peak flows associated with the overflow events.

Detailed evaluation of the system will need to be performed under the Village's CMOM and SECAP efforts in order to determine if system capacity contributes to SSOs and basement backups. This evaluation will point to whether capacity enhancement measures are necessary. Such enhancement measures include increasing conveyance capacity by enlarging pipes and pumping stations, constructing storage facilities, and reducing I/I.

Capacity enhancement measures include a combination of short- and long-term actions aimed at addressing each hydraulic deficiency noted from the wastewater collection system evaluation. The evaluation of alternatives, and subsequent selection, of capacity enhancement measures, should include:

- The process used for prioritizing deficiencies and actions taken to address deficiencies.
- A systematic evaluation of a comprehensive set of feasible alternatives for addressing each deficiency, including estimated costs and performances of various alternatives.
- A demonstration that selected alternatives can be implemented from legal, institutional, financial and management standpoints.
- A schedule of key milestones, including proposed start and completion dates, for specific recommended measures.

The actual implementation of these short- and long-term capacity-enhancement measures for the regional system will be developed from and recommended within the ongoing MMSD 2020 Facilities Plan. The Facilities Plan will provide a limited SECAP analysis of municipal systems where it is critical to the

regional system analysis. As a result, the Village of Shorewood will inherit an initial, limited SECAP from the Facilities Plan, but Village will need to build upon it in order to meet regulatory requirements for SECAP.

The SECAP must be updated on a regular basis to describe any significant change in proposed actions and/or the implementation schedule. The SECAP must also be updated to reflect available information on the performance of specific measures that have been implemented. In addition to these requirements, other mechanisms or triggers to warrant SECAP updates could include significant changes within satellite municipalities of the Village or key sewersheds with respect to population, land use, and wastewater generation. Such changes could include evaluation of I/I reduction programs, if implemented.

4.1.1. Overview of Municipal System

The Village of Shorewood (the Village), located in Milwaukee County, is a satellite municipality served by the MMSD through 5 Metropolitan Interceptor System (MIS) connections, three connections directly via the Village of Shorewood sewers, one connection to the MIS via Village of Whitefish Bay and one connection to the MIS via the City of Milwaukee sewers. The Village serves approximately 13,700 people through its collection system which consists of approximately 156,000 lineal feet of 6- to 78-inch diameter sanitary and combined sewers. Of the approximate 156,000 total lineal feet of sewer 95,000 feet are combined sanitary and storm sewers and the remaining 61,000 are sanitary sewers. The Village does not have lift stations.

The Village's government is headed by the Village President, who oversees the Village Board. The Board is the elected body that is fundamentally responsible for making policy decisions for the Village based upon information received from the Village Manager and Village staff. There is one committee – Streets and Buildings within the within the Board that reviews projects and programs regarding water utility operations.

The Sewer and Water Utility are principally responsible for the operation and maintenance of the sewer collection system. Presently the Village projects capital needs ten years into the future during each budget/rate cycle. Rates and the budgets are reviewed on an annual basis. Funding is provided via the sewer rates.

4.1.2. Municipality Objectives

In addition to the provisions of the draft regulations, the Village has developed its own set of specific objectives that it wishes to address under the CMOM Program. The Village staff initially developed the CMOM Program goals and objectives.

One overriding Village objective is to ensure that Village-owned facilities are not the cause of SSOs or building sewer back-ups.

Four capacity-related objectives have been established:

- Comply with the requirements of the WPDES permit.
- Reduce overflows.
- Reduce I/I
- Comply with MMSD established peak flow performance standards.

The following section discusses each of these objectives.

Comply with the requirements of the WPDES permit

The WPDES permit, WI-0047341-04-0 Sanitary Sewer Overflows from Sewage Collection Systems, includes reporting requirements related to explaining what steps have been taken or corrective action planned to prevent future occurrences of a particular overflow. If a particular overflow is the result of peak flows exceeding the capacity of the sewer system, the satisfying this WPDES permit requirement could be an important objective for SECAP evaluations on a portion of the system.

Reduce Overflows

The elimination of SSO discharges are key objectives of the Village, MMSD, and the public. Reduction of these discharges may improve receiving water quality. The Village has not had an overflow in ten years, however in spring 2007 an overflow occurred at the border of Whitefish Bay and Shorewood. The overflow was investigated and it was determined that the high flows resulted from flow from Whitefish Bay. Whitefish Bay could not discharge to the MMSD MIS due to the surcharged conditions. Further investigation of this area is underway. The goal is to eliminate overflows.

Reduce I/I

The Village will continue to pursue identifying and reducing excessive I/I levels in its system.

Comply with MMSD Established Peak Flow Performance Standards

To meet the requirements of the MMSD Stipulation, the MMSD will complete its recommended 2020 FP alternative by December 31, 2006. The MMSD will also complete its implementation plan for the 2020 FP which will be coordinated with the Regional Water Quality Management Plan Update being completed by the Southeastern Wisconsin Regional Planning Commission by April 2007. It is anticipated that the Wisconsin Department of Natural Resources, according to the requirements of the MMSD Stipulation, will issue its final determination on the 2020 FP by December 31, 2007.

In addition to identifying facilities, the 2020 FP will recommend “POP”s – Policies, Operations, and Programs. Two of the Programs that are recommended under the 2020 FP include the satellite municipality CMOM programs and the Wet Weather Peak Flow Management Program.

Concurrent with the development of the recommended 2020 FP, the MMSD is in the process of amending its rules to require satellite municipalities to implement and have continuous CMOM programs.

The Wet Weather Peak Flow Management Program (WWPFMP) will define: (1) flow and precipitation monitoring programs; (2) peak flow performance standards; and (3) enforcement activities.

Peak Flow performance standards that will be established under the WWPFMP will require municipalities not to exceed peak flows established in the 2020 FP to ensure that the capacity of the regional system is adequate to meet the needs of the region through the planning period for the level of protection against sanitary sewer overflows established for the 2020 FP. In addition, the WWPFMP will establish standards to limit peak flows for defined geographic units (the geographic unit could be a

municipality, meter basin area, or MIS connection tributary area) to some maximum value that is defined relative to the average values for all geographic units in the MMSD service area. The Program to monitor and enforce peak flow standards will be developed in a collaborative fashion with the satellite municipalities.

The 2020 FP will evaluate system-wide infiltration and inflow (I/I) and, as part of the Wet Weather Control Plan, will identify the cost-effective level of I/I reduction system-wide and for specific areas requiring MIS relief. The peak flow performance standards to be developed by the WWPFMP will consider the peak flows and I/I levels defined for facilities sizing as part of the Wet Weather Control Plan.

4.2.0. Activities of MMSD Satellite Limited SECAP Analysis Project

In 2004, the MMSD hired a consultant to perform a limited SECAP analysis of all satellite municipality systems. This project was limited in the sense that a) it typically only analyzed the capacity of 12-inch diameter and larger pipes, b) identified satellite municipality system capacity deficiencies; c) estimated satellite municipality system bypass volumes and flow rates for a selection of wet weather events, and d) it did not evaluate any potential remedies to capacity problems. Specifically, the objectives of the limited SECAP project within each municipality were:

- Identify satellite municipality system capacity deficiencies.
- Estimate satellite municipality system bypass volumes and flow rates for a selection of wet weather events that are relevant to the 2020 Facilities Plan analysis
- Summarize peak flows delivered to MMSD's system for the same wet weather events.

MMSD has provided the Village with a full copy of the Limited SECAP report as well as any modeling data that would be useful for further analyzing the Shorewood system. Figure 4-1 shows the Village of Shorewood service area, 2020 Facilities Plan sewersheds, and the extent of the Shorewood system modeled in the Limited SECAP project. The results of the project are found in the limited SECAP report itself and according to MMSD should not be used quantitatively without further additional and detailed analysis.

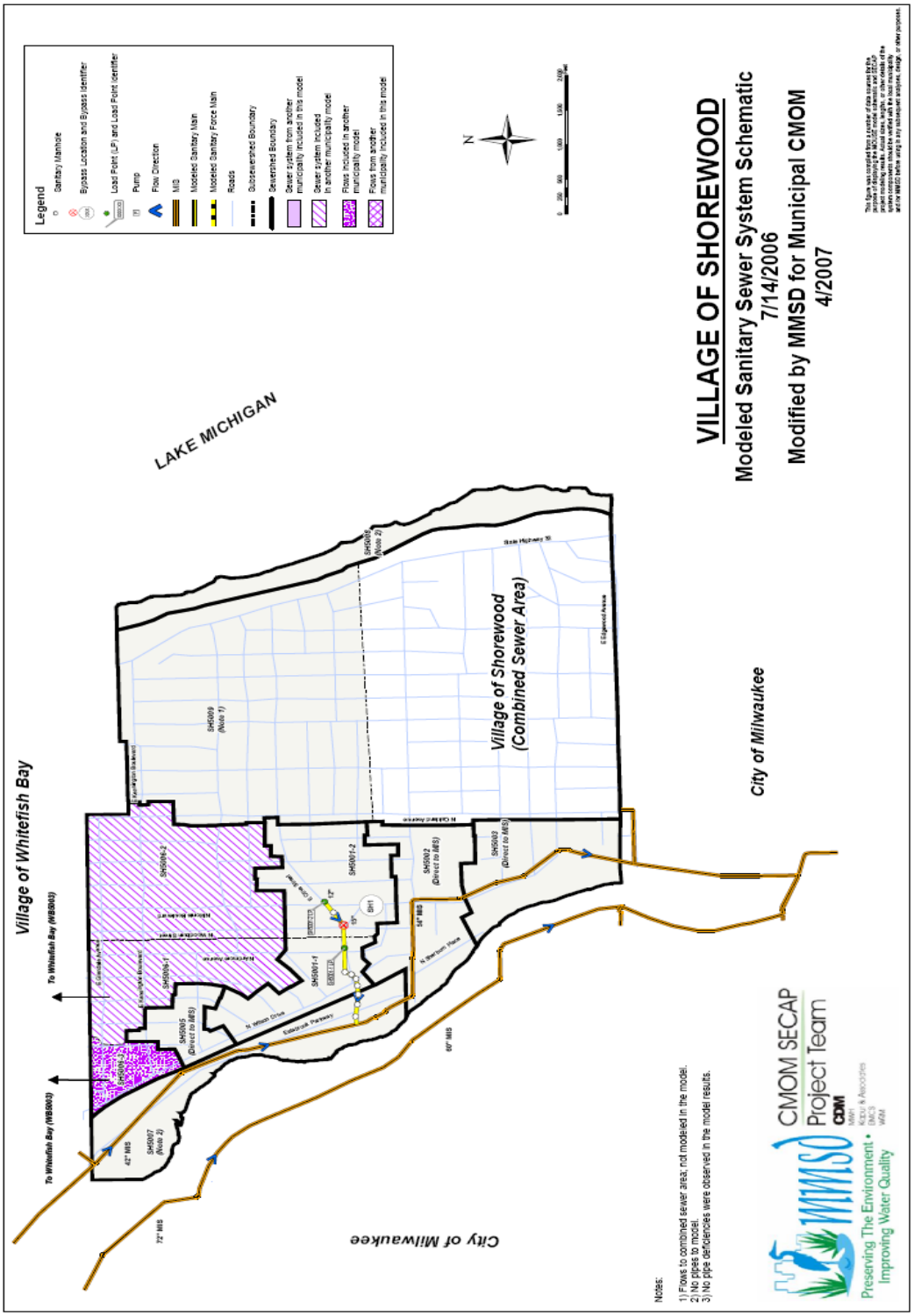
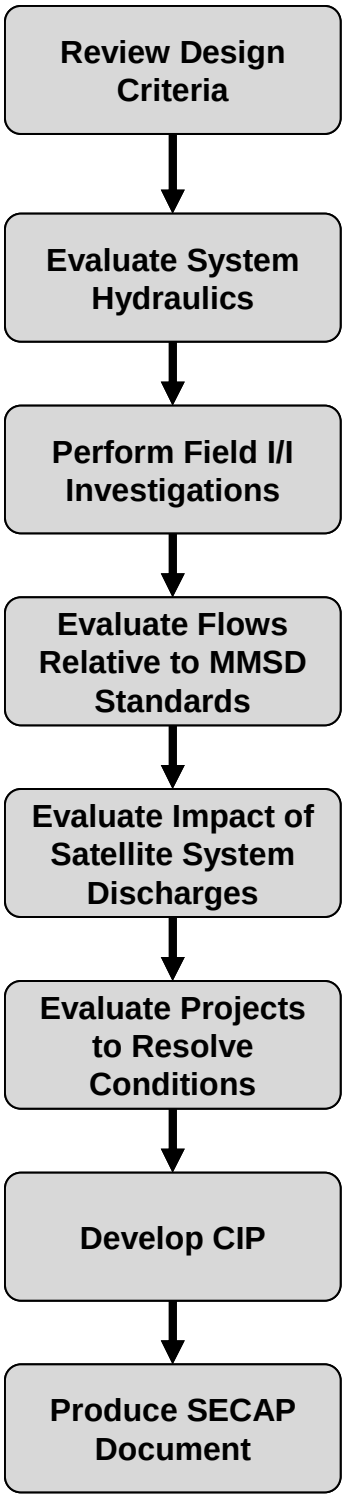


Figure 4-1. Village of Shorewood Sewer System Modeled in the Limited SECAP Project

4.3.0. SECAP Implementation Strategy



The previous sections of this chapter outlined the draft requirements for SECAP based on the draft CMOM Regulations. This section describes the SECAP Strategy and how the Village will implement it if required by MMSD or WDNR. The paragraphs below present a general discussion of the strategy, followed by a specific set of actions for the Village.

The root causes of the SSO discharges are typically physical, hydraulic, or operational deficiencies within the regional and local collection systems; and according to the draft CMOM regulations, SSOs must not occur. That said, a collection system owner can get relief from an enforcement action if it can prove that a severe natural event caused the discharge and the collection system owner took all reasonable steps to prevent the discharge. These reasonable steps include considerations within the SECAP Strategy, namely: capacity increases and I/I reduction. In order to prevent SSO discharges, critical portions of the collection system will be evaluated with a focus on determining the causes of the discharges. After identifying the causes of the SSO discharges, the Village will take the necessary steps to correct the problems.

The key strategies to meet SECAP objectives include: evaluating the collection system; determining system deficiencies or other related capacity problems; evaluating capacity-enhancement measures and their prioritization; implementing capacity enhancement or I/I reduction measures, and managing the capacity allocated to inter-municipality connections (if they exist). Specific tactics to achieve these strategies are outlined as follows, in the recommended order of priority:

1. Review the Village design criteria related to system capacity.
2. Evaluate Village's conveyance system using hydraulic analysis tools.
3. Perform any appropriate field investigations in sewersheds where peak flows appear to exceed the MMSD Peak Flow Performance Standard or where I/I contributes to local or regional SSOs.
4. Evaluate system flows relative to MMSD Peak Flow Standards.
5. Evaluate the impact of satellite municipality discharges to the Village system.
6. Evaluate a wide range of capacity-enhancement and peak flow reduction measures, based on the modeling, monitoring efforts, and field investigations.
7. Develop a Capital Improvement Program (CIP) list of capacity enhancement projects, including a basis for establishing implementation priority.
8. Produce a SECAP document that details the subsequent steps and an approach for evaluating the effectiveness of projects after they are completed.

4.3.1. Recommended Tactics if SECAP Is Required

Tactic 1: Review Design Criteria

Design criteria indicate the level of service that municipal systems use for sizing conveyance facilities. This action is a good first step for reviewing system capacity and

opens a dialog with the Village governing body as to what capacity changes may be needed to resolve local system SSOs. This level of service selection by the Village for its system needs to consider what MMSD is providing for regional level of service, per its most recent facilities plan.

Tactic 2: Evaluate Available System Capacity

The evaluation of the Village of Shorewood's wastewater collection or conveyance system is a critical component of SECAP. An initial activity will involve evaluating historical SSOs and activities already undertaken to resolve their root causes. The analysis tools used in this action item could include the models being used by the 2020 FP Limited SECAP Analysis Project. The overall objective of this action is to determine where system deficiencies contribute to SSO and building sewer back-ups. This evaluation may necessitate additional local system flow monitoring.

Monitoring of wastewater collection systems, or system monitoring, is an integral component of system management and operation. Monitoring can be used to:

- Evaluate daily, seasonal, and long-term trends in wastewater flows.
- Track reductions in rates of I/I and occurrences of overflows as the result of sewer rehabilitation and other system physical or operational improvements.
- Calibrate and verify sewer system models.
- Gain an overall understanding of how the system responds and operates under varying groundwater levels and climatic conditions.

Once adequate flow data are available, the modeling tools can be calibrated for better evaluation of system hydraulics under dry and wet weather conditions. Situations such as manhole overflows, system surcharge, and building sewer backups can be evaluated with a calibrated model.

If the Village is required to do a SECAP, it will likely be allowed to focus on SECAP evaluations in the affected areas. This process will likely include addressing the problems identified at the points of discharge to the MMSD system. Having a clear understanding of how the MMSD will establish capacity and level of service goals and objectives for its conveyance system will be key inputs to the Village SECAP Programs. From this information, the satellite municipalities can then plan for I/I control, other CIP, and operational improvements within their systems.

If required by MMSD rules, the Village may need to determine how its collection system performs in terms of occurrence of building sewer back-ups and overflows, and in ratios of peak-to-average flows and actual rates of I/I. MMSD's I/I control guidance will be a major benefit to the Village as it begins to evaluate and ultimately mitigate capacity and other deficiencies within their respective systems.

The Village will need to determine if the modeling performed under the Limited SECAP project is sufficient to meet the objectives of the full SECAP. The primary consideration is whether all known system bottlenecks were included in the analysis. If not, the Village will need to expand the modeling or analysis to include these additional areas. The Limited SECAP did not consider future flows from additional connections. As a result, the Village will want to incorporate future flows into the SECAP analysis, particularly if significant changes in population or employment are anticipated.

Tactic 3: Perform Field Investigations in Sewersheds

The control of I/I within the satellite municipality collection systems is a key issue in the overall context of SECAP. Within the MMSD service area, I/I is the primary cause of most SSO discharges. I/I control is also a fundamental tenet of CMOM as I/I affects system *capacity*; it needs to be properly *managed*; its detection and control is part of good system *operations*; and it can be reduced by proper *maintenance*.

Field investigations can include all or portions of the following: rainfall gauging, sewer system and groundwater level monitoring, physical and closed-circuit television (CCTV) inspection, smoke testing, dye studies, and other field testing and inspection procedures. Recommendations for these best practices, and effectiveness evaluations, have been published by the Water Environment Federation (WEF), Water Environment Research Foundation (WERF), American Society of Civil Engineers (ASCE), and USEPA. In 1981, during the WPAP, MMSD published the *Private Property Infiltration/Inflow Pilot Project Report*, which documented the findings of small scale I/I investigations and established parameters for sizing facilities relative to anticipated future I/I.

In order to ensure maximum usefulness, the Village will need to ensure proper management of data collected under flow monitoring programs. Data management includes the collection, QA/QC, storage, and useful reporting of data. For example, a good data management system allows for The Village completed SSES investigations in the 1980s and recently performed a limited SSES (LSSES) in 2001 by doing manhole inspections, smoke testing, and flow monitoring.

straightforward transfer of data into sewer models or other analysis

The Village already has a significant amount of condition data on its collection system through the on-going inspection program.

The Village should try to properly integrate and manage all data, whether collected and analyzed for the evaluations, or collected through the field investigations. The Village may choose to manage the data with a fully-functional GIS. For example, in the next round of field investigations, the Village could capture data in a format that is compatible with the GIS. Implementing this recommendation would improve the usefulness of the next inspections for engineering evaluations.

Tactic 4: Evaluate System Flows Relative to MMSD Peak Flow Performance Standards

The 2002 Stipulation (MMSD Stipulation) entered into between the State of Wisconsin and the Milwaukee Metropolitan Sewerage District states that the MMSD must develop the 2020 Facilities Plan (2020 FP), including development of a Wet Weather Control Plan. Additionally, the stipulation requires the MMSD to implement a CMOM program and to require by MMSD rules that the satellite municipalities develop a local CMOM program within two years after completion of the MMSD's regional CMOM program.

To meet the requirements of the MMSD Stipulation, the MMSD will complete its recommended 2020 FP alternative by December 31, 2006. The MMSD will also complete its implementation plan for the 2020 FP which will be coordinated with the Regional Water Quality Management Plan Update being completed by the Southeastern Wisconsin Regional Planning Commission by April 2007. It is anticipated that the Wisconsin Department of Natural Resources, according to the requirements of the MMSD Stipulation, will issue its final determination on the 2020 FP by December 31, 2007.

In addition to identifying facilities, the 2020 FP will recommend "POP"s – Policies, Operations, and Programs. Two of the Programs that are recommended under the 2020 FP include the satellite municipality CMOM programs and the Wet Weather Peak Flow Management Program.

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The 2020 FP will evaluate system-wide infiltration and inflow (I/I) and, as part of the Wet Weather Control Plan, will identify the cost-effective level of I/I reduction systemwide and for specific areas requiring MIS relief. The peak flow performance standards to be developed by the WWPFMP will consider the peak flows and I/I levels defined for facilities sizing as part of the Wet Weather Control Plan.

As suggested in the Satellite Stipulation, MMSD will construct and operate any metering facilities needed to determine a sewershed's compliance with the standards. The Village may need to evaluate how to reduce peak flows in sewersheds found to exceed the standard.

The Village has ongoing initiatives that address peak flow reduction or volume reduction.

- Ongoing sewer and manhole inspection program
- Ongoing rehabilitation and replacement program
- Ongoing program to disconnect downspouts
- Review ordinances and legal programs to ensure that private property programs can be effectively addressed.

The Village will need to carefully review and assess practices for I/I control relative to site specific conditions. Variables to consider when evaluating such standards include the occurrence of basement back-ups and/or surface flooding, soil and groundwater conditions, age and construction material of the collection system, experience of local contractors in certain types of sewer system rehabilitation, and other site-specific factors.

The knowledge gained within these efforts will allow the Village to develop a SECAP Program which focuses its attention on identified problem areas. For instance, storm sewer evaluations may indicate that inadequate storm systems are contributing to excessive I/I during extreme events. Once the relationships are understood between storm sewer flooding and I/I, SSOs, or basement back-ups, the Village may need to address capacity issues through CIPs. This information can also provide valuable input into the Village storm water management programs being developed in response to the USEPA Phase I and Phase II Storm Water Management Regulations.

Tactic 5: Inter-Municipality Connection Review

Understanding the impact of inter-municipality connection discharges from another municipality to the Village system could be key to understanding and eventually mitigating certain SSO discharges. This understanding may require monitoring and hydraulic modeling of the inter-municipality connection discharges to the Village system. The Village of Whitefish Bay discharges to the Village system and vice versa: When developing its SECAP, the Village should consider whether monitoring satellite discharges should be performed.

By having a fuller understanding of the possible causes of system flooding and overflows, or back-ups, the Village can then apply the necessary technical and financial resources in its SECAP Programs to targeted mitigation efforts. Steps could include negotiating specific agreements with satellite systems regarding the amount of base and peak flows they are allowed to discharge to the Village system at each connection.

Tactic 6: Evaluate Alternatives for Capacity Enhancement and Peak Flow Performance Standards Compliance

Using the models or capacity analysis tools, the Village will analyze alternatives for resolving capacity issues. The Village will also use the tools to evaluate the extent of I/I reduction that may be needed to comply with local system in affected sewersheds. Alternatives that the Village could evaluate in this action include increased capacity in pipes and force mains, storage facilities, and I/I reduction projects. It will be important for the Village to consider how any additional future wastewater flows in its service area would impact this analysis.

Tactic 7: Develop a Program for Resolving Capacity Problems and Reducing Peak Flows

Based on Action 5, the Village will detail the projects or actions needed to resolve capacity issues and compliance or may consider other peak flow performance standards established by Applicable Law (including MMSD Rules). The Village will need to estimate the cost of these projects and establish how the projects will be prioritized in the capital budget.

Tactic 8: Produce SECAP Document

This step will involve documenting the previous 7 actions in a plan that states what activities the Village will embark on to resolve local system SSOs and comply with MMSD Rules. It will recommend the activities needed to achieve the goals of the SECAP and will document the relative priority of each activity. If deemed necessary, the Village will include any new or modified satellite system agreements identified in Action 5. The form of the SECAP document will follow the template developed and provided by MMSD in 2004.

4.4.0. SECAP Performance Measures

This final section of the SECAP Strategy addresses performance measures. In order to determine how well Village is implementing the SECAP Strategy and the derived benefits, Village should establish and track a set of definable measures for such purposes.

A regular review process is critical to collecting and reporting on performance measures. Therefore, the periodic review of the performance measures needs to be a process that is made available to all stakeholders and the general public. The Village could disseminate these updates, and other SECAP-related information, on the Village web site in an area dedicated to CMOM.

4.4.1. Collection System SECAP Performance Measure Definitions

There are seven potential performance measures for the collection system SECAP. These include:

- Hydraulic capacity evaluation of conveyance system.
- Activities needed for SSO reduction.
- Regular updates of the capacity evaluations and CIPs in response to significant system changes.
- Volume of rainfall captured (for the system or individual sewersheds).
- Ratio of peak-to-average flow (for the system or individual sewersheds).
- Number of Sewersheds Exceeding the MMSD Peak Flow Performance Standards.
- Reduction in SSO volume (for the system or individual sewersheds).

Completion of Hydraulic Capacity Evaluation of Conveyance System

This is a key to the overall SECAP Strategy as the hydraulic capacity of the conveyance system will establish the rates of flow, and volumes, that the system can accommodate. This evaluation, which will result in the determination of factors contributing to SSO discharges, is a high priority task. Its execution will be a key measurement of SECAP performance. WDNR and MMSD may require this evaluation be done only on the part of the system relating to historic SSO locations.

CIPs for Needed Overflow Reduction

The capacity evaluation will reveal points within Village's conveyance system where it cannot accommodate dry or wet weather flow. From this information, recommendations to increase the capacity of the conveyance system, decrease the peak flow, or combinations of the two will be implemented via the CIP.

Regular Updates of the Capacity Evaluations and CIPs in Response to Defined Triggers

The draft CMOM Regulations would require periodic updates of the Village's SECAP. Having defined triggers for such updates will be important to ensure adequate management of overall system capacity. Specific triggers within key municipalities or sewersheds to warrant such updates could include population growth or increases in commercial or industrial activity, increases in dry weather flow, increases in the ratio of average-to-peak flows, increases in overflows or building sewer back-ups, and others as determined by the stakeholder groups. One measure of SECAP performance will be how well the Village ultimately implements this update process.

Volume of Rainfall Captured to Track I/I Control Success

The measurement and tracking of the volume of rainfall captured by the separate sewer system is a very simple and meaningful measure of SECAP performance. The analysis can use rainfall, flow, and overflow volumes data, but it should normalize them to reflect yearly and seasonal climatic and precipitation variability. Overall, a decreasing rate of rainfall capture indicates progress in I/I reduction programs.

Ratio of Peak-to-Average Flow Ratios to Track I/I Control Success

Another measure of SECAP success is the measurement and tracking of the ratio of peak-to-average flows from key points throughout the separated portion of the regional system. If the Village were to implement I/I control measures, peak rates of flow from the system, should decrease. Thus, this tracking provides a good measure of SECAP performance. If known to have sewersheds with high groundwater infiltration, other measures may be more meaningful.

Number of Sewersheds Exceeding the MMSD Peak Flow Performance Standards

Peak Flow performance standards that will be established under the WWPFMP will require municipalities not to exceed peak flows established in the 2020 FP to ensure that the capacity of the regional system is adequate to meet the needs of the region through the planning period for the level of protection against sanitary sewer overflows established for the 2020 FP. The Village will need to track the number of its sewersheds that exceed the standards and work to reduce the number in this category through its SECAP implementation, if required.

Reduction in Overflow Frequency and Volume to Track I/I Control Success

Tracking actual reduction of separate sewer overflow frequency and volume are the most direct measurement of the success of SECAP and the Village I/I control efforts.

4.4.2. Evaluation of Performance Measures

The seven potential performance measures also need to have an associated evaluation process in order to determine if the implementation of the SECAP is successful. Table 4-1 summarizes the desired results for each performance measure.

Table 4-1. Desired Results of Performance Measures Wastewater Collection System

Measure	Desired Result	Annual Report
1. Hydraulic Evaluation	Determination of hydraulic restrictions/ causes of flooding and overflows.	Status and findings.
2. CIP for SSO Reduction	Reduction in SSO volume and frequency.	Status of implementation.
3. Update Triggers for Capacity Evaluations/CIPs	Ensure SECAP updates in response to changes in hydraulic regimes.	Tracking of defined triggers/ Status of updates
4. Volume of Rainfall Captured in Separate Sewer System	Reduction in rainfall capture.	Tracking of rainfall capture.
5. Peak-to-Average Flow Tracking	Reduction in peak-to-average ratio in separate sewer area.	Tracking of flow ratios.
6. Number of Sewersheds Exceeding the MMSD Peak Flow Performance Standards	Reduction and eventual elimination of sewersheds exceeding the standard	Tracking of sewersheds
7. SSO Reduction Tracking	Reduction in SSOs volume and frequency.	Tracking of SSO performance.

The Village should evaluate performance for each of the performance measures selected on an annual basis, until the problems identified in the SECAP are addressed.

Chapter 5 - CMOM Program Communication Plan Strategy

The CMOM Program Communication Plan (CP) articulates the process for reporting to various stakeholders the implementation activities and performance of the Village of Shorewood's CMOM Program. This chapter states the objectives for communications and a set of complementary strategies for achieving those objectives. In addition, this chapter also provides performance measures for communications strategy implementation. In 2003, MMSD provided all satellite municipalities with an electronic document template for a CMOM Program Communications and Audit Plan (see Appendix F). The strategy provided on the following pages addresses the content of that template, but the Village will ultimately need to develop the actual CMOM CP as a stand-alone document.

5.1.0. Purpose of Communications Plan

The CP articulates the process for reporting to various stakeholders the implementation activities and performance of the CMOM Program. This plan should state the objectives for communications and describe a set of complementary strategies for achieving those objectives. Performance measures for communications strategy implementation should also be provided in the plan.

The recommended objectives of the CP are as follows:

- Facilitate internal reporting on CMOM Program progress to employees;
- Provide information on CMOM Program progress to stakeholders;
- Report on short-term, long-term, and cyclical CMOM Program actions;
- Coordinate with other municipality and MMSD communications initiatives; and,
- Satisfy CMOM regulatory requirements for program communications, including any requirements of the Satellite Stipulation.

5.2.0. CMOM Program Stakeholders

CMOM Program stakeholders will include internal and external groups and individuals. The Village has identified the following internal stakeholders to the CMOM Program:

- Governing Body
- Public Works Department
- Public Health Department

The Village has identified the following external stakeholders to its CMOM Program:

- MMSD
- WDNR

5.3.0. Communications Strategy

A specific set of strategies will, when implemented, satisfy the objectives identified above. Where possible, the strategy identifies and assigns specific actions to organizations, divisions, or individuals.

5.3.1. Develop Communication Plan

The CP will outline the type and frequency of publications and briefings related to the CMOM Program. The Village should also include a report to inform various interested parties, including internal audiences such as Village staff, and external stakeholders including MMSD, state and federal regulators, and ratepayers. Primarily, the Village should produce this report on an annual basis. A separate report will be generated when an overflow is reported to regulatory officials. The CP will define the purpose, content, and format for all CMOM Program-related reports. The CP will also identify synergies between the CMOM Program and other projects and communications initiatives. Finally, the plan will include a process for reviewing and updating the CP.

5.3.2. Assign Staff Responsibilities

Developing and implementing the CP will require staffing resources. The Village will need to assign staff to tasks such as developing the plan for cyclical and incident-driven publications, planning and facilitating communication events (e.g. Commission meetings, municipal meetings, etc.), updating the plan, preparing the budget inputs, and coordinating with other Village projects and initiatives. The Director of Public Works or designated representative will manage production of these plans and reports but will rely on contributions from staff.

5.4.0. Communication Plan Reports

This section describes the various documents that the CMOM CP will require and govern. The CMOM Program annual report is a document that presents a summary of the program accomplishments for the year and a summary of the planned actions and initiatives for the next year. This report is for both internal and external audiences, as the report will be available to the public and is consistent with the annual reporting recommendations of the draft federal CMOM regulations. The Village annual report will contain a discussion of the CMOM performance measures comparing the actual data result for the year versus the plan target and versus last year's performance.

MMSD is developing rules that will likely require submitting an annual report for MMSD review. At this time, MMSD does not anticipate requiring a separate annual CMOM report, but instead request a CMOM update as part of other reporting requirements, such as the I/I plan updates.

5.4.1. CMOM Program Five-Year Audit Report

The CMOM Program five-year audit report will update the CMOM benchmark data. The Village will measure the program's performance by comparison to the target values and similar measurements from the previous report. Chapter 6 of this Strategic Plan provides further discussion of the Audit Report.

5.4.2. Regulatory Reporting

The Village of Shorewood's current Wisconsin Pollutant Discharge Elimination Program (WPDES) permit requirements specify overflow reporting on both a cyclic and incident-driven basis. The WDNR requires quarterly reports for all overflows during the preceding three-months. Incident-driven reporting includes 24-hour notification and a five-day report. The Overflow Response Plan (ORP) Strategy, Chapter 3, describes these reports in detail.

Starting in 2006, WDNR required all municipal collection system owners to perform and submit a self-audit of their practices relative to managing the system. This process is called the Compliance

Maintenance Annual Report (CMAR). The CMAR includes questions pertaining to the components of the Village's CMOM Program. Each year, the Village will use CMAR to update WDNR on its CMOM Program activities.

5.4.3. Village Board Briefings

Briefings will provide an opportunity for Village staff to present information on the status of the CMOM Program to its Village Board. These briefings will be important to ensure continued support for CMOM Program implementation.

5.5.0. Performance Measures

Performance measures are needed to evaluate the CP implementation. Recommended performance measures are:

- Number of internal and external stakeholder briefings per year
- Number of Village Board briefings per year

Chapter 6 – CMOM Program Audit Plan Strategy

The Village intends to audit the CMOM Program to evaluate the program's implementation and performance. The draft CMOM regulations released by the USEPA included requirements to submit an audit report to the permitting authority. If MMSD passes new Rules requiring CMOM Program audits, the Village will submit such an audit report to MMSD. Typical participants in the audit include the National Pollution Discharge Elimination System (NPDES) permitting authority, WDNR, health officials, members of the affected public, and other interested parties. The audit covers the program's compliance with permit requirements (if any), any identified deficiencies, and steps to address them. In 2003, MMSD provided all satellite municipalities with an electronic document template (see Appendix F) for an CMOM Program Communications and Audit Plan (AP). The strategy provided on the following pages addresses the content of that template, but the Village will ultimately need to develop the actual CMOM AP as a stand-alone document.

6.1.0. Purpose of CMOM Audit

The CMOM Program AP establishes a process for reviewing and evaluating the performance of the CMOM Program and implementing needed changes.

The objectives of the AP are as follows:

1. Solicit suggestions and obtain stakeholder input.
2. Allow for periodic review and changing of CMOM Program according to input and benchmarking data.
3. Establish processes for changing the CMOM Program according to results of periodic review with respect to performance measures.
4. Reflect CMOM implementation status within the audit process.
5. Provide data to the Communication Plan regarding plan changes in order to demonstrate that the CMOM Program is being regularly updated.

6.2.0. Audit Implementation Strategy

The Village can employ several specific strategies to satisfy its CMOM Program audit objectives and the audit recommendations of the draft federal CMOM regulations. The draft regulations state:

> § 122.42 (e) (2) (ix) CMOM Program Audits. As part of the NPDES permit application, you must conduct an audit, appropriate to the size of the system and the number of overflows, and submit a report of such audit, evaluating your CMOM and its compliance with this subsection, including its deficiencies and steps to respond to them.

Using the draft federal CMOM regulations as guidance, the Village intends to produce a CMOM audit report approximately every five years. However, the CMOM Program maybe updated through performance measures on a more frequent basis.

6.2.1. Develop a Conduit to Solicit Suggestions

Methods to solicit suggestions and updates should be considered to update the plan. One method could a "suggestion box" for CMOM Program improvement recommendations. The Village will make it possible for staff members to make comments anonymously, including those specific suggestions relating to the member's CMOM responsibilities. The DPW or designated representative will review these suggestions and determine potential actions. Chapter 2, Management Plan Strategy, recommends Village set up a CMOM work team to support the DPW or designated representative. Upon request of the Director of Public Works or designated representative, the team would also review the suggestions to determine potential actions and issue responsibilities for following up on the suggestion.

6.2.2. Review and Program Change Procedures

This strategy recommends the following process to formally review the CMOM Program elements on a five year cycle:

1. Review the CMOM Program performance measures established in each service area\measurement category as outlined in Chapter 2.
2. Determine whether any performance measures are missing, obsolete, or require modifications. Review the measure from an effectiveness perspective (i.e., are the data collection and tracking efforts worth the benefit to the program).
3. If no process exists for continual data collection, gather data required for evaluating the program within each performance measure.
4. With input from the CMOM work team, review the goals and determine if changes are necessary.
5. If the performance measure is used for an external comparison or benchmarking, review the quality of the external data set to determine if this information is still applicable, up to date, and appropriately defined for comparison.
6. Prepare the performance measure status report for inclusion in the CMOM Program summary recommended under the management plan strategy described in Chapter 2. This report should include all applicable internal trending and external comparison summaries, as appropriate. The report will include, if necessary, a prioritized list of action items that will improve the CMOM Program overall and the CMOM audit process.
7. Prepare a comment for each performance measure that provides an interpretation of the program performance relative to the goal. The comment may include a recommendation to change the goal, a change to the program such that the Village can attain the goal or verification that the Village has attained the goal.

6.2.3. Acquire Benchmark Data

The Village will need benchmark data, reflecting the CMOM Program performance of similar agencies, to evaluate the CMOM Program relative to industry standards. Under the CMOM Program proposed in this document, the Village would develop a procedure to obtain this data, if it is available.

The DPW or designated representative would determine whether sharing certain CMOM Program-related data with other organizations would benefit the program. If so, up to three partnering agencies would be identified that are interested in sharing the needed performance data. These agencies would share similar characteristics with the Village such that they would provide appropriate comparisons.

Such characteristics could include the following list, but would be specific to the performance measure in question:

- Service population
- Climate
- System age
- Presence of combined sewer area
- Presence and extent of operation and maintenance (O&M) contracts

The DPW or designated representative would establish the priorities for acquiring the remaining benchmarking data, based on the data's criticality to evaluating CMOM Program performance as necessary. Through the eCMAR program, WDNR is gathering a substantial amount of benchmarking data from Wisconsin public sewer systems. WDNR intends to eventually share this information for the purpose of comparing performance in a number of areas, including:

- Sewer cleaning and root removal
- Flow monitoring
- Smoke testing
- Sewer line televising and manhole inspections
- Manhole and sewer main rehabilitation
- Private sewer inspections and I/I removal activities

6.2.4. Develop Five-Year Program Review Process

The five-year program audit is an in-depth evaluation of the Village's CMOM performance and an opportunity to structure the future direction of the program. The Village will need to establish the process as part of the Program Audit Plan. A peer group of representatives from similar agencies may facilitate this review. Village staff will need to establish the peer group prior to this review; however, it would be ideal if the agencies were among those providing benchmarking data. Ideally, the program audit would be completed and submitted six months prior to NPDES permit reissuance, making the results useful in the permit drafting process.

6.2.5. Establish Responsibility for Periodic Program Audit

The Director of Public Works or designated representative will be responsible for facilitating periodic audits of the Village's CMOM Program.

6.3.0. Performance Measures

This strategy recommends the following performance measures to assess successful implementation of the Program AP:

- Perform program audit on a five-year cycle
- Percent of specific activities audited during the cycle
- Degree of satisfaction with benchmark data
- Number of gaps closed per cycle.

Chapter 7 - CMOM Program Implementation Strategy

This chapter presents the Village's implementation plan for the CMOM strategies presented in previous chapters. The implementation plan describes the timing of activities that are critical if the USEPA promulgates the CMOM rules in their current draft form. The overall CMOM Program schedule and actions will drive the timing of the activities.

In general, CMOM implementation will follow a cycle of assessing the status of activities, developing strategies and tactics for improvement, implementation, and evaluation of performance. As shown in Figure 7-1, this is a continuous cycle for the CMOM Program. With this Strategic Plan the Village has finalized the goals and objectives for all aspects of the CMOM Program, and these goals and objectives will be the focus for evaluation and implementation of the CMOM.

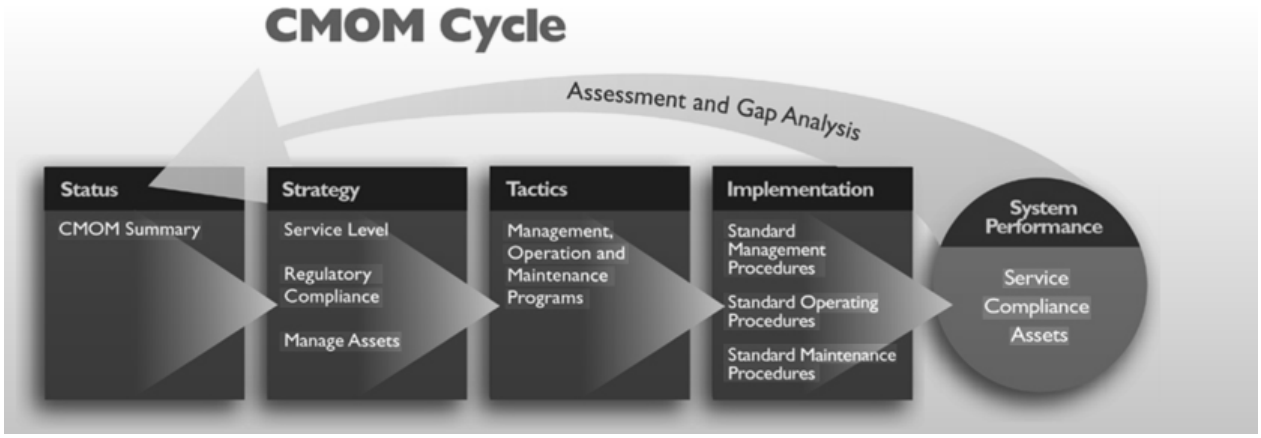

Figure 7-1. The CMOM Cycle

In December 2005, the Village entered into a Satellite Stipulation with WDNR. Among other items, the Satellite Stipulation requires the Village to develop and implement a CMOM Program by June 30, 2009. With this Strategic Plan, the Village intends to complete the CMOM cycle through the tactics phase no later than June 30, 2009, deadline in the Satellite Stipulation. The Village will complete the activities outlined below by that date.

7.1.0 Summary of Implementation Activities

Implementing the CMOM Program strategy will include the specific activities identified in Table 7-1. These activities are identified as high, medium and low priorities. The Village will identify and resolve these priority areas to ensure that their goals and strategies are met.

Table 7-1. CMOM Program Strategy Implementation Activities

Strategy Element	Steps	Priority
Management Plan	1. Brief Council/Board on CMOM Strategy	High
	2. Assemble information to complete Management Plan template	High
	3. Draft Management Plan	High
	4. Finalize Management Plan	High
O&M Plan	1. Review and enhance Inspection Program as necessary (Sewers, Manholes & Pump Stations)	High
	2. Review and enhance cleaning program as necessary	High
	3. Provide recommendations for repair/replace/rehab	High
	4. Review and enhance for FOG program	Medium
	5. Inspection Program	High
Overflow Response Plan	6. Assemble information to complete ORP template.	High
	7. Train staff on ORP.	High
	8. Develop mock drills and schedule.	Medium
	9. Establish inter-agency assistance agreements for improved ORP response.	Completed

Strategy Element	Steps	Priority
SECAP	1. Review Village design criteria related to system capacity. 2. Evaluate Village's conveyance system using hydraulic analysis tools. 3. Perform any appropriate field investigations 4. Evaluate system flows relative to MMSD Peak Flow Performance Standards. 5. Evaluate a wide range of capacity-enhancement and peak flow reduction measures 6. Develop a CIP list of capacity enhancement projects 7. Evaluate the impact of inter-municipality connection discharges 8. Produce a SECAP document	To be determined if required
Communication Plan	1. Develop the CP. 2. Assign staff responsibilities for the CP. 3. Distribute the CP to all appropriate stakeholders.	High
Audit Plan	1. Develop review and program change procedures. 2. Perform five-year audit of CMOM Program.	High

High = Before June 30, 2009
Medium = By 2011
Low = By 2015

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7.2.0. Documents to Be Prepared As Part of CMOM Program Implementation

The Village will develop a number of documents in the course of CMOM Program implementation. The following is a list of documents that would be necessary, at a minimum:

- Management Plan
- Overflow Response Plan
- Communications Plan
- Audit Plan
- Annual CMOM Report
- Five Year Audit Report
- SECAP, if necessary
- O&M Plan Operation and Maintenance procedures for the sewer collection system

APPENDICES

Appendix A – CMOM Documents Reviewed

Appendix B – Summary of Readiness Review Findings

Appendix C – Summary of General Reporting Requirements for SSO Events

Appendix D – Example ORP Outline

Appendix E – MMSD SECAP Outline Template

Appendix F – MMSD CMOM Program Communications Plan Outline Template

FINAL

Appendices

MMSD Satellite Municipality CMOM Readiness Review and Strategy

Contract M03008P02

Strategic Plan

Appendix A

CMOM Documents Reviewed

1. **Inspection reports (sewers)**
2. **Maintenance records**
3. **Maps including as-built drawings**
4. **Mission statement**
5. **Budgets**
6. **Safety Manual**
7. **Position Descriptions**
8. **Bypass reports (none)**
9. **Emergency Response Plan**

Appendix B

Summary of Readiness Review Findings

Prior to developing this CMOM Strategic Plan, a CMOM Readiness Review Report was prepared for the Village of Shorewood. The findings of the Readiness Review, expressed as Opportunities for Improvement, are summarized in the table below. The Village of Shorewood reviewed each of these opportunities, established a strategy to achieve the eventual goal, and selected a priority according to the following timeline:

- High = Before June 30, 2009
- Medium = By 2011
- Low = By 2015

Timing	Service Area	Business Process Area	Current Status	Strategy to Address Issue	Goal
High	Collection System Policy – Mission Statement	Mission Statement	To be Developed	Documented in CMOM Management Strategy	High Defined
High	Collection System Policy – Strategic Goals Related to Customer Service	Quality	To Be Developed	Documented in CMOM Program Strategy	High Defined
High	Collection System Policy – Strategic Goals Related to Customer Service	Quantity	To Be Developed	Documented in CMOM Program Strategy	High Defined
High	Collection System Policy – Strategic Goals Related to Customer Service	Reliability	To Be Developed	Documented in CMOM Program Strategy	High Defined
High	Collection System Policy – Strategic Goals Related to Customer Service	Responsiveness	To Be Developed	Documented in CMOM Program Strategy	High Defined
High	Collection System Policy – Strategic Goals Related to Customer Service	Environmental Acceptability	To Be Developed	Documented in CMOM Program Strategy	High Defined
High	Collection System Policy – Strategic Goals Related to Customer Service	Cost/User Rates	To Be Updated	Documented in CMOM Program Strategy	High Defined
High	Policy – Strategic Goals to Achieve Regulatory Compliance	Permit Requirements	To Be Updated	Documented in CMOM Program Strategy	High Defined
High	Policy – Strategic Goals to Achieve Regulatory Compliance	CMOM Regulations	To Be Developed	Documented in CMOM Program Strategy	High Defined
High	Policy – Strategic Goals to Achieve Regulatory Compliance	Compliance Orders or Decrees	To Be Developed	Documented in CMOM Program Strategy	High Defined
High	Policy – Strategic Goals for Managing Utility Assets	Conditioning	To Be Developed	Documented in CMOM Program Strategy	High Defined

Timing	Service Area	Business Process Area	Current Status	Strategy to Address Issue	Goal
High	Policy – Strategic Goals for Managing Utility Assets	Rehabilitation	To Be Developed	Documented in CMOM Program Strategy	High Defined
High	Policy – Strategic Goals for Managing Utility Assets	Replacement	To Be Developed	Documented in CMOM Program Strategy	High Defined
High	Policy – Strategic Goals for Managing Utility Assets	Disposal	To Be Developed	Documented in CMOM Program Strategy	High Defined
High	Policy – Strategic Goals for Work Management	Efficiency	To Be Developed	Documented in CMOM Program Strategy	High Defined
High	Policy – Strategic Goals for Work Management	Prioritization	To Be Developed	Documented in CMOM Program Strategy	High Defined
High	Policy – Strategic Goals for Work Management	Safety	To Be Developed	Documented in CMOM Program Strategy	High Defined
High	Policy – Strategic Goals for Work Management	Quality of Life	To Be Developed	Documented in CMOM Program Strategy	High Defined
High	Maintenance – Corrective	Priority System	To be Updated	Documented in CMOM Program Strategy	High Defined
High	Maintenance – Gravity System Preventive	Maintenance Prioritization	To Be Developed	To be documented in updated O&M Manual.	High Defined
High	Maintenance – Gravity System Preventive	Hydraulic Cleaning	To Be Developed	To be documented in updated O&M Manual.	High Defined
Medium	Maintenance – Gravity System Preventive	FOG Program	To Be Developed	To be documented in updated O&M Manual.	High Defined
Medium	Maintenance – Gravity System Preventive	Root Control	To be Updated	To be documented in the updated O&M Manual	High Defined
High	Maintenance– Gravity System Preventive	Manholes	To be updated	To be documented in the updated O&M Manual	High Defined
High	Maintenance – Right-of-Ways	Maintenance Prioritization	To Be Developed	To be documented in updated O&M Manual	High Defined
High	Maintenance – Right-of-Ways	Cross Country Easements and Right-of-Ways	To Be Updated	To be documented in updated O&M Manual	High Defined
High	Maintenance – Right-of-Ways	Residential Easements and Right-of-Ways	To Be Updated	To be documented in updated O&M Manual	High Defined

Timing	Service Area	Business Process Area	Current Status	Strategy to Address Issue	Goal
High	Maintenance - Emergency	Program	To Be Updated	To be documented in updated O&M Manual	High Defined
Low	Operations – Corrosion Control	Corrosion Control Program	To Be Developed	To be documented in updated O&M Manual	High Defined
Medium	Operations – Flow Monitoring	Gravity Systems	To Be Developed	To be documented in updated O&M Manual	High Defined
Medium	Technical – Engineering	Construction Inspection	To Be Updated	To be documented in Management Plan.	High Defined
Medium	Technical – Engineering	Condition Assessment - Smoke Testing	To Be Updated	To be documented in Management Plan.	High Defined
Medium	Technical – Engineering	Condition Assessment - Dyed Water Flooding	To Be Updated	To be documented in Management Plan.	High Defined
High	Technical – Engineering	Condition Assessment – CCTV	To Be Updated	To be documented in Management Plan.	High Defined
High	Technical – Engineering	Condition Assessment – Manhole Inspection	To Be Updated	To be documented in Management Plan.	High Defined
High	Technical – Engineering	Condition Assessment – Service Laterals	To Be Updated	To be documented in Management Plan.	High Defined
High	Technical – Engineering	Condition Assessment - Gravity System Defect Analysis	To Be Updated	To be documented in Management Plan.	High Defined
High	Technical – Engineering	Rehabilitation/Replacement Gravity Line – Criteria	To Be Updated	To be documented in Management Plan.	High Defined
High	Technical – Engineering	Rehabilitation/Replacement Gravity Line – Methods	To Be Updated	To be documented in Management Plan.	High Defined
High	Technical – Engineering	Rehabilitation/Replacement Manholes – Criteria	To Be Updated	To be documented in Management Plan.	High Defined
High	Technical – Engineering	Rehabilitation/Replacement Manholes – Methods	To Be Updated	To be documented in Management Plan.	High Defined
High	Technical – Engineering	Capacity Assurance - Definition of Adequate Capacity	To Be Updated	To be documented in Management Plan.	High Defined
Medium	Technical – Engineering	Capacity Assurance Tools – Flow Monitoring	To Be Updated	To be documented in Management Plan.	High Defined
Low	Technical – Engineering	Capacity Assurance Tools – Modeling	To Be Updated	To be documented in Management Plan.	High Defined
Medium	Technical – Engineering	Capacity Assurance Tools – Rules of Thumb	To Be Developed	To be documented in Management Plan.	High Defined
High	Technical Support Function – Information Management	Overflow Reporting, Notification, and Record Keeping - Regulatory Agencies	To Be Updated	To be documented in the Overflow Response Plan.	High Defined

Timing	Service Area	Business Process Area	Current Status	Strategy to Address Issue	Goal
Medium	Technical Support Function – Information Management	Overflow Reporting, Notification, and Record Keeping – Affected Agencies and Public	To Be Updated	To be documented in the Overflow Response Plan.	High Defined
High	Technical Support Function – Information Management	Maintenance	To Be Updated	To be documented in the O&M Plan	High Defined
High	Technical Support Function – Information Management	Operation	To Be Updated	To be documented in the O&M Plan	High Defined
High	Technical Support Function – Information Management	Complaints	To Be Updated	To be documented in Management Plan.	High Defined
Medium	Technical Support Function – Information Management	System wide Information Coordination to Support Management	To be Updated	To be documented in Management Plan.	High Defined
High	Technical Support Function – Information Management	Financial	To Be Updated	To be documented in Management Plan.	High Defined
High	Technical Support Function – Contingency Planning	Planning Process - Steps and Tasks	To Be Updated	To be documented in the Overflow Response Plan.	High Defined
Medium	Technical Support Function – Contingency Planning	Planning Process - Public Notification	To Be Developed	To be documented in the Overflow Response Plan.	High Defined
High	Technical Support Function – Contingency Planning	Planning Process - Emergency Flow Control	To Be Developed	To be documented in the Overflow Response Plan.	High Defined
High	Technical Support Function – Contingency Planning	Planning Process - Emergency Operations and Maintenance	To Be Developed	To be documented in the Overflow Response Plan.	High Defined
High	Technical Support Function – Contingency Planning	Preparedness Training	To Be Developed	To be documented in the Overflow Response Plan.	High Defined
High	Technical Support Function – Contingency Planning	Planning Process - Safety Issues	To Be Developed	To be documented in the Overflow Response Plan.	High Defined
Medium	Technical Support Function – Source Control	Fats, Oils, and Grease Control - Permitting	To Be Developed	To be documented in Management Plan.	High Defined
Medium	Technical Support Function – Source Control	Fats, Oils, and Grease Control - Inspection	To Be Developed	To be documented in Management Plan.	High Defined
Medium	Technical Support Function – Source Control	Fats, Oils, and Grease Control - Enforcement	To Be Developed	To be documented in Management Plan.	High Defined
Medium	Technical Support Function – Source Control	Fats, Oils, and Grease Control – Compliance Assistance	To Be Developed	To be documented in Management Plan.	High Defined
Medium	Technical Support Function – Source Control	Fats, Oils, and Grease Control – Public Education	To Be Developed	To be documented in Management Plan.	High Defined
Medium	Technical Support Function – Source Control	Fats, Oils, and Grease Control – Performance Measures	To Be Developed	To be documented in Management Plan.	High Defined
Medium	Technical Support Function – Legal Support	Sewer Use Ordinance	To Be Updated	To be documented in Management Plan.	High Defined

Timing	Service Area	Business Process Area	Current Status	Strategy to Address Issue	Goal
Medium	Technical Support Function – Legal Support	Fats, Oils, and Grease Control Ordinance	To Be Developed	To be documented in Management Plan.	High Defined
Medium	Technical Support Function – Legal Support	Inter-Municipal Agreements	To Be Updated	To be documented in Management Plan.	High Defined
Medium	Technical Support Function – Legal Support	Service Laterals	To Be Developed	To be documented in Management Plan.	High Defined
High	Administrative Support Function – Human Resources	Human Resources – Training – Technical, Skills and Safety	To Be Updated	To be documented in Management Plan.	High Defined
High	Administrative Support Function – Human Resources	Human Resources - Safety Program - Safety Authority	To Be Updated	To be documented in Management Plan.	High Defined
High	Administrative Support Function – Human Resources	Human Resources - Safety Program – Confined Space	To be Updated	To be documented in Management Plan.	High Defined
High	Administrative Support Function – Human Resources	Human Resources - Safety Program –Traffic Management	To Be Updated	To be documented in Management Plan.	High Defined
High	Administrative Support Function – Human Resources	Human Resources - Safety Program - Lock Out, Tag Out	To Be Updated	To be documented in Management Plan.	High Defined
High	Administrative Support Function – Human Resources	Human Resources - Safety Program - Safety Equipment	To Be Updated	To be documented in Management Plan.	High Defined
High	Administrative Support Function – Human Resources	Human Resources - Safety Program - Performance Measures	To Be Updated	To be documented in Management Plan.	High Defined
Medium	Administrative Support Function – Procurement	Tools Purchase and Inventory	To be Developed	To be documented in Management Plan.	High Defined
Medium	Administrative Support Function – Procurement	Spare Parts Purchase and Inventory	To be Developed	To be documented in Management Plan.	High Defined
Medium	Administrative Support Function – Procurement	Supplies Purchase and Inventory	To be Developed	To be documented in Management Plan.	High Defined
High	Administrative Support Function - Financial	Budgeting	To be Updated	To be documented in Management Plan.	High Defined
Medium	Administrative Support Function - Financial	Rate Analysis	To Be Updated	To be documented in Management Plan.	High Defined
High	Administrative Support Function - Financial	Cost of Operation	To Be Developed	To be documented in Management Plan.	High Defined
High	Administrative Support Function - Financial	Cost of Maintenance	To Be Developed	To be documented in Management Plan.	High Defined
High	Administrative Support Function - Financial	Capital Improvement Plan	To be Updated	To be documented in Management Plan.	High Defined
High	Administrative Support Function - Financial	Cost of Management	To Be Developed	To be documented in Management Plan.	High Defined
Medium	Administrative Support Function - Financial	Life Cycle Cost Analysis	To Be Developed	To be documented in Management Plan.	High Defined
High	Administrative Support Function – Customer Service	Complaint Management	To Be Updated	To be documented in Management Plan.	High Defined

Timing	Service Area	Business Process Area	Current Status	Strategy to Address Issue	Goal
High	Administrative Support Function – Customer Service	Public Information	To Be Developed	To be documented in Management Plan.	High Defined
High	Administrative Support Function – Customer Service	Public Education	To Be Developed	To be documented in Management Plan.	High Defined
Medium	Non-Core Business Functions	Storm Drainage, Streets and Highways, Parks and Recreation and other Departments	To Be Developed	To be documented in Management Plan.	High Defined

Appendix C

Summary of General Reporting Requirements for SSO Events

This summary outlines the similarities and differences in reporting procedures and requirements for sanitary sewer overflow (SSO) events. Not included in this summary are monitoring reporting procedures and non-compliance reporting requirements resulting from monitoring activities.

Unscheduled sanitary sewer overflow events

Reporting procedures and requirements for SSO include the following:

- Within 24 hours of overflow initiation, contact (fax, voicemail, e-mail) WDNR's Southeast Regional Office.
- Within 24 hours of a ¾-inch 24-hour precipitation event, each permanently installed overflow structure must be inspected to look for evidence of an SSO.
- Within 5 days of conclusion of the SSO event, submit a written report to WDNR's Southeast Regional Office. See required report information below in Section A.
- An annual report is required to summarize the status of the collection system and any SSOs that occurred during the year. See required report information below in Section B.
- If the SSO potentially impacts a drinking water intake in Lake Michigan, Lake Superior, or Lake Winnebago, the permittee must notify the owner of the intake as soon as possible.
- If monitoring determines that certain types of permit non-compliance events have occurred, then a phone call shall be made within 24 hours after becoming aware of the noncompliance to WDNR's Southeast Regional Office, followed by a written report submitted within 5 days. These procedures are discussed below in Section C.

A. Requirements for 5-day written reports:

1) SSOs

SSO report should include the following information:

- Reason the SSO occurred, or explanation of other contributing circumstances that resulted in the overflow event. If the SSO is associated with wet weather, provide data on the amount and duration of the rainfall or snow melt for each separate event.
- Date the SSO occurred.
- Location where the SSO occurred.
- Duration of the SSO and estimated wastewater volume discharged.
- Steps taken or the proposed corrective action planned to prevent similar future occurrences.
- Any other information the permittee believes is relevant.

B. Requirements for annual reports:

1) **SSOs**

A Compliance Maintenance Annual Report (CMAR) is required to be submitted by the permittee. The CMAR should describe wastewater management activities, physical conditions, as well as performance of the treatment works during the year. Information that should be included in the CMAR can be found in NR 208.04(5) of the Wisconsin Administrative Code. Each section of the report is assigned a point score and grade based on information and data collected during the year. The scores are used to determine the applicable grade and response action as outlined in NR 208.05(2).

C. Noncompliance Notification Requirements:

The permittee shall report the following types of noncompliance by a telephone call to WDNR's Southeast Regional Office within 24 hours after becoming aware of the noncompliance:

- any noncompliance which may endanger public health or the environment;
- any violation of an effluent limitation resulting from an unanticipated bypass;
- any violation of an effluent limitation resulting from an upset; and
- any violation of a maximum discharge limitation for any of the pollutants listed by WDNR in the WPDES permit, either for effluent or sludge.

A written report describing the noncompliance shall also be submitted to the WDNR's Southeast Regional Office within 5 days after the permittee becomes aware of the noncompliance. On a case-by-case basis, the WDNR may waive the requirement for submittal of a written report within 5 days and instruct the permittee to submit the written report with the next regularly scheduled monitoring report. In either case, the written report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times; the steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance; and if the noncompliance has not been corrected, the length of time it is expected to continue.

Appendix D
Example ORP Outline

Section I: Authority

Section II: General

A. Objectives

B. Organization of Plan

C. Sanitary Sewer Overflow (SSO) Tracking

Section III: Overflow Response Procedure

A. Receipt of Information Regarding an SSO

- a. Telephone Overflow Reports
- b. Pump Station Reports
- c. Municipality Staff Overflow Reports

B. Overflow Confirmation

C. Dispatch of Appropriate Crews to Site of SSO

- a. Dispatching Crews
- b. Crew instructions and work orders
- c. Additional Resources
- d. Preliminary assessment of damage to private and public property
- e. Field supervision and inspection
- f. Coordination with hazardous material response

D. Overflow Correction, Containment and Clean-Up

- a. Responsibilities of response crew upon arrival
- b. Initial measures for containment
- c. Additional measures under potentially prolonged overflow conditions
- d. Clean-up

E. Overflow Report

- a. Cause of overflow
- b. Location of overflow
- c. Approximate start time of overflow
- d. Stop time of overflow
- e. Estimated volume of overflow

f. Proposed corrective action to prevent future occurrences

g. Precipitation data (if wet weather overflow)

h. Other relevant information

F. Customer Satisfaction

Section IV: Public Advisory Procedure

A. Temporary Signage

B. Other Public Notification

Section V: Media Notification Procedure

A. Public Information Office Contacts for After Hours or Weekend Overflows

Section VI: Distribution and Maintenance of ORP

A. Submittal and Availability of ORP

B. Review and Update of ORP

C. Practical Resources

D. Training

Appendix A: Sample Sewage Overflow Report

Appendix B: Document Updates

Appendix E

MMSD SECAP Outline Template

EXECUTIVE SUMMARY

1. INTRODUCTION

1.2 Background

1.3 Purpose

2. REGULATORY FRAMEWORK

2.1 Proposed CMOM Regulations

2.2 SECAP Requirements

2.3 Interlocal Agreements

3.4.1MMSD

3.4.1Other Agencies

3. SYSTEM EVALUATION

3.1 Existing Conditions

3.1.1 Wastewater Collection System

3.1.1.1 Conveyance

3.1.1.1.1 Trunk and Interceptor Sewers

3.1.1.1.2 Collectors

3.1.1.2 Pumping Stations

3.1.1.3 System Overflows

3.1.1.3.1 Combined Sewer Overflows (CSO)

3.1.1.3.2 Sanitary System Overflows (SSO)

3.1.1.4 Dry- and Wet-Weather System Operating Strategies

3.1.1.5 Flow Monitoring

3.1.1.6 LSSES Findings

3.1.2 Observed Hydraulic Deficiencies

3.1.2.1 Local and MMSD Definitions

3.1.2.1.1 Hydraulic Deficiencies

3.1.2.1.2 Level of Service

3.1.2.2 Trunk and Interceptor Sewers

3.1.2.3 Collector Sewers

3.1.2.4 Pump Stations

3.1.2.5 System Overflows

3.1.2.5.1 Combined Sewer Overflows (CSO)

3.1.2.5.2 Sanitary System Overflows (SSO)

3.1.2.6 Building Lateral Back-ups

3.1.3 Current and Pending Capital Improvement Projects (CIP)

3.1.3.1 Conveyance

3.1.3.2 Pumping Stations

3.1.3.3 Overflow Reduction (Storage)

3.1.3.4 I/I Reduction and Related System Improvements Projects

3.1.4 System Hydraulic Analysis Under Current Conditions

3.1.4.1 Description of Model and Capabilities

3.1.4.2 Hydraulic Deficiencies Under Current Conditions

3.2 Future Conditions

3.2.1 Wastewater Flow Projections

3.2.1.1 Year 2020 Conditions (Planning)

3.2.1.2 Full Build-Out Conditions

3.2.2 System Hydraulic Analysis Under Future Conditions

3.2.2.1 Description of Model Changes Under Future Conditions

3.2.2.2 Hydraulic Deficiencies Under Future Conditions

3.2.2.2.1 Trunk and Interceptor Sewers

3.2.2.2.2 Collector Sewers

3.2.2.2.3 Overflows

3.2.2.2.4 Building lateral backups

3.2.2.2.5 Pumping Stations

4. CAPACITY ASSURANCE PLAN

4.1 Development of Alternatives

4.1.1 Public and Private I/I Reduction

4.1.2 Rehabilitation and Reconstruction

4.1.3 Capacity Enhancement

4.1.4 Pumping Station Upgrades/Improvements

4.1.5 Storage/Detention Basins

4.1.6 Real-Time Control (RTC)/System Optimization

4.1.7 Other Measures

4.2 Evaluation of Alternatives

4.2.1 Establishment of Evaluation Criteria

4.2.2 Evaluation and Comparative Ranking

4.2.3 Discussion of Results

4.2.4 Recommended Mitigation Program

4.3 Recommended Cap

4.3.1 Overview of CAP

4.3.2 Description of Components

4.3.2.1 CIP

4.3.2.2 I/I Reduction and Related System Improvements

4.3.2.3 Operational Modifications

4.3.3 MMSD versus Satellite Community Responsibilities

4.3.4 Program Phasing and Schedule

4.3.5 Required SECAP Updates

APPENDICES

A. Interlocal Agreements

Appendix F

MMSD CMOM Program Communication Plan Outline Template

- CMOM Program Communication and Audit Plan Outline

I. Communication Plan
   a. Introduction
      i. Objectives of the CMOM Program
      ii. Organization of the Communication Plan
   b. Publications produced by the CMOM Program
   c. Presentations and Briefings Made Regarding the CMOM Program
      i. Municipality Staff
      ii. Elected Board
      iii. Technical Advisory Team and/or MMSD staff
      iv. Wisconsin Department of Natural Resources
      v. Other Stakeholder Groups
   d. Regulatory Reporting
      i. Cyclic
      ii. Incident-Driven
   e. CMOM Program Communications
      i. Information Management System
      ii. Benchmark Program
      iii. Service Area Knowledge-Sharing Program
      iv. CMOM Program Materials
   f. Communication Program Performance Measures
   g. Distribution and Maintenance of Plan
      i. Staffing responsibility for preparation of plan updates
      ii. Plan recipients

II. Program Audit Plan
   a. Introduction/ Summary of CMOM Program
   b. Summary of Program Accomplishments for Year
   c. Analysis of Performance Measures Results
   d. Comparison of Outcomes
      i. Target levels
      ii. Actual results
      iii. Previous year results
   e. Discussion of Results
   f. Summary of Future Actions and Initiatives for Next Annual Cycle