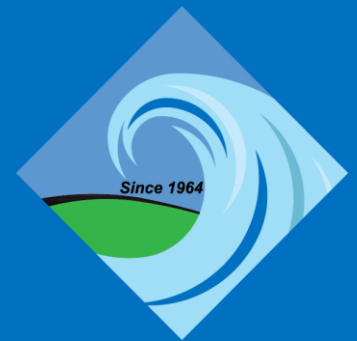


**ST. MARY'S COUNTY  
METROPOLITAN  
COMMISSION**

**CMOM**



**Case No:**

**C-18-CV-22-000364**

**MDE v. St. Mary's County  
Metropolitan Commission**

**JAMES PHILLIPS-FARLEY -MDE-  
<JAMES.PHILLIPS-  
FARLEY@MARYLAND.GOV**

**ANDREW GOSDEN (PROGRAM MANAGER,  
COMPLIANCE PROGRAM) -  
ANDREW.GOSDEN@MARYLAND.GOV**

**PATRICK NOYES -  
PATRICK.NOYES@MARYLAND.GOV**

**LENN ROBERTS -  
LENN.ROBERTS@MARYLAND.GOV**

**WSA ENFORCEMENT  
(GENERAL EMAIL ADDRESS)  
MDE.WSAENFORCEMENT@MARYLAND.GOV**

**MICHAEL GOODSTEIN, ESQ.  
VAN NESS FELDMAN  
MGOODSTEIN@VNF.COM**

**SHORE THING SHELLFISH, LLC  
PSHORETHINGSHELLFISH@GMAIL.COM73**

**SENIOR LEGAL COUNSEL  
POTOMAC RIVERKEEPER  
DAVID@PRKNETWORK.ORG**

# TABLE OF CONTENTS

Certification.....	TAB 1
Consent Decree Requirements .....	TAB 2
Article Seven – CMOM Plan.....	Tab 3

## TAB 1. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my directions and my inquiry of the person(s) who manage the system, or the person(s) directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

  
George A. Erichsen, P.E.,  
**Executive Director**

3-14-2025

## TAB 2. CONSENT DECREE REQUIREMENTS

### Article Seven – CMOM Plan

A. General Requirements. **Within 180 days** from the Date of Entry of this Consent Decree, MetCom shall complete and submit for review and approval a comprehensive CMOM Plan for the Collection System, including its Gravity Sewer Segments, Force Mains, manholes, Low Pressure Systems, Pump Stations, and other components to provide for the proper operation and maintenance of equipment while minimizing failures, malfunctions, and line blockages that could contribute to SSOs. For purposes of this Article, cleaning may include hydraulic flushing, FOG control, root control, or mechanical cleaning in accordance with field conditions. The CMOM Plan shall be generally consistent with USEPA 2005, Guide for Evaluating Capacity, Management, Operation, and Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems, EPA-305-B-05-002.

B. Specific Requirements. The CMOM Plan shall include:

1. A cleaning and CCTV inspection program as follows:

a. A program for routine cleaning and CCTV inspection of Gravity Sewer Segments based on age, material (e.g., vitrified clay), history (e.g., prior SSOs), susceptibility to corrosion, prior CCTV inspections, and condition assessments performed during the SSES in Article Four that includes a response matrix for corrective action and re-inspection frequency based on condition assessment results that is consistent with NASSCO's PACP standards.

b. A CCTV inspection program for the removal of Gravity Sewer Segments from Preventive Maintenance as follows:

(i) Before removing any Gravity Sewer Segment from Preventive Maintenance, CCTV shall be performed for visual confirmation of current conditions.

(ii) The review process documentation shall be maintained in the maintenance information system.



2. Routine Preventive Maintenance of Pump Stations as described in Article Six.

3. Routine visual inspection and condition assessment of manholes consistent with the NASSCO MACP standard during CCTV inspections or at higher frequencies based on manhole condition assessment results.

4. Inspection of the Low Pressure System at least once every 2 years after June 24, 2024, except pressurized Public Connections, provided that MetCom may propose a longer timeframe following the completion of the initial 2-year inspection on the basis that a longer timeframe is reasonable based on the inspection results, procedures for prompt corrective action when defects are identified, and maintaining a standing inventory of replacement parts to ensure prompt corrective action when defects are identified (e.g., valves, lids, Grinder Pumps).

5. Procedures for inspecting Force Main air relief valves and inspecting Force Mains by visually examining any exposed area(s) of the Force Main and the ground surface above the Force Main, if applicable. When an inspection reveals evidence of Force Main failure, the relevant section of Force Main shall be excavated and physically examined.

6. Procedures for ensuring that new Gravity Sewer Segments, manholes, Force Mains, Low Pressure Systems, Public Connections, and related components are designed and constructed properly (including testing of new installations) to prevent SSOs and I/I.

7. Procedures for ensuring that rehabilitation projects are properly designed and constructed.

8. A routine maintenance plan that includes prioritized Gravity Sewer Segment cleaning and evaluation, as needed.

9. A general description of the resources committed by MetCom to proactive and reactive Collection System maintenance.

10. An electronic maintenance management system or systems to update and collect information regarding the operation and maintenance of the Collection System, including maintenance history, condition assessment results, cleaning observations, corrective action history, SSO history, and the

status of maintenance work to be implemented and completed under this Consent Decree.

11. An electronic geographic information system ("GIS") map for the Collection System that includes the following:

- a. All Collection System components;
- b. Attribute data for Gravity Sewer Segments including:
  - (i) Date of installation or date range of installation (if available),
  - (ii) Pipe length,
  - (iii) Inverts at manholes (if available),
  - (iv) Slope,
  - (v) Diameter (or dimensions if not cylindrical),
  - (vi) Type (e.g., gravity or pressure),
  - (vii) Material (if available), and
  - (viii) Geographic location;
- c. Display attribute data for structures including:
  - (i) Structure type (e.g., siphon, manhole, vacuum breaker, junction box, Force Main, air relief valve),
  - (ii) Invert elevation of manholes (if available),
  - (iii) Elevation of each Grinder Pump (if available),
  - (iv) Geographic location, and
  - (v) Age or age range (if available);
- d. Display the location of the 100-year FEMA floodplain.

12. **Within 120 days** of completing any inspection, testing, condition assessment activity, or rehabilitation activity of a Collection System component required pursuant to this Consent Decree or when MetCom becomes aware of reliable information that any attribute data is incorrect or incomplete, MetCom shall use its best efforts to update that attribute data.

13. MetCom shall use its best efforts to locate components that cannot be located in the field, including the use of GIS, as-built drawings, surveying, or Global Positioning Systems.

C. Annual Review. MetCom shall review the CMOM Plan by **December 31**

each year following the Date of Entry and update the CMOM Plan as appropriate. An update of the CMOM Plan shall be subject to Section VI (Review and Approval Procedures).

F. Public Access. MetCom shall post its approved CMOM Plan, and any approved updates to the CMOM Plan, on its website **within 10 days** after approval by the Department and ensure that the CMOM Plan remains accessible to the public through the website until termination of this Consent Decree in accordance with Section XXIV (Termination).

**TAB 3. CMOM  
CAPACITY, MANAGEMENT OPERATION & MAINTENANCE  
PROGRAM**

**(see attached)**





## St. Mary's County Metropolitan Commission Sanitary Sewer Collection System

### Capacity Management, Operations and Maintenance (CMOM) Program

#### Mission Statement

*To construct, operate and maintain public water supply and public wastewater conveyance and treatment systems in a manner that is sustainable, reliable, economical and safe for our environment, our customers, our employees and the citizens of St. Mary's County.*

Version	Date	Description	Primary Author	Checked	Reviewed	Approved
1.0	3-14-2025	CMOM	George Erichsen	√	√	

# Capacity Management, Operations and Maintenance (CMOM) Program

---

## Table of Contents

### OVERVIEW

1. COLLECTION SYSTEM MANAGEMENT .....	4-20
a. Purpose and Goals	
b. Organization	
c. Training and Safety	
d. Internal Communication	
e. Customer Service	
f. Information Management and Geographic Information Systems	
g. Cybersecurity	
h. SSO Notification Program	
i. Legal Authorities and Controls	
j. Useful Life Assumptions	
k. SCADA	
2. GENERAL SYSTEM INFORMATION.....	21-29
a. Wastewater Treatment and Collection System Description	
b. Collection System Details	
c. Age Distribution of Collection System	
d. Length of Pipe by Diameter	
e. Sanitary Sewer Overflow (SSO) History	
f. Water Quality Monitoring	
g. System Mapping	
3. CLEANING, INSPECTION & TESTING.....	30-46
a. Cleaning	
b. Pipe, Manhole and Grinder Pump Inspection	
c. Assessment	
d. Hot Spot Program	
e. Hydrogen Sulfide Analysis	
f. Confined Space Entry & Respiratory Protection Programs	
g. Staffing, Parts and Equipment	
4. GRAVITY LINE PREVENTIVE MAINTENANCE (PLANNED).....	47-51
a. Fats, Oils, and Grease (FOG) Control	
b. Root Control	
c. Service Laterals - Sewer Connection Incentive Program	
d. Grinder Pumps	
5. MAINTENANCE AND ACCESS.....	52-55
a. Maintenance of Right of Way and Easements	
b. Street Paving Coordination	

## Capacity Management, Operations and Maintenance (CMOM) Program

---

6. PUMP STATION/FORCE MAIN MAINTENANCE.....	56-67
a. Mechanical and Electrical Maintenance	
b. Force Main / Air Relief Valve Maintenance	
c. Private Pump Stations and Facilities	
d. Corrosion Control	
e. Wet Well Cleaning	
7. REACTIVE MAINTENANCE (UNPLANNED).....	68-73
a. Corrective Maintenance	
b. Scheduling	
c. Tracking and Recording Repairs	
d. Complaint Response	
e. Underground Facility Damage and Trench Settlement	
f. Emergency Preparedness and Response	
g. De-energizing Facilities	
8. EQUIPMENT AND TOOL INVENTORY.....	74-78
a. Essential day-to-day items	
b. Spare Equipment and Tools	
9. CAPACITY MANAGEMENT .....	79-94
a. Hydraulic Modeling and Facilities Planning	
b. Backwater Valve (Backflow) Installation	
c. Sewer Capacity Certification/ Connection Policy	
d. Cured-in-place Pipe Lining Program	
e. Sewer line Rehabilitation Program	
f. Manhole / Wet Well Rehabilitation Program	
g. Pump Station Evaluations and Inflow & Infiltration Studies	
h. Laterals	
i. Flow Monitoring	
j. Sewer Surge Protection	
10. RESOURCES AND BUDGET.....	95-102
a. Budget Process	
b. Rate Setting, Budgetary Policies and Financial History	
c. Historical Rate Review	
d. Operating and Maintenance Expense	
e. Capital Improvement Program Overview	
f. Capital Improvement Budget and Plan	
11. SEWER SYSTEM MAINTENANCE PLAN UPDATES .....	103
a. Plan Update and Program Modification Process	
b. Monitoring, Measurement and Reporting	
12. DOCUMENT RETENTION.....	103

## OVERVIEW

The St. Mary's County Metropolitan Commission (MetCom) is a quasi-governmental, non-profit water and sewer utility located in Southern Maryland. St. Mary's County is a peninsula bordered on the east by the Patuxent River and the Chesapeake Bay and on the west by the Potomac River. The elevation of St. Mary's County ranges from sea level to 188 feet. The County encompasses approximately 360 square miles with over 400 miles of shoreline<sup>1</sup>. The structural integrity of the approximately 220 miles of gravity and pressure sanitary sewer lines that MetCom owns and operates has considerable ramifications to the water quality of the largest estuary in the world.

A Capacity Management, Operations and Maintenance (CMOM) Program will help ensure the proper operation and maintenance of sewer lines, gravity sewer segments, force mains, pump stations, low pressure systems and all other components of MetCom's sewer collection system. These efforts should minimize failures, malfunctions, and line blockages that could contribute to SSOs. The CMOM was developed in general conformance with the EPA "Guide for Evaluating CMOM Programs at Sanitary Sewer Collection Systems" (EPA 305-B-05-002) and the EPA "Template for Developing Sewer Collection System Preventive Maintenance and Sewer Overflow Response Plans", November 2009 Version. The document is intended to be a living document in the sense that it may be constantly updated and revised to reflect current information, changes, or evolving situations.

## 1. COLLECTION SYSTEM MANAGEMENT

### a. Purpose and Goals

The St. Mary's County Metropolitan Commission is committed to providing residents with safe and adequate service to convey wastewater to treatment facilities and ensure that the treatment facilities' discharges meets all the requirements of the National Pollutant Discharge Elimination System (NPDES) to ensure the quality of water discharged into the Chesapeake Bay. A CMOM program is what an owner or operator should use to manage its assets; in this case, the collection system itself. The CMOM program consists of a set of best management practices that have been developed by the industry and are applied over the entire life cycle of the collection system and treatment plant. These practices include:

- Designing and constructing for O&M
- Knowing what comprises the system (inventory and physical attributes)
- Knowing where the system is (maps and location)
- Knowing the condition of the system (assessment)
- Planning and scheduling work based on condition and performance
- Repairing, replacing, and rehabilitating system components based on condition and performance
- Managing timely, relevant information to establish and prioritize appropriate CMOM activities
- Training of personnel

---

<sup>1</sup> Maryland Department of Economic Development, Brief Economic Facts for St. Mary's County

# Capacity Management, Operations and Maintenance (CMOM) Program

---

The purpose of MetCom’s Capacity, Management, Operation and Maintenance (CMOM) program is:

1. To better manage, operate and maintain all parts of the collection system that MetCom owns or over which MetCom has operational control; and
2. To investigate capacity constrained areas of the collection system; and
3. To provide adequate capacity to convey base flows and peak flows for all parts of the collection system that MetCom owns or over which MetCom has operational control; and
4. To proactively prevent sanitary sewer overflows (SSOs); and
5. To respond to SSO events and to take all feasible steps to stop and mitigate the impact of SSOs in portions of the collection system that MetCom owns or over which MetCom has operational control; and
6. To provide notification to parties with a reasonable potential to exposure to pollutant associated with an overflow event; and
7. To develop a written CMOM program and make it available to any member of the public. <sup>2</sup>

The specific goals of the Department of Facilities and Operations are:

1. To reduce or eliminate Sanitary Sewer Overflows (SSOs).
2. To stop and mitigate the impact of any SSOs in our collection system
3. To implement a sustainable preventive maintenance program
4. To protect the waters of the State and the health of the community
5. Assure adequate capacity for the current and future needs of residents of St. Mary’s County.

## b. Organization

The Board of Commissioners of St. Mary’s County appoints the seven MetCom Commissioners to represent the nine election districts in the County. The Board includes representation from the Patuxent River Naval Air Station as well as the Director of the Metropolitan Commission. Currently, the commissioners serve 4 year terms, and have a two term limit. The Commissioners meet monthly to oversee the various functions of the Commission. The current Metropolitan Commission Board of Commissioners (as of 02/07/2024) is comprised of the following members:

- |                            |          |                        |
|----------------------------|----------|------------------------|
| • Gerald E. Meyerman       | (ED 1)   | Chairman               |
| • Roy H. Alvey             | (ED 2/9) | Vice Chairman          |
| • Dale Antosh              | (ED 4/5) | voting member          |
| • Keith S. Dugan           | (ED 6)   | voting member          |
| • Joseph M. Gould          | (ED 8)   | voting member          |
| • Joseph Mattingly, III    | (ED 7)   | voting member          |
| • Joseph I. Russell        | (ED 3)   | voting member          |
| • Captain Douglas Burfield |          | CO, Patuxent River NAS |

The MetCom Facilities and Operations Department is responsible for water supply, distribution and treatment as well as all aspects of wastewater collection system and treatment. There is **1** Chief and **2** administrative support personnel. Administrative support staff assist with data entry and quality control, handle billing, dispatch, payroll, customer response and other support functions as needed.

---

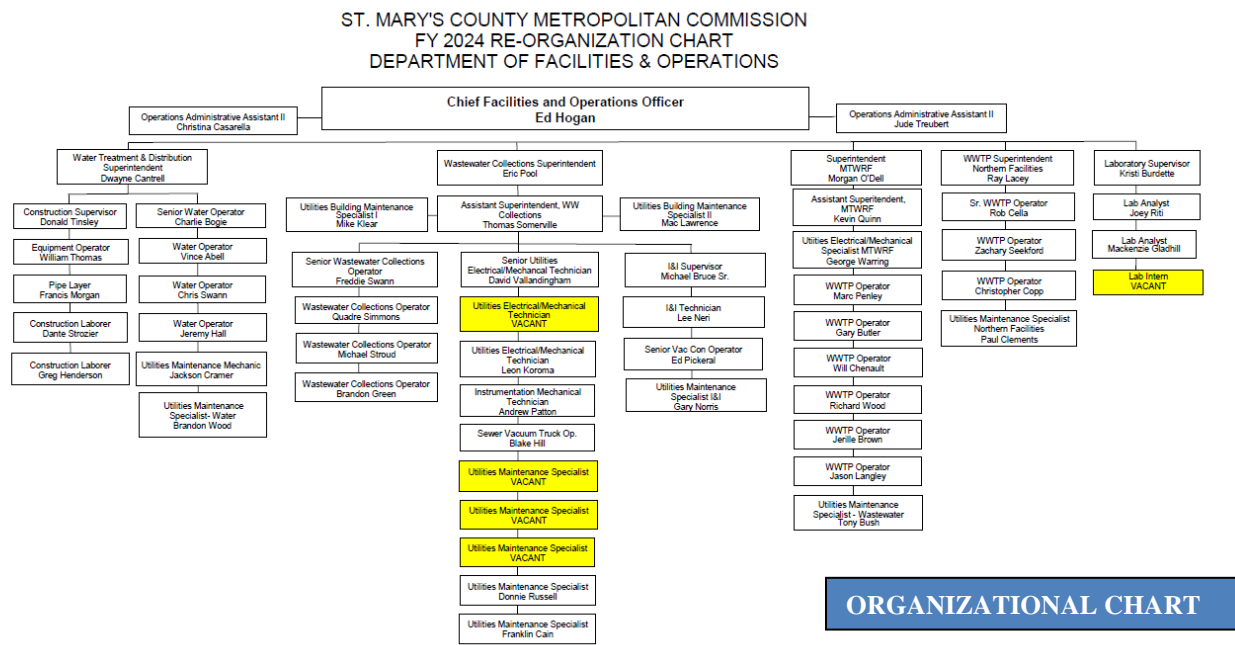
<sup>2</sup> 40 CFR 122.42(f) Capacity, Maintenance, Operation and Maintenance for Municipal Sanitary Sewer Systems

## Capacity Management, Operations and Maintenance (CMOM) Program

The Wastewater Collections Division is responsible for the operation and maintenance of the public sewer collection system. The collection system division has a staff of **21** full-time operation and maintenance positions. The Wastewater Collections Superintendent manages field operations and maintenance activities, provides relevant information to agency management, prepares and implements contingency plans, leads emergency response, investigates and reports SSOs, performs bi-annual inspections of grease interceptors/separators, manages I/I programs and trains field crews. Field crews conduct staff operations and preventive maintenance activities, mobilize and respond to notification of stoppages and SSOs (e.g., mobilize sewer cleaning equipment, by-pass pumping equipment, and portable generators). Construction staff (**5**) from the Water Treatment & Distribution Division and contractors are also used for maintenance activities and emergency support on an as-needed basis.

The Wastewater Treatment Division (*shown below*) is responsible for all aspects of wastewater treatment and includes **16** full-time superintendents, licensed / unlicensed operators, and laboratory personnel. Contractors are also used for maintenance activities and emergency support on an as-needed basis. The level of staffing is consistent with the U.S. EPA's *Staff Complements For Wastewater Collection System Maintenance* which provides guidance on the estimated number of personnel based on population size served. See the **Organizational Chart** for the below.

The Executive Director establishes policy, plans strategy, leads staff and delegates responsibility, allocates resources, authorizes outside contractors to perform services, coordinates development and implementation of the CMOM and serves as MetCom's Public Information Officer which includes coordinating outreach, social media, and public education. Additional detail regarding duties and responsibilities is available in the specific Job Descriptions (JDs) for each position.



# Capacity Management, Operations and Maintenance (CMOM) Program

---

## Relation to Other Departments and Agencies

- The Chief of Engineering is required to have a Professional Engineer's License and prepares wastewater collection system planning / design / construction bid documents, manages the capital improvement plan, documents capacity availability, assists in renewal / rehabilitation programs and oversees GIS mapping efforts. The Chief Engineer also oversees the Construction Inspection Division responsibilities to inspection and testing for new and rehabilitated assets meet MetCom standards and may be assigned to work with field crews to handle emergencies when contractors are involved.
- Resources and budget are overseen by the Chief Financial Officer, Executive Director and Metropolitan Commission Board
- Contingency equipment and replacement inventories are funded through the capital budget (major) and the operating budget's annual capital equipment expenditures (minor)
- Personnel hiring and administration, training programs for safety, first aid, licensing, operations management, etc. are coordinated through the Human Resources Department and Risk Manager.
- The Commissioners of St. Mary's County approve all applications for loans prior to submission by MetCom to a lending institution, approve resolutions to back the MetCom with their full faith and credit and approve the annual capital budget and six-year plan. The County is also responsible for approval of the local Comprehensive Water and Sewerage Plan (CWSP).

## c. Training

MetCom's training program provides a mechanism for educating employees and establishing their technical competence on a regular basis. MetCom utilizes a combination of in-house skill training and the purchase of specialized training through state and national associations, the self-study technical wastewater training courses (e.g. Maryland Center for Environmental Training), conferences and vendor training programs to enhance skills for performing daily work duties and provide certified operators continuing education hours. Supervisors also review all standard operating procedures (SOPs) on an annual basis to adjust, revise, update and plan any necessary training accordingly.

Skills training for the Facilities and Operations Department employees includes, but is not limited to:

- Crane and Forklift Operator Training
- Heavy Equipment Operation and Defensive Driving
- Disinfection Operations
- Maintenance Equipment Operation
- Line Testing and Inspection
- Infrastructure Installation
- Excavation – Trenching & Shoring
- Pump Station and Plant Operator Operation and Maintenance
- Wastewater Operations, Monitoring and Process Control
- Electrical, Maintenance and Instrumentation
- Emergency Preparedness / Response
- NASSCO (PACP, LACP, MACP)
- Injury Protection
- Work Zone and OSHA Safety



## Capacity Management, Operations and Maintenance (CMOM) Program

---

MetCom has adopted a Safety and Health Plan (*accessible on the Commissions shared drive*) to provide a safe and healthful work environment for all its employees, to control areas where potentially hazardous conditions exist, and to reduce the frequency and severity of incidents when they occur. **In FY 2024, there were only 3 OSHA reportable injuries.** All personnel are required to follow the guidelines established in this Plan and failure to comply may result in disciplinary action. The associated safety training is coordinated through the Risk Manager (*Safety Committee*) and includes, but is not limited to the following written safety policies and procedures:

- Confined Space Entry and Rescue
- Hard Hat Policy
- Vehicle Use Policy
- Respiratory Protection Program
- Bloodborne Pathogens
- Fire Prevention and Protection
- Excavation Safety Policy and Program
- Chlorine Safety and Material Handling Policies
- Injury Reporting Policy
- Post Accident Drug Testing Policy
- Personal Protective Equipment (provided for the employee)
- First Aid, CPR and AED (First aid supplies are available in office areas and vehicles)
- Flaggers / Traffic control and work site safety
- Hazard Communication Program
- Lockout/Tagout
- Material Safety Data Sheets (MSDS)
- National Shellfish Sanitation Program (NSSP)
- Defensive Driving Program

Training records are maintained for each employee by the Human Resources Department in a training database. The Facilities and Operations Department maintains appropriate safety equipment including: protective clothing, safety glasses, hard hats, gloves, respirators, filters, harnesses, tripods, hoists, fire extinguishers and self-contained breathing apparatus. The Department also maintains and calibrates atmospheric testing equipment, lights, barricades, signage and exhaust fans.

MetCom also has several general emergency operations plans and checklists in place which are utilized in conjunction with the County's Emergency Operations Center when it is activated for dress rehearsals, desk-top drills and graded exercises. More specific standard operating procedures for SSOs or sewer line breaks are discussed throughout this document. The procedures and plans listed below are reviewed annually.

### **Applicable Standard Operating Procedures** (*accessible on Commission's shared drive*)

OP-21-03	Radiological Emergency Checklist
OP-19-01	Severe Weather Operations Plan
OP-19-02	Snow Removal & Ice Control Plan
OPS-24-072	Catastrophic Failures of Pump Station or Major Collections Systems Components
OPT-24-01	Catastrophic Failures of Treatment Plant or Major Treatment Components
SSOERP	Sanitary Sewer Overflow Emergency Response Plan

## Capacity Management, Operations and Maintenance (CMOM) Program

---

### d. Internal Communication

Managers meet once a week, supervisor meetings with the management team and Executive Director are held once a month, sewer operations and maintenance meetings are held once a week, safety committee meetings are held once a month. Each year, the Director selects an individual or department for receipt of a **Quality on Tap Award**. The plaque reads, *"In appreciation and recognition of your outstanding service, dedication to duty, and level of commitment to the organization. Your efforts set a standard of excellence that is a direct reflection of your professionalism and are in keeping with the highest traditions of MetCom."* Employees are **individually recognized** by the Board and provided a monetary stipend for their years of service beginning at 5 years. **Monthly proclamations** are read by the Board and the appropriate department staff attend and are publicly recognized. Awards and Recognition budgets were established in FY 2020 as a part of an overall employee recognition program. Setting up small incentive programs, purchasing gifts, or providing the occasional team lunch is an effective way to recognize the employees for all the hard work they may do over a given period of time. In using operating budget funds, the gift would fall under an Internal Revenue policy that restricts the amount of non-taxable contributions given to an employee.



**Employee Satisfaction Surveys** are conducted approximately once every three years. A Beneficial Suggestion Program is also in place which provides a monetary incentive for an idea that will: Simplify or improve operations; Save time required to accomplish a task; Speed up production; Increase output and enhance productivity; Improve working conditions, procedures, operating methods, equipment, plant layouts and/or organization; Save material, property, manpower and money; Promote health, increase safety; or Improve morale through desirable and feasible personnel services that increase productivity. The award is based upon 10% of the first year's validated savings.

### e. Customer Service

The citizens in many communities often know very little about the wastewater treatment and collection services performed for them. MetCom public relations efforts include, but are not limited to:

- talking to schools, community colleges and universities (ie. Career days and job fairs)
- providing public tours at various facilities
- serving as Science Fair judges
- posting periodic messages on social media (Facebook)
- sending customer email blasts or bill-stuffers on topics of importance
- participating in National Night Out with the Office of the Sheriff and holding Beat the Heat spray events
- publishing major topics of interest on the MetCom website
- submitting educational material for publishing in the local newspapers / media
- participating in the County's Citizens Academy educational program
- presentations to local elected officials (commissioners / senators / delegates) and various commissions
- performing joint projects with the County Department of Public Works & Transportation and Health Department
- guest speakers at businesses (e.g. Chamber of Commerce, Lions Club, Rotary, etc.)
- holding Public Hearings and Public Forums
- providing low interest loans to income eligible residential properties for connection to public sewer
- adopting and funding formal internship and scholarship programs
- deploying message boards in affected neighborhoods (e.g. for smoke testing)

## Capacity Management, Operations and Maintenance (CMOM) Program

---

- initiating personal visits / phone calls
- utilizing door Tags / Hangers and sign postings

In order to ensure an effective customer service and public relations program is in place, all inquiries, requests, and complaints need to be addressed in a timely fashion. MetCom We will answer phone calls promptly and courteously, within four rings, and return all voice / email mail messages within 48 hours. Field crews are often the first interaction the public may have with MetCom and can influence the public's confidence in the collection system owner. Personnel are trained to receive complaints and maintain a data base with the following:

- Date and nature of the complaint or request
- Location of the problem
- Name, address, and telephone number of the customer
- Cause of the problem
- To whom the follow-up action was assigned
- The initial date of the follow-up action
- Date the complaint or request was resolved
- Total days to end the problem (e.g. close out of work order)
- Feedback to the customer as follow up

Customer Response Standards. MetCom maintains a Customer Service Plan based on openness, accessibility, accountability and continuous improvement.

### **If you contact us with an inquiry about MetCom or ask for other information:**

- We will answer your written inquiry within 15 working days. If we need more time to research the answer, we will contact you within those 15 days to tell you when to expect our response and who the contact person is.
- If you telephone us, you will speak to a knowledgeable person who will answer your question, or refer it properly. You will receive no more than two referrals.
- We will answer phone calls promptly and courteously, within four rings, and return all voice / email mail messages within 48 hours.
- If you have a personal appointment with a Department employee, you will be helped within 5 minutes.
- You will not have to wait more than 20 minutes if you do not have an appointment.

### **If you request one of our publications or documents:**

- Requests for single copies of publications by telephone will be sent within 48 hours.
- Information requested as a pick-up request will be made available within 48 hours.
- Requests for single copies by mail will be sent within 72 hours.
- Publications and documents will be made available in alternative formats on request.
- We will give you the option to receive the information in electronic form where possible.

### **If you contact us with a suggestions, or complaint:**

- We will respond to written complaints within 15 working days.

## Capacity Management, Operations and Maintenance (CMOM) Program

- We will respond to our on-line Maintenance Request, How's Our Driving and Community eForum Feedback messages within 48 hours.
- If you telephone us with a complaint, we will advise you on the telephone or refer your complaint to the proper source.

Customer Evaluation of Services. In addition to meeting with customers directly and obtaining input, MetCom solicits comments via email at [comments@metcom.org](mailto:comments@metcom.org), through an online Customer Satisfaction Survey and the Commissions FaceBook page.



Complaint Management Program. Complaints and requests are received by various means (*e.g., phone calls, e-mail, website, facebook and occasionally in person*). Regardless of the nature or means of receipt, all complaints and requests are entered via the dispatcher into our logbook. Entries include the following detailed information about the complaint/request:

- Receiver of complaint / dispatcher
- Time and date of request
- Form number (Work Order)
- Complainant information (Name, address, call back phone number)
- Location of the problem
- Type of complaint (codes, e.g. alarm, back up, odor, manhole overflow, etc.)
- Specific request
- Personnel assigned to complaint
- Findings type, including cause of problem
- Complaint closeout information
- Date complaint closed

The Facilities and Operations Department is responsible for responding to sewer service complaints. Complaints are generally related to sewer stoppages, overflows, or odors. Response is performed by the collection system staff during work hours and by phone standby personnel during off hours, weekends and holidays. Once a complaint is assigned, our field personnel perform an investigation. If the problem cannot be immediately resolved, a work order is generated in Cityworks to take appropriate action for permanent correction of the problem. If MetCom is not responsible for correcting the problem, the complainant is provided with guidance on a recommended course of action. Once an investigation has been completed, the staff enters closeout information into the database. An online 311 Reporting system is also available to residents which is tied to the Cityworks work order management system and provides auto responses to the requestor / complainant. Staff is also trained in public relations and dealing with angry customers.



### f. Information Management and Geographic Information Systems

MetCom utilizes an Asset Management System (AMS) to help manage the data needed to track a collection system's operation and maintenance. It includes work order management software and is integrated with a Geographic Information System (GIS). GIS is used to map and quickly locate system

## Capacity Management, Operations and Maintenance (CMOM) Program

---

parts and facilities and includes multiple layers of identifying information such as a sewer collection system map, manhole locations, pump / lift station locations, wastewater treatment plant locations grinder pump locations, dates of pipe cleaning and repair, and features such as pipe location, diameter, material, and condition, etc. Semi-annually, MetCom submits updates to the County Information Technology Department to incorporate into the County's public-facing GIS site which includes additional information such as SDAT information, streets, parcels, storm sewers, sewer service areas, etc.

Cityworks uses the inherent value of a GIS-based asset inventory by not only managing the assets and their associated attributes (*type, condition, size, installation date, etc.*), but also the maintenance/repair efforts performed on those assets. The link between assets and work orders are maintained such that the history of completed work orders against a specific asset is viewable and is easily retrieved. By using service requests, work orders, inspections, and projects are used to track various types of work activities with their associated costs and overall "picture" can be created to assist with funding priorities and maintaining customer service levels.

Attribute data to be included and tracked may include the following:

- System components such as pipe diameter, pipe length, invert elevations of manholes, slope, material type, age (*date of installation*) or age range, geographic location, structure type (*e.g., siphon, manhole, vacuum breaker, junction box, force main, air relief valve*); etc.
- Scheduling and tracking including maintenance history, condition assessment results, cleaning observations, corrective action history, SSO history and the status of maintenance work
- SCADA data, flow and rainfall monitoring data
- Location of the 100-year FEMA flood plain
- Equipment and parts inventory
- Customer service and complaints
- Employee training

The Engineering/GIS Department is in the process of developing extensive electronic maps of the sanitary sewer system and filling any identified data gaps. MetCom shall use its best efforts to locate components that cannot be located in the field, including the use of GIS, as-built drawings, surveying, or Global Positioning Systems. Eventually operators in the field with lap top computers will have access to the maps and all the data while working in the field. The GIS system could generate a map for the operator and they will be able to locate manholes and other pertinent apparatus with a hand held GPS unit in the field. We hope in the future to have an integrated software system. Ideally, this system would be integrated with the work orders and past history of repairs and problems at any given site. This information (if available to an Operator or Mechanic in the field) could be invaluable in an emergency.

MetCom also uses spreadsheets, SCADA data, access databases hard copy files and log books to manage information on our collection system. **Table 1** shows the basic information and additional attribute data that can be included in the GIS mapping information of MetCom's collection system and it's components. Additional attributes which may be useful are shown in the column to the right of the basic attributes. Some of this basic information may be included as part of the GIS or AMS

## Capacity Management, Operations and Maintenance (CMOM) Program

database linked to the map instead of on the map itself. Pump stations should also be indicated on the map, although their technical information can be too complex to display on a map sheet, and it may be more appropriate to place it in the GIS and/or AMS database.

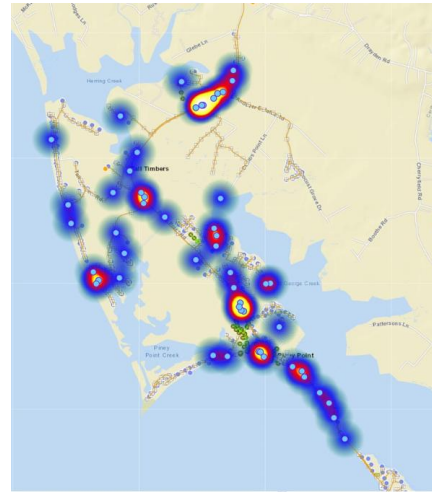
<b>Table 1. Collection System GIS Map Information</b>	
<b>Manholes Basic Map Information</b> <ul style="list-style-type: none"> <li>- Geographic location</li> <li>- Date built or date range of installation</li> <li>- Invert elevation (if available)</li> <li>- Rim elevation (if available)</li> </ul>	<b>Manholes Additional Attributes</b> <ul style="list-style-type: none"> <li>- ID number or other unique identifier</li> <li>- Date built</li> <li>- Material Type</li> <li>- Size (diameter)</li> </ul>
<b>Pump Stations Basic Map Information</b> <ul style="list-style-type: none"> <li>- Geographic location</li> <li>- Date built or date range of installation</li> <li>- Location of grinder pump vaults</li> </ul>	<b>Pump Stations Additional Attributes</b> <ul style="list-style-type: none"> <li>- Additional information on drawings (identify where drawings are located)</li> <li>- ID number or other unique identifier</li> <li>- Capacity</li> <li>- Grinder pump elevation (if available)</li> </ul>
<b>Force Main Basic Map Information</b> <ul style="list-style-type: none"> <li>- Geographic location</li> <li>- Length of pipe segments</li> <li>- Material type (if available)</li> <li>- Date built or date range of installation</li> <li>- Location of air release valves</li> </ul>	<b>Force Main Additional Attributes</b> <ul style="list-style-type: none"> <li>- Invert elevations</li> <li>- Plan or as-built ID number</li> <li>- Direction of flow and pump station associated</li> </ul>
<b>Gravity Sewer Basic Map Information</b> <ul style="list-style-type: none"> <li>- Geographic location</li> <li>- Length of pipe segments</li> <li>- Slope</li> <li>- Material type (if available)</li> <li>- Invert elevations (if available)</li> <li>- Date built or date range of installation</li> </ul>	<b>Gravity Sewer Additional Attributes</b> <ul style="list-style-type: none"> <li>- Plan or as-built ID number</li> <li>- ID number or other unique identifier</li> <li>- Direction of flow and pump station associated</li> </ul>
<b>General Basic Map Information</b> <ul style="list-style-type: none"> <li>- Display of the 100-year FEMA Floodplain</li> <li>- Sanitary District Boundaries</li> <li>- Identification of structure types</li> </ul>	<ul style="list-style-type: none"> <li>- Structure type (e.g., siphon, manhole, vacuum breaker, grinder pump, junction box, shut off valves, air relief valve, etc.)</li> <li>- Sanitary District ID number</li> </ul>

Any activity performed by department personnel is generated and tracked through the AMS or other information management process. MetCom also manages system information associated with parts inventory, equipment and tools, purchase orders, revenues, flow monitoring, SSOs, FOG compliance, routine and planned maintenance (*cleaning, et.c*), monitoring / sampling (*ie. hydrogen sulfide*), laboratory data, personnel, training, safety incidents, job performance, vehicle maintenance, inspections (*ie. manhole, pipeline, pump station*), customer service responses and complaints, SCADA data, pump station equipment, design specifications, as-builts, billing information, etc.



## Capacity Management, Operations and Maintenance (CMOM) Program

MetCom utilizes Cityworks, an asset management tool with a built-in work order management system that is integrated with GIS. Staff can utilize this information to create graphical representations of data (heat maps) where values are depicted by color. These maps can be used to help identify areas where there have been repeated maintenance related issues (*e.g. sewer breaks, repairs, SSOs, grinder pump calls, etc.*) that may need a higher level of corrective action. Heat maps use colors to represent data values, with different shades indicating different levels of engagement or volume: Red - High engagement or hot spots; Yellow and green - Moderate engagement; Blue - Low engagement or cold spots (*see example at right*).



Our information management process is operated through our Local Area Network (LAN). The system is backed up daily; with retentions of weekly, monthly, and yearly. Access is restricted through strong passwords and access control methods including: permissions, ownership, and inheritance. Passwords are provided to MetCom employees designated for access by name and department/group membership. Physical access is restricted by keycard; with only authorized personnel allowed in data-store rooms. Remote access is protected by VPN using IKEv2 protocols. Data is both encrypted-at-rest and in-transit on the LAN. System-wide multifactor authentication is planned but not yet implemented. Policies are in place to audit permissions/access upon user termination or role change, including complete removal of access upon termination.

### g. Cybersecurity

The St. Mary's County Metropolitan Commission (MetCom) protects its internal network from outside access by use of perimeter firewalls. Perimeter firewalls provide a secure boundary between our internal network and the Internet and are our main defense against unauthorized access. Further protection is gained by utilizing public IP addresses owned and monitored by the Maryland Department of Information Technology as part of the networkMarylandTM data network. The IT Department periodically checks these perimeter points for proper settings, protection updates, and any suspicious traffic. Cybersecurity threats are increasing and MetCom must continually improve its security posture to keep MetCom's users and data safe.

In March 2023, MetCom participated in the Cybersecurity Assessment and Technical Assistance project offered by the U.S. Environmental Protection Agency (EPA). This free, confidential assessment aims to help water and wastewater utilities improve cyber incident preparation, response, and recovery. The Technical Assistance Provider (TAP) worked with MetCom's IT staff to assess our current cybersecurity practices and to identify vulnerabilities in our capability to prepare for, respond to, and recover from a cyber incident. Upon completion, the TAP developed and delivered a cyber action plan to guide the implementation of best practices. The assessor's overall observation was that MetCom's cybersecurity posture was strong compared to other water/wastewater utilities. The cyber action plan shows that over 65% best practices are either already in place or not applicable. Using the guidelines from the cyber action plan, the IT department has started to implement measures to improve our cyber incident preparation, response, and recovery.



## Capacity Management, Operations and Maintenance (CMOM) Program

---

MetCom continues to use the assessment services provided by the Cybersecurity & Infrastructure Security Agency (CISA). These services, the Cyber Hygiene Vulnerability Service and the Web Application Scanning provide continuous scanning of our public-facing interfaces and web applications. CISA's Cyber Hygiene Services are provided by highly trained information security experts equipped with top-of-the-line tools for detecting potential security vulnerabilities. Cybersecurity awareness training for all employees is mandatory and on-going.

### **h. SSO Notification Program**

MetCom maintains a Sanitary Sewer Overflow Emergency Response Plan (SSOERP) in place to ensure that MetCom responds to all SSOs in a timely, thorough and responsible manner, to minimize or prevent environmental damage and to properly document and report all details of an incident. This includes a robust notification and reporting program that has been coordinated with the local Health Department and County Emergency Services Department.

The SSOERP describes actions to be taken by individuals involved in identification, response and remediation of an SSO. The SSOERP includes numerous Standard Operating Procedures that address possible system failures, leaks/ breaks, manholes, wastewater pump stations and wastewater treatment facilities, where an SSO may occur, to include environmentally sensitive areas. In addition, the adoption and implementation of the SSOERP should accomplish four (4) objectives:

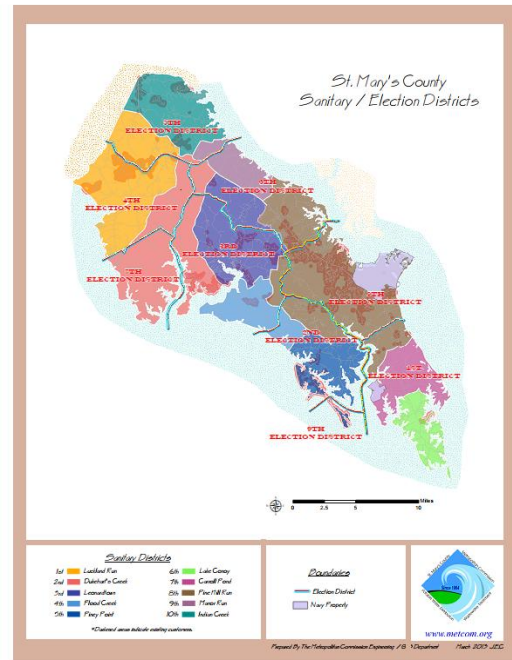
- To provide adequate response to SSO's;
- To minimize an SSO's impact on public health, public safety, and property damage;
- To comply with regulatory and enforcement reporting and public notification requirements;
- To minimize the reoccurrence of SSOs; and
- To minimize the Commission's liability.

# Capacity Management, Operations and Maintenance (CMOM) Program

## i. Legal Authorities and Controls

### 1. Chapter 113

The St. Mary's County Metropolitan Commission was created by the State Legislature in 1957 as a quasi-governmental, non-profit body, to supply water and sewer service to St. Mary's County. The Metropolitan Commission is governed by the Code of St. Mary's County Maryland, Chapter 113 - Sanitary Districts. The Code specifies MetCom's governance, its powers, duties and authority over the public water and sewer systems. The St. Mary's County Metropolitan Commission was created by the State Legislature in 1957 as a quasi-governmental, non-profit body, to supply water and sewer service to St. Mary's County. The Metropolitan Commission is governed by the Code of St. Mary's County Maryland, Chapter 113 - Sanitary Districts. The Code specifies MetCom's governance, its powers, duties and authority over the public sewer system. The most current version of the Code is available at <https://www.metcom.org/> under the Administration tab. §113-11.F specifically states that *"The Metropolitan Commission shall have full and complete jurisdiction over all other appurtenances with any of its systems, including, but not limited to, grinder pumps, gravity sewers, force mains, manholes, and cleanouts."*



### 2. Comprehensive Water and Sewerage Plan (CWSP) and Zoning Ordinance

The Commissioners of St. Mary's County are responsible for the CWSP in accordance with § 9-503 of the Environmental Article of the Annotated Code of Maryland. The first CWSP was written in 1974 and defined ten (10) separate Sanitary Districts based on the location of existing public water and sewer systems at that time. The current Plan includes sewer service area designations, planned growth, present and future demand and is located at <https://www.stmaryscountymd.gov/LUGM/> the Online Resources tab. In addition, the County's Zoning Ordinance contains Adequate Public Facilities requirements (Article 7) and specific Enforcement provisions (Article 9).

### 3. Sewer Use Regulation (SUR)

In compliance with all applicable Federal and State laws, including the Clean Water Act (33 United States Code § 1251 et seq.) and the General Pretreatment Regulations (40 Code of Federal Regulations Part 403), and by virtue of Section 113-11 of the Code of Public Laws of St. Mary's County, the St. Mary's County Metropolitan Commission has the authority to adopt rules, regulations and requirements pertaining to the public sewer system.

## Capacity Management, Operations and Maintenance (CMOM) Program

---

MetCom has established and implemented regulations regarding the use of the wastewater collection system. The comprehensive Sewer Use Regulations (SUR), consistent with EPA's model ordinance, was last updated in **April 2019** and is available at <https://www.metcom.org/> under the Operations tab. The items addressed through our SUR include: sewer use and standards, regulation of volume and access to pipelines and structures, control of infiltration and connections from inflow sources, FOG management, pretreatment requirements, service connections, hauled waste/septage, permitting of flows into the system, inflow/infiltration control, enforcement of proper design, installation, and testing standards, and inspection requirements for new and rehabilitated sewers.

With respect to enforcement, when the Director finds that a user has violated or continues to violate any provision of this Regulation, a wastewater discharge permit or order issued hereunder, or any other pretreatment standard or requirement, the Director or his agent may serve upon that user a written Notice of Violation. When the Director finds that a user has violated, or continues to violate the Regulation, wastewater discharge permit or order issued hereunder, or any other pretreatment standard or requirement, the Director may issue an order to the user responsible for the discharge directing that the user come into compliance within ten (10) days. The Director may enter into Consent Orders, assurances of voluntary compliance, or other similar documents establishing an agreement with any user responsible for noncompliance.

### 4. Standard Specifications for Water and Sewer Construction (Design Manual)



The items addressed in our Design Manual (*scan QR Code at left*) ensure the proper design and construction of all public sewers and connections. Provisions in the Manual include: standards and construction specifications / details for all sewer lines, pump stations and related appurtenances, minimum pipe sizing, peak flow methodology, the testing and acceptance for rehabilitated and replaced appurtenances (*ie. manhole sealing, slip lined pipe, cured in place pipe, etc.*).

New Construction. MetCom sets forth requirements and standards for the installation of new sewers, pumps, and other miscellaneous appurtenances in the Standard Specifications for Water and Sewer Construction (updated 7-11-2019). The specifications also outline standards for rehabilitation and repair projects. The procedures and specifications for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects are also outlined in the specifications. These specs are periodically reviewed and adjusted as needed. The next scheduled revision of the standard specifications is scheduled for 2025.

### 5. Flows from Satellite Municipal Collection Systems

There are no satellite municipalities contributing to the collection system. However, the Marlay Taylor Wastewater Treatment Plant (MTWRF) receives flows from the Patuxent Naval Air Base comprising approximately 10% of the total daily influent flow for the plant<sup>3</sup>. The next largest

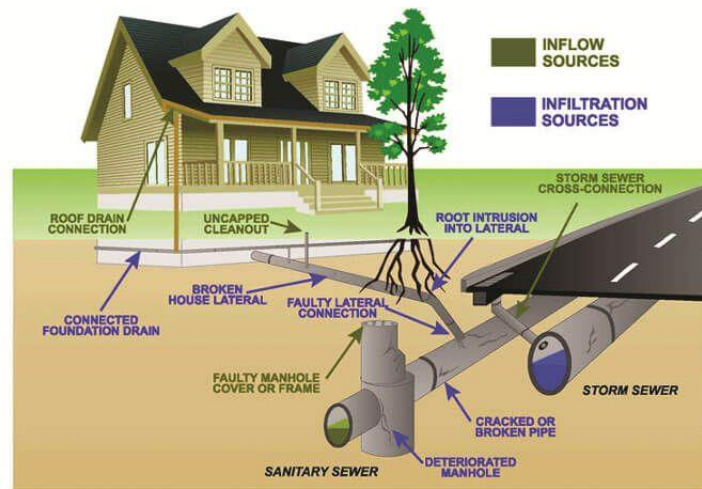
---

<sup>3</sup> Based on December 2023 plant data

## Capacity Management, Operations and Maintenance (CMOM) Program

single contributor to the daily influent is the St. Mary's College of Maryland (approximately 1% of the total influent flow for the MTWRF<sup>4</sup>). The Seafarers Harry Lundeberg School of Seamanship also contributes a significant amount of wastewater to the Piney Point pumping station. Other numerous privately owned systems contribute to our system including various shopping centers, trailer parks and apartment complexes.

MetCom shall make reasonable efforts to identify and eliminate illegal discharges where such discharges to the collection system are in or upstream of service areas where there is Excessive I/I.



Various sources of Inflow /Infiltration (I/I)

### 6. Prohibitions of the National Pretreatment Program

A Pretreatment Program and Local Limits Submission for MetCom were accepted by the Maryland Department of the Environment on August 6, 2002. The Pretreatment Program in place adopts the national categorical pretreatment standards proposed in Under 40 CFR 403.5 and 40 CFR Chapter I, Subchapter N, Parts 405-471. In order to successfully implement the pretreatment program the Commission must have adequate legal authority to back up the imposed standards. As summarized from 40 CFR 403.8 the County must be able to legally:

- Deny or condition new or increased contributions of pollutants, or changes in the nature of the pollutant discharge to the MCOTW.
- Require compliance with applicable pretreatment standards and requirements by Industrial Users (IUs).
- Control, through permit, contact or other means, the contribution to the MCOTW by each IU.
- Require the development of a compliance schedule by each IU, and the submission of all notices and self-monitoring reports as necessary to assure compliance.
- Carry out all inspections, surveillance and monitoring procedures to determine compliance independent of information supplied by the IU.
- Obtain remedies for noncompliance, including the ability to seek injunctive relief, civil or criminal penalties and or collect liquidated damages.
- Obtain effective summary relief from industrial waste discharges that endanger public health, the environment or MCOTW operations.

<sup>4</sup> based on December 2023 pump station data  
For a list of properties, see [appendix 6](#)

## Capacity Management, Operations and Maintenance (CMOM) Program

---

- h. Comply with the confidentiality requirements and limitations on data restrictions specified in 40 CFR 403.14.

### 7. National Pollutant Discharge Elimination System (NPDES)

Under existing regulations of 40 CFR 122.41 all National Pollutant Discharge Elimination System (NPDES) permits must contain two standard conditions addressing operation and maintenance;

- a. Proper operation and maintenance requirements at 40 CFR 122.41(e): This standard permit condition requires proper operation and maintenance of permitted wastewater systems and related facilities to achieve compliance with permit conditions, and
- b. Duty to mitigate at 40 CFR 122(d): This standard condition requires the permittee to take all reasonable steps to minimize or prevent any discharge in violation of the permit that has a reasonable likelihood of adversely affecting human health or the environment.

When these two standard conditions are in a permit for a POTW or a collection system, they require the permittee to properly operate and maintain its collection system as well as take all reasonable steps to minimize or prevent SSO discharges to the waters of the United States that have a likelihood of adversely affecting human health or the environment. In addition, these provisions, along with a prohibition on SSO's to waters of the U.S., are the basis for requiring permittees to provide adequate sanitary sewer system capacity.

### j. **Useful Life Assumptions**

The following are the basic useful life assumptions for sanitary sewer pipe systems based on material type. The actual life expectancy (service life) depends on material type, quality of installation, soils conditions, level of maintenance & repair, amount of use / quantity of flow and surrounding conditions (ie. high water table), etc.

<u>Pipe Material</u>	<u>Useful Life *</u>
Poly Vinyl Chloride (PVC)	75-100 years
Galvanized Steel	20-50 years
Vitrified Clay	50-60 years
Ductile Iron Pipe (cement lined)	80-100 years
High Density Polyethylene (HDPE)	50-100 years
Brass	40-70 years
Copper	50-70 years
Asbestos Cement Pipe (AC)	40-65 years (up to 100)
Concrete (not reinforced)	75-100 years
Cast Iron (cement lined)	75-100 years



## Capacity Management, Operations and Maintenance (CMOM) Program

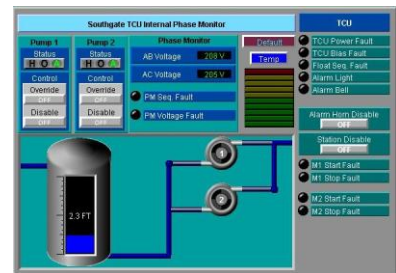
The following are the basic useful life assumptions for sanitary sewer facilities based on material type.

Wastewater Pump Station equipment	20-30 years
Wastewater Pump Station structure	50-100 years
Submersible pumps	15-20 years
Wastewater Treatment Facility	40-50 years
Wastewater Treatment Facility equipment	15-20 years
Grinder Pumps	20-30 years
Portable generators	10-20 years

### k. Supervisory Control and Data Acquisition (SCADA)

This system is used to monitor and override pump controls at stations through “real time” communications via radio communication and a fiber-based network. Pumpstation sites and treatment facilities can be monitored and controlled by this system. With appropriate administrative rights, the assigned operator can view the system’s performance, access controls, run status reports, view trends, and alter their state from any computer that has internet access, or from specially configured wireless devices. This remote accessibility improves response times greatly by allowing the operator to begin investigating a potential problem immediately upon receiving an alarm instead of requiring a trip to the site.

The “Human Machine interface” (HMI), is the presentation layer of the Supervisory Control and Data Acquisition (SCADA) system, which allows authorized personnel to monitor the status, control the operations, acknowledge the alarms and provide a countywide view of all connected Water, Wastewater, and Treatment facilities. Authorized staff members with multi-factor authentication (MFA) also have the ability to access and control the equipment within the individual system from any remote location via a secure VPN connection. SCADA Systems and data are maintained at redundant physical locations for improved redundancy and high availability. SCADA systems/OT Networks are operated separately from the Commission’s IT networks. The historical data is stored in historian servers and the information is used for multiple purposes such as generating reports, trending and query, pump runtime comparison, flow measurements, store alarms history and to share data to other platforms and dashboards.

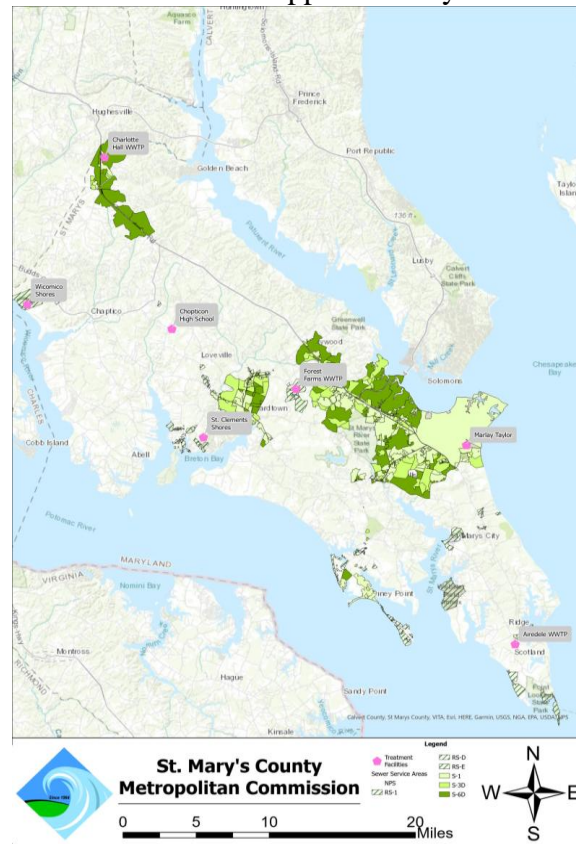


Alarms from SCADA are received by on-call / phone stand-by personnel, which is staffed 24 hours a day. If alarms are not acknowledged within a specified amount of time, they are re-routed to a supervisor’s telephone.

## 2. GENERAL SYSTEM INFORMATION

The Metropolitan Commission was established by Maryland State Law in 1957 and began operations in 1964. St. Mary's County Metropolitan Commission provides sewer service to over 52,000 customers on MetCom's public sewer system.<sup>5</sup> The sanitary sewer system watershed is comprised of 10 Sanitary Sewer District drainage basins. MetCom owns and maintains approximately 170 miles of gravity sanitary sewer lines, with 71 wastewater pumping stations servicing various neighborhoods throughout St. Mary's County. In the system there are approximately 184 miles of gravity line and 129 miles of pressure main, 4,187 manholes and 1,850 grinder pumps. There are no combined sewers in the collection system, as they were eliminated over 50 years ago. The gravity sewer mains range in size from 6 inches to 30 inches, and vary in depth from 2 feet to over 30 feet. The materials used include vitrified clay pipe, transite pipe and polyvinyl chloride (PVC) pipe. The average age for all the pipes in the force main's service system is 27.7 years and 31.3 years in the gravity main system.<sup>5</sup>

The Metropolitan Commission owns or operates 7 wastewater treatment plants in the County (*see figure at right*), treating a combined flow of approximately 1.343 billion gallons a year<sup>6</sup>. All wastewater treatment facilities have back-up power supply sources. By far, the largest treatment plant is the Marlay-Taylor Water Reclamation facility which serves the Patuxent River Naval Air Station. By utilizing state of the art treatment technologies, the plant is designed to treat an average daily wastewater flow of 6 million gallons a day. The Marlay-Taylor Water Reclamation Facility serves a majority of MetCom's customers.



The Commissioner of St. Mary's County are responsible for the Comprehensive Water & Sewerage Plan (CWSP) and allocation of new EDUs associated with growth. 83.4% of the County or 301 square miles is designated as No Planned Service (NPS) for public sewer.

### a. Wastewater Treatment and Collection System Description

In 1950 fewer than 30,000 people lived in St. Mary's County and by 1960, it was nearly 40,000, primarily due to growth in the Lexington Park area. The Navy operated its own wastewater treatment facility. In the mid 1950s there were five (5) other privately owned treatment facilities in St. Mary's

<sup>5</sup> Data derived from customer data base as of 6/2023

<sup>6</sup> Based on 2023 flow data

<sup>5</sup> 2023 Facilities Plan update



## Capacity Management, Operations and Maintenance (CMOM) Program

---

County. The Town Council oversees the operation of the treatment facility in Leonardtown. In 1957, a bill was passed to create a stand-alone corporation outside of County government (MetCom) to consolidate the private systems and expand public water and sewer systems. MetCom, a quasi-government non-profit body, began providing service in 1964. Since that time, MetCom also has agreements regarding the use / management of the sanitary sewer collection system and wastewater treatment facilities with the following entities:

### Joint Sewer System Agreements

- Patuxent River Naval Air Station. MetCom has had an Agreement with the Navy, originally dated 1969 (last amended in 2008) that reserves 1.5 million gallons per day of capacity for Navy use. The Navy pays it's proportional share of the costs associated with the ENR upgrade at the Marlay-Taylor Water Reclamation Facility and all other rates / charges as a similar MetCom customer.
- St. Mary's College. MetCom has an Agreement with St. Mary's College, originally dated 1977 (last amended in 2010) who has purchased sewage treatment capacity rights from MetCom for potentially 700 EDUs to cover present usage and planned future growth. The College pays the current System Improvement Charge to reserve the capacity and pays both metered charges based on actual flow rates and non-metered charges.
- The Town of Leonardtown. MetCom has had an Agreement with the Town of Leonardtown for treatment of MetCom's wastewater since 1980. MetCom is assessed an annual sewer charge from the Town based on a pro-rata share of their actual operating costs for wastewater treatment which is based on the number of MetCom EDUs served (*currently estimated at 511*).
- Chopticon High School. MetCom has had an Agreement with the public school system, originally dated 2009 (last amended in 2013) to reimburse MetCom for the actual costs (routine maintenance, lab fees, labor, overhead, etc.) incurred by MetCom (the Controlling Authority) for the operation and maintenance of the stand-alone Wastewater Treatment Facility.

The last major upgrade of a wastewater treatment facility was completed at the Marlay Taylor Water Reclamation Facility in 2014 and included Enhanced Nutrient Removal (ENR) and additional capacity. The treated wastewater is discharged to the Patuxent River. A similar ENR upgrade has been designed for the St. Clements Shores Wastewater Treatment Facility and is planned to begin construction in calendar year 2024-2025.

MetCom does not own or maintain any portion of the sewer laterals that drain each privately owned parcel or property beyond the property line or beyond the grinder pump (*See also Attachment B*). However, we do work with homeowners to help prevent backups into their homes.

MetCom staff and contractors perform planned maintenance tasks at scheduled frequencies. Frequencies are established based on experience and collection system information to minimize the

## Capacity Management, Operations and Maintenance (CMOM) Program

risk of blockages or equipment failures that could lead to sewer overflows (see Cleaning, Inspection and Assessment, **Section 3**. Some portions of the wastewater collection system are maintained more frequently than others based upon past history and their importance to the effective operation of the wastewater collection system. Staff and/or contractors also perform unplanned maintenance per MetCom's Sanitary Sewer Overflow Emergency Response Plan (SSOERP).

### b. Collection System Details

Per Section 113-4 of the Code of Public Local Laws, St. Mary's County was divided into ten (10) Sanitary Districts in accordance with a resolution first adopted by the Commissioners of St. Mary's County on September 14, 1972, recorded in Liber No. 1, page [189](#), entitled "County Commissioner Resolutions." Since that time, MetCom has referenced the sanitary districts, but has not utilized the designations for the establishment of separate charges and rates since a uniform rate structure was adopted in 2006. The System Inventory owned by MetCom is shown below and is tabulated by the respective sanitary district:

Sanitary District	Name	Size in Square Miles	Miles of Gravity Sewer	Miles of Force Main	# of Manholes	# of Pump Stations	# of Grinder Pumps	# of Air Relief Valves	Shut-off VAs
1	Luckland	51.0	5.6	2.3	117	3	14	2	0
2	Dukehearts Creek	57.2	1.5	15.7	36	3	408	9	280
3	Leonardtown	41.7	8.9	16.7	245	2	394	30	166
4	Flood Creek	20.3	0	0	0	0	0	0	0
5	Piney Point	21.3	2.7	43.4	75	6	775	27	429
6	Lake Conoy	14.2	0	3.7	0	0	50	1	44
7	Carroll Pond	20.8	0	0	0	0	0	0	0
8	Pine Hill Run	89.1	165.1	46.9	3,714	56	209	62	124
9	Manor Run	14.9	0	0	0	0	0	0	0
10	Indian Creek	30.2	0	0	0	0	0	0	0
Totals:		360.7*	183.8	128.7	4,187	70	1,850	131	1,043

*\*Note: Includes Pax River NAS and Town of Leonardtown*

WWTF design capacities and average daily flow characteristics are tabulated below:

## Capacity Management, Operations and Maintenance (CMOM) Program

Wastewater Treatment Facility	Treatment Process	NPDES or State Permit Number	Design Capacity	Average Daily Flow
Marlay Taylor WRF	Activated sludge, Schreiber System	MD0021679	6.0 MGD	3.36 MGD
St. Clements Shores WWTP	Activated sludge, Biolac System	01-DP-1587	0.100 MGD	0.057 MGD
Wicomico Shores WWTP	Activated sludge, Biolac System	03-DP-0863	0.141 MGD	0.110 MGD
Forest Farms WWTP	Activated sludge, Biolac System	04-DP-3280	0.036 MGD	0.037 MGD
Chopticon High School	Activated sludge, sequencing batch reactor	09-DP-1077	0.017 MGD	0.006 MGD
Burch Farm WWTP	Fixed film, FAST system	09-DP-3229	0.025 MGD	0.006 MGD
Davnor WWTP	Mound system			0.0002 MGD
Airedale Road WWTP	Mound system		0.018 MGD	

### c. Age Distribution of Collection System

MetCom conducts an ongoing program to assess the structural condition and maintenance needs of the collection system as a part of our Cleaning, Inspection and Assessment program described in **Section 3** and our capital planning described in Resources and Budget **Section 10**. MetCom has categorized our sewer system by age and size. The ages of the components of our wastewater collection system are as follows:

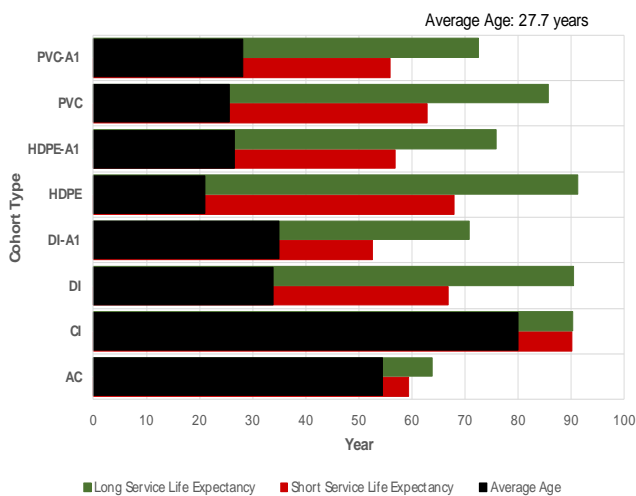
Pipe Age	SD 1 Gravity sewer (miles)	SD 1 Force main (miles)	SD 2 Gravity sewer (miles)	SD 2 Force main (miles)	SD 3 Gravity sewer (miles)	SD 3 Force main (miles)	SD 4 Gravity sewer (miles)	SD 4 Force main (miles)	SD 5 Gravity sewer (miles)	SD 5 Force main (miles)
Pre 1950	-	-	-	-	-	-	-	-	0.82	-
1950-1960	-	-	-	-	-	-	-	-	-	-
1960-1970	3.92	0.15	-	-	-	-	-	-	-	-
1970-1980	-	-	-	-	1.30	-	-	-	-	0.34
1980-1990	-	-	1.39	9.18	-	5.27	-	-	0.96	10.96
1990-2000	1.56	2.15	0.86	5.75	0.22	0.25	-	-	0.32	24.18
2000-2010	0.08	-	-	0.41	2.83	9.36	-	-	0.09	4.48
2010-2020	-	-	-	-	4.03	0.14	-	-	0.44	3.34
Post 2020	-	-	-	-	-	-	-	-	-	0.10
Unknown	-	-	-	-	0.68	0.88	-	-	0.06	.004
Totals	5.56	2.30	2.25	15.34	9.06	15.89	0	0	2.69	43.40

## Capacity Management, Operations and Maintenance (CMOM) Program

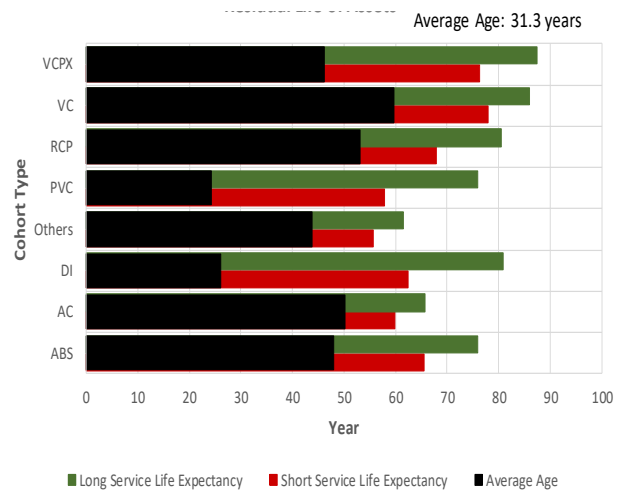
Pipe Age	SD 6 Gravity sewer (miles)	SD 6 Force main (miles)	SD 7 Gravity sewer (miles)	SD 7 Force main (miles)	SD 8 Gravity sewer (miles)	SD 8 Force main (miles)	SD 9 Gravity sewer (miles)	SD 9 Force main (miles)	SD 10 Gravity sewer (miles)	SD 10 Force main (miles)
Pre 1950	-	-	-	-	5.84	0.28	-	-	-	-
1950-1960	-	-	-	-	1.13	-	-	-	-	-
1960-1970	-	-	-	-	9.46	0.78	-	-	-	-
1970-1980	-	-	-	-	16.37	2.27	-	-	-	-
1980-1990	-	-	-	-	28.08	12.78	-	-	-	-
1990-2000	-	3.74	-	-	26.40	10.07	-	-	-	-
2000-2010	-	-	-	-	39.74	13.35	-	-	-	-
2010-2020	-	-	-	-	25.11	4.98	-	-	-	-
Post 2020	-	-	-	-	5.57	1.26	-	-	-	-
Unknown	-	-	-	-	7.42	1.08	-	-	-	-
Totals	0	3.74	0	0	165.13	46.86	0	0	0	0

The **Figures** (Force Mains) and (Gravity Mains) below summarize the sewer force main and gravity main inventory information for Sanitary Districts 5 and 8 and shows the average age and estimated remaining service lives of cohorts under long and short service life estimates. Per MetCom's Facilities Plan, the average age for all the pipes in the force main's service system is 27.7 years and 31.3 years in the gravity main system.

**(Force Mains) Average Age and Residual Life Expectancy**



**(Gravity Mains) Average Age and Residual Life Expectancy**



## Capacity Management, Operations and Maintenance (CMOM) Program

### d. Length of Pipe by Material Type

The collection system can be further broken down by length and pipe material as shown (**below**), excluding service laterals. In addition, pipe sizes are also included as a part of the information management system.

Pipe Material	SD 1 Gravity sewer (feet)	SD 1 Force main (feet)	SD 2 Gravity sewer (feet)	SD 2 Force main (feet)	SD 3 Gravity sewer (feet)	SD 3 Force main (feet)	SD 4 Gravity sewer (feet)	SD 4 Force main (feet)	SD 5 Gravity sewer (feet)	SD 5 Force main (feet)
Vitrified Clay	-	-	-	-	-	-	-	-	4,335	-
PVC	7,952	3,644	7,818	74,980	31,027	73,060	-	-	8,457	76,773
DIP	708	-	-	-	5,080	2,750	-	-	1,118	49,298
HDPE	-	7,574	-	8,653	-	-	-	-	-	118,649
Unknown	12,324	-	-	-	3,580	15,504	-	-	316	-
Transite	8,247	-	-	-	-	-	-	-	-	-
Asbestos Cement	-	777	-	-	-	-	-	-	-	-
VCPX	-	-	-	-	7137	-	-	-	-	-
Totals	29,231	11,995	7,818	83,633	46,824	91,314	0	0	14,226	244,720

Pipe Material	SD 6 Gravity sewer (feet)	SD 6 Force main (feet)	SD 7 Gravity sewer (feet)	SD 7 Force main (feet)	SD 8 Gravity sewer (feet)	SD 8 Force main (feet)	SD 9 Gravity sewer (feet)	SD 9 Force main (feet)	SD 10 Gravity sewer (feet)	SD 10 Force main (feet)
Vitrified Clay	-	-	-	-	31,344	-	-	-	-	-
PVC	-	23	-	-	574,168	157,162	-	-	-	-
DIP	-	-	-	-	35,392	10,061	-	-	-	-
HDPE	-	19,738	-	-	-	33,093	-	-	-	-
Unknown	-	-	-	-	117,872	16,645	-	-	-	-
Transite	-	-	-	-	17,217	-	-	-	-	-
Asbestos Cement	-	-	-	-	6,988	6,071	-	-	-	-
VCPX	-	-	-	-	4,034	-	-	-	-	-
Cast Iron	-	-	-	-	34	1,461	-	-	-	-
Steel	-	-	-	-	221	-	-	-	-	-
Ultra Rib	-	-	-	-	118	-	-	-	-	-
RCP	-	-	-	-	34,870	-	-	-	-	-
Totals	0	19,761	0	0	860,744	226,265	0	0	0	0

### e. Sanitary Sewer Overflow History

Sanitary sewer overflows have been tracked by MetCom since 1998. Since 2020, there has been a steady decline in the number of SSO's that have occurred over the course of each calendar year. This is due to implementation of more proactive, rather than a reactive maintenance programs. There were 5 total Sanitary Sewer Overflows in 2023 and 4 in 2024.

## Capacity Management, Operations and Maintenance (CMOM) Program

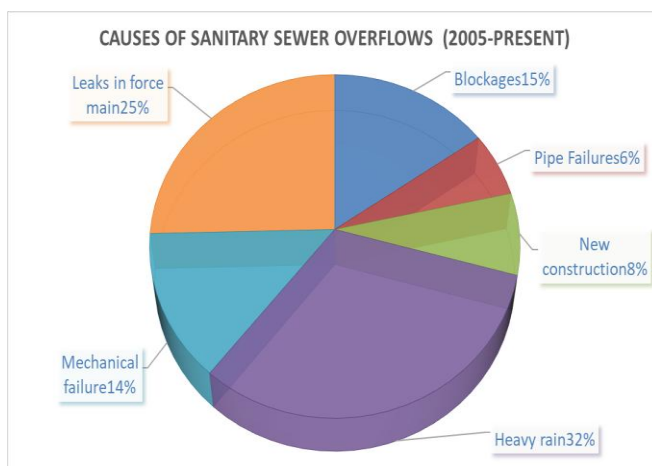
Of the SSO's that occurred in 2023, all were caused by a leaking force main. A proactive preventive maintenance plan implemented by the Maintenance Department has been very effective in reducing the number of sewer backups and SSO's as shown in Table 1.<sup>7</sup> MDE maintains a database

**Table 1 Sanitary Sewer Overflow (SSO) Summary, 2010 to 2024**

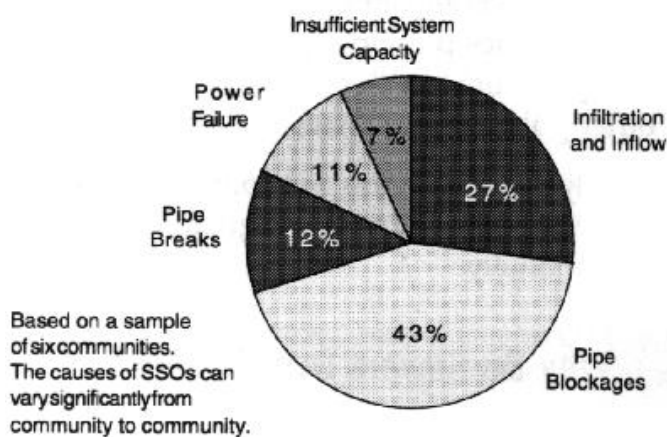
<i>Sanitary Sewer Overflows Summary 2010 to Present</i>																	
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	totals	%
Blockages	1	0	1	1	1	4	0	0	0	2	0	0	0	0	0	10	8
Pipe Failures	1	0	0	2	1	1	0	0	0	2	0	0	0	2	1	10	8
New construction	0	2	0	0	1	0	0	0	0	0	2	2	0	0	0	7	6
Heavy rain	7	5	3	0	0	0	0	0	1	2	15	3	0	0	1	37	31
Mechanical failure	2	0	2	2	0	0	0	0	3	2	1	1	0	1	0	14	12
Leaks in force main	4	5	0	0	2	0	0	3	0	4	1	8	0	2	2	31	26
totals	15	12	6	5	5	5	0	6	4	12	19	14	8	5	4	120	

### Sewer Backups

The combined effects of roots, grease and other debris in the gravity sewer lines caused approximately 18 % total number of reportable sanitary sewer overflows in MetCom's collection system over the last twenty-three years. The remaining number of SSO's were attributed to a variety of causes, such as crushed pipes, missing or broken clean out lids, bellies or misaligned joints in gravity sewer lines, or excessive high influent flows caused by hurricanes or other high rain events. As compared to the EPA's data (*as shown at bottom right*), the St. Mary's County Metropolitan Commission has a lower occurrence than the national average of sanitary sewer overflows that are due to blockages in the sewer lines. This is due to a variety of aggressively pursued programs, such as scheduled maintenance and cleaning in problematic areas and a proactive program to inspect grease traps at local establishments.



### Estimated Occurrence of Sanitary Sewer Overflows by Cause



## Capacity Management, Operations and Maintenance (CMOM) Program

---

For any calls regarding sewer spills or backups. While MetCom maintains service laterals from the clean-out or property line to the sewer main (portions in the public right-of-way) and the service lateral from the grinder pump to the sewer main, the balance of the lateral to the building is the owner's responsibility. When MetCom receives a service call request from a customer, Operations Staff will respond and determine ownership of the unit and repair/maintenance responsibilities to restore service as soon as possible. If it is determined that MetCom does not have repair/maintenance responsibility, Operations Staff will contact the Owner for repair or maintenance. If the Owner cannot or will not perform the repair on a timely manner, the Commission may opt to perform the repair/maintenance of the unit and will back charge the Owner. The Commission will provide, if needed, a septic pump truck at the property owner's expense until repairs/maintenance is complete.

### **Applicable Standard Operating Procedures** (*accessible on Commission's shared drive*)

OPS-11-01	Responding to Sewer Backup Calls
OPS-11-02	Sanitary Sewer Overflows
OPM-23-01	Responding to Grinder Pump Calls
OPS-17-01	Repeat Grinder Pump Service Calls
OPS-24-074	Sanitary Sewer Overflow Annual Training
OPS-24-073	Post Remediation SSO Investigations and Tracking
OPS-24-076	Sewer Force Main Break Response

To assure sewer capacity, MetCom has developed several programs to address capacity, inflow/infiltration, and condition of our collection system. These programs are further described in **Sections 3 and 9**.

### **f. Water Quality Monitoring**

MetCom owns and operates a state-of-the art full service wastewater laboratory which is located at the Marlay-Taylor Water Reclamation Facility. This lab meets and exceeds all Maryland Department of the Environment (MDE) and U.S. Environmental Protection Agency (USEPA) requirements for wastewater laboratory testing. Approximately 28,000 wastewater analyses per year are conducted in-house from the seven (7) wastewater treatment plants. These analyses are performed to determine compliance with the federal Clean Water Act. Water quality tests are performed on water entering and leaving each treatment process at the plants and throughout the Commission's distribution system. These analyses consisted of parameters such as bacteria (coliform), bio-chemical oxygen demand, nitrogen, phosphorus, suspended solids, pH, dissolved oxygen, acids, alkalinity and chlorine concentrations. The state and federal testing and analyses requirements under the National Pollutant Discharge Elimination System (NPDES) permits helps ensure the quality of the effluent being released into receiving surface waters. However, sludge testing and analysis is performed by a Maryland Certified Laboratory. Written procedures to ensure that sampling is carried out in a safe, effective, and consistent manner should include: sampling location(s), sample volumes, preservatives, and holding times; instructions for the operation of any automatic sampling and/or field monitoring (e.g., pH or dissolved oxygen) equipment; sampling frequency; sampling and analytical



## Capacity Management, Operations and Maintenance (CMOM) Program

methodologies; laboratory QA/QC; and records of sampling events. The abbreviated procedures methods (*below*) are the most common analyses used in wastewater. The operators should also refer to the Water Environment Federation *Basic Laboratory Procedures for Water and Wastewater Examination* for a more detailed procedures and additional information on laboratory equipment and reagents.

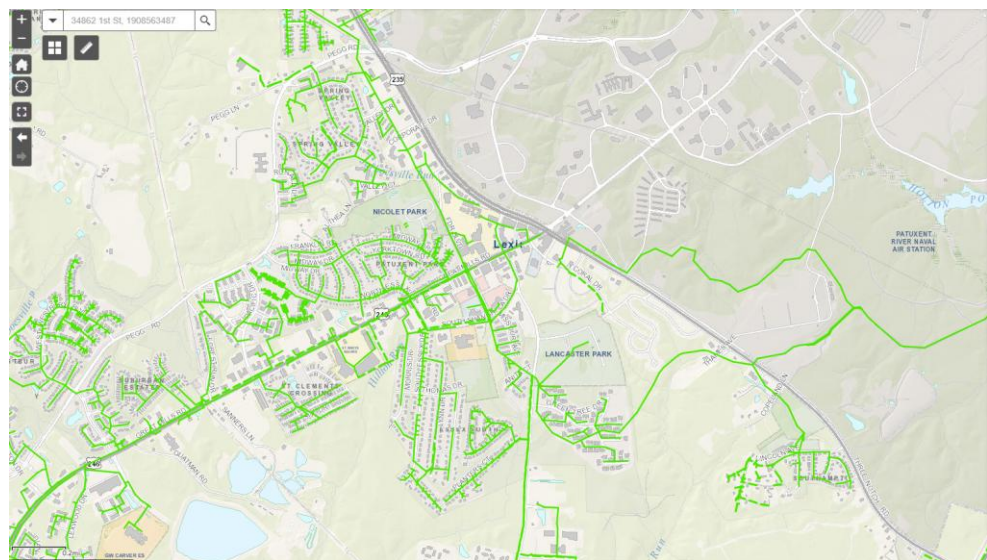
### Applicable Standard Operating Procedures (*accessible on Commission's shared drive*)

OPL-21-01	Chain of Custody Procedures
OPL-23-01	Water Laboratory Guidelines
OPL-19-01	Laboratory Quality Assurance Plan
OPL-24-01	Sampling Procedures at Wastewater Treatment Facilities
OPL-24-02	PH and Temperature Standard Methods
OPL-24-03	Dissolved Oxygen Standard Methods
OPL-24-04	Total Suspended Solids Standard Methods
OPL-24-05	Biochemical Oxygen Demand Standard Methods
OPL-24-06	Phosphorous Standard Methods
OPL-24-07	Ammonia in Water, Waste Water and Soil Extracts and Other Aqueous Samples

### g. System Mapping

A map of the sewer collection system is made available to the public and a separate map with additional attributes (*including private customer information*) is maintained in-house. The system map is regularly updated based on information entered into MetCom's GIS system and shows the wastewater treatment facilities, pump / lift stations, gravity sewer and force mains,

air release valves, grinder pumps and other appurtenances in the collection system. The figure at right graphically shows the gravity and forcemain layers near the intersection of MD 246 (Great Mills Road) and MD 235 (Three Notch Road).



### 3. CLEANING, INSPECTION & TESTING

Preventive maintenance protects your investment in your collection system. Higher frequency cleaning of gravity sewers, for example, should be scheduled in areas with a history of overflows, stoppages, FOG, root and odor control problems. Force mains and air release valves should be inspected and cleaned as needed to maintain pump station efficiency and prevent back ups. Maintenance of electrical and mechanical components of pump stations, addressed in **Section 4**, is also a critical component of preventive maintenance. Each component of the collection system should be inspected, cleaned and televised on a schedule determined by condition and maintenance needs.

Incorporating screening into the Inspection portion of your Cleaning, Inspection and Assessment program can be useful for identifying segments not needing cleaning or further investigation by CCTV. For example, some portions of the system exhibit self-cleaning velocities (*ie. not less than 2 feet per second when flowing full*) and are in good structural condition. If the flow is less than approximately 1.0 to 1.4 feet per second, grit and solids can accumulate leading to a potential blockage.

A randomly generated identification system is in place to identify assets such as pipe segments and manholes (*e.g. pipe segment ID # SAA12V7 and manhole ID # G1AA28K*). However, MetCom plans to standardize the identification system by subdividing the collection system by sanitary sewer district (SD) and corresponding sub-areas (*e.g., SD5MH1-“sub-area”, SD5MH1-“sub-area”, SD5MH1-“sub-area”*), where the subarea may be the pump station, interceptor or treatment facility the sewer flows into.

The American Society of Civil Engineers (ASCE) recommends the following frequency of maintenance activities:

ASCE FREQUENCY OF MAINTENANCE ACTIVITIES	
Activity	Average (% of system / year)
Cleaning	29.9
Root Removal	2.9
Manhole Inspection	19.8
CCTV Inspection	6.8
Smoke testing	7.8

MetCom’s Cleaning, Inspection, and Assessment program goal is to assess the maintenance needs and structural condition of the entire collection system in a systematic and affordable fashion based on the availability of resources.

MetCom’s cleaning, inspection and assessment program with a focus on the known problem areas (*e.g. Sanitary District 5*) and the older sections of the County (*e.g. Lexington Park*). The results from the cleaning, inspection and assessment program are used to categorize the cleaning frequency and the repair or replacement needs for each component. Critical infrastructure components will also be identified and assessed. Previous knowledge of the condition of the sewer system has also been used to establish more frequent cleaning scheduled for identified “problem” areas / “trouble” spots.

## Capacity Management, Operations and Maintenance (CMOM) Program

---

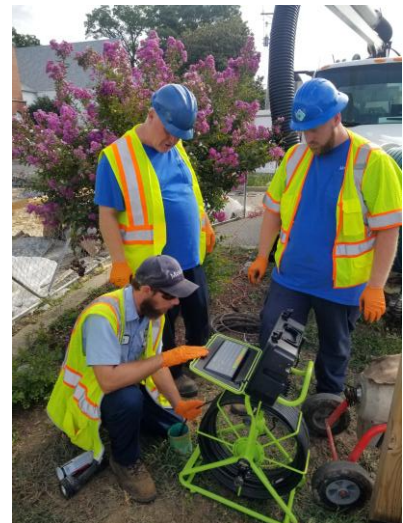
The cleaning, inspection and assessment efforts are performed by a combination of department staff (including NASSCO certified) and contractors. All data is entered into the computer based information systems, databases, Cityworks or MetCom's GIS.

The cleaning, inspection and assessment program includes: sewer cleaning, CCTV inspection of piping, visual inspection and classification of the manhole structures and their flow channels, an evaluation of the condition of the pipes and manholes in accordance with NASSCO guidelines.

Results from the assessment program are used to categorize the cleaning and inspection frequencies for both the sub-areas and "problem" pipe-sections (described in more detail below and in Gravity Line Preventive Maintenance, **Section 4**).

MetCom's goal is to have a well coordinated cleaning, inspection and system assessment program. A CCTV inspection of portions of SD 8 is planned to begin in 2024 as a part of a planned Sewer System Evaluation Survey (SSES). Approximately **5%** of the balance of the gravity system is planned to be reviewed by CCTV each year in the following **priority order SD8 – SD 3 – SD 1 – SD2**. The cleaning performed each year includes the priority cleaning identified in Table 3.1. plus up to **5%** of the remaining parts of the collection system, if CCTV inspection warrants. Otherwise, a more intermediate or long-term interval cleaning schedule is assigned. Most of the system cleaning is for gravity lines, as described in more detail, below.

Visual inspection of manholes is performed during CCTV inspections. Approximately **5%** of the 4,187 manholes in the collection system is planned to be reviewed each year in the following **priority order SD8 – SD 3 – SD 1 – SD2**. MetCom's Inflow and Infiltration program utilizes a closed-circuit television (CCTV) inspection system to perform condition assessments of gravity sewer lines, customer laterals and manholes. These inspections are helpful in determining where repairs are needed, appropriate maintenance schedules, and often to pinpoint exact locations of where excavation is to occur. The existing CCTV Sewer Inspection System has been in service since 2017. The purchase of a new cable, controller, large line crawler and camera in Fiscal Year 2024 has enabled staff to utilize two camera systems in the field, if necessary. The purchase of the Large Line Crawler will also allow staff to complete large gravity line (*greater than 12" diameter*) inspections in house, as needed, instead of outsourcing these services.



Information from cleaning and inspections (*see Inspection section, below*), including any findings, is entered into Cityworks and incorporated into the maintenance software for scheduled maintenance via work orders and possible capital improvement. Cityworks generates and tracks any routine, preventive or emergency activity through the use of maintenance work orders. All maintenance, operational and support staff has access to this program.

The purchase of a new cable and controller in Fiscal Year 2023 (\$49,873.58) and a new camera in Fiscal Year 2024 (\$57,341.12) has enabled staff to have the ability to utilize two camera systems in

## Capacity Management, Operations and Maintenance (CMOM) Program

the field if necessary. The purchase of a new Large Line Crawler in 2024 allows staff to complete large gravity line inspections (greater than 12” diameter) in house, as needed, instead of outsourcing these services. In the past, staff have utilized outside contractors to perform these services.

### a. Cleaning

The purpose of sewer cleaning is to remove accumulated material from the sewer. Cleaning helps to prevent blockages and is also used to prepare the sewer for inspections. Stoppages in gravity sewers are usually caused by a structural defect, poor design, poor construction, an accumulation of material in the pipe (especially grease), or root intrusion. Protruding traps (lateral sewer connections incorrectly installed so that they protrude into the main sewer) may catch debris which then causes a further buildup of solids that eventually block the sewer. If the flow is less than approximately 1.0 to 1.4 feet per second, grit and solids can accumulate leading to a potential blockage.

#### Results of Various Flow Velocities

<u>Velocity</u>	<u>Result</u>
2.0 ft/sec.....	Very little material buildup in pipe
1.4-2.0 ft/sec.....	Heavier grit (sand and gravel) begin to accumulate
1.0-1.4 ft/sec.....	Inorganic grit and solids accumulate
Below 1.0 ft/sec.....	Significant amounts of organic and inorganic solids accumulate

(EPA 1974)

Our primary sewer maintenance activity is sewer line cleaning. The MetCom service area is divided into ten (10) Sanitary Sewer Districts as shown in **Section 1**.

The cleaning of sewer lines, manholes, siphons and other appurtenances is categorized as: priority (monthly cleaning); intermediate (2-5 year interval); or long term (6 or more year interval).

### Cleaning Schedules – Priority Cleaning

Pipe-sections on a priority cleaning frequency are identified based on known “Problem” areas or “Trouble” Spots which are reviewed and update annually. The Trouble Spots (see **Table 3.1**) There are several identified **hydrogen sulfide** problem areas / trouble spots in the collection system due to grease level buildup or a belly in the line that require monthly cleaning via jetrodding (See **Table 3.1**).

The priority cleaning schedule (**Table 3.1**) includes the linear feet of sewer and the monthly schedule of over 9,000 linear feet. Sewershed areas SD 5 and SD 8 have the oldest pipes, such as vitrified clay pipe from pre-1950s (see Section 2d.). Sewershed SD8 is a top priority maintenance area and has the highest percentage of sewers on the priority cleaning schedule due to the number of restaurants and potential for grease stoppages. For other sections of our gravity sewer, the routine cleaning schedule is listed in the tables on the following pages and revised as necessary based on findings and as reported by the crews to the supervisor.



## Capacity Management, Operations and Maintenance (CMOM) Program

**Table 3.1 Inventory of Trouble Spots and Schedule for Priority Cleaning (gravity)**

Monthly Jetrodding Preventive Maintenance			
Sewer Cleaning Monthly PM	Area Description	Manhole Numbers	Length
Gravity Main PM #1	Patuxent Crossing to Great Mills Road monthly PM cleaning	Clean gravity main from St. Clements Crossing to mhG1AA97P	250
		Clean gravity main from mhG1AA97P thru mhG1AA65Z to mhG1AA65U	330
Gravity Main PM #2	South Coral Drive to Interceptor monthly PM cleaning	Clean gravity main from South Coral Drive to Great Mills Road (mhG1AB57D)	350
		Clean gravity main from mhG1AB57D thru mhG1AB56R	515
		Clean gravity main from mhG1AB56R to mhG1AA97W	1,530
Gravity Main PM #3	Great Mills Road monthly PM cleaning	Clean gravity main from Great Mills Road to Westbury (mhG1AA33W to mhG1AA66L)	200
		Clean gravity main from Great Mills Road To Lord Calvert TP (mhG1AA91D to mhG1AA91C)	390
Gravity Main PM #4	Great Mills / Route 5 monthly PM cleaning	Clean gravity main from old 7-11 to south Route 5, mhG1AA165A thru mhG1AA16E to mhG1AA16F,	410
Gravity Main PM #5	Spring Valley monthly gravity line cleaning	mhG1AA41S to Spring Valley Pump Station	1,200
		mhG1aAA41D to Spring Valley Pump Station	1,020
Gravity Main PM #6	Fox Chase Apartments to Great Mills Road monthly gravity line cleaning	mhG1AA94F, mhG1AA94G, mhG1AA95A, mhG1AA94H	940
Gravity Main PM #7	Lynn Drive to South Essex Drive monthly gravity line cleaning	mhG1AA73Z to mhG1AA73E	325
Gravity Main PM #8	St. Mary's Square (21591 Great Mills Road to St. Mary's Square) monthly gravity line cleaning	mhG1AA91B, mhG1AA89Y, mhG1AA89X, mhG1AA89W	325
Gravity Main PM #9	Norris Road monthly gravity line cleaning	mhG1AA75I, mhG1AA75K, mhG1AA82T	310
Gravity Main PM #10	Franklin Road to Midway Drive monthly gravity line cleaning	mhG1AA64W, mhG1AA64U, mhG1AA66I, mhG1AA64X	310
Gravity Main PM #11	Hickory Hills Shopping Center monthly gravity line cleaning	mhG1AA54P	300
Gravity Main PM #12	Suwannee Place to North Essex Drive monthly gravity line cleaning	mhG1AA66A, mhG1AA63V, mhG1AA66B, mhG1AA65V	550
Gravity Main PM #13	St. Clements Crossing to Forest Run WWPS	Clean Gravity Main from G1AA35B to G1AA33Q	1,230
total footage (per month)			9,905

### Cleaning - Gravity Lines Routine Cleaning

Pipe segments not identified as Trouble Spots in **Table 3.1** are scheduled to be cleaned based on the results of scheduled I/I and CCTV inspections. Cleaning may include hydraulic flushing, FOG control, root control, or mechanical cleaning in accordance with field conditions. This section details schedules for the routine cleaning of each sub-area of the collection system. Scheduled cleaning is proactive in that cleaning is done on a preventive basis to remove material prior to a stoppage occurring. Scheduled cleaning is usually coordinated with planned CCTV since televising requires a clean pipe for access and visually provides a much better picture of conditions. Jet rodding operations remove deposits and organic materials that can interrupt flow and result in sanitary sewer overflows (SSOs). The intent of cleaning should be to restore up to 95% of the cross section of the pipe during cleaning operations.

Our Cleaning, Inspection and Assessment program includes manhole inspections to evaluate and determine cleaning frequencies. A pole camera is used to evaluate manholes to determine the need for cleaning. A pipe section that has not been cleaned in over 5 years, but has been evaluated using and shown that cleaning is not warranted, is assigned to the long term cleaning frequency (5+ years).

## Capacity Management, Operations and Maintenance (CMOM) Program

---

If a camera evaluation indicates a need for cleaning, the pipe section will be put on the intermediate cleaning frequency. The cleaning schedules for other pipe sections in the sub-area will help determine the cleaning frequency.

All cleaning records are kept in a Citiworks CMMS system that tracks the following:

- date, time and location of cleaning activity;
- specific lines cleaned;
- equipment used;
- identity of cleaning crew;
- number of passes needed to clean the line;
- presence of root, grease, or debris; and
- problems identified or other follow up actions necessary.

Each line segment cleaned is identified by an upstream and downstream manhole number. A log is submitted for each day of work completed. Support from outside contractors may also be utilized for cleaning and repairs, and for emergencies during non-business hours.

•Manhole deficiencies are also noted in cleaning logs (see **Section b**, below). Information about manholes requiring attention is provided to the Wastewater Collections Superintendent and either a repair work order is issued or it is added to the capital repair schedule. *[A system for characterizing the condition of manholes should be established, see example logs in appendix. See manhole ID fact sheet at <http://www.epa.gov/region1/sso>].*

### **Applicable Standard Operating Procedures** (*accessible on Commission's shared drive*)

- OPM-23-02 Jet Rodding Operations (Sewer Trucks)
- OPS-11-08 Cleaning Wastewater Wetwells
- OPS-11-06 Sanitary Sewer Televising Operating Guidelines

## **b. Gravity Pipe, Grinder Pump, Manhole and Force Main Inspection**

**Gravity Pipe Inspections.** Planned manhole and pipe inspections are coordinated with the cleaning program and generally follow the cleaning schedule. The first cycle of inspections of the low pressure system in SD 5 will be performed within **2 years after June 24, 2024**, except pressurized public connections, provided that MetCom may propose a longer timeframe following the completion of the initial 2-year inspection on the basis that a longer timeframe is reasonable based on the inspection results. The cleaning, inspection and assessment program goal is to inspect the entire collection system in a systematic fashion. Prior to cleaning, a camera is used to screen a pipe section to determine the cleaning frequency and whether a full CCTV screening is needed to assess its structural condition or other deficiencies. MetCom uses both visual and specialized equipment to document:

- the structural condition of the pipe
- root intrusion
- grease



## Capacity Management, Operations and Maintenance (CMOM) Program

---

- protruding taps
- evidence of excessive inflow and infiltration (I/I) or surcharging
- manhole pave-overs, and
- other deficiencies that factor into condition assessment

**CCTV Inspections.** Planned video inspections are generally scheduled to follow the planned cleaning schedule. However, in the event of a blockage, a video inspection assesses the cause of the blockage. After the blockage is removed the line is evaluated with a pole camera again to determine if an inspection with a CCTV crawler is needed to assess the condition of the pipe.

All newly constructed sewer lines are required to be CCTV inspected by the contractor or developer to verify as-built drawings and ensure the line has no construction defects. Additionally, all new pipes and manholes are required to be pressure / vacuum tested to ensure tightness and prevent release of sewer odors and future infiltration of storm water. This inspection and testing process must be completed prior to backfilling and before MetCom will accept the infrastructure from the construction contractor. MetCom also requires a maintenance bond for a period of one year to ensure any latent defects resulting from the new construction need to be addressed.

As sanitary sewer collections systems age, the risk of deterioration, blockages, and collapses becomes a much greater concern. As a part of our Capacity Management, Operations and Maintenance Program (CMOM), Commission staff are taking proactive measures to improve performance levels of our sanitary sewer systems. Cleaning and inspecting sewer lines are essential to maintaining a properly functioning system. In addition, these activities further our commitment and reinvestment in our wastewater infrastructure.

Closed-circuit television (CCTV) inspections are the most frequently used, most cost efficient in the long term, and most effective method to inspect the internal condition of a sewer. Visual inspections are vital in fully understanding the condition of a sewer system. Visual inspections of manholes and pipelines are comprised of surface and internal inspections. Documentation of inspections is extremely critical to a successful operation and maintenance program. CCTV inspections produce a video record of the inspection that can be used for future reference and for directing repair and rehabilitation funding. Pipe-sections on a priority cleaning frequency are identified based on known “Problem” areas or “Trouble” Spots. The identified Trouble Spots (see **Table 3.2**) in gravity sewers and force mains that have a history of blockages or overflows are inspected in accordance with the following schedules:

# Capacity Management, Operations and Maintenance (CMOM) Program

**Table 3.2 Inventory of Trouble Spots and Schedule for Inspection (gravity sewers & force mains)**

Garvity Sewer Inspections					
Gravity Sewer Inspections	Area Description	Manhole Numbers	Inspection Frequency	Inspection Type	Length
Gravity Main section #1	Patuxent Crossing to Great Mills Road monthly PM cleaning	Televise gravity main from St. Clements Crossing to mhG1AA97P	Annual	CCTV	250
		Televise gravity main from mhG1AA97P thru mhG1AA65Z to mhG1AA65U	Annual	CCTV	330
Gravity Main section #2	South Coral Drive to Interceptor monthly PM cleaning	Televise gravity main from South Coral Drive to Great Mills Road (mhG1AB57D)	Annual	CCTV	350
		Televise gravity main from mhG1AB57D thru mhG1AB56R	Annual	CCTV	515
		Televise gravity main from mhG1AB56R to mhG1AA97W	Annual	CCTV	1,530
Gravity Main section #3	Great Mills Road monthly PM cleaning	Televise gravity main from Great Mills Road to Westbury (mhG1AA33W to mhG1AA66L)	Annual	CCTV	200
		Televise gravity main from Great Mills Road To Lord Calvert TP (mhG1AA91D to mhG1AA91C)	Annual	CCTV	390
Gravity Main section #4	Great Mills / Route 5 monthly PM cleaning	Televise gravity main from old 7-11 to south Route 5, mhG1AA165A thru mhG1AA16E to mhG1AA16F,	Annual	CCTV	410
Gravity Main section #5	Spring Valley monthly gravity line cleaning	Televise grity sections mhG1AA41S to Spring Valley Pump Station	Annual	CCTV	1,200
		Televise gravity sections mhG1aAA41D to Spring Valley Pump Station	Annual	CCTV	1,020
Gravity Main section #6	Fox Chase Apartments to Great Mills Road monthly gravity line cleaning	Televise sections between mhG1AA94F, mhG1AA94G, mhG1AA95A, mhG1AA94H	Annual	CCTV	940
Gravity Main section #7	Lynn Drive to South Essex Drive monthly gravity line cleaning	Televise section between mhG1AA73Z to mhG1AA73E	Annual	CCTV	325
Gravity Main section #8	St. Mary's Square (21591 Great Mills Road to St. Mary's Square) monthly gravity line cleaning	Televise sections between mhG1AA91B, mhG1AA89Y, mhG1AA89X, mhG1AA89W	Annual	CCTV	325
Gravity Main section #9	Norris Road monthly gravity line cleaning	Televise sections between mhG1AA75I, mhG1AA75K, mhG1AA82T	Annual	CCTV	310
Gravity Main section #10	Franklin Road to Midway Drive monthly gravity line cleaning	Televise sections between mhG1AA64W, mhG1AA64U, mhG1AA66I, mhG1AA64X	Annual	CCTV	310
Gravity Main section #11	Hickory Hills Shopping Center monthly gravity line cleaning	Televise section between Hickory Hills Shopping Center and mhG1AA54P	Annual	CCTV	300
Gravity Main section #12	Suwannee Place to North Essex Drive monthly gravity line cleaning	Televise sections between mhG1AA66A, mhG1AA63V, mhG1AA66B, mhG1AA65V	Annual	CCTV	550
Gravity Main section #13	St. Clements Crossing to Forest Run WWPS	Televise sections between from G1AA35B to G1AA33Q	Annual	CCTV	1,230
Gravity Main Section #14	FDR Boulevard (mhG1AB34S) to California Run WWPS	visual inspection from mhG1AB34S to California Run WWPS	Annual	Visual	4,100
Gravity Main Section #15	Valley Veiw Drive to California Run WWPS	visual inspection from mhG1AA75A to California Run WWPS	Annual	Visual	960
Gravity Main Section #14	Mattiponi Road to Evergreen Park Road	Visual inspection from mhG1AA29X to mhG1AA24J	Annual	Visual	6,000
Gravity Main Section #15	Evergreen Park Road to Marlay Taylor WWTP	Visual inspection from mhG1AA24J to mhG1AA21V	Annual	Visual	27,000
Gravity Main Section #16	Glen Forrest to Pax River NAS	Visual Inspection from mhG1AA97I to mhG1AA29Y	Annual	Visual	6,100
Gravity Main Section #17	Pax River NAS	Visual Inspection from G1AA29Y to mhG1AA35M	Annual	Visual	6,000
Gravity Main Section #18	South Hampton Gravity Main	Lincoln Avenue (G1AA87I) to Three Notch Road (G1AA29Y)	Monthly	Visual	2,080
Gravity Main Section #19	South Hampton Gravity Main	Lincoln Avenue (G1AA87I) to Three Notch Road (G1AA29Y)	Annual	CCTV	2,080
		total footage			64,225

## Capacity Management, Operations and Maintenance (CMOM) Program

Force Main Inspections			
Force Main	Area Description	Inspection Frequency	Length
Piney Point Force Main	Piney Point WWPS to Great Mills Road (mhG1AA34P	Monthly Visual Inspection	55,000
St. Georges Island Force Main	St. Georges Island WWPS to mhG1AA13Y	Monthly Visual Inspection	8,100
St Georges Island Bridge Force Main	Force main underneath bridge	Bi -Annual Inspection	800
Green Briar Force Main	Greenbriar WWPS to mhG1AA22P	Annual Visual Inspection	12,000
St. Mary's City Force Main	St. Mary's City to G1AA29X	Annual Visual Inspection	10,200
Breton Bay Force Main	Breton Bay WWPS to St. Clements Shores WWTP	Annual Visual Inspection	5,100
Myrtle Point Force Main	Myrtle Point WWPS to G1AB96G	Annual Visual Inspection	5,800
Great Mills Force Main	Great Mills WWPS to Great Mills Road	Annual Visual Inspection	2,000
Elisabeth Hills Force Main	Elisabeth Hills WWPS to Great Mills Road	Annual Visual Inspection	3,500
total footage			102,500

**Condition Rating System.** This program uses the Pipeline Assessment and Certification Program (PACP) rating system, which was developed by the National Association of Sewer Service Companies (NASSCO). PACP requires CCTV operators to code defects either by infrastructure or maintenance defect. Each defect code is assigned a grade of 1 to 5. With 1 being the least severe and 5 being the most severe defect. These grades only consider the internal pipe conditions obtained from the televised inspection. After a sewer segment has been inspected, several grading systems can be applied to determine the most severe pipe segments. A detailed breakdown of the five possible defect grades and their estimated time to failure is as follows:

Grade	Description	Estimated time to Failure
1	EXCELLENT: Minor Defects.	Unlikely in the foreseeable future
2	GOOD: Defects that have not begun to deteriorate.	20 years or more
3	FAIR: Moderate defects that will continue to deteriorate.	10 to 20 years
4	POOR: Severe defects that will become grade 5 defects within the foreseeable future.	5 to 10 years
5	IMMEDIATE ATTENTION: Defects requiring immediate attention.	Has failed or will likely fail within the next 5 years

**Grinder Pump Inspections.** Likewise, field investigations of grinder pumps are performed by NASSCO certified staff which includes a visual assessment and rating system (*see below*). The field investigation shall include photographs of any component(s) of the Low Pressure System requiring corrective action, and document the following information:

- (i) Date and time of the inspection, weather conditions, and the inspector's name and title;

## Capacity Management, Operations and Maintenance (CMOM) Program

- (ii) Address(es) of the residence(s) / building(s) served;
- (iii) The general condition of each component of the Low Pressure System and specific observations of each Grinder Pump, including the cover, general condition (missing, broken, offset), whether it is watertight, whether it has been raised, and whether it is located in the FEMA 100-year floodplain;
- (iv) Whether any corrective action is needed;
- (v) Whether corrective action occurred during the inspection, and, if so, what corrective action occurred;
- (vi) What corrective action is required and the priority of that corrective action;
- (vii) Whether there is any indication that a Grinder Pump has been adjusted, removed, or damaged since the last documented inspection with specific attention to the cover and vault, and, if so, in what manner;
- (viii) Whether there is any indication of an Illegal Discharge (e.g., clearwater flow) and, if so, the results of any source identification and current or planned corrective actions to eliminate the Illegal Discharge; and
- (ix) Any additional information that MetCom believes is appropriate to provide.

Observations (Default Panel)	
Does Metcom own the Grinder Pump?	10
What type of pump is this?	0
What is the condition of the vault?	10
What is the condition of the cover?	10
What type of cover is installed?	10
Condition of interior fixtures (guide rails, electrical connections, etc.)	10
Is an isolation valve present?	10
What is the condition of the electrical panel?	10
Is the audible alarm present and functioning?	10
Is the visible alarm present and functioning?	10
Are there any accessibility issues?	10
Are there any obvious signs of I&I?	10

Inspection of the low pressure system in SD 5 shall occur at least once every 2 years unless longer timeframe is determined based on the inspection results, procedures for prompt corrective action when defects are identified, and maintaining a standing inventory of replacement parts to ensure prompt corrective action when defects are identified. All grinder pump lids in the FEMA 100-year Flood Plain will be retrofitted with vent-less lids to prevent I/I.

**Manhole Inspections.** The Commission utilizes a contractor to provide rehabilitation services to MetCom's sanitary sewer manholes. This contractor also provides large line cleaning and inspection services.

The Capital Improvement Budget includes a recurring yearly *Manhole Rehabilitation Project and Wastewater System Renewal and Rehabilitation Project*. This project is designed to address the Commission's inflow and infiltration (I&I) problem. Manholes or other infrastructure are prioritized by MetCom's I&I staff through an industry standard inspection and assessment process. Several MetCom Wastewater Collections staff have been trained in this inspection and assessment process through the National Association of Sewer Service Companies (NASSCO). This allows for consistency in identifying and assessing infrastructure defects.

Routine visual inspection and condition assessment of manholes consistent with the NASSCO MACP standard during CCTV inspections or at higher frequencies based on manhole condition assessment results. Manhole inspections help keep our asset inventory up to date and are used not only to update collection system maps, but to determine structural condition. During manhole inspections, field crews take a complete inventory of each manhole including construction materials, ring size, depth to invert,

## Capacity Management, Operations and Maintenance (CMOM) Program

---

flow conditions and evidence of problems. Information is recorded in Cityworks and used to schedule maintenance and repairs. A digital camera may be utilized during the inspection to document defects.

Manhole inspection results are reviewed for condition rating. Those needing repair are placed on a priority schedule, and routine repairs are coordinated with re-paving work, see **Section 5**. When repairs are recommended, as described below, work orders are created and entered into Cityworks. Contracted services are responsible for completing structural repairs to manholes. Repairs include invert work, lining, frame and cover grade adjustment, and frame and cover replacement. As noted in **Section 8**, Equipment and Tool Inventory, MetCom maintains a small inventory of a minimum inventory of twenty (20) frames and covers. MetCom utilizes suppliers / contractors (*ie. Bel Air Road Supply / ABH*) to procure restock and additional supply. Work is completed based on priority as noted on work orders which are tracked and completed in our work order database.

**Force Main Inspections.** Force main air relief valves and force mains are simultaneously inspected visually by examining any exposed area(s) of the force main and the ground surface above the force main, if applicable. When an inspection reveals evidence of force main failure, the relevant section of the force main is excavated and physically examined. Approximately **5-10%** of the 129 miles of force main in the collection system is planned to be inspected each year in the following priority order; **SD5 – SD 8 – SD 3 – SD 2 – SD 6 – SD 1**.

### **Applicable Standard Operating Procedures** (*accessible on Commission's shared drive*)

OPS-11-04	Inspecting Sanitary Sewer Manholes
OPS-11-05	Sanitary Sewer Smoke Testing
OPS-11-06	Sanitary Sewer Televising Operating Guidelines
OP-16-02	Service and Work Order Submissions
OPS-24-075	Force Main / Air Relief Inspections and Emergency Response Procedures

### **c. Assessment**

MetCom shall investigate the gravity collection and low pressure systems to identify sources of I/I and structural defects that contribute to SSOs in any areas with Excessive I/I, areas that are calculated to lack Minimum Hydraulic Capacity according to a hydraulic capacity analysis, or any locations with a documented SSO since January 1, 2013. MetCom shall use CCTV, visual inspection, smoke testing, sonar, 360-degree video, laser imaging, pole camera, physical entry, dye testing, or other techniques commonly used by sewer management agencies that are recommended in EPA guidance of Gravity Sewer Segments, public connections, manholes, and related components in accordance with the EPA Handbook. All CCTV and manhole inspections shall be performed consistent with the National Association of Sewer Service Companies' (NASSCO) PACP, MACP, and LACP standards.

Force main air relief valves and force mains shall be visually examined when any portion is exposed including the ground surface above the force main, if applicable. When an inspection reveals evidence of force main failure, the relevant section of force main shall be excavated and physically examined.

While routine cleaning and visual inspection are used to assess the condition of manholes and surface facilities, CCTV video inspections are the primary method used to assess the condition of the sewer pipes. All records are entered into Cityworks (*see Information Management section*).

## Capacity Management, Operations and Maintenance (CMOM) Program

---

MetCom began using CCTV technology to inspect gravity sewer lines in 2004 and purchased the a rover CCTV system in 2017. The purchase of a new cable and controller in Fiscal Year 2023 and a new camera in Fiscal Year 2024 has enabled staff to have the ability to utilize two camera systems in the field if necessary. The purchase of a new Large Line Crawler in 2024 allows staff to complete large gravity line inspections (greater than 12” diameter) in house, as needed, instead of outsourcing these services. This system incorporates the latest technology in sewer inspection camera systems, including self-propulsion, lighting, recording, and digital camera features to improve the quality of the video.

MetCom’s Inflow and Infiltration program utilizes a closed-circuit television (CCTV) inspection system to perform condition assessments of gravity sewer lines, customer laterals and manholes. The first step in reducing I&I is understanding it. Infiltration occurs when groundwater seeps into defective sewer pipes through cracks, joints, or manholes. These defects may result from several causes, including age, soil movement, tree roots, or improper design, installation, or maintenance. These inspections are helpful in determining where repairs are needed, appropriate maintenance schedules, and often to pinpoint exact locations of where excavation is to occur. Inflow occurs when stormwater enters the sewer system through roof drains, basement sump pumps, leaky manhole covers, or foundation drains illegally connected to the sewer.

The results from routine inspection and monitoring are used to prioritize areas needing CCTV inspections to assess pipe condition such as manholes with evidence of slow flow or surcharging. The assessment is logged into Cityworks using the conventional Pipeline Assessment and Certification Program (PACP) defect codes.

Pipe condition information is used to determine short and long term maintenance strategies including increased cleaning, root treatment, sewer line repair, or replacement. The condition assessment helps establish the cleaning frequency and inform MetCom’s capital planning and budgeting process. As more condition assessment information becomes available, the priority of capital projects may change. Sewer line repair or replacement projects are also coordinated with re-paving schedules, see **Section 5**.

**Applicable Standard Operating Procedures** (*accessible on Commission’s shared drive*)

OPS-11-03     Inflow & Infiltration (I&I) Studies

•Condition assessments document the following details and deficiencies:

1. Characteristics including pipe diameter, and age and type of material
2. Dips in line
3. Grease build-up
4. Root intrusion
5. Sediment accumulation and encrustation
6. Structural condition, including cracks, corrosion and erosion
7. Joint alignment and movement
8. Reverse slope
9. Obstructions
10. Deformations in line



## Capacity Management, Operations and Maintenance (CMOM) Program

MetCom’s CitiWorks CMMS program includes a defect assessment table where each asset (pipe, manhole, pump, etc.) is rated for specific criteria (e.g., roots, grease, sedimentation, cracks, etc.). Based on the criteria ratings, the CitiWorks program assigns an overall rating for each asset. A ranking of each asset, based on its condition assessment rating (see **Table 3.3**), is then used for prioritizing capital repairs and replacement.

**Table 3.3 Condition Ratings**

Condition Rating	Condition Description	Maintenance Required
0	New	Normal
1	Excellent Condition	Normal
2	Minor Defects Only	Minor
3	Backlog Maintenance	Significant
4	Requires Major Renewal	Renew
5	Almost Unserviceable	Replace

*The following table provides an example of common assessment factors.*

Assessment Factor	Consideration	Scale
Criticality	How critical is the service of this asset?	0 (noncritical) – 10 (critical)
Performance	What level of performance is it providing?	New to unserviceable (on a scale of 0 to 5)
Impact of Failure	Is there a process, environmental, or safety issue?	0 (no issue) - 3 (significant) for each impact category
Capacity	Is it capable of meeting system needs?	Undersized – Oversized
Remaining Life	How much of its design life is used up?	Percentage from 0 to 100%
Redundancy	Does the component have a back up?	From 0 (no back up) to 200%

### d. Hot Spot Program

Effective 7-1-2024, MetCom’s sewer preventive maintenance program includes an aggressive “hot spot” preventive maintenance program for all sewers that have experienced a blockage and/or SSO event since CY 2000, and where the underlying cause of the event has not been corrected through source control, chemical root control, repair, or rehabilitation/replacement.

“Hot spots” are defined as any part of the publicly owned sewerage collection system that has experienced a higher than normal rate of sanitary sewer overflows or system failures based on review of the prior five (5) years of maintenance records, (that the Metropolitan Commission has determined or (as determined by the CMOM that) need attention beyond normal routine maintenance. This would include areas of known problems such as prior SSOs, excessive I/I, FOG blockage (>20% of the pipe diameter) or obstructions in the pipe, such as roots, debris, broken pipe or a joint failure. A hot spot may also be any part of the sewerage system that must be flushed at a frequency greater than or equal to once every 30 days to remove obstructions from the accumulation of fats, oil, and grease deposits.

## Capacity Management, Operations and Maintenance (CMOM) Program

---

The national average for the number of SSOs / 100 miles of sewer per year is 4.5 as reported by a study performed by the American Society of Civil Engineers. A long standing and accepted indicator of a high performing system demonstrates spill rates of  $\leq 3$  SSOs or breaks per 100 miles of sewer based on the following formula:

$$\frac{\text{Total \# of SSOs} \times 100}{(\text{yrs}) \times (\text{miles pressure sewer} + \text{miles gravity sewer} + \text{miles public laterals})}$$

Collection System Integrity. For purposes of prioritizing maintenance efforts / projects (AWWA Utility Benchmarking: Performance Management for Water and Wastewater 2022), the following performance measures will be utilized based on the Region 1 range of: 1.3 -1.7 - 5.3

Fair:  $> 5.3$  failures per 100 miles of pipe (evaluate for possible hot spots)

Good:  $1.7 \geq 5.3$  failures per 100 miles of pipe)

Excellent:  $1.3 \geq 1.7$  failures or less per 100 / miles of pipe

*(NOTE: In 2024, MetCom experienced 4 SSOs in it's 305.6 mile sewer system which equates to 1.3 SSOs per 100 mile. MetCom's performance is considered by most to be superior when compared the national average of 4.5.*

*(NOTE: In the past five years between 2000-2024, MetCom experienced 50 SSOs in it's 305.6 mile sewer system which equates to 6.2 (2020), 4.6 (2021), 2.6 (2022), 1.6 (2023), 1.2 (2024) per 100 mile, respectively. MetCom's performance in 2020 was impacted by declared tropical storm events Isaías and Laura.*

Guidelines for managing aggressive preventive maintenance are as follows:

- Any gravity sewer line segment that experiences a blockage and/or SSO event will be cleaned during the Commission's response to the service call, and will be added to the hot spot program at an appropriate frequency (the default frequency will be 6 months, unless otherwise indicated by results of the investigation on the primary cause).
- A line segment may also be added to the hot spot program based on the results of CCTV inspection identifying an area where the loss of flow area, based on pipe diameter constriction, is greater than 20 percent.

### e. Hydrogen Sulfide Analysis and Design

Analysis. Sulfides are produced when wastewater does not have a sufficient supply of oxygen. This is especially true downstream from a pump station or pressure sewer/force main discharge. These situations may result in the release of hydrogen sulfide (H<sub>2</sub>S) that may corrode concrete manholes, concrete pipe, concrete lined pipe or ferrous pipe materials. The Designer shall evaluate the design of all proposed wastewater and grinder pump force mains to determine the sulfide control method and materials best suited in each case. The following Pomeroy equation shall be utilized for the calculation of sulfide generation in closed force main piping systems:

## Capacity Management, Operations and Maintenance (CMOM) Program

---

$S_2 = S_1 + (M)(t) (EBOD) [(4/D)+1.57]$  where:

S <sub>2</sub>	= Effluent sulfide concentration from force main (mg/l)
S <sub>1</sub>	= Influent sulfide concentration from wetwell (mg/l)
M	= Empirical coefficient for sulfide production=0.0003 m/d
t	= time (days) EBOD = (BOD <sub>5</sub> ) [1.07(T-20) ]
T	= wastewater temperature (degrees C)
D	= force main diameter (meters)

Design Considerations. If sulfide concentrations for a system are predicted at concentrations greater than 1.0 mg/l, the Designer shall include provisions to either neutralize the hydrogen sulfide at the pumping station or protect the piping and structures downstream of where the force main discharges into the gravity system. The following general design considerations are for systems where 1.0 mg/l is anticipated to be exceeded:

1. The use of drop manholes is discouraged when it is found or predicted that Hydrogen Sulfide (H<sub>2</sub>S) is already present or likely in the wastewater.
2. Where substantial concentrations of sulfide cannot be avoided, the structure at the junction of the force main and gravity sewer must be constructed or protected with acid resistant materials. All interior surfaces and inverts of sanitary sewer manholes within 100 feet downstream of either a force main or Chapter 4 Sewer Main Design Page 39 of 39 July 11, 2019 grinder pump discharge shall be coated with a hydrogen sulfide resistant material such as H<sub>2</sub>S resistant epoxy paints, polyvinyl chloride (PVC), polypropylene (PP) and high-density polyethylene (HDPE). In addition, hydrogen sulfide protection shall be provided downstream of a force main or grinder pump discharge where significant turbulence may be caused due to a drop manhole, severe pipeline slopes or any other sources of turbulence within a sewer system. Protection must be provided to all surfaces exposed to the sulfides. All applications of specialized coatings and liners are subject to the review and approval of the Chief Engineer. See the Standard Specifications for all coating and lining material requirements.
3. For references purposes, the Designer may use the latest publication from the U.S. Environmental Protection Agency for design guidelines in evaluating the sulfide generation.

### f. Confined Space Entry & Respiratory Protection Programs

MetCom has both a Confined Space Entry and Respiratory Protection Program. The program includes procedures for safe entry into confined spaces within the collection system. This program supports compliance with Occupational Safety and Health Administration Permit Required Space Entry Program as found in 29 CFR 1910.146. This plan applies to all company employees. Contractors working at company facilities will be covered by the contractor procedures of this program and will be expected to follow all requirements. All entry equipment is maintained and/or calibrated according to the manufacturers specifications and the company's preventive maintenance procedures. All confined spaces will be marked with signs stating: "**Danger Confined Space Enter by permit only.**" All confined spaces are tested before and during entry, using properly calibrated and approved equipment. The air in the confined space is tested for oxygen levels, flammable gases and vapors,

## Capacity Management, Operations and Maintenance (CMOM) Program

---

and toxic substances. If there is the possibility that conditions could change during entry, continuous air monitoring will be maintained for oxygen levels, flammable gases and vapors, and the following toxic substances: Hydrogen Sulfide, Carbon Monoxide.

To assure atmospheric meters meet the above requirements and will accurately measure atmospheric conditions, all meters used for MetCom confined space entry shall be calibrated and bump tested at least monthly and bump tested before each day's use. Monthly and annual bump tests shall be documented on a Multi Gas Detector Bump Test & Calibration Log. Before use, bump tests shall be documented on the Confined Space Entry Permit. In areas where MetCom personnel may be exposed to airborne concentrations of contaminants in excess of a PEL, air-monitoring surveys shall be conducted to determine exposure levels. If it is determined that a PEL is exceeded or a potentially oxygen-deficient environment exists, engineering controls such as substitution of less harmful substances or ventilation shall be instituted in an attempt to bring the exposure to below the PEL. If engineering controls are not feasible or do not bring the exposure to below the PEL, then administrative controls, such as altered work procedures shall be used to limit the duration of exposure. If these methods fail to bring exposures to the PEL or below, or if exposures are brief and intermittent such that the Short Term Exposure Limit or Ceiling Limit is exceeded, respirators shall be provided and required. Self-Contained Breathing Apparatus (SCBA) – Air is supplied from bottles usually worn on the wearer's back. Note: MetCom have their SCBA's checked and filled by the local Fire Department.

**Applicable Standard Operating Procedures** (*accessible on Commission's shared drive*)

PRO-SAF-06 Confined Space Entry Program

PRO-SAF-02 Respiratory Protection Program

### **g. Staffing, Parts and Equipment**

The following represents a general description of the resources committed by MetCom to proactive and reactive Collection System maintenance. MetCom has seventeen (17) staff trained for cleaning, inspection and assessment, and they are deployed in two person crews as needed (biweekly, monthly or quarterly depending on historical maintenance needs or emergencies) for cleaning. Inspection work is coordinated with the I&I Inspection crew (or various contractors), with oversight from the I&I Supervisor. The Superintendent and I&I Supervisor works with WinCan or various videos on assessing the condition of our collection system, using accepted NASSCO PACP condition assessment standards.

Each day crews are assigned a specific area of the collection system with an associated map and are responsible for cleaning all lines (or, in the case of preliminary evaluation, determining if cleaning is needed) within the assigned area within the specified time frame. OPS-23-02 Jet Rodding Operations (Sewer Trucks) contains detailed cleaning procedures that crews must follow. Crews receive training on use of equipment and how to address problems that might be encountered while cleaning the collection system (roots, fats, oils and grease, and Sanitary Sewer Overflows), including when to call in outside contract services.

## Capacity Management, Operations and Maintenance (CMOM) Program

---

Crews report back on a daily basis on progress and problems including any inconsistencies between the map and the actual sewer lines which are noted and submitted with their log to the GIS Administrator for entry into the database and correction of mapping or location errors. As the crews perform cleaning and evaluation, the long term cleaning schedule for the entire sub-area is reviewed to determine if any lines designated for long term cleaning need to be cleaned before the crew moves to a new area.

Cleaning crews perform manhole inspections during cleaning and approximately 10% (or roughly 400) manholes are inspected in the average year. Staffing for the preventative maintenance program is adequate when fully staffed.

The following equipment is available for cleaning:

Two combination sewer cleaner trucks are available to clean most gravity lines. Both are equipped with high pressure jetter hoses and vacuum suction capability. The standard attachment used is a high pressure, rotating nozzle jetter head. Root saws are attached to the jetting equipment and used as needed. Currently in inventory are 3 sizes of root cutters; small (6" pipes), medium (6" - 10" pipes) and large (8" to 24" pipes), various rotating, high pressure heads; chisel point heads and grit removal sleds. All are utilized to remove blockages from lines and for maintenance. Rodding equipment is used to clean easement lines that are difficult to access with the jet equipment and lines that are difficult to traverse with large jet nozzles. Equipment inventory is covered more fully in **Section 8**.

Equipment maintenance records include; observations, recommendations, instructions on conducting the specific maintenance activity, a record of maintenance of the equipment to date and a maintenance schedule. Dated tags are used to show out-of-service equipment.

In addition to **Section 8**, the following construction equipment and material is available for routine and emergency repairs:

### **EQUIPMENT:**

- 2- 10 TON DUMP TRUCKS
- 1-1.5 TON DUMP TRUCK
- 1-12 TON TRAILER
- 1- 40 TON TRAILER
- 1- 9000LB MINI EXCAVATOR
- 1-18000LB MINI EXCAVATOR
- 1- SKID STEER
- 1- VERMEER VACTOR
- 1- 1 TON PICKUP
- 1-3/4 TON PICKUP
- 1-BOX TRUCK FOR MATERIAL/SMALL TOOLS/PUMPS
- LARGE WALK BEHIND SAW (24")

## Capacity Management, Operations and Maintenance (CMOM) Program

---

### MATERIALS:

3/4" WASH STONE (STOCKPILE IN YARD)  
CR-6 STONE (STOCKPILE IN YARD)  
TOPSOIL (STOCKPILE IN YARD)  
SEED/STRAW (STOCKPILE IN SHOP)  
STAINLESS STEEL CLAMPS (SS) FOR GALVANIZED/SCH 80 O.D. SIZES 1.25"-1.5"-2"-2.5"-3"-4"-6"-8"-10"-12"-16"  
SS CLAMPS D.I. O.D- SIZES: 3"-4"-6"-8"-10"-12"-16"  
PVC COMPRESSION COUPLINGS FOR SCH 80 AND GALVANIZED PIPE-1.25"-1.5"-2"-3"-4"  
SS NIPPLES-1.25"-1.5"-2"  
SCHEDULE 80 PIPE SIZES: 1.25"-1.5"-2"-2.5"-3"-4"  
ROMAX ADAPTER COUPLINGS- 2"-3"-4"-6"-8"-10"-12"-- LARGE OD RANGE FROM SDR 21 TO TRANSITE/DUCTILE OR C900  
FERNCOS AND ADAPTER FERNCOs- 1.5"-2"-3"-4"-6"-8"-10"-12"  
DUCTILE IRON GATE VALVES- 4"-6"-8"-12"  
BRASS CURB STOPS-1.25"-1.5"-2"  
SCHEDULE 80 PVC GLUE FITTINGS-1.25"-1.5"-2"-4"  
MEGA LUGS FOR C-900 AND DUCTILE PIPE- 4"-6"-8"-10"-12"-16"  
SDR35 PIPE AND FITTINGS-4"-6"-8"  
C-900 PIPE- 4"-6"-8"-10"-12"-16"  
DUCTILE IRON PIPE-4"-6"-8"-10"-12"-16"  
4" PINELLA CO  
6" PINELLA CO  
DUCTILE IRON FITTINGS-4"-6"-8"-10"-12"

IN THE UNLIKELY EVENT WE RUN INTO UNFORESEEN CIRCUMSTANCES, WE HAVE A MINIMUM OF 3 CONTRACTORS WE CAN CALL FOR MATERIALS/SUPPORT.



### 4. GRAVITY LINE PREVENTIVE MAINTENANCE

Preventive maintenance occupies about 70% of the work time in the Maintenance Department. Targeted “problem” areas of sewer lines are jet-rodded and cleared monthly. Areas of less severity are monitored quarterly, others semi-annually and some annually.

Some known problem areas (*aka. trouble spots*) include Lexington Park, Great Mills and Hickory Hills. Identification of these problem areas are ongoing, and change based on a variety of factors, such as amount of grease found in lines and manholes, number of sewer backups in a given area and observations by operators and maintenance personnel. Over the course of a year, the bulk of the system is attended to.

The Inflow and Infiltration (I&I) Division is responsible for evaluating the overall collections system and determining the amount of excess flow due to storm water, surface water, ground water or roof runoff that is introduced into the collections system. This is accomplished using flow data from wastewater pump stations, smoke testing and the placement of portable flow meters throughout various parts of the collections systems. The I&I staff is also responsible for the enforcement of the St. Mary’s County Public Sewer Use Regulation (SUR) which regulates the regular and preventative maintenance of grease interceptors in the collection system. Other duties of the I&I department includes checking and evaluating manholes in each subsystem where I&I studies are being completed and locating missing manholes with the assistance of both the Engineering Department and the Construction Department. Polydome inflow protection devices are also routinely installed in manholes to help prevent the infiltration of sediment, silt, grit, sand, dust and other from entering into the sewer system.

#### **Applicable Standard Operating Procedures** (*accessible on Commission’s shared drive*)

##### **OPS-11-03     Inflow & Infiltration (I&I) Studies**

A maintenance software system is monitored and maintained by the personnel in Field Services and in Operations. This system creates preventative maintenance work orders and tracks work orders created by the Operations Department. City Works then prioritizes the work orders according to the importance of response time. Completed work orders remain in the system as history files and for future reference, if needed.

#### **a. Fats, Oils and Grease (FOG)**

Fats, Oils and Grease, otherwise known as “FOG”, can be a significant cause of sewer blockages that lead to SSOs. Grease and grease-like products can significantly increase the likelihood of sewer overflows. Grease can also cause blockages or aggravate blockages due to roots or structural deficiencies. Restaurants, cafeterias, and other food service facilities, as well as industrial facilities, can discharge grease as part of their normal sanitary flows that can lead, in time, to blockages, backups and overflows. MetCom’s Sewer Use Regulations specifically state that it is unlawful for any user to discharge any fats, oils, or greases of animal or vegetable origin in concentrations greater than 100 mg/L into the public sewer.

## Capacity Management, Operations and Maintenance (CMOM) Program

There are 207 known grease traps within the County that discharge into the public sewer system. MetCom works in conjunction with the local Health Department to determine if grease, oil, and sand interceptors are required at any existing non-residential facility for the proper handling of wastewater containing excessive amounts of grease and oil, or sand. All interception units shall be of type and capacity approved by MetCom and shall be so located to be easily accessible for cleaning and inspection. The interceptors are inspected by MetCom **bi-annually**, but are cleaned and repaired, by the user at their expense. All new commercial Food Service Facilities are required to provide a 1,000-gallon minimum grease interceptor and provide proof of proper maintenance of same as requested.

Sanitary District	Name	# of Grease Traps
1	Luckland	2
2	Dukehearts Creek	0
3	Leonardtown	7
4	Flood Creek	1
5	Piney Point	6
6	Lake Conoy	2
7	Carroll Pond	0
8	Pine Hill Run	165
9	Manor Run	0
10	Indian Creek	24
Totals:		207

The FOG program includes education for commercial /industrial facilities and residents (webpage), bi-annual inspections by MetCom and periodic sewer cleaning. To date, the FOG program has been effective in reducing blockages due to grease, and MetCom provides conditional grease trap waiver approvals that do required FSEs to monitor for FOG.

All FSEs are visited to develop a database of contacts and to determine the types of FOG removal technologies employed at each facility. There are no grease hotspots or problem areas that require a high frequency / priority cleaning identified at this time.

The annual inspection is performed at no cost. If the grease interceptor has not been maintained (*with documented removal of accumulated grease and cleaning*), has been bypassed, or if significant grease is discovered within the service connection, MetCom will issue a letter to the owner giving notice of the ordinance/policy non-compliance and requiring action be taken to prevent further discharge of grease into the system. If the non-compliance is not remedied within the time specified in the written notice, the policy states that the enforcement authority of the sewer use ordinance may be invoked.

There are several identified hydrogen sulfide problem areas / trouble spots in the collection system due to grease level buildup or a belly in the line that require monthly cleaning (**Section 2**).

### **Applicable Standard Operating Procedures** (*accessible on Commission's shared drive*)

- OPS-11-07 Grease Trap Inspection Procedures
- OP-15-01 Food Service Grease Interceptor Inspection Process
- OPS-16-01 Grease Interceptor Requirement and Waiver Policy

### **b. Root Control**

MetCom currently uses mechanical root removal for sewer lines with identified root problems. Root saw attachments are standard equipment on cleaning trucks. When a crew encounters roots during routine cleaning, a hydraulic saw is attached to the jetter and used to cut and remove the roots from

## Capacity Management, Operations and Maintenance (CMOM) Program

sewers as small as 6 inches in diameter. The severity of the problem is recorded on the daily log, and if necessary, the pipe section is placed on the list for priority cleaning or periodic chemical root control (e.g. *Metam Sodium*). Maintenance crews perform root removal and line cleaning periodically and grease inhibiting enzymes have been added to identified problem areas. In January 2025, MetCom purchased a large mechanical hydraulic heavy duty two-way root cutter that attaches to the jet-rodding equipment to help facilitate the maintenance of sewers up to 24 inches in diameter. Cutting a tree's roots is like pruning the tree, and stimulates root growth into the system. Consequently, mechanical treatment must be repeated every year or two, which is factored into the cleaning schedules. Root control is also a major part of easement maintenance, as described in **Section 5**.



Photos of both root intrusion (left) into sewer lines and the build-up of grease on the interior of sewer lines (above).

### Applicable Standard Operating Procedures (*accessible on Commission's shared drive*)

OPS-12-01      Application of Metam Sodium

#### c. Service Laterals

While MetCom maintains service laterals from the clean-out or property line to the sewer main (portions in the public right-of-way) and the service lateral from the grinder pump to the sewer main, the balance of the lateral to the building is the owner's responsibility. If a complaint is received and the field crew determines that the problem is limited to the section of the lateral between the property line and the main, the "lower" lateral will be rodded out if needed (at no cost to the customer) if a cleanout is available at the property line.

If service lateral problems are found to be the result of blockage or a collapse in the portion of the lateral under the property owner's responsibility, the field crew advises the property owner accordingly. If the lateral is a result of excessive I/I into the public system, MetCom requires a corrective action plan be submitted by the property owner.

If it is determined that the Commission does not have repair/maintenance responsibility, Operations Staff will contact the Owner for repair or maintenance. The onus for completing any repairs is on the property owner after notification. The Commission shall not be responsible for any labor, freight, transportation, taxes or any other costs associated with service. If the Owner cannot or will not perform

## Capacity Management, Operations and Maintenance (CMOM) Program

the repair on a timely manner, the Commission may opt to perform the repair/maintenance of the unit and will back charge the Owner. If the grinder pump unit is something other than Barnes or Myers pump, the Commission will not provide repairs. The Commission will provide, if needed, references for septic pump truck contractors, to be utilized at the property owner's expense until repairs/maintenance efforts are complete.

MetCom performs smoke testing and is evaluating flow monitoring data to determine the amount of infiltration from laterals and is providing low interest loans to residential properties to address their I/I, but may consider funding lateral rehabilitation if it proves to be cost effective. We are also considering recommending a requirement that service lateral condition be evaluated as part of a home the sale, which may require legislative action(s).

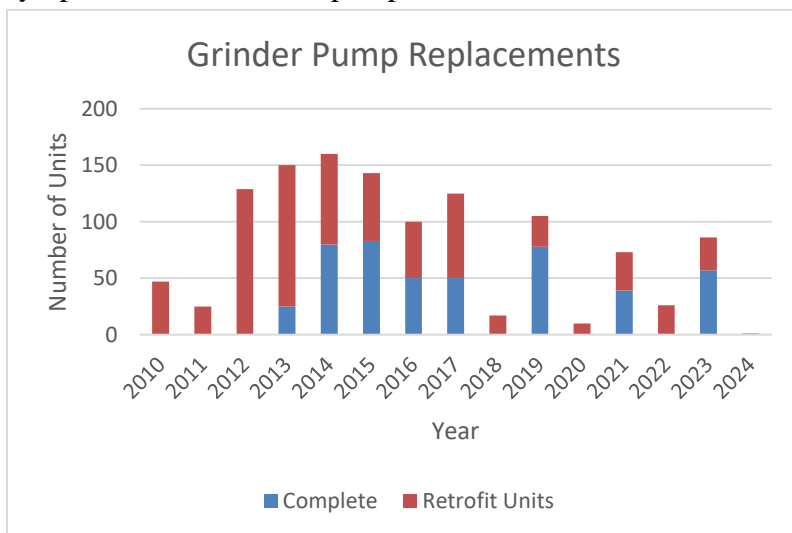
### Applicable Standard Operating Procedures (*accessible on Commission's shared drive*)

OPS-11-01	Responding to Sewer Backup Calls
OPS-17-01	Repeat Grinder Pump Service Calls
OPM-23-01	Responding to Grinder Pump Calls

### d. Grinder Pumps

In accordance with Chapter 113, Section 113-11.F, made effective on 10-1-2020: Other appurtenances, the Metropolitan Commission shall have full and complete jurisdiction over all other appurtenances with any of its systems, including but not limited to grinder pumps

In Fiscal Year 2013, after finding that many of the grinder pumps that have been in service for 25+ years were showing significant failure symptoms outside of the pump assemblies, such as brittle and deteriorated fiberglass vault housings, shut-off valve failures, check valve failures and discharge piping corrosion, MetCom began a capital project to replace entire grinder pump package units biennially, rather than installing retrofit packages, focusing on the oldest units, particularly the Environmental One units. In FY 2023, the program was funded annually, with the current Grinder Pump Replacements capital project in excess of \$820,000 per year (see **Section 10**).



By the end of 2024, MetCom plans to inspect all the grinder pumps in **SD 5 (775), which have been identified as problem area / high priority due to the level of I/I and related SSO incidents**. These grinder pumps, which represent **42%** of all the grinder pumps in the collection system (1,850), will be repaired or replaced and, if in the FEMA flood plain, retrofitted with vent-less lids. Any other grinder

## Capacity Management, Operations and Maintenance (CMOM) Program

---

pumps in the collection system that are in the FEMA 100-year flood plain will be programmed for inspection and will be repaired/ replaced and retrofitted with vent-less lids in the following priority order **SD8 - SD 3 - SD2 - SD6 - SD 1**. NOTE: The grinder pumps in Wildewood are privately owned and any repairs needed are the responsibility of the property owner.

**Applicable Standard Operating Procedures** (*accessible on Commission's shared drive*)

OPS-93-01     Location and Maintenance Responsibilities for Grinder Pumps

## 5. MAINTENANCE AND ACCESS

### a. Maintenance of Right of Way and Easements

Right-of-Ways. Beginning in Fiscal Year 2013, MetCom initiated a capital project to clear water and sewer rights of way. The purpose of this project was to gain access to areas where water distribution lines, sewer gravity lines and force mains are located in either off-road area or heavily vegetated locations. These services are performed by a Right of Way Recovery (*recovery clearing*), Clearing and Maintenance Services contractor and include services to maintain these areas, typically 20 feet in width (*maintenance clearing*). The current contract \$1.30 / foot for maintenance clearing of right of ways by bush-hog and \$2.00 / foot for initial recovery clearing and tree removal efforts. The work is funded through the maintenance portion of the respective sewer line maintenance account in the annual operating budget. In FY 2025, MetCom proposes to allocate \$25,000 specifically for this purpose. Approximately 12,000 - 20,000 feet of right-of-way are routinely cleaned as a part of this program. A list of priority problem / trouble areas are cleared annually and the balance of right of ways are cleared every other year as tabulated in **Table 5.1** below:

Table 5.1 HIGH PRIORITY RIGHT OF WAY INSPECTIONS / CLEARING		
Location Description	Length	Area (acres)
Bay Interceptor	28,202	12.95
St. Marys City	11,151	5.12
Evergreen Park	2,549	1.17
Greenbriar (FM)	13,460	6.18
Greenbriar (Gravity)	1,842	0.85
Broadcreek	6,274	2.88
Broadcreek (FM)	520	0.24
California Run	3,940	1.81
California Run (FM)	916	0.42
Piney Point (FM)	51,061	23.44
Sheehan	503	0.23
Kingston / Oak Crest	7,234	3.32
Wicomico 1	2,807	1.29
Wicomico 1 (FM)	756	0.35
Wicomico 2	2,353	1.08
Wicomico 3	3,719	1.71
235 Interceptor	44,567	20.46
St. George's Hundred	1,800	0.83
Spring Valley	2,205	1.01
Breton Bay	4,896	2.25
Rosebank	2,664	1.22
Joy Chapel	2,944	1.35
Hickory Hills	1,247	0.57
Great Mills	4,099	1.88
Elizabeth Hills	3,368	1.55



## Capacity Management, Operations and Maintenance (CMOM) Program

Abberly	1,784	0.82
Pembroke 2	2,709	1.24
Wildwood 1	3,793	1.74
Wildwood 2	999	0.46
Essex South (Gravity)	397	0.18
Essex South (FM)	1,485	0.68
St. Marys Square	1,207	0.55
Westbury (Gravity)	2,383	1.09
Westbury (FM)	581	0.27
Peggs Road	1,375	0.63
Total:	221,790	102

Access to property is more frequently utilized, for a variety of issues, such as repairing grinder pumps, reading meters, and discontinuing/restoring service. §113-19.B allows access “(w)hile in pursuit of official duties, any employee or agent of the Metropolitan Commission shall have a right of entry including reasonable vehicular ingress to and egress from any Metropolitan Commission pumping station, elevated water storage tank, well, or other related or appurtenant equipment.” In general, access to any grinder pumps, meters, cleanouts along with water and sewer stations cannot be impeded. For example, parking in front of stations is also prohibited by this regulation.

Easements. In general, MetCom is reserved a 20 foot wide right of way for underground water and sewer mains and service lines as outlined in MetCom’s Design Manual. Chapter 1.7 also states that utilities located adjacent and parallel to lot lines shall be centered within a thirty-foot (30’) wide easement. And that planting of trees within 20 feet of sewer facilities will not be allowed within right-of-ways, drainage easements and utility easements which contain sewer utilities. Clearing and maintaining these rights of way and easements are crucial for access, proper inspection and maintenance of mains and service lines. Areas designated for clearing vary according to maintenance and operational demands. Since 2013, MetCom has utilized this Contract to provide clearing services for various right of ways and easements. Approximately 65% of the rights of way that the Commission owns have received an initial clearing and continue to receive maintenance clearing as needed to prevent tree re-growth. Recovery clearing and maintenance clearing costs approximately \$2.00 per foot and \$1.30 per foot respectively.

County Code Chapter 113-3 B.(1) states that, whenever it is deemed necessary ... the Metropolitan Commission may purchase it from the owners or, failing to agree with the owner or owners thereof, may condemn it. 113-3 B.(2) states that MetCom may likewise condemn the interest of any tenant, lessee or other person having any right or interest in the land, Easements give MetCom the right to access, install and maintain sewer facilities on property not owned by the Commission. Typically, easements are recorded as deed records that are accessed through the St. Mary’s County’s Land Records.

## Capacity Management, Operations and Maintenance (CMOM) Program

---

Easements are important for our ability to operate and maintain our collection system. MetCom's goal is that all easements remain clear of any fences, buildings, gardens, trees, shrubs and extensive landscaping, to allow equipment access for maintenance of the collection system. MetCom is not liable to repair or replace any such items that are removed in the process of completing repairs or maintenance on the collection system. Crews are, however, instructed to work with the property owner whenever possible. *[If you have summary information on your rights to access easements, whether it is deed information or bylaws, etc., it might be worthwhile to summarize it here so that crews can have it readily available should they need to know the basis for their authority].*

Where a recorded easement does not exist or maintenance work needs to extend beyond the recorded right of way / easement, MetCom obtains agreement with the property owner(s) by executing grading and construction easements or right-of-entry agreements to temporarily access the affected private property. If the Commission's infrastructure has been in place for twenty (20) years or more, the Commission could argue that it has a prescriptive easement right-of-way over the respective properties and thereby has a right to access its infrastructure.

### **Applicable Standard Operating Procedures** (*accessible on Commission's shared drive*)

ADM-19-01 Property Acquisition Guidelines

ADM-23-01 General Guidance for Service and Ownership Responsibilities

Access. Over the course of its existence, the Commission has assumed responsibility for various wastewater systems and/or identified properties containing Commission assets which it either does not own or may not have a dedicated access. These properties may be: located on HOA property, the result of prior unfulfilled Public Works Agreement, never conveyed to the Commission following a developer project, an asset originally built by a predecessor, or were constructed partially on adjacent property. MetCom's Real Property Manager maintains a listing of Resolved Property Issues and a report of those current issues nearing completion. There remains for resolution a list of approximately eighteen (18) various sites which are not owned by MetCom or have access related issues. Many of these locations will require a survey of the property and a subdivision of the parent parcel to create a lot of record for the station.

Maintenance of easements is accomplished in various ways. Easements on privately-owned parcels are often maintained by the owner. The Building Inspector refers construction questions as they arise, to the sewer department. Easements on public land are maintained by the entity responsible for property upkeep. Manholes in easements are inspected as part of our ongoing preventive maintenance program.

### **b. Street Paving Coordination**

The St. Mary's County Department of Public Works & Transportation is responsible for coordinating public street resurfacing and ensuring that all utilities are aware of scheduled resurfacing. A prioritized list of streets to be paved or resurfaced is developed each fiscal year. This list is distributed and discussed at quarterly meetings with MetCom as is the MetCom's capital and scheduled maintenance work. MetCom assesses the condition of their associated infrastructure to determine where repairs

## Capacity Management, Operations and Maintenance (CMOM) Program

---

may be necessary, and notifies Public Works & Transportation as to which streets need underground infrastructure work completed prior to repaving or resurfacing.

When MetCom obtains the resurfacing list from the County's Department of Public Works & Transportation, maps are reviewed for the presence or absence of sewer lines. If a public street has a sewer line under the pavement, any sewer lines that may need repair or replacement in the same time frame as the street repaving plans are addressed or the planned paving may be deferred.

As sewer lines are inspected and assessed under our Cleaning, Inspection and Assessment program (see **Section 3**), repairs are scheduled in conjunction with the repaving schedule whenever possible. Sometimes work is performed on a priority basis so that repairs are completed on the highest priority public street, working in coordination with the County's Department of Public Works & Transportation paving schedule.

During paving work, the St. Mary's County Department of Public Works & Transportation purchases manhole rings, frame extensions, covers or risers at the direction of MetCom staff and in accordance with MetCom standards & specifications prior to the re-paving of any street with public sewer lines. During milling operations, areas immediately surrounding existing manholes are protected by utilizing smaller equipment (*e.g. jackhammers*) in lieu of milling machines.

### 6. PUMP STATION / FORCE MAIN MAINTENANCE

The Operations Department is broken down into water and wastewater treatment. Licensed Wastewater Collections Systems Operators utilize standard operating procedures to check the wastewater pump stations daily, weekly and monthly. Quarterly inspections include life safety, hazard communications, ladders, security, confined spaces electrical and general site condition (Form SAF-66). Operators check wet wells, transducers, floats, pumps, controls, wet wells, macerators, generators, alarm systems (i.e. SCADA and TCU panels) and other equipment in the lift stations regularly. There is a daily log kept at each station, in which flow readings and generator tests are recorded. Daily flows are averaged and compared to normal flows for early detection of problems in the collection lines. Any equipment that is not in proper working order is reported to the Superintendent and the Operator generates a work order for repair or replacement. The Operator checks the exterior of the building and grounds noting any abnormalities. There are regular daily meetings between the Operations and Maintenance staff to discuss pertinent problems with the system and in the field. Wastewater wet wells are also on monitoring schedules or when abnormal conditions are reported by operators. Cleanings range from weekly (*ie. floats*), bi-weekly, monthly, quarterly and annually. There are several sites that may be more frequent than weekly or because of known conditions like upcoming events for the area the well services.

MetCom owns and operates **71** wastewater pump stations listed in **Table 6.1**. The collection system also includes 1,850 grinder pumps that service homes throughout the Sanitary Districts. The pump station are also geolocated on MetCom's GIS system. The pump stations and grinder pumps owned and operated by MetCom are routinely checked by trained personnel. The maintenance for the private low pressure systems is the responsibility of the property owner(s).

The performance of MetCom's pump stations is monitored through field inspections and our SCADA system. During these inspections, pump run hours, totalized flow, wet well levels and alarms are reviewed. Back-up generators and Godwin pumps are exercised monthly. On an annual schedule, wet wells are pumped and grease build up is removed. Specific pump station inspection protocols are included in adopted standard operating procedures for each of MetCom's pump stations.

Inspection, maintenance and repairs are recorded on log books at each station and logged into the computerized maintenance management system (CMMS). If a problem or maintenance issue is encountered, personnel must also report it immediately directly to the supervisor for resolution. The CMMS generates work orders for repairs and routine maintenance. Repairs are a higher priority than routine maintenance. Issues are reported to appropriate personnel ie mechanics, SCADA tech or supervisor. The employee who finds the issue either dispatches the call or resolves the issue themselves. If issue is dispatched to another employee it is the finders duty to create a work order and submit to person making the repair. The repairer is responsible for documenting all work completed to resolve the issue.

MetCom has a Supervisory Control and Data Acquisition (SCADA) system, initial installation which began in 2001, and currently all wastewater stations, except for one (1) very small station (Dawnor) have them in place. The SCADA remotely controls and monitors pump station operations, and process or control changes, alarms and errors are automatically logged (*time stamped*) and archived for

## Capacity Management, Operations and Maintenance (CMOM) Program

---

recordkeeping sends. Alarms are sent to the operational dispatch staff during normal business hours and the stand-by operator(s) after-hours in the event of a malfunction or emergency. The SCADA system records all activities at a pump station and provides a hard-copy printout for backup documentation. The SCADA provides continuous status of pump station operations for the following items:

- Number of pumps in operation
- Status of pumps (including operational alarms)
- Current pumping flow rate
- Historic flow rate (24 hour Flow Chart)
- Pump start / stop cycles
- Power status (including power failure alarms)
- Wet well conditions (depth, lead / lag elevations, etc.)
- Personnel status (entry / exit alarms)

Pump stations with the remote monitoring capabilities of an installed and fully functioning SCADA can be evaluated to determine the need for daily physical inspections. Besides the data being used by the central unit for daily operations, it is also displayed in a user friendly format on a computer; this allows any operations staff to make changes when needed or to simply monitor stations to ensure proper operation. Some of the benefits to having a remote monitoring system include being able to quickly diagnose any equipment failures or other mechanical problems. Having flow data and pump run times available electronically for monitoring purposes or having the ability to manipulate and evaluate this information is a great asset in preventing future SSO's or determining maintenance needs. Another benefit to the remote monitoring software is that the system is able to monitor the security of the station as well. **SCADA polling times have been reduced from 12 minutes to 6.2 minutes to 5.4 minutes to the current 1.54 minutes (2024).** Reduced polling times are crucial for staff to better monitor system performance, adjust pump station operations as needed and respond to alarms which helps mitigate / reduce SSOs and potential downtime due to system failures.

In 2024, MetCom also plans to purchase two (2) thermal imager cameras and train personnel to perform electrical inspections. These devices will capture thermal images of all electrical panels and other high-load connection points such as drives, disconnects and controls which will help identify performance anomalies due to unbalance or overloading. To reduce the occurrence of equipment malfunctions, it's crucial to implement a proactive preventive maintenance plan for lift stations. Such a plan should include: Regular cleaning and inspection of pump components to prevent clogs; Scheduled electrical system inspections and maintenance; Routine checks on float switches and their alignment; and Periodic testing of backup systems to ensure uninterrupted operation.

Pump station daily inspections are specific to each pump station and are located at each facility for convenience of the operators. A typical quarterly pump station safety inspection includes observations of the following which are incorporated into MetCom's standard operating procedures in OPS-24-001 thru OPS 071 and 099 Wastewater Pump Stations:

- The components comprising the alarm system, i.e., the wet well controller and electrical system. Note how the pumps are sequenced.

## Capacity Management, Operations and Maintenance (CMOM) Program

- The pumps: bearings, suction and discharge gauge pressures.
- The pump motors: temperature, amperage and voltage, coupling and alignment, vibration and noise.
- Valves: check and pressure relief.
- Oil levels and lubrication.
- Belt wear and tightness.

### Applicable Standard Operating Procedures (*accessible on Commission's shared drive*)

OP-16-02 Service and Work Order Submissions  
OP-15-07 Service calls ADAS/SCADA/Alarm Acknowledgement  
OPS-24-001 thru OPS 071 and 099 Wastewater Pump Stations  
Form SAF-66 Quarterly Facility Inspection Checklist

The wet / dry wells at all of MetCom's pump / lift stations are considered confined spaces and should be entered by only trained authorized personnel using the required safety equipment. The station's ventilation system and gas detection equipment need to be checked and calibrated regularly. The inspection frequency of the wastewater stations in **Table 6.1** is quarterly. The highlighted stations represent a high priority with respect to power restoration based on flow volume.

WASTEWATER STATION INFORMATION			
062	Abberly Crest Pump Station	46891 Morning Dew Lane	Lexington Park, MD 20653
053	Airport Drive	44142 Airport Rd	Hollywood MD 20636
036	Black Duck WWLS	20979 Black Duck Ct.	Callaway MD 20620
018	Bradley Boulevard	22041 Grand Harvest Ln.	Lexington Park MD 20653
037	Breton Bay WWLS	40541 Breton View Dr.	Leonardtwn MD 20650
064	Broad Creek WWLS	24598 Broad Creek Dr	Hollywood MD 20636
001	California Run WWLS	22317 Valleyview Dr	Great Mills MD 20634
069	Camp Merryelande	15914 Camp Merryelande Rd	Piney Point MD 20674
055	Cecil's Mill WWLS	45585 Pleasant Mill Dr	Great Mills MD 20634
033	Cedar Cove WWLS	48151 Long Ln.	Lexington Park MD 20653
071	Charlotte Hall WWLS	30323 Triangle Dr.	Charlotte Hall MD 20622
099	Davnor	27763 Baptist Church Rd	Mechanicsville MD 20659
006	Dunleigh WWLS	22548 Dunleigh Dr.	Lexington Park MD 20653



## Capacity Management, Operations and Maintenance (CMOM) Program

046	Elizabeth Hills	45563 Foxfield Lane	California MD 20619
040	Esperanza Farms WWLS	45888 Millstone Landing Rd.	Lexington Park MD 20653
008	Essex South WWLS	21591 South Essex Dr.	Lexington Park MD 20653
014	Evergreen Park WWLS	48823 Evergreen Park Rd.	Lexington Park MD 20653
045	First Colony # 1 WWLS	23017 FDR Blvd	California MD 20619
043	First Colony # 2 WWLS	22683 FDR Blvd	California MD 20619
005	Forest Run WWLS	21451 Great Mills Rd.	Lexington Park MD 20653
012	Glebe Run WWLS	24511 Point Lookout Rd.	Leonardtown MD 20650
015	Great Mills WWLS	20208 Point Lookout Rd.	Great Mills MD 20634
029	Greenbrier WWLS	47133 Schwartzkopf Dr.	Lexington Park MD 20653
022	Hickory Hills WWLS	45599 Amber Dr.	California MD 20619
017	Hilton Run WWLS	46740 Hilton Dr.	Lexington Park MD 20653
058	Hunting Creek WWLS	46775 Crimson Dr.	Lexington Park, MD 20653
034	Hunting Quarters WWLS	20881 Hunting Quarters Dr.	Callaway MD 20620
010	Estate at Joy Chapel WWLS	44060 East Leola Ct	Hollywood, MD 20636
057	Kingston Creek WWPS	45101 Woodhaven Dr	California MD 20619
031	Laurel Glen WWLS	26693 S. Laurel Glen Rd.	California MD 20619
009	Lynn Drive WWLS	21325 Lynn Dr.	Lexington Park MD 20653
048	Meadow Lake WWLS	45484 Columbine Pl	Great Mills MD 20634
028	Moorings WWLS	48261 Keel Dr.	Lexington Park MD 20653
070	Myrtle Point #4 WWLS	23570 Patuxent Blvd	California MD 20619
060	Myrtle Point #5	45460 Myrtle Glen Way	California MD 20619
068	Oak Crest WWLS	44870 Oak Crest Rd	California MD 20619
016	Patuxent Park West WWLS	21637 Liberty St.	Lexington Park MD 20653

## Capacity Management, Operations and Maintenance (CMOM) Program

047	Pegg Road WWLS	21895 Pegg Rd.	Lexington Park MD 20653
054	Pembroke #1 WWLS	20540 Pershing Dr.	Lexington Park MD 20653
061	Pembroke #2 WWLS	46982 Pembroke St	Lexington Park, MD 20653
024	Picketts Harbor WWLS	48251 Picketts Harbor Ct.	Lexington Park MD 20653
002	Piney Point WWLS	17323 Piney Point Rd.	Piney Point MD 20690
038	Piney Point (Influent) WWLS Storm Water Management Pond	45271 Bloch Ave	Piney Point MD 20690
025	Piney Point Landings WW	17999 Driftwood Dr.	Tall Timbers MD 20690
035	Planters Court WWLS	46839 Planters Ct	Lexington Park MD 20653
052	River Bay WWLS	48053 Spinnaker Circle	Lexington Park MD 20653
020	Rosebank WWLS	21817 Rosebank Ct.	Leonardtown MD 20650
044	Rue Woods WWLS	22666 Sylvan Way	Lexington Park MD 20653
041	Sheehan WWLS	17831 St. Georges Park Rd.	Tall Timbers MD 20690
021	Southgate WWLS	21111 Three Notch Rd	Lexington Park MD 20653
011	Spring Valley WWLS	46485 Rosewood Dr.	Lexington Park MD 20653
013	St. Clements Shores WWLS	39673 Lady Baltimore Ave.	Leonardtown MD 20650
030	St. George's Island WWLS	16668 Piney Point Rd.	Piney Point MD 20674
003	St. George's Peninsula WWLS	18550 Peninsula Ct	Piney Point, MD 20674
004	St. Mary's City WWLS	17061 Point Lookout Rd.	Lexington Park MD 20653
027	St. Mary's Industrial Park WWLS	23751 Three Notch Rd.	Hollywood MD 20636
007	St. Mary's Square WWLS	21592 Great Mills Rd	Lexington Park MD 20653
050	The Villages at Leonardtown WWLS	23699 Robert Way	Leonardtown MD 20650
019	Water's Edge WWLS	48400 Surfside Dr.	Lexington Park MD 20653
056	Westbury WWLS	21572 Croaker Ct.,	Lexington Park MD 20653
023	Wicomico Shores # 1 WWLS	26051 Sycamore Dr.	Mechanicsville MD 20659

## Capacity Management, Operations and Maintenance (CMOM) Program

039	Wicomico Shores # 2 WWLS	35410 Army Navy Dr.	Mechanicsville MD 20659
049	Wicomico Shores #3 WWLS	35720 Golf Course Dr.	Mechanicsville MD 20659
042	Widgeon WWLS	44919 Widgeon Pl.	Callaway MD 20620
059	Wildewood #1 WWLS	23251 Laurel Hill Drive	California MD 20619
026	Wildewood # 2 WWLS	44572 Aspen Ln.	California MD 20619
032	Wildewood # 3 WWLS	44437 Redwood Ln.	California MD 20619
065	Wildwood #4 WWLS	43871 Tallwood Rd	California MD 20619
051	Willow Woods WWLS	46687 Sandalwood St.	Lexington Park MD 20653
067	Woodmore WWLS	24098 Woodmore Drive	Hollywood MD 20636
<b>WASTEWATER TREATMENT PLANTS</b>			
503	Airedale Road WWTP	13094 Point Lookout Rd.	Ridge MD 20680
502	Wicomico Shores WWTP ** Secondary Emergency Command Center**	35695 Golf Course Drive	Mechanicsville MD 20659
506	Charlotte Hall WWTP	37765 Wolf Rd	Charlotte Hall MD 20622
504	Forrest Farm WWTP	23255 Pembroke Dr.	Hollywood MD 20636
500	Marlay Taylor WWTP	48020 Pine Hill Run Rd.	Lexington Park MD 20653
501	St. Clements Shores WWTP	21911 Rosebank Rd.	Leonardtwn MD 20650
	Chopticon WWTP *METCOM Operates Only*	25390 Coltons Point Rd	Morganza MD 20660
096	Petty Building ** Primary Emergency Command Center**	43990 Commerce Ave.	Hollywood Md 20636
	<b>LEGEND</b>  Power Restoration Priority 1 Priority 2 Unhighlighted		

## Capacity Management, Operations and Maintenance (CMOM) Program

Manufacturer's Operation and Maintenance (O&M) manuals for equipment are located in the Petty Building located at 43990 Commerce Avenue Hollywood, MD, 20636 with portions kept at each pump station. MetCom plans to make these available in electronic format for more readily accessibility on the shared drive w/ ability to remote access from laptops / tablets.

Pump rebuilding, motor rewinds, and HVAC repairs for the pump stations are contracted to various vendors, including Wenger's Electric Motor Services for motor rewinds and grinder pump repairs, etc. Repairs to motor control centers, flow meters, remote monitoring equipment, valves, and macerators are typically repaired by MetCom maintenance crews. In general, any replacement parts that are difficult to acquire are kept in stock by the Construction Supervisor; other parts are obtained from local vendors or the manufacturer's service center (See Spare Parts Inventory). As pumps and other parts are replaced, the Commission is making an effort to standardize pumping station equipment as much as possible.

Whether repairs are made by local vendors or by MetCom personnel, all repairs are recorded and tracked with the CityWorks CMMS system.

### **Applicable Standard Operating Procedures** (*accessible on Commission's shared drive*)

OPS-24-001 thru 071, 099 Emergency Response Plan SOPs  
OPS 25-01 Thermal Imaging Procedures

Alternate power sources. MetCom facilities are included as a part of SMECO's Power Restoration Priorities with the Commission's Priority 1 restoration priorities highlighted in **Table 6.1**. The Maryland Department of the Environment (MDE), and MetCom's standard specifications require that all water and wastewater facilities be equipped with a stationary auxiliary power source backup equipment to address electrical power outages. Therefore, in order to provide reliable and uninterrupted water and sewer services, MetCom equips most of the water and wastewater pumping stations with electrical power interruption contingencies. In most cases, the most practical and cost-effective means for these emergencies are diesel-powered standby generators. In some cases, MetCom uses diesel-powered backup pumping systems to convey wastewater. Currently there are 85 emergency generators and 13 back-up pumping systems at Commission-owned facilities. The generators range in size from 25kW to 1,200 kW. The following maintenance inspections are performed on all generators:

Generator Inspection Checklist Items	
Daily	
Generator RRTM Generator R/T hours	Day tank fuel level Main fuel storage level
Weekly	
Engine oil level Check for oil / fuel leaks Drive belt tension Engine coolant level Check for coolant system leaks	Gauges, timers, meters & switches working Engine exhaust system Ventilation system, louvers and vents Generator R/T Generator set mounts

## Capacity Management, Operations and Maintenance (CMOM) Program

Fuel system lines/connections/tanks & pumps Battery terminal corrosion	Water jacket heater Battery charger
Monthly	
Check back up generator Generator ETM at start-up Generator R/T Engine Oil PSI Coolant temperature Engine battery charging system AC voltage meter reading	Hertz reading Exercise stand by power Transfer switch to emergency power Transfer switch back to normal power Did ADAS callout power failure?

MetCom utilizes a Generator PM and Repair Services contract is used for the service and maintenance of the diesel-powered equipment. The scope of work under this contract is to perform annual maintenance on MetCom's standby generators and diesel-powered backup pumping systems. The contract also has provisions for fluid analysis, service and repair work and an option for rental generators.

MetCom funds replacement generators based on age, usage, maintenance/repair costs and reliability. Staff bids and purchases generators annually from its Generator Replacement – Sewer Project. The generators are installed using in-house resources, a rental crane, and Contract electrician. Historically, the cost of the installation has been less than \$9,000.00 per site. In accordance with MetCom's Surplus Property Policy, the surplus generators will be removed from service and sold at public auction. The most recent station generators replaced under this program were as follows:

- Water's Edge #19 (2023)
- Wicomico Shores #49 (2019)
- Evergreen Park WWLS (2019)
- Airport #53 (2018)
- Hunting Quarters #34 (2018)
- Pickett's Harbor #24 (2023)
- Patuxent Park West #16 (2019)
- Bradley Boulevard #18 (2020)
- California Run #1 (2018)
- Laurel Glen #31 (2018)

### **Applicable Standard Operating Procedures** (*accessible on Commission's shared drive*)

OPS-24-001 thru OPS 071 and 099 Wastewater Pump Stations

#### **a. Mechanical and Electrical Maintenance**

The size of the pump station and its related equipment determine its specific mechanical and electrical maintenance needs. The Wastewater Collections Superintendent is responsible for incorporating the routine maintenance of each pump station into the Citiworks CMMS system to track this work. The Wastewater Collections Superintendent uses manufacturers' Operation and Maintenance manuals to establish action items for pump station equipment. Specific equipment for each pump station is maintained on the Commission's shared drive on Water and Wastewater Station Information Sheets. Pump stations listed in OPS-24-001 thru OPS 071 and 099 Wastewater Pump Stations have individual

## Capacity Management, Operations and Maintenance (CMOM) Program

inspection protocols describing the station-specific maintenance inspection requirements performed by the Sewer Division personnel on MetCom's Smith & Loveless, flooded suction and submersible type pump stations.

In general, the following describes the preventive maintenance program:

Mechanical Maintenance/Inspections	Electrical Maintenance/Inspections
Daily	
Review pump run hours Review totalized flow Check wet well levels, check for debris, turbulence or unusual noise Check alarms Ensure that all switches, controls and valves are in the correct position Pick up litter, general housekeeping Record findings in log book	Ensure all breakers are on Ensure that all switches and controls are in the correct position
Weekly	
Log pump hours Check hydraulic levels Operate each pump Check drive belt Check bearings and packing Check for pump vibrations, unusual noise, and excessive heat Check pump and pump base connections Check chart recorder for routine pump performance Check valve operations and signs of leakage Lube and grease equipment (as required by manufacture) Check, clean and maintain property Odor control or grinder pump screens as per manufacturer recommendations	Check chart recorder Check Motor Control Centers (MCC) Check level controllers Check electrical service feed Check remote monitoring equipment Check indicator and alarm lamps Check general electrical items (lighting, etc.) Check and release intrusion alarm
Monthly	
	Check back up generator Exercise stand by power
Bi-Annual	
Replace hydraulic fluids and oils (as required by manufacturer) Inspect pumps (oil levels, seals, packing, bearings, etc.) Replace packing Inspect pump impellers and clearances Inspect discharge piping	Inspect internal Motor Control Center components Check insulation resistance Inspect & grease electrical contacts Inspect electrical pump cables Inspect electrical breakers Perform amperage readings on equipment



## Capacity Management, Operations and Maintenance (CMOM) Program

Check outflow pressure Calibrate gauges (including pressure gauges used in monitoring) Check for corrosion problems Exercise check valves Check air release valves Check floats/bubbler system (clean and/or replace) Inspect building and grounds Check operation of building heat and fans Inspect HVAC equipment Check building security	Check MCC for proper operations Check Generator: oil level water level <i>[if a level gauge is installed]</i> fuel level inspect hoses and belts check piping for leaks check battery condition
Annual	
Pump the wet wells Remove grease build up Service and calibrate all instrumentation: flow meters, level sensors, alarms, elapsed time meters and telemetry equipment	Alternate Power Sources checked and run as part of emergency drill

Capacity and discharge head in the pump stations are reviewed annually, following confirmation that the pumps are in good working order. Changes in capacity and discharge head are evaluated to determine whether cleaning of the force main is warranted.

All mechanical and electrical maintenance activities are recorded on a log sheet at each station and entered and tracked by the CityWorks CMMS system. The CityWorks automatically generates work orders for both weekly and bi-annual preventive maintenance actions. These work orders are left in an “open” format until maintenance crews enter completion comments pertaining to the work order. Any problems or maintenance issues noted by crews are reported to the Wastewater Collections Superintendent for resolution.

### b. Force Main / Air Relief Valve Maintenance

MetCom currently has 129 miles of force mains in the collection system and 151 air release valves located at the high points. The balance of the system segments are not long enough to warrant air release valves. MetCom inspects and maintains the air release valves by back flushing the valves with clean water using a minimum of 30 psi. Air Release valves are flushed on an as needed basis using pump station data to determine when it is necessary. All air release valves and valve vaults are inspected for signs of corrosion, connection point leakage, or improper operating characteristics.

The pressure on the discharge side of the pump is used to determine the need for force main cleaning. If the backpressure is more than 25% greater than the expected total operating head, the discharge pipe will be cleaned. Pressure gauges are also calibrated during the inspection.

**Applicable Standard Operating Procedures** (*accessible on Commission's shared drive*)

OPS-24-075 Force Main / Air Relief Inspections and Emergency Response Procedures

## Capacity Management, Operations and Maintenance (CMOM) Program

---

### **c. Private Pump Stations and Facilities**

MetCom does not maintain a list of private pump stations and facilities that discharge to the collection system. However, the Camp Merryland triplex grinder pump facility has been identified as a source of excessive I/I since 2014, which has resulted in MetCom issuing notices for corrective action. In 2023, MetCom installed an antennae and SCADA to monitor flows and if excessive flows are realized, the discharge from the private property to MetCom is discontinued.

### **d. Corrosion Control**

The dissolved oxygen content of the wastewater is often depleted in the wetwell of the Piney Point Landings, St. George's Island, St. George's Peninsula, Laurel Glen and Sheehan pumping stations. This wastewater passing through the force main not only lacks oxygen, but often contains sulfides. These sulfides have led to corrosion in the wet well structures (as most of the pumps are submerged). Typically, MetCom cleans and has installed wet well aerators to prevent the hydrogen sulfide from forming which also is required to prevent solids and grease buildup and minimize corrosion due to the high concentration of sulfides.

### **e. Wet Well Cleaning Schedules**

Wet wells / lift stations are the low points for gravity flow sewer systems where incoming sewage is pumped to a higher elevation to continue the gravity flow. As solid materials enter the lift station, solid materials (rags, etc.) accumulate in the bottom of the well and incoming sewage lines. These solid materials can often clog or damage pump impellers, so regular cleaning and maintenance is required. The following prioritized schedule is populated in Cityworks as a part of our preventive maintenance program and automatically generates work orders for completion as shown in the cleaning schedules below.

## Capacity Management, Operations and Maintenance (CMOM) Program

WET WELL CLEANING SCHEDULES	
Biweekly	Monthly
Dunleigh Great Mills Patuxent Park West Spring Valley Westbury Abberly Hilton Run Hunting Creek Lynn Drive Riverbay Essex South Cedar Cove Bradley Blvd Peggs Rd Broad Creek	Greenbriar Pembroke #1 Pembroke #2 Pickett's Harbor Planters Ct Southgate St. Marys City St. Marys Square Waters Edge Willow Woods Moorings Evergreen Park Forest Run California Run Cecils Mill Black Duck Hickory Hills Hunting Quarters Meadow Lake Piney Point Piney Point Landings Rue Woods Sheehan St. Georges Island St. Georges Peninsula Widgeon Breton Bay First Colony #1 First Colony #2 Glebe Run Laurel Glen Villages @ Leonardtown Wicomico #1 Wicomico #2 Wicomico #3 Wildwood # 1 Wildwood #2 Wildwood #3
Bi-annually	
Davnor Esperanza Farms Rosebank St. Clements Shores St. Marys Ind Park	
Annually	
Kingston Airport	



### 7. REACTIVE MAINTENANCE

This chapter outlines the process used by MetCom to respond to non-overflow, unplanned maintenance needs in our collection system. It also provides an overview of responsibilities for emergency events. While **Section 3** outlines MetCom's preventive maintenance and the SSOERP details our response procedures for emergency sewer overflows, this section is written to address those unscheduled maintenance events that don't result in overflows or backups of sewage into basements. The **Sanitary Sewer Overflow Emergency Response Plan (SSOERP)** is available on the shared drive for staff and is posted on the MetCom website. Crews are trained annually on sewer overflow emergency response as a part of that plan.

The following programs are typically utilized in a reactive maintenance situation: *[edit the following list to include other programs you may use, or delete those you do not have]*

- Cityworks - information management system
- Equipment and supplies
- Customer service

Unscheduled cleaning - Usually is the result of a reported stoppage and is therefore reactive. Normally, this type of cleaning is done on an emergency basis to clear a stoppage, restore pipe capacity to full flow, and relieve a surcharging situation in the sewer that has caused a backup or an overflow.

Responsibilities for reactive maintenance are assigned by the Wastewater Collections Superintendent based on level of priority for response.

#### a. Corrective Maintenance

Most repair needs are identified while conducting routine maintenance, inspections and assessments. Because there is such a wide range of potential unexpected events that it is not possible to prescribe the appropriate repair for every possible scenario, MetCom has established a prioritization scheme for determining the timing of repairs outlined in **Table 7.1**, below. This is based on the types of problems that have occurred in the collection system in the past or could occur in the future. While this contingency analysis focuses on system upsets that would not result in immediate sewer overflow, the response timing is based on the potential for a resulting sanitary sewer overflow.

Low-risk items, such as light bulbs and other small non-critical valves are planned for run-to-failure, and as such, are not part of the PM Program. These items are replaced when they fail. When assets critical to the process fail, they are scheduled for corrective maintenance either on an urgent or routine schedule. Some of these repairs are handled under the operations and maintenance account, and some must be put in as capital improvements as part of our asset management activities depending on asset cost and life expectancy. Assets valued at greater than \$5,000 dollars and with a useful life of greater than 10 years are capitalized and depreciated. Assets > \$70,000 are normally included in the capital budget and assets ≤ \$70,000 are included in the capital equipment portion of the operating budget.

## Capacity Management, Operations and Maintenance (CMOM) Program

Corrective maintenance repairs include (but are not limited to):

- cleaning to eliminate flow problems that are noted during inspections
- spot repair or replacement of a pipe that shows signs of deterioration
- replacing a rattling or failed manhole cover
- repairing or replacing a pump that is becoming clogged or has been damaged by debris
- responding to, investigating and mitigating customer complaints
- repairing system parts subject to vandalism

### b. Scheduling

Scheduling of repairs runs the range from repairing components found to be in substandard condition during inspection, immediate repairs to pump stations that are malfunctioning, to major, capital-intensive, repair projects, such as a manhole-to-manhole pipe replacement or rehabilitation (see Appendix A for manhole to manhole pumping on an emergency overflow). An emergency, however, always supersedes scheduled maintenance. Timing of other repairs is performed thru programed funding established in the Capital Budget. Major replacement or rehab may be capitalized outside of the annual operating budget. There are several ongoing maintenance projects including; Inflow & Infiltration Sewer Replacement, Rehabilitation and Upgrade, Manhole Rehabilitation, \_Wastewater System Renewal & Rehabilitation and Generator Replacement. Awards less than \$50,000 are approved by the Executive Director and awards greater than \$50,000 are approved by the MetCom Board. However, in the event of an emergency that occurs between regularly scheduled Board meetings, the Executive Director has the delegated authority to authorize work in excess of \$50,000.

### c. Tracking and Recording Repairs

Wastewater Collections Superintendent ensures that the employee completing corrective maintenance needs documents same in the log book and in the Citiworks “CMMS database” at the time of the event. CCTV or other failure analysis may also be done by staff as a corrective maintenance task after a problem occurs to diagnose the cause of the problem and recommend repairs and schedule changes if needed. Findings may lead to a spot repair of the pipe, root cutting, root foaming with an herbicide, re-cleaning for grease or debris removal on a periodic preventive basis, and if so, these tasks are included in an update of our schedule as described in Section 3, Cleaning, Inspection and Assessment.

### d. Complaint Response

Complaints received during normal business hours and after hours are received as shown in the following table.

Normal Business Hour Phone (7 am – 4:30 pm weekdays)	
Administrative Office Phone	301-737-5305
311 Report a Problem	<a href="https://www.stmaryscountymd.gov/SM311/">https://www.stmaryscountymd.gov/SM311/</a>
After Hour Phone Stand-by 4:30 pm – 7 am & weekends)	
Operations Phone Stand-by	240-298-9526
Sewer Collections Stand-by	240-434-8124
Sewer Maintenance Stand-by	240-538-8576

## Capacity Management, Operations and Maintenance (CMOM) Program

Northern Facilities Stand-by	240-778-3589
311 Report a Problem	<a href="https://www.stmaryscountymd.gov/SM311/">https://www.stmaryscountymd.gov/SM311/</a>

Complaint response includes both assessing the complaint and resolving the problem. The majority of our complaints are related to grinder pump callouts. During normal business hours, a cleaning crew is diverted to remove stoppages. During non-work and after hours, MetCom uses in-house staff on stand-by to address these particular complaints. See Customer Service, Section 1.d and MetCom's Sanitary Sewer Overflow Emergency response Plan (SSOERP) for further details.

MetCom tracks these complaints (*ie. odor complaints, grinder pump calls, etc.*) and response activities in it's Citiworks CMMS work management system, evaluates response time, trouble spots and uses the information to assess our performance, update this plan and prioritize repairs.

### e. Underground Facility Damage and Trench Settlement

- Underground Facility Damage. From time to time, MetCom sewer facilities are damaged by contractors. Prior to excavation, contractors are required to contact Miss Utility. The contractor is to supervise the on-site activity and assumes all liability if damage should occur to an underground facility.

A person, firm or corporation may not tamper with, deface, damage or obstruct any sewer per the St. Mary's County Code Chapter 113-21. A. These acts or omissions are: considered misdemeanors and are punishable by a fine of not more than one hundred dollars (\$100.00); or civil infractions, subject to a preset fine, not to exceed one hundred dollars (\$100.00) that may be imposed for each violation; or subject to administrative enforcement remedies that may include a fine not to exceed one thousand dollars (\$1,000.00) per violation, per day.

In lieu of processing an action (*by filing a Notice of Probable Violation*) to recover a civil penalty, MetCom may assess a minimum response charge of \$1,000 (based on the estimated cost of MetCom's standard initial response, which includes the initial call, dispatching, damage assessment, equipment use and mobilization of MetCom staff plus overhead) and is not considered a penalty or administrative remedy which can also be assessed. In determining the total charge, the MetCom Director may also seek reimbursement from the damager for actual time and material costs current incurred after establishing negligence and calculating the loss. Should the damager fail to pay for losses or otherwise remedy the damages to the satisfaction of MetCom, the Risk Manager will be contacted to file a claim against the damager through the Local Government Insurance Trust (LGIT).

- Trench Settlement. From time to time, appearances of trench settlement either inside or outside of public road right-of-ways are encountered. There have been instances where determining the party or parties responsible for the repairs has been questioned.

For work within public road right-of-ways, the Metropolitan Commission (the Authorized Public Utility) maintains a Utility Permit with both the St. Mary's County Department of Public Works & Transportation (DPW&T) and the Maryland Department of Transportation State Highway Administration (SHA). Both permits contain General Provisions and require



## Capacity Management, Operations and Maintenance (CMOM) Program

---

job specific permits which are issued to MetCom. These permits provide permission for the installation, construction, relocation, removal, replacement, adjustment; and major maintenance of utility infrastructure as needed, which includes all excavations, trenching / open cutting, and trenchless / directional drill, and jacking and boring operations associated with water and sewer facilities and their associated appurtenances.

Both the County and State inspectors are authorized to and reserve the right to inspect all work performed and all material furnished under these permits which may impact safety, integrity of the roadway or restoration of the right-of-way “to their complete satisfaction.” Both entities may also assign third party inspection forces while work is being accomplished within the right-of-way at the expense of MetCom (permittee). The permits specifically state that MetCom will be responsible for the cost of any repairs to roadway embankments, drainage facilities, or any other facilities owned or maintained by the DPW&T and SHA should they become necessary or as caused by the construction, existence or failure of this utility or utility facility. MetCom strives to perform all utility trench construction in accordance with established standard specifications for construction and materials.

Likewise, local permits (i.e., Grading and Right-Of-Way Construction Permits) are issued to developers by MetCom and DPW&T for the installation of new roadways and associated water and sewer infrastructure. A similar inspection process is in place by both entities to ensure the underground utilities and roadways are constructed to meet all applicable standards. Maintenance bonds are also posted to ensure there are no latent defects that can be attributable to the initial construction by the developer(s). For private development, once the construction is accepted and the maintenance bond(s) are released, the DPW&T and MetCom are responsible for the maintenance of their respective infrastructure.

Perform a visual inspection of the subject area to determine the extent (i.e., depth, width, length) / type of the settlement and proximity to MetCom infrastructure. Note any other potential sources of failure such as storm drains and inlets. Determine if there is any surface water or other visible signs that may be attributable to a public water or sewer discharges.

Not if the location in an area of now inflow & infiltration issues, high groundwater, intermittent streams or storm drain culvert headwaters. Note: Reductions in water table levels can cause trench settlement.

Televising the line(s) to determine the condition of sewer lines and lateral connections (breaks, joint failures, corrosive burst / collapses, breaches by other construction, etc.). Ensure that manholes and risers / rings / inserts / collars are not evidencing any signs of groundwater or surface water infiltration that may be creating localized voids. Additional testing (*i.e., smoke testing on sewer lines or chorine testing on water lines*) may be warranted, especially where the settlement is in close proximity to another utility that may be an underlying cause.

For work outside the public right of way (i.e., HoA properties), Evaluation Guidelines are included in the Standard Operating Procedure referenced below.

## Capacity Management, Operations and Maintenance (CMOM) Program

---

Remedies may include, but are not limited to: MetCom initiating no repairs, MetCom performing the necessary temporary or permanent repairs at its own expense (permanent patching, re-compaction, flowable fill, etc.), development of a cost share arrangement between parties, remittance of payment by any party based on estimated or actual pro rata share of the costs, calling a bond to repair latent defects, processing of damage claims thru the Local Government Insurance Trust (LGIT), etc. Note: 3-4 inches of settlement is not uncommon in non-pavement areas and can be easily remedied with the addition of topsoil.

### **Applicable Standard Operating Procedures** (*accessible on Commission's shared drive*)

OP-21-02      Underground Facility Damage  
OP-21-04      Utility Trench Settlement

## **f. Emergency Preparedness and Response**

The Commission maintains a Sanitary Sewer Overflow Emergency Response Plan (SSOERP) to provide a standardized set of actions for staff to follow in the event of an unpermitted discharge (overflow) from the sanitary sewer system. The SSOERP includes procedures (*see listing below*) for public notification, emergency bypass and high flow operations, checking and operating pump stations (*flooded and suction*), high level alarm response and other operating procedures. References to standard operating procedures to address routine emergencies such as; overflowing manholes, line breaks, localized electrical failure, and power outages at pump stations are also referenced throughout the CMOM.

### **Applicable Standard Operating Procedures** (*accessible on Commission's shared drive*)

OPS-24-001 thru 071, 099      Emergency Response Plan SOPs  
OPS-22-01      Sanitary Sewer Overflow (SSO) Public/Code Red Announcements  
OPS-24-076      Sewer Force Main Break Response  
OPS-24-077      Sewage Main Break Response  
OPS-24-078      Sewer Manhole Surcharging Response

In addition, procedures for dealing with more catastrophic emergencies such as floods, tornados, earthquakes, other natural events, serious chemical spills, or widespread electrical failure include, but are not limited to the following:

### **Applicable Standard Operating Procedures** (*accessible on Commission's shared drive*)

OPT-24-01      Catastrophic Failures of Treatment Plant or Major Treatment Components  
OPS-24-072      Catastrophic Failures of Pump Station or Major Collections Systems Components  
OP-21-03      Radiological Response Checklist  
OP-19-01      Severe Weather Operational Plan  
OP-19-02      Snow Removal & Ice Control Plan

## Capacity Management, Operations and Maintenance (CMOM) Program

---

### **g. De-energizing Facilities**

During severe weather or declared emergencies (*County, State or Federal*) or other catastrophic events, SMECO has de-energized specific geographic areas due to storm damage and high water. (*ie. During a Norester in May 8-12, 2008, SMECO turned off the power on St. George's Island which also precluded the vented grinder pumps from siphoning I/I into the pump station*). In general, SMECO can make operational decisions to de-energize specific circuits or tap-lines for safety protocols or storm related assessment / restoration. Requests for SMECO to de-energize particular areas must be made thru the St. Mary's County Department of Emergency Services with sufficient rationale as SMECOs goal is to keep power on and restore power as quickly as possible.

### 8. EQUIPMENT AND TOOL INVENTORY

Continued system ‘operation and maintenance’ requires an adequate inventory of replacement parts. The process of identifying critical parts considers manufacturer’s recommendations, local availability and the experience of maintenance staff. If you have major equipment, you may also want to include it in your Asset Management program. To the extent that equipment, especially pump station equipment, can be standardized, this can help limit the size of the parts inventory that you need to keep on hand.

MetCom is currently phasing in an MPULSE application that would monitor inventory and indicate to the program operator when any item in stock is getting low. This application will help ensure that critical parts, supplies or equipment are readily available for both routine and emergency needs.

#### a. Essential Day-to-Day Items

MetCom provides operations and maintenance crews with the essential work related items they use on a day-to-day routine basis. Should new or replacement equipment or tools be needed, the respective foreman, supervisor or operator (crew leader) notifies the Wastewater Collections Superintendent. The Superintendent will issue the crew leader stocked items. For non-stocked items, employees are authorized to purchase items up to \$1,000 with an assigned P-card thru local vendors.

#### b. Spare Equipment and Tools

MetCom keeps a limited supply of spare equipment and tools for personnel. In lieu of maintaining a full supply of spare equipment and tools for personnel, MetCom has an inventory for essential common equipment and tools. The only stock / inventoried materials or equipment purchased in Collections or Maintenance is long lead time or high value items so in the event of an emergency the supplies are available (*ie. check valves, non-vented lids, mechanical seals, transducers, grinder pumps, floats, TCU, starters, etc.*). Non-bid equipment and tools can be purchased in amounts up to \$1,000 with \$1,000 - \$50,000 requiring a minimum of two to three quotes.

Purchases over \$50,000 for the large equipment and tools needed for certain tasks are obtained through current rental contracts or purchased through State Contracts or posted on EMDMarketplace by the Procurement Department for permanent acquisition of the item.

An inventory of the construction equipment **and tools** used by MetCom for routine and emergency repairs is provided in **Section 3**. A listing of the trailers, miscellaneous equipment and vehicles necessary to be kept on site for normal and emergency use is included in the Tables below. The planned replacement schedule is also shown below and is part of standard operating procedure which includes factors that might be expected to extend or reduce the life of the equipment (*e.g., repair cost or excessive use, right sizing, etc.*). The vehicles and equipment in the inventory that require replacement are included as a part of the operating and capital budget on an annual basis. Specialized attachments are often used with these tools to perform specialized maintenance tasks.

## Capacity Management, Operations and Maintenance (CMOM) Program

Trailer Listing							
Truck #	Year	Make	Size	Engine	Wheel	Description	Division
T1	2014	Load Trail	NA	NA	NA	Trailer	Construction
T2	2011	Kraftsman	NA	NA	NA	Trailer	Construction
T3	2014	Load Right	NA	NA	NA	Trailer	Northern Treatment
T4	2014	Kraftsman	NA	NA	NA	Trailer	
T5	2017	COTC	NA	NA	NA	Trailer	Sewer/Mac
T6	2016	DOOS	NA	NA	NA	Trailer w/air compressor	Water
T7	2011	Carry On	NA	NA	NA	Trailer	Maintenance
T8	2013	PipeHunter	NA	NA	NA	Trailer	Maintenance
T9	2010	Vermeer	NA	NA	NA	Vac Trailer	Construction
T10	1994	Kaufman	NA	NA	NA	Trailer	Northern Treatment

Miscellaneous Equipment				
Year	Make	Description	Model	Division
	Godwin	6" Dri-Prime Pump Trailer Mounted	CD150	MTWRF
1994	Caterpillar	Backhoe	426B	Construction
	Godwin	4" Dri-Prime Pump Trailer Mounted	CD100	Northern Treatment
	Bobcat	Skid Steer Loader	5175	MTWRF
	DOTson Board	Portable Message Board		Maintenance
	Gehl	Mini Excavator	753Z	Construction
2011	Scag	Zero Turn Mower	STC61V-27CV-SS	MTWRF
2011	John Deere	Tractor	3032E	Northern Treatment
1999	Ingersoll Rand	Portable Trailer Mounted Air Compressor	P185WJD	Construction
2012	John Deere	Off-Road Utility Vehicle	XUV550	Northern Treatment
2013	Massey Ferguson	Tractor	26354WD	Northern Treatment
2008	Caterpillar	Articulating Loader	906H	MTWRF
2008	Komatsu	Forklift	FG25T-16	MTWRF
2012	Atlas Copco	Portable Trailer Mounted Air Compressor		Water

Vehicle Listing							
Truck #	Year	Make	Size	Engine	Wheel	Model	Division
563	2005	International	Vactor Utility	Diesel		Vactor	Maintenance
567	2005	International	Truck	Diesel		7400 DT466	Construction
570	2006	Chevy	1/2 Ton	Gasoline	4WD	Silverado	Marlay Taylor WRF
573	2007	GMC	1/2 Ton	Gasoline	2WD	Sierra 1500	Water Operations
577	2008	Chevy	3/4 Ton	Gasoline	2WD	2500 HD Pick Up	Maintenance
578	2008	Chevy	1/2 Ton	Gasoline	2WD	C15 Full Size	Maintenance
580	2008	Chevy	1/2 Ton	Gasoline	2WD	C15 Full Size	Engineering
582	2009	Ford	1/2 Ton	Gasoline	2WD	F-150	Engineering
583	2009	Ford	1/2 Ton	Gasoline	2WD	F-150	Operations Sewer
584	2009	Ford	1/2 Ton	Gasoline	2WD	F-150	Operations Sewer
585	2009	Ford	1/2 Ton	Gasoline	2WD	F-150	Engineering
586	2009	Ford	1/2 Ton	Gasoline	4WD	F-150	Operations Water
587	2009	Chevy	1/2 Ton	Gasoline	2WD	Colorado	Operations Water
589	2010	Chevy	1/2 Ton	Gasoline	4WD	Silverado	Northern Treatment
590	2011	Ford	3/4 Ton	Gasoline	2WD	F-250	Construction
591	2011	Ford	3/4 Ton	Gasoline	2WD	F-250	IT Scada
593	2011	Ford	3/4 Ton	Gasoline	2WD	F-350	Marlay Taylor WRF
594	2011	Chevy	1/2 Ton	Gasoline	2WD	Silverado	Operations Sewer
595	2011	Chevy	Tahoe	Gasoline	4WD	Tahoe	Administration
596	2011	Ford	1 Ton	Diesel	4WD	F-350 Superduty	Maintenance
598	2011	Ford	1 Ton	Diesel	2WD	F-350 Superduty	Operations Water
600	2012	Isuzu	2 Ton	Diesel	2WD	Cab/Chassis	Construction
601	2012	Ford	1 Ton	Diesel	4WD	F550	Construction
602	2012	Chevy	3/4 Ton	Gasoline	4WD	Silverado-Utility Body	Operations Sewer
603	2013	Ford	1 Ton	Gasoline	4WD	F-350	Operations Sewer
604	2013	Ford	1 Ton	Gasoline	4WD	F-350	Operations Sewer
605	2013	Ford	1 Ton	Gasoline	4WD	F-350	Operations Water
606	2013	Ford	1 Ton	Gasoline	4WD	F-350	Construction
608	2013	Ford	2 Ton	Gasoline	4WD	F-550	Maintenance
609	2013	Chevy	1/2 Ton	Gasoline	4WD	Silverado-Ext. Cab	Northern Treatment
610	2014	Ford	3/4 Ton	Gasoline	4WD	F-250	Northern Treatment
611	2014	Ford	3/4 Ton	Gasoline	4WD	F-250	Building Maintenance
612	2000	Sterling	Dump	Diesel	2WD	Dump Truck	Marley Taylor
613	2015	Chevy	Traverse	Gasoline	AWD	SUV	Camden Way
614	2014	Ford	3/4 Ton	Gasoline	4WD	F250	Operations Water
615	2008	Sterling	Dump	Diesel	4WD	Acterra	Construction
616	2017	Chevy	Van	Gasoline	2WD	Work Van	Engineering
617	2016	Jeep	Patriot	Gasoline	4WD	SUV	Safety Coordinator



## Capacity Management, Operations and Maintenance (CMOM) Program

618	2017	Ford	F150	Gasoline	4WD	F150 Supercab	Engineering
619	2017	Ram	5500	Diesel	4WD	Ram 5500	Maintenance
620	2018	Ford	F550	Diesel	4WD	Four Door Supercab	Maintenance
621	2018	Ram	3/4 Ton	Diesel	4WD	2500 Utility	Operations Water
622	2018	Ram	Van	Gasoline	2WD	Work Van	Operations/Sewer
623	2019	FRHT	114SD	Diesel	2WD	Vac-Con	Maintenance
624	2020	Ford	Truck	Gasoline	4WD	F-250	Operations Water
625	2020	Ford	Truck	Gasoline	4WD	F-250	Operations Water
626	2020	Ford	Truck	Gasoline	4WD	F-250	Operations Water
627	2021	Chevy	Truck	Gasoline	4WD	Silverado 1500	Engineering
628	2021	Chevy	Truck	Gasoline	4WD	Silverado 1500	Marlay Taylor
629	2021	Chevy	Truck	Gasoline	4WD	Silverado 1500	Marlay Taylor
630	2022	Ford	Truck	Gasoline	4WD	F-550	Maintenance
631	2022	Chevy	2500	Gasoline	4WD	Silverado 2500	Operations Sewer
632	2022	International	Box Truck	Diesel	2WD	Box Truck	Construction
633	2022	Chevy	2500	Gasoline	4WD	Silverado	Operations Water

### c. Replacement Criteria

The Minimum Replacement Criteria (shown below) represents standard industry guidelines and Departmental recommended standards that should be reviewed every three (3) years and revised as necessary. The recommended target replacement cycles for the referenced vehicles and off-road motorized equipment classes are based on a combination of affordability and replacement analysis and are compared to recognized comparable industry useful life averages. Replacement for vehicles and equipment will also be reviewed on a case-by-case basis, based on the historical repair costs, type of use (such as severe duty, mission critical or back-up), reliability and assessment of current condition.

Vehicle Type	Recommended Standard	Industry Standard <sup>8</sup>
<b>Sedans and Passenger Vehicles</b>	8 years and 175,000 miles	5 years or 100,000 miles
<b>Vans (passenger and cargo)</b>	10 years and 150,000 miles	8 years or 100,000 miles
<b>SUV and Light Duty Pick-up Trucks</b>	10 years and 150,000 miles	8 years or 120,000 miles
<b>Pickups (gasoline &gt; 1 ton)</b>	10 years and 175,000 miles	8 years or 120,000 miles
<b>Pickups (diesel &gt; 1 ton)</b>	10 years and 200,000 miles	8 years or 150,000 miles

<sup>8</sup> National Association of Fleet Administrators. Recommended standard based on diesel fuel use.

## Capacity Management, Operations and Maintenance (CMOM) Program

<b>Dump Trucks</b>	12 years and 250,000 miles	10 years or 150,000 miles
<b>Heavy Trucks (&gt;12,500 lbs.)</b>	15 years or 250,000 miles	12 years or 150,000 miles

<b>Equipment Type</b>	<b>Recommended Standard</b>	<b>Industry Standard</b>
<b>Equipment &gt;2 tons</b>	12 years and 6,000 hours	10 years or 5,000 hours
<b>Small riding equipment: tractors, mowers</b>	15 years and 6,000 hours	12 years or 6,000 hours
<b>Motor graders, Dozers, Excavators</b>	15 years and 9,000 hours	10 years or 7,000 hours
<b>Heavy Off-Road: Backhoes, loaders</b>	15 years and 10,000 hours	10 years or 7,000 hours

**Applicable Standard Operating Procedures** (*accessible on Commission's shared drive*)

OP-25-02      Vehicle / Equipment Replacement Guidelines

### 9. CAPACITY MANAGEMENT

For wastewater treatment facilities, MDE has published a Guidance Document to assist local governments and other community wastewater treatment plant (WWTP) owners in the State of Maryland to determine plant capacity and to track the remaining available capacity for allocation. The Guidance Document emphasizes the need to plan ahead to ensure that growth takes place without overloading sewage facilities. The guide should enable WWTP owners to: identify when a treatment plant's actual flows are approaching (e.g. 80%) or exceeding the design capacity; make commitments for new connections with confidence that there is adequate capacity to serve the new as well as existing customers; and determine when the issuance of additional building permits might need to be curtailed until improvements are completed so that the treatment plant can maintain compliance with its discharge permit. If required by the State, MetCom would submit a Wastewater Capacity Management Plan (WWCMP) and Municipal Sewage Capacity Report (MSCR) for the respective WWTP.

Maintenance and rehabilitation of an existing wastewater system are necessary for proper functioning of the collection system and dependable transfer of wastewater through the collection system to the treatment plants. Evaluating and rehabilitating any failing or leaking sewer structure, such as manholes, sewer lines or cleanouts are very effective at reducing infiltration. According to EPA estimates, infiltration and inflow represent almost half of all flow at treatment plants (*Methods To Control Sewer Leaks in Sewer Collection Systems*, C. Vipulanandan, October 2004).

Excessive I/I. For this CMOM, Excessive I/I shall mean “inflow that is greater than or equal to 275 gallons per person per day or infiltration that is greater than or equal to 120 gallons per person per day or groundwater infiltration per inch-diameter mile of gravity sewer in excess of 4,000 gallons per day as calculated using the EPA Quick Guide for Estimating Infiltration and Inflow for Region 1 NPDES Annual Reporting, dated June 2014 or percent of rainfall entering the sanitary sewer system greater than 20%.



**Pictures (above) show infiltration that can enter the sanitary sewer system through cracks and other defects, increasing flows at pumping stations and treatment facilities.**

## Capacity Management, Operations and Maintenance (CMOM) Program

---

The cost impact of infiltration can be explained using a simple example of a sewer system with 5 foot joint spacing. Assuming each joint at a very low rate of 0.25 gallons/minute, the total amount of ground water infiltration into the system would be 138.75 million gallons per year per mile of sewer collection system (Methods To Control Sewer Leaks in Sewer Collection Systems, C. Vipulanandan, October 2004). The total annual treatment cost would be \$379,650 per mile of sewer system, assuming a treatment cost of \$2.36/1000 gallons (based on the FY'24 cost of treatment at the Marlay Taylor WRF @ \$2.52/1000 gal.).

Capacity assurance is a process to identify, characterize and address hydraulic deficiencies in a sanitary sewer system. The EPA has proposed that where peak flow conditions contribute to an SSO discharge or to a noncompliance at a treatment plant, permittees would be required to prepare and implement a system evaluation and capacity plan, unless the permittee has either

1. Taken steps to correct the hydraulic deficiency; or
2. The permittee demonstrates that the discharge was caused by severe natural conditions and that there were no feasible alternatives to the discharge.

As shown in **Section 2**, which summarizes the causes of sanitary sewer overflows (per calendar year) since 2010, the St. Mary's County Metropolitan Commission can demonstrate that in each Sanitary Sewer Overflow:

1. The discharge was caused by severe natural conditions; or
2. There were no feasible alternatives to the discharge; and
3. MetCom has complied with the specified notification requirements.

### a. Hydraulic Modeling and Facilities Planning

A Hydraulic Model of the collection system (SD 5 and SD 8) was developed in 2023 as a part of a Facilities Plan and will be recalibrated in 2024 to help identify any corrective measures or improvements necessary to achieve minimum hydraulic capacity without SSOs and to help make determinations regarding future development of the collection system. MetCom also retains the services of a consultant (Jacobs) to perform Adequate Public Facilities (APF) reviews for new development on an as needed basis.

In 2024/2025, MetCom will utilize the re-calibrated model to perform a CAP Analysis to evaluate and verify that the Piney Point and Forest Run Wastewater Pump Stations will achieve Firm Capacity to convey wastewater flows without SSOs and to identify any other areas of the collection system (SD 5 and 8) that are calculated to lack minimum hydraulic capacity (*e.g. force mains*).

MetCom has completed an I/I Characterization Report (September 2024) will be subsequently performing a Sewer System Evaluation Survey (SSES). MetCom will be investigating the gravity collection system and the low pressure systems in SD 5 and SD 8 to identify sources of I/I and structural defects that contribute to SSOs in any areas with Excessive I/I, areas that are calculated to lack minimum hydraulic capacity or any locations with a documented SSO since January 1, 2013. All CCTV and manhole inspections will be performed consistent with the National Association of Sewer Service Companies' (NASSCO) PACP, MACP, and LACP standards.

## Capacity Management, Operations and Maintenance (CMOM) Program

An SSES Rehabilitation Plan will be developed for SD 5 and SD 8 with a prioritized implementation schedule for consideration in the subsequent six (6) year capital improvement budget and plan (Section 10)

Since MetCom’s collection system experiences a number of complex wet weather capacity problems that could result in wet weather overflows or plant noncompliance problems, an accurate I/I Characterization Study of the SD 5 and SD 8 sewer collection system is being undertaken. The goal of this evaluation is to create a thorough understanding of the characteristics and performance of the collection system to help develop cost effective solutions. In addition, a detailed evaluation of the collection system can dramatically reduce remediation costs by providing information on the causes of the SSO problem and allow selection of the most cost-effective solution. In 2024, the Wicomico Shores Wastewater Treatment Facility was identified as a problem area for I/I with flows exceeding four times the permitted volumes. The identified areas comprised of approximately 11,200 linear feet of 8”, 10” and 12” sewer gravity interceptor were rehabilitated in June /July 2024 by AM Liner East, Inc. in the amount not-to-exceed \$770,000.00 using Cured-in-Place Pipe (CIPP).

The following tables and discussion summarize the state of our system capacity based on the most recent 2023 Facilities Plan update (SD 5 and SD 8) prepared to carry and contain flows. This table is directed at capacity issues and not other SSOs with other causes.

**Table 9-1. Summary of Identified Sewer System Project Alternatives**

Project ID	Project Location	Project Type	Project Description	Year of Deficiency <sup>a</sup>
SD8-S-1	Lexington Park	Sewer Main	Replace 397 feet of 12-inch to 16-inch diameter pipe with 16-inch to 27-inch pipe diameter to alleviate capacity constraints off of Stark Drive and Bloch Avenue.	2020
SD8-S-2	Lexington Park	Sewer Main	Replace 1,178 feet of 8-inch diameter pipe with 10-inch diameter pipe to alleviate capacity constraints at Wildewood Parkway.	2020
SD8-S-3	Lexington Park	Sewer Main	Replace 1,632 feet of 33-inch diameter pipe with 39-inch diameter pipe to alleviate capacity constraints on FDR Boulevard.	2020
SD8-S-4	Lexington Park	Sewer Main	Replace 712 feet of 8-inch and 10-inch diameter pipe with 10-inch and 16-inch diameter pipe to alleviate capacity constraints on Spring Valley Drive and off of Rosewood Drive and Spring Valley Drive.	2020
SD8-S-5	Lexington Park	Sewer Main	Replace 437 feet of 27-inch diameter pipe with 33-inch diameter pipe to alleviate capacity constraints off of Priester Road and East Patrol Road.	2020
SD8-S-6	Lexington Park	Sewer Main	Replace 880 feet of 8-inch diameter pipe with 10-inch diameter pipe to alleviate capacity constraints on Westbury Boulevard.	2025
SD8-S-7	Lexington Park	Sewer Main	Replace 318 feet of 39-inch diameter pipe with 45-inch diameter pipe to alleviate capacity constraints off of Elderberry Way and Gum Way.	2030
SD8-S-8	Lexington Park	Sewer Main	Replace 1,150 feet of 8-inch to 24-inch diameter pipe with 10-inch to 27-inch diameter pipe to alleviate capacity constraints on Great Mills Road.	2030
SD8-S-9	Lexington Park	Sewer Main	Replace 325 feet of 12-inch diameter pipe with 16-inch diameter pipe to alleviate capacity constraints on North Essex Drive.	2030

## Capacity Management, Operations and Maintenance (CMOM) Program

**Table 9-1. Summary of Identified Sewer System Project Alternatives**

Project ID	Project Location	Project Type	Project Description	Year of Deficiency <sup>a</sup>
SD8-S-10	Lexington Park	Sewer Main	Replace 342 feet of 10-inch diameter pipe with 12-inch diameter pipe to alleviate capacity constraints on Meadow Lake Lane and off of Valleyview Drive.	2040
SD8-S-11	Lexington Park	Sewer Main	Replace 532 feet of 8-inch diameter pipe with 10-inch diameter pipe to alleviate capacity constraints on Point Lookout Road.	2040
SD8-S-12	Lexington Park	Force Main	Replace 987 feet of 8-inch pipe downstream of Wildewood #1 WWPS with 10-inch pipe to alleviate high velocity conditions off of Wildewood Parkway.	2020
SD5-S-1	Piney Point	Force Main	Replace 30 feet of 8-inch pipe downstream of Piney Point Influent WWPS with 12-inch pipe to alleviate high velocity conditions off of Bloch Avenue and Piney Point Road.	2020
SD8-S-13	Lexington Park	Force Main	Replace 69 feet of 4-inch pipe downstream of Cedar Cove WWPS with 6-inch pipe to alleviate high velocity conditions off of Long Lane.	2020
SD8-S-14	Lexington Park	Force Main	Replace 3,544 feet of 6-inch pipe downstream of Broad Creek #2 WWPS with 8-inch pipe to alleviate high velocity conditions on Broad Creek Drive.	2020
SD8-S-15	Lexington Park	Sewer Pump Station	Increase Willow Woods WWPS capacity from 0.04 MGD to 0.18 MGD. <sup>b</sup>	2020
SD8-S-16	Lexington Park	Sewer Pump Station	Increase Forest Run WWPS capacity from 1.55 MGD to 4.57 MGD. <sup>b</sup>	2020
SD8-S-17	Lexington Park	Sewer Pump Station	Increase Widgeon WWPS capacity from 0.01 MGD to 0.04 MGD. <sup>b</sup>	2020
SD8-S-18	Lexington Park	Sewer Pump Station	Increase Myrtle Point 5 WWPS capacity from 0.06 MGD to 0.18 MGD. <sup>b</sup>	2020
SD8-S-19	Lexington Park	Sewer Pump Station	Increase Moorings WWPS capacity from 0.08 MGD to 0.14 MGD. <sup>b</sup>	2020
SD8-S-20	Lexington Park	Sewer Pump Station	Increase Black Duck WWPS capacity from 0.07 MGD to 0.13 MGD. <sup>b</sup>	2020
SD8-S-21	Lexington Park	Sewer Pump Station	Increase Wildewood #3 WWPS capacity from 0.92 MGD to 1.13 MGD. <sup>b</sup>	2020
SD8-S-22	Lexington Park	Sewer Pump Station	Increase Spring Valley WWPS capacity from 0.28 MGD to 0.55 MGD. <sup>b</sup>	2020
SD8-S-23	Lexington Park	Sewer Pump Station	Increase St. Mary's Industrial Park WWPS capacity from 0.44 MGD to 0.51 MGD. <sup>b</sup>	2035
SD8-S-24	Lexington Park	Sewer Pump Station	Increase St. Mary's City WWPS capacity from 0.67 MGD to 0.86 MGD. <sup>b</sup>	2035
SD8-S-25	Lexington Park	Sewer Pump Station	Increase Wildewood #1 WWPS capacity from 0.72 MGD to 0.89 MGD. <sup>b</sup>	2035
SD8-S-26	Lexington Park	Sewer Pump Station	Increase Pembroke #2 WWPS capacity from 0.29 MGD to 0.36 MGD. <sup>b</sup>	2040
SD8-S-27	Lexington Park	Sewer Pump Station	Increase Westbury WWPS capacity from 0.37 MGD to 0.42 MGD. <sup>b</sup>	2045
R&R	All Locations	Sewer Pipeline R&R	Pipeline R&R Projects 2021-2025	2020
R&R	All Locations	Sewer Pipeline R&R	Pipeline R&R Projects 2026-2030	2026
R&R	All Locations	Sewer Pipeline R&R	Pipeline R&R Projects 2031-2035	2031



## Capacity Management, Operations and Maintenance (CMOM) Program

**Table 9-1. Summary of Identified Sewer System Project Alternatives**

Project ID	Project Location	Project Type	Project Description	Year of Deficiency <sup>a</sup>
R&R	All Locations	Sewer Pipeline R&R	Pipeline R&R Projects 2036-2040	2036
R&R	All Locations	Sewer Pipeline R&R	Pipeline R&R Projects 2041-2045	2041
SD5&8-S-1	All Locations	Study	Flow monitoring at approximately 16 locations to develop accurate wet weather PFs at WWPSs and characterize system inflow and infiltration.	2021

**Notes:**

- a. If a facility was projected to go over capacity during a 10-year planning period, the timing of the proposed upgrade project was assigned to the beginning of that period.
- b. Design capacity is the recommended capacity of the station and assumes the station should be designed to be 90% capacity in 2045 for projected wet weather 2045 flows.

## Capacity Management, Operations and Maintenance (CMOM) Program

Project ID	Project Location	Project Type	Project Cost Estimate (2021 \$) <sup>a,b</sup>	Deficiency Type
SD8-S-1	Lexington Park	Sewer Main	\$498,000	WW Capacity Constraint
SD8-S-2	Lexington Park	Sewer Main	\$624,000	WW Capacity Constraint
SD8-S-3	Lexington Park	Sewer Main	\$2,896,000	WW Capacity Constraint
SD8-S-4	Lexington Park	Sewer Main	\$282,000	WW Capacity Constraint
SD8-S-5	Lexington Park	Sewer Main	\$547,000	WW Capacity Constraint
SD8-S-6	Lexington Park	Sewer Main	\$265,000	WW Capacity Constraint
SD8-S-7	Lexington Park	Sewer Main	\$718,000	WW Capacity Constraint
SD8-S-8	Lexington Park	Sewer Main	\$539,000	WW Capacity Constraint
SD8-S-9	Lexington Park	Sewer Main	\$149,000	WW Capacity Constraint
SD8-S-10	Lexington Park	Sewer Main	\$116,000	WW Capacity Constraint
SD8-S-11	Lexington Park	Sewer Main	\$160,000	WW Capacity Constraint
			\$0	
SD8-S-12	Lexington Park	Force Main	\$367,000	WW Velocity Exceedance
SD5-S-1	Piney Point	Force Main	\$22,000	WW Velocity Exceedance
SD8-S-13	Lexington Park	Force Main	\$11,000	WW Velocity Exceedance
SD8-S-14	Lexington Park	Force Main	\$1,242,000	WW Velocity Exceedance
SD8-S-15	Lexington Park	Sewer Pump Station	\$342,000	WW Capacity Constraint / DW Capacity Constraint (2045)
SD8-S-16	Lexington Park	Sewer Pump Station	\$9,646,000	WW Capacity Constraint / DW Capacity Constraint (2045)
SD8-S-17	Lexington Park	Sewer Pump Station	\$76,000	WW Capacity Constraint
SD8-S-18	Lexington Park	Sewer Pump Station	\$342,000	WW Capacity Constraint
SD8-S-19	Lexington Park	Sewer Pump Station	\$266,000	WW Capacity Constraint
SD8-S-20	Lexington Park	Sewer Pump Station	\$266,000	WW Capacity Constraint
SD8-S-21	Lexington Park	Sewer Pump Station	\$2,147,000	WW Capacity Constraint
SD8-S-22	Lexington Park	Sewer Pump Station	\$1,045,000	WW Capacity Constraint
SD8-S-23	Lexington Park	Sewer Pump Station	\$969,000	WW Capacity Constraint
SD8-S-24	Lexington Park	Sewer Pump Station	\$1,634,000	WW Capacity Constraint
SD8-S-25	Lexington Park	Sewer Pump Station	\$1,691,000	WW Capacity Constraint
SD8-S-26	Lexington Park	Sewer Pump Station	\$684,000	WW Capacity Constraint

## Capacity Management, Operations and Maintenance (CMOM) Program

Project ID	Project Location	Project Type	Project Cost Estimate (2021 \$) <sup>a,b</sup>	Deficiency Type
SD8-S-27	Lexington Park	Sewer Pump Station	\$798,000	WW Capacity Constraint
R&R	All Locations	Sewer Pipeline R&R	\$9,360,000	N/A
R&R	All Locations	Sewer Pipeline R&R	\$9,900,000	N/A
R&R	All Locations	Sewer Pipeline R&R	\$23,742,000	N/A
R&R	All Locations	Sewer Pipeline R&R	\$31,288,000	N/A
R&R	All Locations	Sewer Pipeline R&R	\$35,395,000	N/A
SD5&8-S-1	All Locations	Flow Monitoring Study	\$460,000	N/A

In light of addressing ongoing capacity issues, MetCom will also continue to implement the following measures to help further remedy and prevent capacity restrictions that result in surcharges and sanitary sewer overflows in the collection system:

### b. Backwater Valve (Backflow or Backup Valve) Installation

It is important to note that anytime there is a sudden or sustained heavy rainfall, the public sanitary sewer lines can become overwhelmed, causing water or sewage to flow back into the piping of a residence or business. However, with a backwater valve in place, this is preventable. The primary purpose of these valves is to allow water or sewage to flow in one direction only. In short, it is designed as a one-way gate that allows wastewater to flow from a home / business piping but stops it if, and when, it ever tries to flow backwards from the public sewer system. In general, these devices are installed at the time of initial construction per the Plumbing Code and are the responsibility of the property owner.

MetCom may install backflow prevention devices at its own expense in areas where; there is a history of localized flooding resulting from hurricane remnants / tropical storms / severe weather events, are known surcharges or a history of sewer backups (e.g. Great Mills area).

### c. Sewer Capacity Certification/ Connection Policy

Adequate Sewer Capacity. Capacity certification is a process where any new development requiring the connection of its sanitary sewer service to the MetCom public sewer system is reviewed to determine whether adequate sewer system capacity exists to convey the new wastewater flow from the proposed development to MetCom's wastewater treatment facility. In accordance with the Comprehensive Zoning Ordinance Section 70.9, an engineering report and adequate capacity analysis is required to be submitted by a professional engineer for, any project

## Capacity Management, Operations and Maintenance (CMOM) Program

---

with more than 25 EDU's or any project with a facility such as a pump station or water tank. The detailed analysis and investigation is required to determine the performance of the existing system or to evaluate the impact that proposed additions or special uses will have on the system.

System Improvement Charges. Separate from the connection fee (*capital improvement charges*), developers of newly-constructed homes and businesses are required to pay a system improvement charge as required by the St. Mary's County Code. The fee ensures the capacity for the development is reserved and is used to pay the debt-service on the comprehensive repair, replacement and upgrade of existing facilities (*not day-to-day maintenance or small repair*). This monthly charge is assessed in perpetuity and is owed whether or not a property is connected to the public sewer system.

Capital Improvement Charges. Developers of newly-constructed homes and businesses are required to pay a capital contribution charge as required by the St. Mary's County Code. This one-time charge is paid at the time a property owner makes application or otherwise is required to connect to a public sewer system. It is used to pay the debt-service on system expansion/construction of new facilities and capacity expansion (not day-to-day maintenance or small repair).

Connections. Connections to the public system are generally required by the County Zoning Ordinance for all new developments serving two (2) or more lots and is located within 200 feet of a public sewer system, but are not mandatory per the St. Mary's County Code unless the private on-site disposal system is in failure.

### d. Cured-in-place (CIPP) Pipe Lining Program

The Commission utilizes a contractor, (currently AM Liner East, Inc.), to provide **relining services** to the sanitary sewer lines. MetCom's gravity sewer mains are constructed of various materials, such as transite, clay, iron, reinforced concrete and PVC (poly vinyl chloride). With the exception of the PVC pipe, most of these materials deteriorate over time and are subject to biogenic corrosion from hydrogen sulfide, commonly referred to as "sewer gas". This corrosion can significantly reduce the strength of the pipe, leading to failure and collapse. In addition, these gravity sewer lines can crack, leading to root intrusion and a buildup of debris which can lead to sewer backups or reduced capacity.



*Contractors installing a resin – impregnated felt liner into large gravity sewer line.*

## Capacity Management, Operations and Maintenance (CMOM) Program

### e. Sewer line Rehabilitation Program

The Capital Improvement Budget includes a recurring yearly Inflow and Infiltration Sewer Replacement, Rehabilitation and Upgrade Project, which funds the replacement and rehabilitation of sewer lines prioritized by the I&I inspection process. Since 2013, approximately 22,000 linear feet of sewer mains in MetCom's sanitary sewer systems have been rehabilitated using the CIPP (cured-in-place pipe) process.



Cured-in-place pipe (CIPP) pipe lining is one of several methods used to repair existing pipelines that don't require excavation of existing pipes. CIPP is a jointless, seamless, pipe-within-a-pipe, with the capability to repair pipes ranging in diameter from 4 – 110 inches, without reducing capacity. Lining the pipes is less expensive and more efficient than traditional open cut replacement methods. The CIPP process uses a felt-like sleeve impregnated with resin-saturated tube, which is pulled through the pipeline, inflated to fit the diameter

of the pipe, then cured using steam. There is a possibility of residual chemical odors during the process. Styrene is a major ingredient of the curing process. Vapors, if noticed, will dissipate quickly once the process is complete. Any complaints will be addressed on a case by case basis. Once cured, the contractor re-establishes the service connections using a robotic saw. Listed below is a breakdown of recent cost associated with the project.

Project # (Fiscal Year)	Budget	Expenditures	Balance Remaining
SM2106 2021	\$236,940.00	\$ 216,798.00	\$143,095.89
SM2006 2020	\$231,220.00	\$ 202,986.20	\$ 36,935.80
SM1906 2019	\$225,500.00	\$ 0	\$225,500.00
SM1806 2018	\$220,000.00	\$ 305,426.40	\$0

### f. Manhole / Wet Well Rehabilitation Program

Since 2001, MetCom has utilized a manhole inspection program to identify rehabilitation candidates and a sewer televising and inspection program to locate and evaluate sewer deficiencies. The Commission utilizes a contractor to help eliminate / prevent new sources of inflow and infiltration and to provide rehabilitation services to MetCom's sanitary sewer manholes. One of the most common causes of the deterioration is biogenic corrosion from hydrogen sulfide, commonly referred to as "sewer gas." This corrosion can significantly reduce the strength of the structure, leading



## Capacity Management, Operations and Maintenance (CMOM) Program

---

to failure and increased infiltration of ground water.

The Capital Improvement Budget includes a recurring yearly Manhole Rehabilitation Project and the Wastewater System Renewal and Rehabilitation Project. Both projects are designed to address the Commission's inflow and infiltration (I&I) problem. Manholes or other infrastructure are prioritized by MetCom's I&I staff through an industry standard inspection and assessment process. Several MetCom Wastewater Collections staff have been trained in this inspection and assessment process through the National Association of Sewer Service Companies (NASSCO). Since 2002, almost 900 of the manholes in MetCom's sanitary sewer systems have been rehabilitated.

MetCom rehabilitates as many as 50 manholes per year. In FY 2024, there were 55 manholes prioritized for rehabilitation in the Great Mills area, which were previously relined. Rehabilitating a typical manhole includes cleaning, re-



**Before and after photos of a repaired and sealed manhole in MetCom sewer system.**

grouting, rebuild and sealing the base and channel, applying an epoxy coating with a calcium aluminate cementitious coating. In FY 2022, manholes that were prioritized for rehabilitation were located in the California Run sewer shed, and area prone to flooding. In fiscal year 2020, manhole rehabilitation was performed in the Wicomico Shores and Lexington Park sanitary sewer sheds. Identified wet wells are also scheduled for repair and rehabilitation each year. Wet wells are larger in diameter than manholes and will cost slightly more to rehab them when compared to the average cost to rehab a typical manhole. This extra cost is due to the larger diameter of the wet wells compared to the manholes.

The standard cementitious coating is used in areas that are not subject to high concentrations of hydrogen sulfide and the more expensive epoxy coating is used in highly corrosive areas. The contract also includes pricing for rebuilding of manhole benches, which are channels constructed within manholes to direct and maintain scouring velocity of the flowing wastewater. Rehabilitating a typical manhole with cementitious material, 6 feet in depth without any bench repairs costs approximately \$1,500. Assuming an industry standard for the rate at which an average manhole in need of repair leaks is about 2 gal/min, each sealed and rehabbed manhole saves the Metropolitan Commission on average \$2,465 a year, over the life of the repair (*FY'24 cost of treatment at the Marlay Taylor WRF @ \$2.52/1000 gal*). Listed below is a breakdown of recent cost associated with the project.



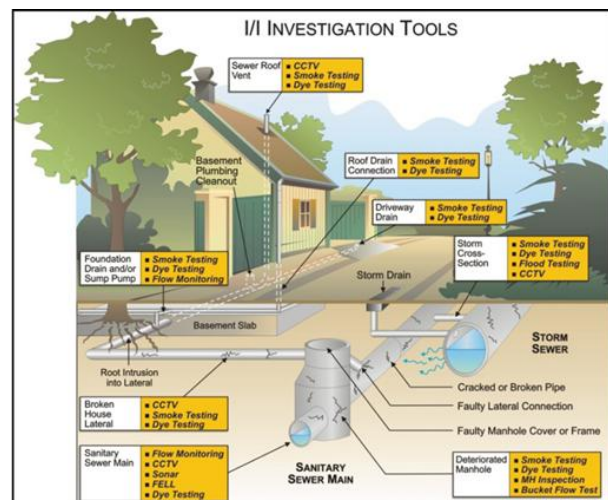
## Capacity Management, Operations and Maintenance (CMOM) Program

Project # (Fiscal Year)	Budget	Expenditures	Balance
SM2105 2021	\$102,315.00	\$ 28,620.82	\$73,694.185
SM2005 2020	\$ 99,845.00	\$ 99,845.00	\$0
SM1905 2019	\$ 97,375.00	\$ 92,947.11	\$4,427.89
SM1805 2018	\$ 95,000.00	\$ 95,000.00	\$0

There is approximately \$120,000 per year currently budgeted specifically for manhole rehabilitation and repair with current contract pricing of \$550 per vertical foot. As such, 200 vertical feet per year of manhole rehabilitated is available. With the average depth of 10 feet, about 20 manholes per year can be addressed, as needed. This effort represents less than **1%** of the total 4,187 manholes in the collection system, which is a good measure of the condition of the system. Since its inception, the manhole rehabilitation program has reduced the amount of infiltration in more than **190** manholes (5% of the collection system inventory), utilizing a very cost-effective method of sealing and rebuilding. Since its inception, the manhole rehabilitation program has reduced the amount of infiltration in more than **190** manholes (5% of the collection system inventory), utilizing a very cost-effective method of sealing and rebuilding. Since its inception, the manhole rehabilitation program has reduced the amount of infiltration in more than **190** manholes (5% of the collection system inventory), utilizing a very cost-effective method of sealing and rebuilding. Since its inception, the manhole rehabilitation program has reduced the amount of infiltration in more than **190** manholes (5% of the collection system inventory), utilizing a very cost-effective method of sealing and rebuilding. Polydome inflow protection devices are also routinely installed in manholes to help prevent the infiltration of sediment, silt, grit, sand, dust and other from entering into the sewer system, with priority placed on those manholes within the FEMA 100-year elevation.

### g. Pump Station Evaluations and Inflow & Infiltration (I/I) Studies

Over the course of an I&I study, we identify any infrastructure within the study area that is in need of rehabilitation. All sewer lines are televised and assessed, smoke testing is performed, manholes are photographed, GPS'd and then evaluated for sealing and bench rebuilding. Sewer service cleanout caps are inspected, any that are missing or in need of replacement are fixed. Manhole inserts are installed to reduce infiltration. Flow monitoring is also undertaken during these studies to more closely evaluate the impact of failing infrastructure and identify other sources of inflow and infiltration.



## Capacity Management, Operations and Maintenance (CMOM) Program

---

MetCom compared of flow data from it's **70** wastewater pump stations. The average flows were taken from the calendar year 2006 and were compared to a wet weather month (January 2007). In determining a **five year schedule?** for the I&I department, the St. Mary's County Metropolitan Commission has targeted certain problem areas (trouble spots). This determination was made using a variety of factors. Some of the larger stations, while not showing as large a percentage increase as some of the smaller stations, still have a large increase in the overall volume of flow due to I&I.

The total volume of these stations was taken into account for determining the amount of inflow and infiltration in these systems. Once again, this five (5) year plan can change depending on a variety of unforeseen circumstances, such as extreme weather events or unanticipated and unforeseen infrastructure failure.

### **Applicable Standard Operating Procedures** (*accessible on Commission's shared drive*)

OPS-11-03     Inflow & Infiltration (I&I) Studies

#### **h. Lateral Replacement - Sewer Connection Incentive Program**

The repair and maintenance of private laterals is the property owners responsibility. Residential and service laterals are often sources of heavy I&I, particularly where a lateral connects to the sewer. Carefully inspecting sewer and private laterals can help identify sources of I&I. A study reports that when service laterals are renewed following sewer lining, an additional reduction of 20-25% of I&I is expected. Lateral inspection can be accomplished from within a residence using a push camera, or from the sewer main using a lateral launch crawler that travels down a mainline and then inserts a camera into laterals.

MetCom has established a Sewer Connection Incentive Program. In order to provide a voluntary mechanism whereby MetCom could encourage customer base growth, the St. Mary's County's Metropolitan Commission and Commissioners of St. Mary's County requested and were granted the legislative authority by the Maryland General Assembly, in Chapter 113-9 of the St. Mary's County Code, to offer Connection Incentive Programs and other financing mechanisms to assist owners of existing residential properties with all or a portion of the costs of connecting to available public sewer. Beginning on July 1, 2019, limited funding was made available on a first come first served basis through a \$250,000 operating revolving loan fund to provide combined loans of up to \$25,000 per property. Once completed, the amortization period for the benefitted properties to retire (reimburse MetCom) the cost for the water and/or sewer infrastructure improvements would be spread over a period not to exceed five (5) years. Longer term payback periods (*ie. up to 10 years*) may also be available for individuals / households that meet certain financial eligibility criteria. On 7-1-2024, this program will be available for individuals that meet income eligibility requirements that have identified I/I problems in their private service lateral.

The Commission has relined laterals in areas of the Lexington Park sewer collection service areas.

## Capacity Management, Operations and Maintenance (CMOM) Program

### i. Flow Monitoring

MetCom primarily utilizes SCADA to perform flow monitoring. The SCADA data provides instantaneous data on pump cycling and wet well level changes at the influent pump stations. The Table below shows total flow data of the wastewater pump stations that the Commission currently operates for 3 years, 2021, 2022 and 2023 along with the average for those 3 years. These stations vary in size and flow, depending on the size of the area and the number of residents that are served by the station.

Pump Station Name	Total 2021	Total 2022	Total 2023	3 year average
Davnor	49,560	55,680	49,560	51,600
Wicomico Shores #1	12,674,268	13,237,050	10,071,260	11,994,193
Wicomico Shores #2	9,765,639	12,185,294	11,700,915	11,217,283
Wicomico Shores #3	5,732,571	5,257,363	4,438,464	5,142,799
Breton Bay	14,894,001	13,937,995	10,546,235	13,126,077
Rosebank	821,096	608,353	495,037	641,495
St. Clements Shores	8,880,321	9,842,397	7,699,398	8,807,372
Glebe Run	6,309,338	7,318,642	6,749,997	6,792,659
Villages of Leonardtown	5,560,996	4,558,197	4,328,669	4,815,954
Camp Merryelande		-	1,030,072	515,036
Piney Point	53,402,680	58,785,387	51,712,891	54,633,653
Piney Point Landings	11,733,660	9,611,607	10,445,443	10,596,903
Sheehan	5,757,933	4,975,408	4,901,602	5,211,648
St. George's Island	8,057,017	10,268,335	10,261,224	9,528,859
St. George's Peninsula	2,235,526	1,993,817	1,873,015	2,034,119
Airport Dr.	812,559	726,161	531,590	690,103
Black Duck	2,421,813	2,431,676	2,256,377	2,369,955
Bradley Boulevard	17,640,933	16,204,991	14,048,726	15,964,883
Broad Creek	15,615,177	15,729,586	15,722,458	15,689,074
Myrtle Point	4,096,869	4,275,926	3,147,317	3,840,037
California Run	87,821,477	83,078,051	80,101,273	83,666,934
Cecil's Mill	7,307,469	5,368,368	6,053,354	6,243,064
Cedar Cove	10,760,975	12,192,880	12,076,157	11,676,671
Dunleigh	2,471,655	2,142,119	2,120,525	2,244,766
Elizabeth Hills	12,409,904	14,253,213	13,336,590	13,333,236
Esperanza Farms	2,707,222	2,317,186	2,921,399	2,648,602
Essex South	60,846,161	57,848,005	54,550,960	57,748,375

## Capacity Management, Operations and Maintenance (CMOM) Program

<b>Evergreen Park</b>	1,641,300	1,000,500	1,078,740	1,240,180
<b>First Colony #1</b>	8,896,091	8,426,400	8,739,492	8,687,328
<b>First Colony #2</b>	16,255,853	17,270,088	18,077,664	17,201,202
<b>Forest Run</b>	220,555,275	279,263,580	262,919,062	254,245,972
<b>Great Mills</b>	40,223,772	39,460,116	36,857,446	38,847,111
<b>Greenbrier</b>	21,980,591	20,763,008	20,018,813	20,920,804
<b>Hickory Hills</b>	7,092,818	7,584,086	8,160,978	7,612,627
<b>Hilton Run</b>	20,256,041	18,346,349	18,986,901	19,196,430
<b>Hunting Creek</b>	10,809,049	8,625,937	8,547,981	9,327,656
<b>Hunting Quarters</b>	14,780,341	12,125,241	12,121,786	13,009,123
<b>Joy Chapel</b>	4,554,492	4,499,858	4,694,028	4,582,793
<b>Kingston</b>	9,054,401	11,703,111	10,865,579	10,541,030
<b>Laurel Glen</b>	2,803,532	2,537,326	2,666,982	2,669,280
<b>Wildewood #4</b>	2,643,201	8,055,317	3,318,116	4,672,211
<b>Lynn Drive</b>	8,174,981	6,540,480	5,201,096	6,638,852
<b>Meadowlake</b>	6,132,609	5,956,087	6,967,654	6,352,117
<b>Moorings</b>	5,961,593	4,262,043	3,728,056	4,650,564
<b>Oakcrest</b>	260,924	612,685	689,376	520,995
<b>Patuxent Park West</b>	12,975,376	11,254,078	12,480,078	12,236,511
<b>Peggs Road</b>	3,567,251	4,401,316	3,600,261	3,856,276
<b>Pembroke</b>	24,595,244	22,560,626	20,714,076	22,623,315
<b>Pembroke 2</b>	9,907,830	10,190,859	10,011,907	10,036,865
<b>Abberly</b>	6,521,886	6,344,610	5,773,342	6,213,279
<b>Picketts Harbor</b>	8,025,904	6,167,250	5,138,009	6,443,721
<b>Planters Court</b>	6,696,621	6,711,786	5,719,124	6,375,844
<b>Riverbay</b>	13,435,113	12,087,654	13,356,495	12,959,754
<b>Rue Woods</b>	2,199,146	2,051,123	2,058,033	2,102,767
<b>St. Mary's City</b>	19,686,691	22,228,658	24,179,865	22,031,738
<b>St. Mary's Industrial Park</b>	28,138,690	32,886,068	27,989,702	29,671,487
<b>St. Mary's Square</b>	5,444,340	5,348,430	5,836,431	5,543,067
<b>Southgate</b>	3,237,341	3,114,920	2,599,701	2,983,987
<b>Spring Valley</b>	47,738,340	19,400,068	19,956,253	29,031,554
<b>Waters Edge</b>	8,097,848	7,545,471	7,143,172	7,595,497
<b>Westbury</b>	26,363,939	24,688,215	24,628,157	25,226,770
<b>Widgeon</b>	1,151,779	1,233,885	1,215,127	1,200,264
<b>Wildewood #1</b>	22,038,000	19,293,000	19,380,000	20,237,000
<b>Wildewood #2</b>	6,502,787	6,050,767	5,953,101	6,168,885
<b>Wildewood #3</b>	93,496,702	89,039,806	79,023,048	87,186,519

## Capacity Management, Operations and Maintenance (CMOM) Program

<b>Willow Woods</b>	2,786,858	2,771,545	2,754,751	2,771,051
<b>Woodmore</b>	191,898	1,105,233	1,740,859	1,012,663
<b>TOTAL OF ALL STATIONS</b>	1,125,660,028	1,142,711,267	1,078,061,749	1,115,477,681

I/I characterizations studies and Sanitary Sewer Evaluation Surveys (SSES) evaluate and address flow rates versus precipitation of all pumping stations of the system to target areas that exhibit a large increase in flow that occur during wet weather conditions and heavy precipitation. Infiltration generally refers to other water that enters the sewer collection system through defects in the sewer. Infiltration can be long term seepage of water into a sewer system from the water table. In some systems, such as MetCom's, the flow characteristics of infiltration can resemble those of inflow (for example, there is a rapid increase in flow during and immediately after a rainfall event due to rapidly rising ground water. This phenomenon is sometimes referred to as rainfall-induced infiltration (RII).

In order to characterize the collection system in SD 5 and SD 8, MetCom initiated the installation (*Flow Assessment Services*) of several flow monitoring devices and rain gauges to collect data between September of 2023 and March of 2024. The flow meters provided 5-minute flow rate readings. During ongoing flow monitoring, regular reviews of the data via telemetry were performed to ensure quality of data collected remains sufficient for I/I characterization purposes. Findings suggested that the SCADA data generally overestimates flowrates, but overall, because most of the SCADA data correlated well with the meter data for the validation period, it is reasonable to use the previous years of SCADA data as representative inflow data. Results were utilized to help determine the design wet weather peaking factors for the planned capacity upgrades to the Piney Point and Forest Run Pump Stations. MetCom plans to install permanent flow meters on these two pump stations and will consider adding additional as capacity upgrades are warranted. In addition, beginning in September 2024 SCADA will be expanded to the Northern Wastewater Treatment Facilities which includes the Wicomico Shores, Charlotte Hall, St. Clements Shores and Chopticon High School.

### **j. Sewer Surcharge Protection**

Structural Surcharges. In order to ensure that pumping station malfunctions will not result in wastewater backing up into nearby residences, Chapter 4 of the Design Manual, specifies that the Designer of collection systems connected to a pumping station shall:

- a. Determine the rim elevation of the lowest manhole upstream from the pumping station that is not required to have a watertight frame and cover assembly.
- b. Identify all basement elevations lower than the manhole frame and cover established in Item a. above.
- c. Identify first floor elevations lower than the manhole frame and cover established in Item a above.

## Capacity Management, Operations and Maintenance (CMOM) Program

- d. Identify vacant lots having a ground elevation lower than the manhole frame and cover established in Item a. above.
- e. Provide on the plans for all dwellings, structures, and lots identified in Items b, c and d stating the following: “This lot may be subject to wastewater backup in the event of a pumping station malfunction. A back water valve is required on the private building sewer serving this lot.”

**Wet Well Surcharges.** In addition to ensuring responsiveness to SSO cleanup efforts, the use of septage hauling vehicles and contractor support are utilized for the prevention of surcharging (*ie. from wet wells*). Prior to the onset of predicted major rainfall events, staff routinely places contractors on-call and mobilizes vehicles to ensure the greatest ability to respond in the event of a SCADA high flow notification(s). The Commission owns and operates two VacCon septage hauling vehicles with capacities of approximately 2,500 gallons (12 yds) and 1,800 gallons (9 yds) and one Vactor at the Marlay-Taylor Water Reclamation Facility with an 800 gallon (4 yds) capacity. A multi-year Septage Hauling Services contract is also in place with three (3) vendors as shown in the table below. Several contractors also have additional equipment (*ie. 800 gallon vacuum capability*) available at fixed hourly rates. Contractors are required to provide a minimum capacity of 2,000 gallons per vehicle and must arrive at the requested / designated site(s) within 2 hours of notification by the Commission.

CONTRACTOR	CAPACITY
Outback Porta Jon	2,500 gallons
Outback Porta Jon	4,500 gallons
Outback Porta Jon	5,000 gallons
Outback Porta Jon	5,500 gallons
Outback Porta Jon	6,000 gallons
Cullison's Excavating	3,000 gallons
Cullison's Excavating	5,000 gallons
Cullison's Excavating	5,000 gallons
Cullison's Excavating	6,000 gallons
AB&H Excavating	3,000 gallons





## Capacity Management, Operations and Maintenance (CMOM) Program

---

### 10. RESOURCES AND BUDGET (Fiscal Year July 1- June 30)

Operating Budget. An operations and maintenance (O&M) budget includes all annual costs of operating and maintaining the collection system, including staff, equipment, tools, consumables (utilities, chemicals, etc.), contract services, spare parts, debt payments, and support facilities such as equipment yards or utility service centers. The O&M budget is usually funded by the sewer user charges and miscellaneous revenue. General and administrative expenses include all MetCom employee benefits, administrative salaries, insurance, IT and legal services, bank fees, etc. and are allocated at: 62.50% to sewer, 27.31% to water and 10.10% to engineering. Routine capital equipment expenditures includes items that are considered capital assets and are purchased from annual operating revenue rather than through bonds or the capital reserve fund. Items such as vehicles, specialized maintenance equipment, pumps, motors, office equipment and other smaller items generally costing less than \$100K. The depreciation of these capital equipment expenses are included in the O&M budget. Funds in excess of this maximum balance can be transferred to “unrestricted” general fund reserves:

Unrestricted General Fund Reserve may be utilized for any use authorized by MetCom Board. Source of funds are operating revenues in excess of operating expenses. Target fund level per Policy is \$3,500,000 plus 6 months of budgeted operating expenditures, excluding depreciation

Debt Service Reserves used for sewer debt service payments. Source of funds are old benefit assessment charges in excess of debt, non-recurring.

Capital Budget. An annual capital improvement budget and five year plan is developed each year and includes all on-going funding for major rehabilitation, replacement, expansion or upgrade of the collection system. Costs include land acquisition, administration, planning, design, construction, inspection, contingencies and a 3% per year escalation factor. Funding for projects is primary through low interest loans. Debt service is funded primarily by the sewer user charges and miscellaneous revenue. Funds in excess of this maximum balance can be transferred to capital improvement “restricted” reserve funds:

Upgrade/Replacements used to pay for projects for the comprehensive repair, replacement and upgrade of existing facilities (not day-to-day maintenance or small repair). Source of funds are System Improvement Charges in excess of Debt Service payments in the year are transferred to this fund. Target fund level per Policy is \$2,500,000 (*enough to cover a small sewer line replacement project*).

Capital Project Fund - Expansion / New Customers used to pay for projects for system expansion/construction of new facilities and capacity expansion. Source of funds are Capital Contribution Charges in excess of Debt Service Payments in the year are transferred to this fund. Target fund level per Policy is \$750,000 (*enough to cover a small wastewater pump station*).

## Capacity Management, Operations and Maintenance (CMOM) Program

---

Reserves. The FY 2025 recommended reserve for restricted and unrestricted is \$18.376M.

### a. Budget Process

MetCom's operating budget is a fiscal year budget that requires Departmental submission requests and an identification of Essential Cost Changes which are reviewed by the MetCom Director and Chief Financial Officer for recommendation to the Metropolitan Commission Board. Budget assumption worksessions and subsequent meetings are held to seek concurrence and direction from the Board. For the collection system operations and maintenance budget, the process begins with a review of historical expenditure trends, prior year audited expenditures, current mid-year fiscal review and projected needs.

MetCom's capital budget process is a fiscal year budget that requires St. Mary's County Planning Commission review and approval by the Commissioners of St. Mary's County and the Metropolitan Commission Board following a formal Public Hearing. Capital improvement projects identify incremental operating cost impacts, where applicable.

### b. Rate Setting, Budgetary Policies and Financial History

In accordance with Chapter 113-14 of the Code of St. Mary's County, service rates shall be reasonable and shall be charged to all properties being served. The rate for both water and sewer service shall be uniform throughout the sanitary district, subject to changes that the Commission considers necessary. Rate increases were recommended in a Final Report of the Water & Sewer Rate Study issued January 21, 2015, which included increases of sewer rates by 3.75% per year over the subsequent five year period. A revenue sufficiency analysis for the subsequent ten (10) year period was included. An update was completed in FY 2019 and included a recommendation to eventually reduce the rate of increase to a modest rate of 2% per year to keep pace with assumed cost inflation. FY 2025 rate of increase for sewer is 2.7%. The next Rate Study is planned for FY 2025.

MetCom's rate-setting policies are based on the following principles:

1. *Rates and fees will be based on the actual cost to deliver each service.*
2. *Current rates must be sufficient to cover current costs and to meet all debt obligations.*
3. *Rates will include funding for Capital Improvement Budget and a subsequent 5-year Plan.*
4. *Rate increases will be implemented in a gradual and predictable manner, avoiding large one-time rate increases.*
5. *Contributions to and use of reserves as rate stabilization funds are reviewed annually.*

MetCom's parameters for issuing debt and managing the debt portfolio are based on the following policy limits:

- *Annual Combined Customer Bill vs. Median Household Income: Average monthly residential bill at 5,000 gallons/month level, for water and sewer service combined times 12, divided by the most recent yearly Median Household Income (MHI) for St. Mary's County. This ratio indicates the*

## Capacity Management, Operations and Maintenance (CMOM) Program

---

*annual burden for cost of service and bill affordability for ratepayers. Ratio should not exceed 1.5%.*

- *Debt Service Coverage: Net revenues divided by total annual debt service. This ratio measures MetCom's ability to meet its annual debt service requirements after all operational expenses. Establish a Debt Service Coverage of 1.25%-1.5%.*
- *Sufficient Operational Reserves: Unrestricted reserve levels divided by the daily operating expenditures net of depreciation. This ratio is a measure of liquidity that gauges flexibility to pay near term obligations. Operational reserves should be maintained between 90 and 180 days.*
- *Outstanding Debt vs Operating & Debt Service Revenues: Long-term debt outstanding divided by the system's operating and debt service revenues. This ratio provides an indication of a system's overall leverage and fixed costs. Establish an Outstanding Debt vs Operating & Debt Service Revenues ratio of 5% or below.*

### **Applicable Standard Operating Procedures** (*accessible on Commission's shared drive*)

FIN-14-03	Reserve Policy
FIN-16-02	Capitalization Policy
FIN-19-04	Debt Management Policy
FIN-95-01	Investment Policy
FIN-23-03	Signature Authority – Continuity of Operations

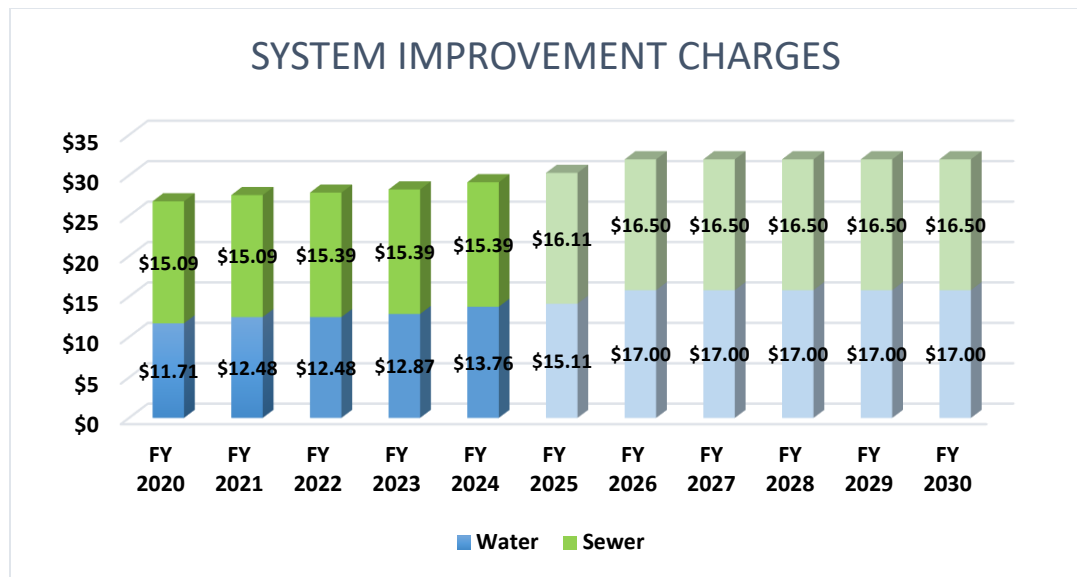
### **c. Historical Rate Review**

Our current sewer rate structure is based on the following:

#### System Improvement Charges began charging on 10/1/07

- Required by St. Mary's County Code Section 113-29.
- Paid by every property to which one or more EDU's are allocated by the County's LUGM
- Owed as soon as an EDU is allocated by LUGM
- Paid on a monthly, per-EDU basis
- Uniform rate (one rate for residential; one rate for commercial = 1.2x residential rate)
- Owed whether or not a property is connected to the public water/sewer system
- Paid in perpetuity ----unless/until an allocated EDU is de-allocated by LUGM
- Used to pay the debt-service (or pay-go) on the comprehensive repair, replacement and upgrade of existing facilities (not day-to-day maintenance or small repair)
- Calculated based on the total of all debt service on bonds and the total amortized costs of all projects in the CIB for the given year, excluding costs including in the capital improvement charge, divided by the number of allocated EDU's expected for the year

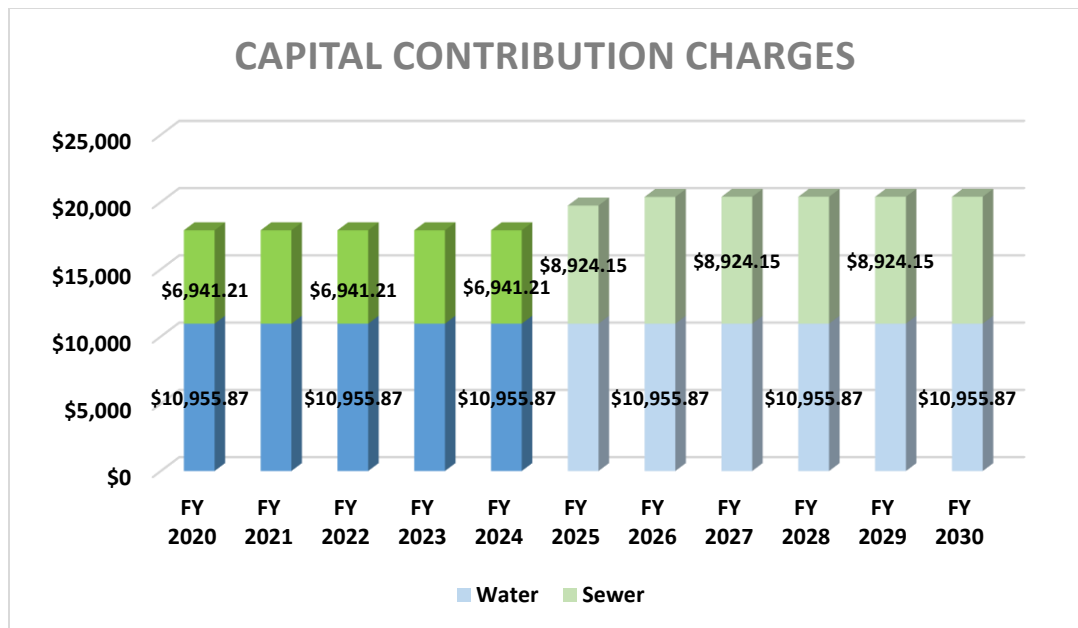
## Capacity Management, Operations and Maintenance (CMOM) Program



### Capital Contribution Charges began charging on 10/1/07

- Required by St. Mary's County Code Section 113-12.
- Paid at the time a property owner makes application or otherwise is required to connect to a public water or sewer system
- Paid one time only, per EDU connected
- Chapter 113 new authority effective 10-1-2018. 50% deferral allowed at time of application
- Uniform Rate (one rate for residential; one rate for commercial= 1.2x residential rate)
- Used to pay the debt-service (or pay-go) on system expansion/construction of new facilities and capacity expansion
- Most often paid by Developers (for newly constructed/connected properties)
- Paid by property owner when a new public water or sewer line is constructed to serve a property not previously served (when such properties are within the designated service area of the newly constructed public line)
- Typically, MetCom Capital Projects which extend service areas
- Not typically Developer-built lines as such lines are currently regarded to serve only the Developer's project and not the properties along the way
- Based on the capital costs of construction in the six (6) year capital budget and plan
- Calculated based on the total of all debt service on bonds and the total amortized costs of all system expansion and capacity expansion projects in the CIB for the given year, divided by the number of EDU's expected to connect in the year, may be revised annually per 113-12C.(3)(B)

## Capacity Management, Operations and Maintenance (CMOM) Program



### Service Charges

- Required by St. Mary's County Code Section 113-14
- Paid by every property connected to a public water or sewer system
- Paid beginning at time property is connected to a water or sewer system OR are otherwise required to connect
- Paid on a monthly basis
- Uniform rates:
- Ready-To-Serve charge for both water and sewer based on meter size
- Water usage and irrigation rates set up on an inclining block usage rate structure. Tier 1: 1-5,000 gallons ...Tier 2: 5001-20,000 gallons ...Tier 3: 20,000+ gallons
- Sewer usage based on water volume, per 1,000 gallons
- Sewer volume capped at 10,000 gallons/month for residential customers with a 5/8th meter
- Non-metered rates for accounts without meters per EDU
- Used to fund the costs of the day-to-day operation and maintenance of the water and sewer utility
- Funding source for the Annual Operating Budget

### **d. Operating and Maintenance Expense**

Operating and maintenance expenses include:

- Employee salary and compensation
- Operating supplies
- Utilities
- Repair and maintenance
- Professional services

## Capacity Management, Operations and Maintenance (CMOM) Program

- Routine capital outlay
- Debt service expenses for repair and replacement

Estimated operating expenses for FY 2025 is \$13.8M which represents an increase of almost 3% over the FY 2024 recommended operating budget of \$13.4M (*as shown below*). Approximately 69% of the Commission's overall operating budget is dedicated to the operation and maintenance of the sanitary sewer system, which are attributable to CMOM related activities.

SEWER DEPARTMENT	FY 24 RECOMMENDED BUDGET
<b>Operating Income</b>	
Service Charge - Metered	\$10,259,374
Service Charge - Non-Metered	1,646,658
Septage Haulers	286,125
ENR Grant	-
Other Revenue	154,000
From Reserves	
<b>Total Operating Income</b>	<b>\$ 12,346,156</b>
<b>Operating Expenses</b>	
Salaries	\$ 3,639,958
Contractual Labor	405,000
Maintenance	639,685
Leonardtown Plant	150,000
Power	885,058
Telephone/Dialers	9,600
Fuel (Diesel & Oil)	225,962
Lab & Soils Testing	36,000
Chemicals	893,900
Employee Related Expense	77,413
Materials & Supplies	198,992
Building Utilities	34,400
Miscellaneous	1,475
Vehicles	238,449
Sludge Removal Expense	331,887
Depreciation	245,000
SSO's & Penalties	15,000
Contingencies	-
Recv'ry of Cost	-
Allocation of OH	4,420,890
Allocation of Engineering	946,566
<b>Total Operating Expenses</b>	<b>\$ 13,395,235</b>
<b>Net Direct Sewer Operating Inc</b>	<b>\$ (1,049,080)</b>

SEWER DEPARTMENT	FY 25 RECOMMENDED BUDGET
<b>Operating Income</b>	
Service Charge - Metered	\$10,076,838
Service Charge - Non-Metered	1,536,807
Septage Haulers	363,192
ENR Grant	
Other Revenue	198,000
<b>Total Operating Income</b>	<b>\$ 12,174,836</b>
<b>Operating Expenses</b>	
Salaries	\$ 3,611,309
Contractual Labor	104,000
Maintenance	989,883
Leonardtown Plant	165,000
Power	870,558
Telephone/Dialers	11,796
Fuel (Diesel & Oil)	203,748
Lab & Soils Testing	23,600
Chemicals	1,036,560
Employee Related Expense	79,621
Materials & Supplies	208,207
Building Utilities	32,400
Miscellaneous	1,725
Vehicles	238,949
Sludge Removal Expense	270,000
Depreciation	275,000
SSO's & Penalties	
Allocation of OH	4,575,728
Allocation of Engineering	1,082,337
<b>Total Operating Expenses</b>	<b>\$ 13,780,421</b>
<b>Net Direct Sewer Operating Income</b>	<b>\$ (1,605,585)</b>

### e. Capital Improvement Program Overview

The Capital Improvement Budget & Plan (CIB) is part of the long-term capital facilities and CMOM planning, which uses the hydraulic modeling, SSO history, cleaning, inspection, and assessment programs to evaluate the existing system and to recommend improvements needed to correct existing deficiencies. The CIP also incorporates capacity assessments (**Chapter 9**) program to assess projected needs for maintaining the integrity of the collection system and expanding sewer capacity to accommodate growth by providing a detailed six (6) year capital improvement program.



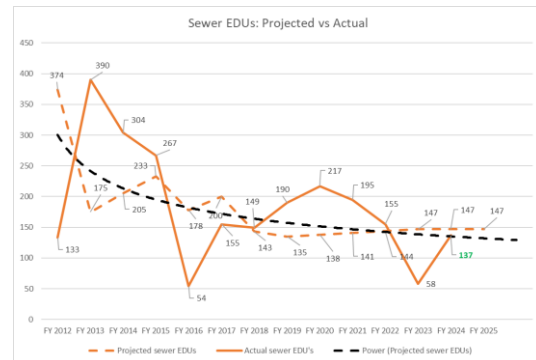
## Capacity Management, Operations and Maintenance (CMOM) Program

Capital projects are evaluated annually based on the results of facility planning efforts, sanitary sewer evaluation surveys (SSES), I/I characterization studies, updated hydraulic modeling, history of SSOs / sewer breaks and prioritized based on need and affordability.

### f. Capital Improvement Budget and Plan

St. Mary's County has been growing steadily for a number of years. In the 1990 census, the population was 75,974. By 2000, the population had grown to 86,211, an average growth of 1.35 percent (%) per year. In 2020, the population was 113,777, an average growth of 3.20 percent (%) per year since 2020. The overall population growth rate since 1990 is 1.66% per year and is expected to continue at this rate through the year 2045. The growth related projections for capacity evaluation and facility planning utilize a 2 % average yearly growth for new sewer services within the existing sewer service area basin.

MetCom tracks the number of new EDUs allocated per year by the County's Department of Land Use & Growth Management (LUGM). As there is no consistency in terms of historical predictability, MetCom has assumed a flat number of new EDUs of 147 per year since FY 2023.



Below is the most recent list of sewer related capital projects and estimated costs:

#### St. Mary's County Metropolitan Commission Capital Improvements Budget FY 2025 - 2030 Sewer

With Escalation  $\approx$  3.0%

Project Name	Status	Project ID	Prior Approved	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2025 - 2030 TOTAL
<b>Rehabilitation / Replacement</b>										
Various Rehabilitation at MTWRF	2	SM2512	\$1,731,988		\$137,664 <sup>A</sup>		\$193,705 <sup>A</sup>		\$412,178 <sup>A</sup>	\$743,547
Piney Point Road Force Main Replacement	2	5171MS	\$6,954,607						\$455,588 <sup>A</sup>	\$455,588
Piney Point FM Booster Pump Station	1	5241MS	\$395,000			\$3,125,313 <sup>A</sup>				\$3,125,313
Southampton Sewer System Rehabilitation	2	8201SR	\$982,762		\$2,952,266					\$2,952,266
Inflow & Infiltration Sewer Replacement, Rehabilitation and Upgrade	4	SM2506	\$775,657		\$405,366	\$417,527	\$430,053	\$442,955	\$456,243	\$2,152,144
Manhole Rehabilitation	4	SM2505	\$113,749	\$116,838	\$120,343	\$123,953	\$127,672	\$131,502	\$135,447	\$755,755
Wastewater System Renewal & Rehabilitation	4	SM2510	\$750,000	\$772,500	\$795,675	\$819,545	\$844,132	\$869,456	\$895,539	\$4,996,847
Glenn Forest to NAS Interceptor	1					\$180,218				\$180,218
Generator Replacement-Sewer	4	SM2503	\$123,600	\$143,221	\$147,518	\$151,944	\$156,502	\$161,197	\$166,033	\$926,415
Stark Drive & Bloch Ave. Sewer Main Replacement	1				\$572,886					\$572,886
FDR Blvd Sewer Main Replacement	1						\$629,159			\$629,159
Spring Valley Drive Sewer Main Replacement	1		\$63,880		\$326,757					\$390,637
Wildwood Pkwy Force Main Replacement	1		\$79,310		\$389,350					\$468,660
MD 5 from MD 246 to MD 471-SEWER	2	8203SR	\$2,493	\$0 <sup>E</sup>	\$690,156					\$690,156
<b>FY 2025 CIB (FY25-FY30) Rehabilitation / Replacement =</b>			<b>\$11,829,856</b>	<b>\$1,175,729</b>	<b>\$6,537,981</b>	<b>\$4,818,500</b>	<b>\$2,381,223</b>	<b>\$1,605,110</b>	<b>\$2,521,028</b>	<b>\$19,039,571</b>
Approved FY 2024 CIB (FY24-FY29)				\$1,553,376	\$5,809,697	\$1,676,304	\$2,170,129	\$1,587,199	\$0	\$12,796,705
Change to Program from FY2024 CIB				-\$377,647	\$728,284	\$3,142,196	\$211,094	\$17,911	\$2,521,028	\$6,242,866

#### Status:

- 1 Planning Phase
- 2 Design Phase
- 3 Contract Phase
- 4 Construction Phase
- 5 Close-out Phase

Property Acquisition (to be initiated after Planning)

- A - New Project
- B - Scope Change
- C - Timing Change (Moved Up)
- D - Timing Change (Moved Out)
- E - Updated Estimate

# Capacity Management, Operations and Maintenance (CMOM) Program

## St. Mary's County Metropolitan Commission Capital Improvements Budget FY 2025 - 2030 Sewer

With Escalation i=3.0%

Project Name	Status	Project ID	Prior Approved	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2025 - 2030 TOTAL
<b>Pump Stations</b>										
Bradley Boulevard WWPS	1	8211SS	\$38,439	\$351,157						\$351,157
Forest Run WWPS	1	8221SS	\$1,844,130	\$9,697,421 E						\$9,697,421
Greenbrier WWPS	2			\$47,098	\$388,088					\$435,186
Hunting Quarters WWPS	1			\$398,564						\$398,564
Broad Creek WWPS	1					\$426,776	\$2,677,065			\$3,103,841
Piney Point WWPS Upgrade	2	5081SR	\$10,769,434	\$393,560						\$393,560
<b>FY 2025 CIB (FY25-FY30) Pump Stations =</b>			<b>\$12,652,003</b>	<b>\$10,787,800</b>	<b>\$388,088</b>	<b>\$426,776</b>	<b>\$2,677,065</b>	<b>\$0</b>	<b>\$0</b>	<b>\$14,279,729</b>
Approved FY 2024 CIB (FY24-FY29)				\$10,394,240	\$388,088	\$426,776	\$2,677,065	\$0	\$0	\$13,886,169
Change to Program from FY2024 CIB				\$393,560	\$0	\$0	\$0	\$0	\$0	\$393,560

### Status:

- 1 Planning Phase
- 2 Design Phase
- 3 Contract Phase
- 4 Construction Phase
- 5 Close-out Phase

- A - New Project
- B - Scope Change
- C - Timing Change (Moved Up)
- D - Timing Change (Moved Out)
- E - Updated Estimate

Property Acquisition (to be initiated after Planning)

## St. Mary's County Metropolitan Commission Capital Improvements Budget FY 2025 - 2030 Sewer

With Escalation i=3.0%

Project Name	Status	Project ID	Prior Approved	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2025 - 2030 TOTAL
<b>System Upgrades / Expansion</b>										
Sewer Vehicle & Equipment Replacement/New	1	SM2522	\$580,000	\$235,000 B	\$180,000 E	\$75,000 A		\$60,000 A		\$550,000
Grinder Pump Replacements	4	SM2509	\$805,460	\$829,624	\$854,513	\$880,148	\$906,552	\$933,749	\$961,761	\$5,366,347
Marlay-Taylor Expansion	1					\$365,171		\$3,357,556		\$3,722,727
Enterprise Resource Planning-Sewer	1						\$337,653			\$337,653
Exterior Petty Bldg Upgrades-SEWER	2	8131BD	\$410,950		\$1,043,577 B		\$1,353,864 B			\$2,397,442
St. Clements Shores Service Area Public Sewer Extension	A	1			\$351,000 A		\$3,000,000 A			\$3,351,000
<b>FY 2025 CIB (FY25-FY30) System Upgrades / Expansion =</b>			<b>\$1,796,410</b>	<b>\$1,064,624</b>	<b>\$2,429,090</b>	<b>\$1,320,319</b>	<b>\$5,598,069</b>	<b>\$4,351,305</b>	<b>\$961,761</b>	<b>\$15,725,169</b>
Approved FY 2024 CIB (FY24-FY29)				\$3,001,935	\$1,044,513	\$1,245,319	\$1,244,205	\$4,291,305	\$0	\$10,827,277
Change to Program from FY2024 CIB				-\$1,937,311	\$1,384,577	\$75,000	\$4,353,864	\$60,000	\$961,761	\$4,897,892
<b>Totals</b>										
Rehabilitation / Replacement			\$11,829,856	\$1,175,729	\$6,537,981	\$4,818,500	\$2,381,223	\$1,605,110	\$2,521,028	\$19,039,571
Pump Stations			\$12,652,003	\$10,787,800	\$388,088	\$426,776	\$2,677,065	\$0	\$0	\$14,279,729
System Upgrades / Expansion			\$1,796,410	\$1,064,624	\$2,429,090	\$1,320,319	\$5,598,069	\$4,351,305	\$961,761	\$15,725,169
Subtotal			\$26,278,269	\$13,028,153	\$9,355,159	\$6,565,595	\$10,656,357	\$5,956,415	\$3,482,789	\$49,044,468
Capital Reserves		8.00%	\$2,102,000	\$1,042,000	\$748,000	\$525,000	\$853,000	\$477,000	\$279,000	\$3,924,000
<b>FY 2025 CIB (FY25-FY30) Totals =</b>			<b>\$28,380,269</b>	<b>\$14,070,153</b>	<b>\$10,103,159</b>	<b>\$7,090,595</b>	<b>\$11,509,357</b>	<b>\$6,433,415</b>	<b>\$3,761,789</b>	<b>\$52,968,468</b>
Approved FY 2024 CIB (FY24-FY29)				\$16,145,551	\$7,821,298	\$3,616,399	\$6,578,399	\$6,348,504	\$0	\$40,510,150
Change to Program from FY2024 CIB				-\$2,075,398	\$2,281,861	\$3,474,196	\$4,930,958	\$84,911	\$3,761,789	\$12,458,318

### Status:

- 1 Planning Phase
- 2 Design Phase
- 3 Contract Phase
- 4 Construction Phase
- 5 Close-out Phase

- A - New Project
- B - Scope Change
- C - Timing Change (Moved Up)
- D - Timing Change (Moved Out)
- E - Updated Estimate

Property Acquisition (to be initiated after Planning)

### 11. SEWER MAINTENACE PLAN UPDATES

#### a. Plan Update and Program Modification Process

MetCom shall review the CMOM Plan and incorporated any revisions by December 31<sup>st</sup> each year. The CMOM will be updated to describe and include any changes in the proposed actions and/or implementation schedules, results of any studies or surveys, updates to SOPs, changes to the organizational structure, etc. Following the approval of this CMOM by the Maryland Department of the Environment, the Plan will be reviewed by MetCom's Wastewater Collections Superintendent and Chief Facilities and Operations Officer with recommendations for revisions made to the Director for approval.

#### b. Monitoring, Measurement and Reporting

It is believed that the overall effectiveness of the Commission's CMOM program can be demonstrated using several metrics will be monitored and reported over time. The metrics may change over time based on observed condition and performance of the system. The current primary reporting metrics for the CMOM Program are shown in **Attachment A** and include but are not limited to the following:

- Total SSOs per 100 miles of sewer pipe
- Miles of sewer pipes inspected
- Miles of sewer pipes cleaned
- Miles of sewer pipes rehabilitated
- Miles of sewer easement cleared
- Number of sewer structures rehabilitated

### 12. DOCUMENT RETENTION

MetCom adheres to an adopted Record Retention Procedure which includes the initial maintenance, retention and disposal schedule for physical and electronic records of the Commission. The Metropolitan Commission retains its official records in accordance with the requirements of all applicable laws and to ensure that official records no longer needed by the Commission are discarded at the proper time. This Procedure provides guidelines concerning the length of time official records should be retained under ordinary business circumstances. Records are to be retained for the period of their immediate use, unless longer retention is required for historic reference, contractual, legal or regulatory requirements. Records that are no longer required or have satisfied their periods of retention shall be destroyed.

#### Applicable Standard Operating Procedures

ADM-22-01 Document Retention Procedures (DRP)

## Capacity Management, Operations and Maintenance (CMOM) Program

### ATTACHMENT A

COLLECTION SYSTEM (CMOM) REPORTING FORM					
Collection System Characteristics	2025	2026	2027	2028	Notes
Total length of gravity sewers (mi.)					
Total length of force mains (mi.)					
Total # of manholes					
Total # of grinder pumps					
Total # of pump / lift stations					
Collection System Metrics	2025	2026	2027	2028	
Total sewer main inspected by CCTV (lf)					(1)
Total sewer main inspected visually (lf)					
Total sewer main smoke tested (lf)					
Total # sewer main point repairs (ea.)					
Total sewer main rehabilitated (mi.)					
Total sewer main replaced (mi.)					
Total # manholes inspected (ea.)					(2)
Total # manholes rehabilitated (ea.)					
Total # manholes replaced (ea.)					
Total force main inspected (mi.)					(3)
Total # force main point repairs (ea.)					
Total force main rehabilitated (ea.)					
Total force main replaced (ea.)					
Total grinder pumps inspected (ea.)					(4)
Total # grinder pump point repairs (ea.)					
Total # grinder pumps rehabilitated (ea.)					
Total # grinder pumps replaced (ea.)					
Total # generators replaced (ea.)					
Total SD 5 Low pressure inspections					(8)
Right-of-way inspections (lf)					
Collection System SSO Evaluation	2025	2026	2027	2028	
# Sanitary Sewer Overflows (SSOs)					
Est. Volume of SSOs (gallons)					
# SSOs per 100 miles sewer					

## Capacity Management, Operations and Maintenance (CMOM) Program

Cause of SSO – Roots (ea.)					
Cause of SSO – Debris (ea.)					
Cause of SSO – Greases (ea.)					
Cause of SSO – Power Loss (ea.)					
Cause of SSO - 3rd party actions (ea.)					
Cause of SSO – wet weather (ea.)					
Cause of SSO – gravity leak (ea.)					
Cause of SSO – force main leak (ea.)					
Cause of SSO – pump sta. failure (ea.)					
<b>Fats, Oils, and Grease Control Program</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	
# permitted food establishments (ea.)					
# of inspections (ea.)					(5)
# of enforcement actions (ea.)					
<b>Mechanical &amp; Hydraulic Cleaning</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	
Right-of-way clearing (acres)					(6)
Jet rodding (mi.)					(7)
Chemical root control (mi.)					
Small diameter $\geq 12$ " dia. cleaned (mi.)					
Large diameter $< 12$ " dia. cleaned (mi.)					
<b>Financial</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	
Total operating budget (\$)					
Total wastewater department budget (\$)					
Total capital budget (\$)					
Total expended on Piney Point FM (\$)					
Total expended on Piney Point WWPS (\$)					
Total expended on Forest Run WWPS (\$)					
Total expended on I/I Rehab (\$)					
Total expended on Manhole Rehab (\$)					
Total expended on System Renewal (\$)					
Total expended on Pump Station Cap. (\$)					

### NOTES:

- (1) CCTV goal: 5% of gravity system / year vs ASCE recommendation on Page 30
- (2) Manhole inspection goal: 5% of inventory / year vs ASCE recommendation on Page 30
- (3) Forcemain inspection goal: 5-10% of inventory / year (see also **Table 3.2** priorities)

## Capacity Management, Operations and Maintenance (CMOM) Program

---

- (4) Grinder pumps and ventless lids (priority SD 8,3,2,6,1)
- (5) Grease trap inspections: Annually
- (6) R/W clearing goal: 12,000-20,000 feet / year (annual & biannual priorities)
- (7) Gravity cleaning priorities (see **Table 3.1**) vs ASCE recommendation on Page 30
- (8) SD 5 low pressure system inspections: every two years after June 24, 2024



# Capacity Management, Operations and Maintenance (CMOM) Program

## ATTACHMENT B SEWER/WATER METCOM DOES NOT MAINTAIN

S E W E R  / W A T E R	PROPERTY	CONTACT	PHONE	PAGER
	Abberly Crest Apartments, Willows Rd (Office maintains water bills/meters – do not turn back on)	Maintenance: 301.904.1836	301.863.3636	
	C-Cubed & other buildings	Robert Gabrelcik Cell	301.863.6700 301.580.2509	
	Chancellors Run Apartments		301.863.0345 301.866.8365	
	Charlotte Hall area Sewer			
	Cherry Cove Land Development		301.863.6800	
	Foxchase Village		301.863.8230	
	Good Samaritan Church water main off Langley Rd			
	Glen Forrest (Base Dispatch – 301-342-3218)	301-342-3847	1.888.578.4141	
	Great Mills Rentals – Titan Bldg/trailer park	Craig Reynolds	240.298.2977	
	Hermanville Quick			
	Hills Trailer Park		301.863.6800	
	Indian Bridge Apartments/Cherry Cove		301.863.6800	301.737.8609
	Joe Baker Village		301.862.9177	301.862.5256
	Lexington Village	Trudy Hayden	301.862.5732	301.557.0223
	Lord Calvert Trailer Park		301.863.6800	
	Lexwoods Apartments	Bonnie Kanugh	301.863.7300	
	Millison		301.863.6666	
	Old Racquet Club & 3 Round Buildings(on Great Mills Rd)			
	O'Brien Bldg – 19895 Three Notch 19763 Three Notch (Gerek)			
	Patuxent Park Villas (we maintain the sewer lines behind apartments only)			
	Patuxent Park West (we maintain the sewer lines behind apartments only)			
	Pax River Office Park (GHA) Gates, Hudson & Associates, Inc.			
	Peggs View	April Vega	301.862.4717	
	Queen Anne Apartments	Ruth Mahlstedt	301.863.6700	301.884.9167 301.884.9399
	Spring Ridge Middle School, 19856 Three Notch			
	SpyGlass	Mark	(Cell) 301-481-2950	
	St. Clements Crossing	Gail Stone	301.862.3127 301.475.3097	
	St. Mary's Landing Apartments	Wayne Miller	301.737.4588	
	The Greens at Hilton Run	Brenda Dolley (Home) work	301.737.0307 301.862.5770	
	The Mayfaire Apartments	Courtney Wright	301.737.5300	
	Vancamp Apartments 17476 Piney Point (6" cleanout is our only responsibility)	Casey Debbie Property Mgr	240.375.2311 410.610.6892	

## Capacity Management, Operations and Maintenance Program

### GRINDER PUMPS METCOM DOES NOT MAINTAIN

<b>G R I N D E R  P U M P S</b>	<b>PROPERTY</b>	<b>CONTACT</b>	<b>PHONE</b>
	Al Watson's Building, R 5 & R 249 (behind bldg)		
	Bannecker Elementary		
	Cedar Cove Marina, Rt. 249		
	Mission BBQ, 22599 MacArthur Blvd., San Souci		
	CVS Drug Store –R 235 & Buck Hewitt Rd.		
	Eighty four (84) Lumber, Great Mills Rd.		
	Esperanza Elementary & Middle Schools		
	Food Lion Callaway		
	Legerton, 45599 (owner Szkotnicki)		
	Lowes First Colony		
	SAYSF Church 46544 Rue Purchase Rd.		
	Taco Bell, San Souci		