



# Evolution of a CMOM Program in Waterbury, CT



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COMMITMENT & INTEGRITY DRIVE RESULTS

# What is CMOM?

## Collection System Management, Operation, and Maintenance

- Purpose of CMOM Programs
  - Improve collection system management, operation, and maintenance
    - Efficient use of resources
  - Better understand system capacity
  - Prevent SSOs
  - Meet regulatory requirements

- EPA “CMOM Guide”



**GUIDE FOR EVALUATING  
CAPACITY, MANAGEMENT,  
OPERATION, AND MAINTENANCE  
(CMOM) PROGRAMS AT SANITARY  
SEWER COLLECTION SYSTEMS**

# Overview of Waterbury, CT Collection System

- Maintained by Waterbury Water Pollution Control (WPC)
- Population ~110,000
- 27,000 service connections
- Average flow of 21 MGD
- 320 miles of pipe
  - 9,500 manholes
- 20 pump stations
- Several intermunicipal agreements



# 2002 Consent Decree

- Between US EPA, CT DEEP, and City of Waterbury
- Compliance with Clean Air Act, Clean Water Act, and NPDES Permit
- Clean Water Act Remedial Measures
  - I/I reduction
  - Conditions assessment
  - Manhole accessibility and conditions assessment
  - Staffing
  - Cleaning
  - Long-term maintenance
  - Unauthorized discharge response



# Woodard & Curran Initial CMOM Approach (2003)

- Pre-dated the CMOM Guide (2005)
- CMOM approach to better map and maintain collection system assets and increase operational efficiency
- Preventative Maintenance
  - Pipe testing and inspection
  - Pipe cleaning program
  - Locate manholes
  - Manhole inspection program
  - GIS – upload information in the field
- Reporting



# 2017 Administrative Order

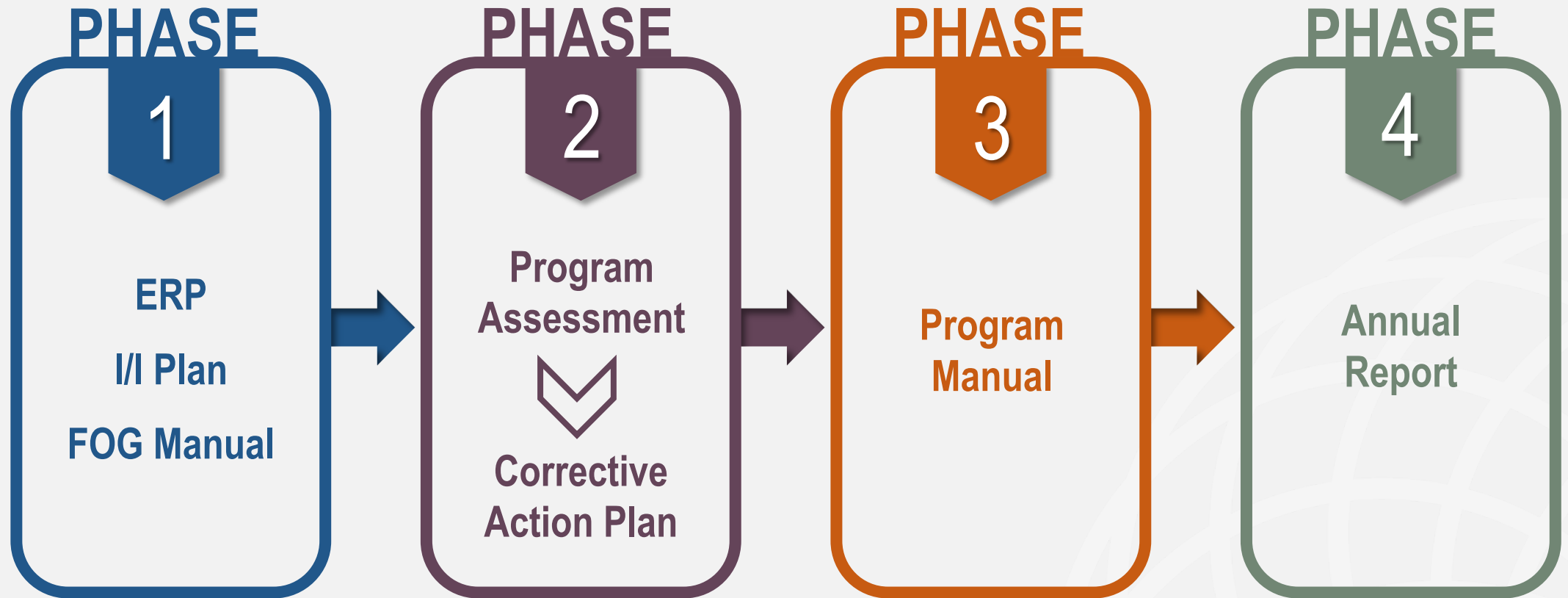
- Collection System and Headworks Bypass Summary
- Emergency Response Plan (ERP)
- Inflow and Infiltration Control Plan (I/I Plan)
- Fats, Oils, and Grease (FOG) Program Manual
- CMOM Program Self-Assessment
  - CMOM Guide
  - EPA Region 1 Checklist
- CMOM Corrective Action Plan (CAP)
- CMOM Program Manual
- Annual Reporting

# Phase 0 – Bypass Summary

- “Bypasses” must be reported to State of CT Right-to-Know
  - Bypasses = Headworks bypasses and SSO’s
- Collection System and Headworks Bypass Summary
  - Only part of the Consent Decree that includes WPCF
- Handled by WPC Staff



# 2017 Administrative Order





# Phase 1 – Individual Plans

- Woodard & Curran defined program around regulatory requirements and best management practices
- Emergency Response Plan (ERP)
  - SSO Emergency Response
- Inflow and Infiltration Control Plan (I/I Plan)
  - Assess past I/I studies
  - Describe private inflow reduction program
- Fats, Oils, and Grease (FOG) Program Manual
  - BMP's for Food Service Establishments (FSE)'s



## Phase 2 – Program Assessment & CAP

- “Self”-Assessment
  - EPA Region 1 Checklist
  - Compare to CMOM Guide
  - Identify “Corrective Actions”
- Woodard & Curran = Outside Reviewer
  - Used CMOM Guide as **inspiration**
  - **Compared to current industry standards**
  - **Use knowledge of EPA requirements from project portfolio**
  - Recommend Improvement Areas
  - **Recommend BMPs for implementation**



# CMOM Guide

CMOM Guide is just that – a guide, not a set of regulations

Waterbury  
WPC

STAFF COMPLEMENTS FOR WASTEWATER COLLECTION SYSTEM MAINTENANCE  
POPULATION SIZE  
(Estimated Number of Personnel)

Occupational Title	5,000		10,000		25,000		50,000		100,000	
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
Superintendent	1	5	1	10	1	20	1	40	1	40
Assistant Superintendent										
Maintenance Supervisor							1	40	2	80
Foreman	1	15	1	20	1	20	1	40	1	40
Maintenance Man II	1	15	1	20	1	20	1	40	1	40
Maintenance Man I	1	15	1	20	2	60	3	120	5	200
Mason II							1	40	1	40
Mason I									1	40

(f) Determined by the number of Construction Inspectors employed and developed on a judgmental basis.

Unit processes included in this staffing table are:

1. Maintenance of sanitary sewer main lines & appurtenances (laterals not included).
2. Maintenance of storm sewer main lines.
3. Maintenance of lift stations.
4. Inspection of newly constructed sewer main lines and appurtenances.

(U.S. EPA 1973)

## Phase 2 – Program Assessment

- Reviewed available records pertaining to collection system maintenance, operation, and management
- Interviewed key staff
  - General Manager
  - Collection System Supervisors
  - GIS Specialist
- Institutional knowledge of operation methods and SOPs developed by Woodard & Curran



## Phase 2 – Program Assessment

- EPA Region 1 Checklist
  - Collection System Assets & Mapping
  - SSO Mitigation and Reporting
  - Organizational Structure & Staffing
  - Training
  - Customer service & internal communication
  - Management Information Systems
  - Legal Authority
  - Safety
  - Emergency Preparedness & Response
  - Capacity
  - Capital Planning
  - Inspections and Cleaning
    - Pump Stations
    - Pipe
    - Manholes
  - I/I Reduction and SSES
  - Energy Use

## Phase 2 – Program Assessment

- Goals
  - Meet EPA Requirements to help Waterbury take steps towards getting out of Consent
  - Tailored approach based on WPC's specific needs and challenges
  - Utilize technology, where it makes sense, to more efficiently use resources
  - Movement towards proactive maintenance, instead of preventative maintenance
  - Reduce bypasses/SSO's
  - Reduce I/I
  - Improve customer service



## Phase 2 – Improvement Areas & CAP

- Additional asset information in GIS Database
  - Pipe age, material
  - Default values that had not been updated
- Formal Asset Management Program
  - Used asset management techniques, but not a formal program
- Computerized Maintenance Management System (CMMS) Program
  - Electronically manage all collection system maintenance activities
  - Better manage proactive & preventative maintenance
- Reduce I/I in the collection system
  - Sewer System Evaluation Survey (SSES)
  - Revisit Inter-municipal agreements
- Improve Public Outreach
  - Target food service establishments (FSE's) to reduce FOG



**Commitment  
to Dates**

# CAP Strategy

- Highlight budgeting cycle constraints
- Identify “layups”
  - Can start these even before submitting the full CAP
- Set dates for the first step of multi-year programs
  - E.g. “Hiring a consulting a firm”
  - Update in Annual Reports
- Revisit IMAs or other policies





## Phase 3 – CMOM Program Manual

- All-encompassing document
  - ERP
  - I/I Plan
  - FOG Manual
  - Self-Assessment Information
- Representative of the overall program and day-to-day
- Working document
  - Incorporate changes from CAP
- Demonstrate to EPA and DEEP that Waterbury has met conditions of the Consent Decree



# Phase 4 – CMOM Annual Report

- Progress over the past year (10/1 – 9/30)
  - CAP due 1/31, Program Manual due 6/30
- Plans for the next year
  - Commitment to next step





## Waterbury will get out of consent!

*"Consent Decree shall automatically terminate one (1) year after the City has certified to EPA, DEEP and the Court that it has complied with all of the requirements"*



# Questions / Comments?



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