



# Evolution of a CMOM Program in Waterbury, CT



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

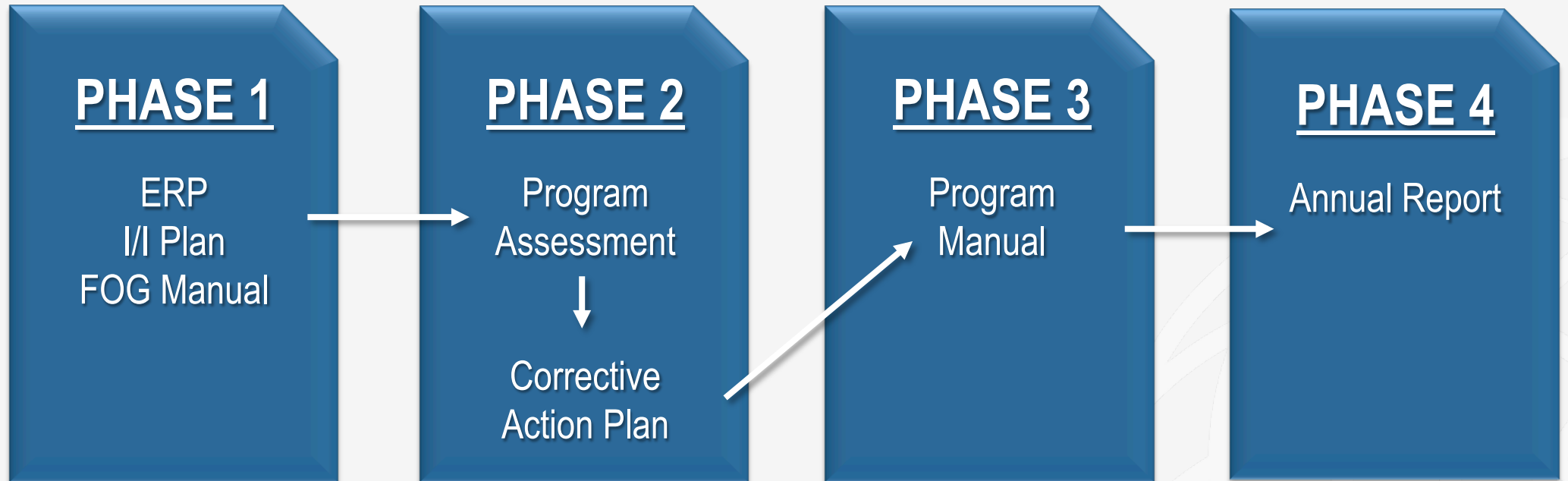
- Collection System and Headworks Bypass Summary
- Emergency Response Plan (ERP)
- Inflow and Infiltration Control Plan (I/I Plan)
- Fats, Oils, and Grease (FOG) Program Manual
- CMOM Program Self-Assessment
  - CMOM Guide
  - EPA Region 1 Checklist
- CMOM Corrective Action Plan (CAP)
- CMOM Program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

# Phase 0 – Bypass Summary

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- “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

**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

Waterbury  
WPC

(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**

## Phase 3 – CMOM Program Manual

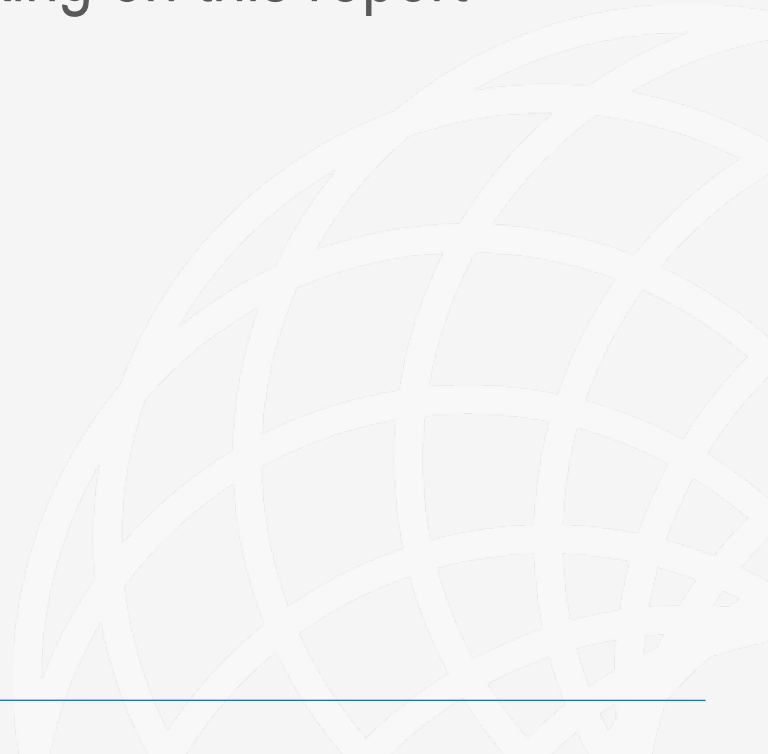
- All-encompassing document
  - ERP
  - I/I Plan
  - FOG Manual
  - Self-Assessment Information
- Representative of the overall program and day-to-day
- Working document
  - Incorporate changes from CAP
- Demonstrate to EPA and DEEP that Waterbury has met conditions of the Consent Decree



## Phase 4 – CMOM Annual Report

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- Progress over the past year
- Plans for the next year
- WPC and Woodard & Curran are currently working on this report



# Will Waterbury Get Out of Consent?

- Waiting to hear from EPA
- *"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"*