





January 28, 2019 **SESSION 9 ASSET MANAGEMENT**

USE OF ASSET MANAGEMENT PLAN TO MEET STATE FISCAL SUSTAINABILITY PLAN REQUIREMENTS

PRESENTERS

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Agenda

- Hartford MDC & Project Background
- CT Fiscal Sustainability Plan Requirements
 - Identified CIP Requirements
 - CSO LTCP Update/Integrated Plan
 - Determined Affordability
- Desktop Condition/Risk Assessment Approach
- Capital Improvement Plan & Business Cases

Introduction

The MDC is a non-profit municipal corporation chartered by the CT General Assembly in 1929

Provides customers with safe, pure drinking water, environmentally protective wastewater collection and treatment, & other services that benefits member towns

Provides water, sewer and household waste collection to its member towns and treated water to portions of non-member towns









Asset Management Project – Tasks

Establish defined service levels for water distribution and wastewater collection systems

Perform Gap Analysis using framework tool & prioritize gaps **Develop** risk-based methodology for asset prioritization consistent with IIMM

Develop Business Case Evaluation methodology and templates to prioritize projects Develop updated CIP for water distribution & wastewater collection



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Fiscal Sustainability Plan (FSP)





An FSP Must Contain

Inventory of critical assets

Evaluation of the condition and performance of assets considering age, condition, service history, remaining useful life, etc.

Certification of water and energy conservation – funding recipient must evaluate and implement water & energy conservation efforts as part of FSP

Capital Improvement Funding Plan





Alternative AM Plan Approach

Loan recipient may develop a system-wide or sector-based (*collection, distribution, etc.*) AMP as a substitute for a project-specific FSP

Recommended approach when multiple projects are anticipated in a phased improvement schedule

AMP must meet FSP requirements and follow EPA guidelines AMP serves to meet FSP requirements for all subprojects contained in the plan

AMP is eligible for 55% planning grant AMP must be filed with DEEP prior to any CWF construction agreement for a project identified in the plan

CSO LTCP Update/ Integrated Plan

- EPA guidance from 2012 allows for Integrated Planning
 - CSO Consent Order CT DEEP Approval
 - SSO Consent Decree EPA Approval
 - Sewer system investigation/repair (CMOM)
 - Stormwater (i.e., MS4)
- Consider affordability analysis



SEPA United States Environmental Protection

National Pollutant Discharge Elimination System (NPDES)

Integrated Planning for Municipal Stormwater and Wastewater

On this page:

- Overview
- Resources
- Technical Assistance

Overview

EPA, states, and municipalities have achieved real progress in implementing the Clean Water Act (CWA) (PDF) (234 pp, 571 K, About PDF) and protecting public health and the environment. However, today there are many factors stressing the implementation of CWA programs. Stressors include population growth, aging infrastructure, increasingly complex water quality issues, limited resources, and other economic challenges. Currently, EPA, states, and municipalities often focus on each CWA requirement individually. This may not be the best way to address these stressors and may have the unintended consequence of constraining a municipality from addressing its most serious water quality issues first.

An integrated planning approach offers a voluntary opportunity for a municipality to propose to meet multiple CWA requirements by identifying efficiencies from separate wastewater and stormwater programs and sequencing investments so that the highest priority projects come first. This approach can also lead to more sustainable and comprehensive solutions, such as green infrastructure, that improve water quality and provide multiple benefits that enhance community vitality.

The integrated planning approach is not about changing existing regulatory or permitting standards or delaying necessary improvements. Rather, it is an option to help municipalities meet their CWA obligations while optimizing their infrastructure investments through the appropriate sequencing of work.

Resources

- Memorandum: Achieving Water Quality Through Integrated Municipal Stormwater and Wastewater
 Plans
- Integrated Municipal Stormwater and Wastewater Planning Approach Framework Provides guidance for EPA, states, and local governments to develop and implement effective integrated plans under the CWA. This framework was finalized after extensive public input including a series of workshops across the country.
- Combined Sewer Overflows Guidance for Financial Capability Assessment and Schedule Development (FCA Guidance) – Provides an aid for assessing financial capability as part of negotiating schedules for CWA requirements for municipalities and local authorities.
- · Financial Capability Assessment Framework Provides greater clarify on the flexibilities built into

Integrated Planning Approach





*Infrastructure improvements that satisfy a "Need" and accomplish CSO reduction will rank high



Sewer Renewal: Dual benefit of repairing infrastructure and further controlling wet weather response in some areas Coordination with aging water main infrastructure improvements



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Desktop Condition Assessments

| Condition Type | Failure Mode | Description | Assessment Method |
|-------------------|--|---|----------------------|
| Physical | Mortality | Current state of repair and operation as influenced by age, physical defects, and useful life | 1 |
| Performance | Capacity | Does not meet demand (flow, loading, storage volume, etc.) | 2 |
| | Level of Service | Does not meet functional needs (regulatory, customer service levels) | |
| | Efficiency (Maintenance History, Obsolescence) | Not lowest cost alternative (chemicals, power, labor, reliability, parts availability) | |

- 1. Leverage existing data and prior reports, such as CCTV evaluations, inspection results, main breaks, industry accepted EUL
- 2. Leverage existing data such as facility and master plans, regulatory reports, work order history, staff knowledge



Risk Prioritized Assets for Capital Projects and Maintenance Programs



Assets:

- Pump Stations
- Storage Tanks
- Sewer Gates
- Water Distribution
- Sewer Collection



Physical Condition Results (Pump Stations)





Performance Condition Results (Pump Stations)





CoF Results (Pump Stations)





Risk Results (Pump Stations)





Condition Results (Water Mains)

Break rates vary based on age, material, & diameter





Condition Results (Water Mains)

...which results in different estimated useful lives (EULs)







CoF Results (Water Mains)



- COF 1 Lowest Impact
- COF 2 Low Impact
- COF 3 Moderate Impact
- COF 4 High Impact
- COF 5 Highest Impact



Risk and Replacement Model for Water Distribution





CIP Scenario Analysis

Breakage Rate: 24 breaks/100mi/yr AWWA national benchmarks (n=67):

Top Quartile: 8 breaks/100mi/yr

Median: 28 breaks/100mi/yr

Bottom Quartile: 59 breaks/100mi/yr





CIP Options vs. Service Level Targets

| Asset Class | Aggressive CIP | Moderate CIP | Minimal CIP |
|--|--|---|---|
| Water Distribution | Break rate at 14 (maintain current) | Break rate at 24 | Break rate at 35 |
| Sewer Collection | Condition score at 2.6 (maintain current) | Condition score at 3.2 | Condition score at 3.2 |
| Pump Stations Water Storage Sewer Gates | EUL based replacement + accelerate highest risk assets (risk >=50) | All rehab/replace according to risk buckets | All rehab/replace according to risk buckets |
| Raw Water, Water Transmission, Overflow Structures | Inspection programs | Inspection programs | Inspection programs |
| Hydrants, Control Valves, Water Meters | Replace backlog immediately and rest at EUL using survival curves | Replace backlog at current rate and rest at EUL using survival curves | Replace backlog at current rate and rest at EUL using survival curves |



Business Cases Used to Score/Prioritize Projects

Full Business Case Includes:

- Project Summary and Description
- Project Justification
- Project Type & Drivers
- Project Schedule & Costs
- Project Constraints
- Anticipated Impact on Service Levels
- Condition and COF Analysis
- List of Assets Involved, Location Map
- Project Prioritization Scoring
 - Asset Risk
 - Service Level Alignment
 - Financial Impact
 - Efficiency Impact (including water & energy conservation)

10. PRIORITIZATION ANALYSIS

PRIORITIZATION FACTORS: For all project criteria, indicate total average scores (1-5) from evaluation, and include specific justification or explanation for the scoring. Business case owner or Project Manager will complete an initial scoring recommendation which will be reviewed by the CIP committee.

| | | Committee | |
|---|--|-------------|-----------------------------|
| | Evaluation | Evaluation | |
| Criteria | Score (1-5) | Score (1-5) | Justification / Explanation |
| | | | |
| Risk or EUL Bucket Score | | | |
| Service Level Alignment | | | |
| Score | | | |
| System Water Quality Complaints | Wastewater Treatment Effectiveness Rate | | |
| Water Pipeline Integrity | Collection System Integrity | | |
| Drinking Water Compliance | Sewer System Overflows | | |
| Water System R&R Rate | WW System R&R Rate | | |
| Non-Revenue Water | | | |
| Other Considerations | | | |
| Score | | | |
| Financial Impact | | | |
| Efficiency Impact (including water & energy conservation) | | | |
| Member Town Priorities | | | |
| Total Priority Score | | | |



MDC

Use of ASSET MANAGEMENT PLAN to Meet State Fiscal Sustainability Plan Requirements

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