SERVICE LEVELS AND PERFORMANCE MANAGEMENT
STEP 1 IN MEETING OHIO EPA ASSET MANAGEMENT REQUIREMENTS

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AGENDA

- Play by the (OEPA) Rules
- Definitions (LOS, KPI)
- Performance Management
- Choosing Measures, Establishing Targets
- Risks and Challenges
- Good News
PLAY BY THE (OHIO EPA DRAFT ASSET MGMT) RULES
EXCERPTS FROM THE DRAFT RULES

(B) The owner or operator of the public water system shall include at least the following information in the asset management program:

(10) Level of Service.

(a) Primary objectives and goals.

(i) Quantity.

(ii) Quality.

(iii) Reliability.

(b) Measure of success.
Long-term implementation.

(A) The water system shall annually review and update the asset management program.

(B) All public water systems shall establish and measure at least three levels of service goals. Levels of service shall be kept onsite and available for review at the discretion of the director. Levels of service shall be reviewed annually, unless otherwise directed by the director.

(1) Levels of service for community public water systems may include the following:

(a) Cost per million gallons (MG).
(b) Actual operating expenses.
(c) Actual operating revenue.
(d) Million gallons per connection.
(e) Million gallons per person.
(f) Distribution length (miles of pipe).
(g) Testing and maintenance tasks per year.
(h) Testing and maintenance tasks per million gallons.
(i) Gallons per person or connection.
(j) Compliance or violations per year.
(k) Compliance or violations per million gallons.
(l) Customer complaints per million gallons.
(m) Staff per million gallons.
(n) Staff per mile of pipe.
(o) Rate as a percentage of median household income.
(p) Energy audit and efficiency.
(q) Reserve funds.
(C) Metrics shall be kept onsite and available for review at the discretion of the director. Metrics shall be reviewed and documented annually by the public water system, unless otherwise directed by the director. The following metrics will be required for the specified system type:

(1) Community public water systems.

(a) Operating budget (operating ratio).

(b) Cost per customer, connection or person.

(c) Breaks per mile of distribution or breaks per MG or breaks per customer or connection.

(d) Non-revenue water (water loss).

(e) Summary of events where system pressure drops below minimum pressure specified in paragraph (E) of rule 3745-83-01 of the Administrative Code.

(f) Repair, rehabilitation or replacement tasks per year (emergency versus planned).

(g) Customer complaints per year, customer or connection.

(h) Summary of completed projects from CIP.

(i) Rate structure.

(j) Reliability.

(k) Plant utilization.
WHAT IS THE CURRENT STATE OF MY ASSETS?
- What assets do I own?
- Where are they?
- What condition are they in?
- What are their remaining useful lives?
- What is their remaining economic value?

WHAT IS MY BEST LONG-TERM FUNDING STRATEGY?

ASSET MANAGEMENT ENABLERS:
- Leadership
- Organizational Alignment
- Knowledge Management
- Technology
- Training

WHAT IS MY REQUIRED LEVEL OF SERVICE?
- What is the demand for my services by my stakeholders?
- What do regulators require?
- What is my actual performance?

WHAT ARE MY BEST O&M AND CIP INVESTMENT STRATEGIES?
- What alternative management options exist?
- Which are the most feasible for my organization?

WHAT ARE MY BUSINESS RISKS?
- How do assets fail? How can they fail?
- What is their likelihood of failure?
- What are their consequences of failure?
- What assets are critical to sustained performance?
WHY ARE LEVELS OF SERVICE STEP 1?

If you don't know where you are going, you might wind up someplace else.

—— Yogi Berra ——
DEFINITIONS
A “Level Of Service” (LOS) is a measure of the quality of service provided to customers.

A “Key Performance Indicator” (KPI) evaluates the success of a particular activity in which an agency engages. Often success is simply the repeated, periodic achievement of some levels of operational goal, and sometimes success is defined in terms of making progress toward strategic goals.
LEVEL OF SERVICE
KEY PERFORMANCE INDICATORS (KPI’S)

HALFTIME STATS

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Engineers • Architects • Planners
DEFINITIONS

- Level of Service Metric
- Level of Service (Performance)
- Level of Service Target
PERFORMANCE MANAGEMENT
**ESTABLISH A PERFORMANCE MANAGEMENT FRAMEWORK WITH METRICS**

**Level of Service**
- Combined Sewer Overflow Frequency: 4 events per year

**Key Performance Indicators (KPIs)**
- Dry Weather Overflows: 0 times per year
- Wet Weather Overflows: 4 times per year

**Performance Measures**
- Cleaning: 10,000 feet/year
- Inspection: 10,000 feet per year
- Increase Capacity or Reduce I/I: 18
**SIMPLEX MODEL / BUSINESS MAPS**

- **Why** do we do the action?
- **How** do we do the action?

- Meet Consent Order Goal
  - 4 OF/year

- Eliminate Dry Weather Overflows

- Increase Cleaning Production
SIMPLEX MODEL – METRICS DEVELOPMENT

**Why** do we do the action?

Action

**How** do we do the action?

**What** are my barriers and challenges?

Metrics (KPI’s)
Performance Management Framework — Water Utility

- Provide Reliable Water Service
  - Reliable Supply
  - Reliable Treatment
  - Reliable Transmission and Distribution
    - Increase Mean Time Between Failures
    - Decrease Time to Repair
    - Decrease Break Rate
    - Proactively Replace Fragile Pipe Classes
    - Reduce Operating Pressures
    - Install More Isolation Valves
    - Faster Repair
    - Reduce Impacts of Outages
Provide Reliable Water Service

- Reliable Supply
- Reliable Treatment
- Reliable Transmission and Distribution

- Reduce Mean Time Between Failures
- Decrease Time to Repair
- Decrease Break Rate
- Proactively Replace Fragile Pipe Classes
- Reduce Operating Pressures
- Install More Isolation Valves
- Faster Repair

Reduce Impacts of Outages
PERFORMANCE MANAGEMENT FRAMEWORK — AGING TREATMENT PLANT

Provide Reliable Water Service

- Reliable Supply
- Reliable Treatment

Reduce Mean Time Between Failures
- Decrease Time to Repair

Decrease Break Rate

Reliable Transmission and Distribution
- Reduce Impacts of Outages
- Install More Isolation Valves
- Faster Repair

Reduce Operating Pressures
- Proactively Replace Fragile Pipe Classes
STRATEGIC PLAN, CONSENT ORDER, ETC.

Performance Management Framework

Target: 1/10 years

Responsible:
Administrator / Director

OFs (#/yr)

PM Cleaning Focus

Responsible:
Maintenance Manager

Capacity Projects, Sewer Cleaning, I/I Reduction, etc.

Responsible:
Maintenance Supervisor

Total Cleaning Target: 190,000 feet/year

Determine appropriate ratios of Preventive Maintenance, Emergency and Cyclical Cleaning

Assure adequate resources (people, trucks)

Crew and Resource Assignments

Cleaning + Data Capture and Entry Reporting

CIP Work Flow

Cascading Measures

Track Performance

Reporting

Field crews

25
PERFORMANCE MANAGEMENT AS PART OF CONTINUOUS IMPROVEMENT
LOS – WATER TREATMENT

Number of MCL Violations

Violations

0 0 0 0 0 0 0 0 0 0 0 0 0 0 0


MCL Violations

TARGET
Distribution System Reliability / Integrity
2011

lower performance numbers are preferred

Breaks / Leaks Per 100 Miles Per Year
TARGET
12-Month Rolling Avg.
“I think I can lower the water system break rate by replacing AC pipe”

“Should I accelerate, decelerate, or stop replacing AC pipe?”

“Is the break rate dropping?”

Replace AC pipe at a rate of X ft./yr.
CHOOSING MEASURES / ESTABLISHING TARGETS
WHAT SHOULD I ACTUALLY MEASURE?

(10) Level of Service.

(a) Primary objectives and goals.

(i) Quantity.

(ii) Quality.

(iii) Reliability.

(b) Measure of success.
SERVICE STARTS AND ENDS WITH CUSTOMERS

- Drinking Water Utility
  - Finished Water Quality (# of permit violations)
  - Availability (number and duration of outages)
  - Pressure (number of pressure complaints)
  - Complaints (taste, color, odor, etc.)
You shouldn’t track everything!

- If you are meeting specific service level targets, do not create an additional report (e.g. pressure).
- Focus on areas where performance versus service level targets is not as desired
- Focus on areas where current performance will not meet future demands (help determine when to act)
SMART MEASURES AND TARGETS

- **Specific**
- **Measurable**
- **Achievable**
- **Relevant**
- **Time-bound**
TARGET SETTING

- Base on historical performance
- Tie to overall customer goals
- Achievable target (hope is not a plan)
- Provide the resources necessary to improve if the target is raised (definition of insanity….)
- Understand the link we between LOS and $$$
HOW OFTEN DO I...

- Collect data
- Report data
- Review targets
RISKS AND CHALLENGES
RISKS / CHALLENGES

- “Big brother” monitoring for punishment (internally and externally)
  - Management fear or concern for exposing “weaknesses”
  - Fear of numeric target setting and accountability to targets
  - “Pencil whipping”
- Unintended consequences (rob Peter to pay Paul)
- Resource needs for data collection and validation
- Addressing external stakeholder reaction
- Reviewer fatigue
THE PEOPLE, PROCESSES, AND TOOLS OF PERFORMANCE MANAGEMENT

- Data from multiple sources (Spreadsheets, Logbooks, CMMS, GIS, SCADA, Billing System, Customer Database, Project Management Information System, etc.) may be needed
- Automation of data collection and processing facilitates efficiency
- Data must be verified for accuracy (QA/QC process)
- Clarity and consistency of data presentation is valued by reviewers
- Consistent processes for reporting data, explaining exceptions, and periodically updating targets need to be established and followed
DATA MUST EXIST IN THE CONTEXT OF PEOPLE, PROCESSES, AND TOOLS
METRICS SHOULD HAVE DETAILED DEFINITIONS

- Owner / Sponsor
- Purpose
- Description
- Mathematical Expression / Measurement
- Definition
- Data Requirements
- Reporting Period / Format
- Historical Performance
- Available Benchmark Data
- Target
Definition: A Combined Sewer Overflow/Sanitary Sewer Overflow (CSO/SSO) is an uncontrolled release of wastewater into the waterways of the State of Ohio. Performance can identify issues with sewer capacity, blockages, and pipe collapses. This ratio does not include any weighting or volumetric measure that would account for the severity of the overflow. Dry weather and wet weather overflows are tracked separately and an overlay of rainfall data indicates the impact of uncontrolable forces on level of service performance. Wet weather overflows are driven by precipitation events. DOSD hydraulic model data (available in 2013) will be used for setting a target that is appropriate to the present stage of the Wet Weather Management Plan. Currently, there is no target for wet weather overflows.

Notes on Performance: Wet weather overflows showed large swings in monthly performance while the 12 month rolling average of 46 wet weather overflows per month in 2011 remained fairly stable. Historic levels of precipitation were experienced in Central Ohio during 2011.
LOS - SEWER COLLECTION
**SEWER COLLECTION**

**Definition:** A Combined Sewer Overflow/Sanitary Sewer Overflow (CSO/SSO) is an uncontrolled release of wastewater into the waterways of the State of Ohio. Performance can identify issues with sewer capacity, blockages, and pipe collapses. This ratio does not include any weighting or volumetric measure that would account for the severity of the overflow. Dry weather and wet weather overflows are tracked separately and an overlay of rainfall data indicates the impact of uncontrollable forces on level of service performance. Wet weather overflows are driven by precipitation events. DOSD hydraulic model data (available in 2013) will be used for setting a target that is appropriate to the present stage of the Wet Weather Management Plan. Currently, there is no short-term target for wet weather overflows.

**Notes on Performance:** Wet weather overflows showed large swings in monthly performance while the 12 month rolling average of 46 wet weather overflows per month in 2011 remained fairly stable despite historic levels of precipitation experienced in Central Ohio during 2011.
GOOD NEWS
YOU'RE ALREADY TRACKING QUALITY
RELIABILITY METRICS TRACKED IN THE POWER INDUSTRY

![Normalized Quarterly MAIFI](chart.png)
# Transparency

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<td>1</td>
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</tr>
<tr>
<td>6</td>
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| Total | 6 |

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BENEFITS OF ESTABLISHING SERVICE LEVELS

- Common goals across the organization
- Consistency in the utility’s activities
- Focus on the things that matter
- Utility can communicate LOS goals to customers (incl. OEPA), and customers will know what to expect
THANK YOU!

QUESTIONS AND COMMENTS

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