Asset Management 101

January 21st, 2021
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Learning Objectives

• What is Asset Management?
• The 5 Core Components of an Asset Management Framework
• Best Practices
• Available EPA Resources
• New Hampshire’s Asset Management Program

Q&A at the end of the presentation. Type in questions in the box at the top right of your screen.
Assets are...

All the equipment, buildings, land, people, and other components needed to deliver safe and clean water

- Large, expensive, long-lived, and often buried
- Essential to protect public health
This example is drawn from w/w pipes, but the same general patterns applies to all urban systems
Asset Management is…

“A process for maintaining a desired level of customer service at the best appropriate cost.”
Asset Management includes...

- Building an inventory of your assets
- Scheduling and tracking maintenance tasks through work orders
- Managing your budgeted and actual annual expenses and revenue
Asset Management will...

Give systems a documented understanding of

- the assets they have
- how long they are going to last
- how much it’s going to cost to repair, rehabilitate, or replace them

Provides financial projections and allows the utility to see if rates and other revenue generating mechanisms are enough to stay in the business of safely providing drinking or clean water to customers.

Give you the basis to make good decisions
In other words...
Benefits for Capacity Development

- Decreased Need For Direct Technical Assistance
- Improved Compliance
- Better Prepared And Positioned To Respond To New Regulations And Any Type Of Emergency
The 5 Core Questions
An Asset Management Framework

1. Current State of Assets
2. Level of Service
3. Critical Assets
4. Minimum Life Cycle Cost
5. Long-term Funding Plan

Asset Management
1) What Is The Current State Of The Utility’s Assets?

➢ What does the utility own?
➢ Where is it?
➢ What is its condition?
➢ What is its remaining value?
➢ What is its remaining useful life?
## Generating an Asset Inventory

<table>
<thead>
<tr>
<th><strong>Retrospective</strong></th>
<th><strong>Prospective</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>What we already have</em></td>
<td><em>What we are about to acquire</em></td>
</tr>
<tr>
<td>• Critical first</td>
<td>• Tie to commissioning or handover process</td>
</tr>
<tr>
<td>• Use existing crews as they respond to work orders</td>
<td>• Use contract retainage to ensure control</td>
</tr>
</tbody>
</table>
Best Practice

- Asset inventory
- System maps
- Condition assessment and rating system
- Useful life assessment
- Asset values determination
2) What Is The Utility’s Required Sustained Level Of Service (LOS)?

➢ What do the regulators require?
➢ What are the utility’s performance goals?
➢ What LOS do the utility’s customers demand?
➢ What are the physical capabilities of the utility’s assets?
Best Practice

✓ Analyze customer demand and satisfaction
✓ Understand regulatory requirements
✓ Communicate to the public a level of service “agreement”
  ▪ Make your service objectives meaningful to the customers
✓ Use level of service standards
3) Which Assets Are Critical To Sustained Performance?

➢ How can assets fail?
➢ What are the likelihoods and consequences of asset failure?
➢ What does it cost to repair the asset?
➢ What are other costs that are associated with asset failure?

Leaking valve

Credit: Rural Community Assistance Corporation
Best Practice

✓ List assets based on criticality
✓ Conduct a failure analysis
✓ Determine probability of failure
✓ Analyze failure risk and consequences
4) What Are The Utility’s Best CIP and O&M Strategies?

WHAT ALTERNATIVE MANAGEMENT STRATEGIES EXIST?

WHAT STRATEGIES ARE THE MOST FEASIBLE FOR MY ORGANIZATION?
Best Practice

- Move from reactive to proactive maintenance
- Know the costs and benefits of rehabilitation vs replacement
- Look at lifecycle costs for critical assets
- Deploy resources based on asset conditions
- Develop and validate CIP
5) What Is The Utility’s Best Long-Term Financing Strategy?

- Do we have enough funding to maintain our assets for our required level of service?
- Is our rate structure sustainable for our system’s long-term needs?
Best Practice

✓ Routinely review and revise the rate structure
✓ Fund a dedicated reserve from current revenues
✓ Finance asset renewal and replacement through borrowing
✓ Developing Partnerships with other water systems to achieve cost savings and increase reliability of services
What do I do with this information?

Asset Management

1. Current State of Assets
2. Level of Service
3. Critical Assets
4. Minimum Life Cycle Cost
5. Long-term Funding Plan
An updated document that includes funding, regulatory, assistance, and internal activities that States are undertaking involving the promotion of asset management.


This guide for owners and operators of small community water systems (CWSs) to understand the basic concepts of asset management and provides the tools to develop an asset management plan.

An updated guide for small and medium sized water and wastewater systems which includes the framework components and associated tools to implement an asset management plan.

Additional EPA Asset Management Resource: https://www.epa.gov/dwcapacity
Water Finance Clearing House

This website provides additional resources, funds, learning modules, and much more. You can use the quick links at the bottom that will get you started, or you can search for resources and funds tailored to your needs.
Asset Management
NH DWSRF Set-Asides
Grant Programs
New Hampshire

Nickname: The Granite State
State’s Motto: “Live Free or Die”
Costal Line: Only 18 miles long

Population: 1.36 million people
MHI: $76,768

Land Area: 8,952 Square Miles
NH’s Public Water Systems
New Hampshire Department of Environmental Services:
Drinking Water & Groundwater Bureau

- Approx. 2500 PWS
- Approx. 2300 serve under 1000 pop
- Small Systems Staff: 5FT
- Large Systems Staff: 2FT/1PT
- Sustainability Section: 4 FT
Active Public Water Systems in NH

- CWS
- NTNC
- TNC
- Totals

<table>
<thead>
<tr>
<th>Year</th>
<th>CWS</th>
<th>NTNC</th>
<th>TNC</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>708</td>
<td>453</td>
<td>292</td>
<td>1393</td>
</tr>
<tr>
<td>2015</td>
<td>698</td>
<td>444</td>
<td>293</td>
<td>1395</td>
</tr>
<tr>
<td>2016</td>
<td>699</td>
<td>455</td>
<td>293</td>
<td>1395</td>
</tr>
<tr>
<td>2017</td>
<td>706</td>
<td>457</td>
<td>293</td>
<td>1395</td>
</tr>
<tr>
<td>2018</td>
<td>705</td>
<td>455</td>
<td>293</td>
<td>1395</td>
</tr>
<tr>
<td>2019</td>
<td>707</td>
<td>468</td>
<td>293</td>
<td>1395</td>
</tr>
</tbody>
</table>
### Asset Management

#### 15% Set-Aside

<table>
<thead>
<tr>
<th>Grant Program</th>
<th>2019 Allocation</th>
<th>Overall (#)</th>
<th>Overall ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source Water Protection</td>
<td>$200,000</td>
<td>250</td>
<td>$3,000,000</td>
</tr>
<tr>
<td>Record Drawing</td>
<td>$50,000</td>
<td>12</td>
<td>$26,000</td>
</tr>
<tr>
<td>Leak Detection</td>
<td>$180,000</td>
<td>106 (2,500 miles)</td>
<td>$350,000</td>
</tr>
<tr>
<td>Asset Management</td>
<td>$212,000</td>
<td>12</td>
<td>$1,558,685</td>
</tr>
<tr>
<td>Energy Audits</td>
<td>$90,000</td>
<td>14</td>
<td>$170,000</td>
</tr>
</tbody>
</table>
# Source Water Protection Grant

<table>
<thead>
<tr>
<th>Project Types</th>
<th>Develop and implement programs to protect existing (active or planned) sources of public drinking water (delineation, assessment, planning, implementation, security)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible PWSs</td>
<td>‘C &amp; P’ systems, Municipalities, Regional Planning Commissions, Non-profit Organizations, County Conservation Districts, Watershed Associations, Educational Institutions</td>
</tr>
<tr>
<td>Max Grant Amount</td>
<td>$20,000</td>
</tr>
<tr>
<td>Match Required</td>
<td>0</td>
</tr>
<tr>
<td>Schedule</td>
<td>Annually—Fall</td>
</tr>
<tr>
<td>Year Program Began</td>
<td>1997</td>
</tr>
</tbody>
</table>
## Record Drawing Grant

<table>
<thead>
<tr>
<th>Project Types</th>
<th>Prepare or update record drawings to accurately reflect the location of critical water system infrastructure, especially underground facilities. Records are required by DES construction and operation standards.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible PWSs</td>
<td>‘C’ systems serving 500 people or less</td>
</tr>
<tr>
<td>Max Grant Amount</td>
<td>$1,500</td>
</tr>
<tr>
<td>Match Required</td>
<td>50%</td>
</tr>
<tr>
<td>Schedule</td>
<td>Year Round</td>
</tr>
<tr>
<td>Year Program Began</td>
<td>2010</td>
</tr>
</tbody>
</table>
# Leak Detection Grant

<table>
<thead>
<tr>
<th>Project Types</th>
<th>Free acoustic leak detection survey (demonstration that the water system will repair identified leaks in a timely manner, accuracy and detail of as-built plans, system need or benefit to the system (ex. high water losses, water shortage, or results of last survey performed).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible PWSs</td>
<td>‘C’ systems</td>
</tr>
<tr>
<td>Max Grant Amount</td>
<td>n/a (DES hires Contractor to conduct leak detection surveys)</td>
</tr>
<tr>
<td>Match Required</td>
<td>n/a</td>
</tr>
<tr>
<td>Schedule</td>
<td>Annually—Spring</td>
</tr>
<tr>
<td>Year Program Began</td>
<td>2010</td>
</tr>
</tbody>
</table>
Leak Detection Grant

Volume of Leaks by Type

- Main Leak Rate, 1276, 61%
- Service Leak Rate, 689, 33%
- Valve Leak Rate, 61.8, 3%
- Hydrant Leak Rate, 65, 3%

Leaks by Type

- Hydrant Leaks 22%
- Service Leaks 43%
- Valve Leaks 10%
- Main Leaks 21%
- Other Leaks 4%
Asset Management Grant

<table>
<thead>
<tr>
<th>Project Types</th>
<th>Develop or expand asset management activities (inventory, financial, implementation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible PWSs</td>
<td>‘C’ systems serving 200 people or more</td>
</tr>
<tr>
<td>Max Grant Amount</td>
<td>$20,000</td>
</tr>
<tr>
<td>Match Required</td>
<td>50%</td>
</tr>
<tr>
<td>Schedule</td>
<td>Annually—Fall</td>
</tr>
<tr>
<td>Year Program Began</td>
<td>2012</td>
</tr>
</tbody>
</table>
Asset Management Grants Awarded through CY 2020

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Grants</th>
<th>$ Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>12</td>
<td>$170,500</td>
</tr>
<tr>
<td>2014</td>
<td>12</td>
<td>$178,250</td>
</tr>
<tr>
<td>2015</td>
<td>7</td>
<td>$84,135</td>
</tr>
<tr>
<td>2016</td>
<td>12</td>
<td>$165,000</td>
</tr>
<tr>
<td>2017</td>
<td>13</td>
<td>$200,000</td>
</tr>
<tr>
<td>2018</td>
<td>15</td>
<td>$270,750</td>
</tr>
<tr>
<td>2019</td>
<td>14</td>
<td>$278,050</td>
</tr>
<tr>
<td>2020</td>
<td>11</td>
<td>$212,000</td>
</tr>
</tbody>
</table>

Total Number of Grants: 96
Total Amount Awarded: $1,558,685
## Energy Audits

<table>
<thead>
<tr>
<th>Project Types</th>
<th>Provide comprehensive energy audits of the entire water system process.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible PWSs</td>
<td>‘C’ systems with asset management programs</td>
</tr>
<tr>
<td>Max Grant Amount</td>
<td>No set Amounts</td>
</tr>
<tr>
<td>Match Required</td>
<td>No match required</td>
</tr>
<tr>
<td>Schedule</td>
<td>Year round</td>
</tr>
<tr>
<td>Year Program Began</td>
<td>2016</td>
</tr>
</tbody>
</table>
Energy Audits

- Current Energy Use Benchmark kWh/MG*
- Estimated New Energy Use Benchmark kWh/MG+
Annual Estimated Savings %

- City of Lebanon: 9%
- City of Concord: 12%
- Town of Peterborough: 17%
- Town of Jaffrey: 18%
- City of Rochester: 18%
- City of Keene: 20%
- Plymouth Village Water: 22%
- Town of Hanover: 44%
- Town of Wolfeboro: 100%
Asset Management Workshop for Water Infrastructure

- Drinking Water
- Wastewater
- Stormwater

“Data to Dollars” Asset Management Workshop

January 19, 2021
2–Hour Online Event
## New Hampshire’s Asset Management Database

The purpose of the New Hampshire’s Asset Management Database (NHamD) is to provide communities the ability to network with peers in New Hampshire that are implementing asset management.

### System Contacts

Displaying 9 records  [Save as Excel](#)

<table>
<thead>
<tr>
<th>PWS ID</th>
<th>SYSTEM NAME</th>
<th>TOWN</th>
<th>POP</th>
<th>CMMS</th>
<th>NMDES AM GRANT YEAR</th>
<th>CONTACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0231010</td>
<td>BERLIN WATER WORKS</td>
<td>BERLIN</td>
<td>9575</td>
<td>PeopleGiS</td>
<td>2017</td>
<td>CRAIG CARRIGAN</td>
</tr>
<tr>
<td>0461010</td>
<td>CLAREMONT WATER DEPT</td>
<td>CLAREMONT</td>
<td>9000</td>
<td>Cartograph</td>
<td>2018</td>
<td>JEREMY CLAY</td>
</tr>
<tr>
<td>0641010</td>
<td>DERRY WATER DEPT</td>
<td>DERRY</td>
<td>17200</td>
<td>Lucity</td>
<td>2015</td>
<td>DAVID CARON</td>
</tr>
<tr>
<td>1181020</td>
<td>HOOKSETT VILLAGE WATER PCT</td>
<td>HOOKSETT</td>
<td>3000</td>
<td>None</td>
<td>N/A</td>
<td>TODD SMITH</td>
</tr>
<tr>
<td>1221010</td>
<td>JAFFREY WATER WORKS</td>
<td>JAFFREY</td>
<td>3650</td>
<td>Pubworks</td>
<td>2017</td>
<td>JON FREDERICK</td>
</tr>
<tr>
<td>1481010</td>
<td>MARLBOROUGH WATER WORKS</td>
<td>MARLBOROUGH</td>
<td>750</td>
<td>None</td>
<td>2017</td>
<td>GINA PAIGHT</td>
</tr>
</tbody>
</table>
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Drinking Water and Groundwater Bureau
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Luis.adorno@des.nh.gov