

Asset Management 101

January 21st, 2021



OFFICE OF GROUND WATER
AND DRINKING WATER



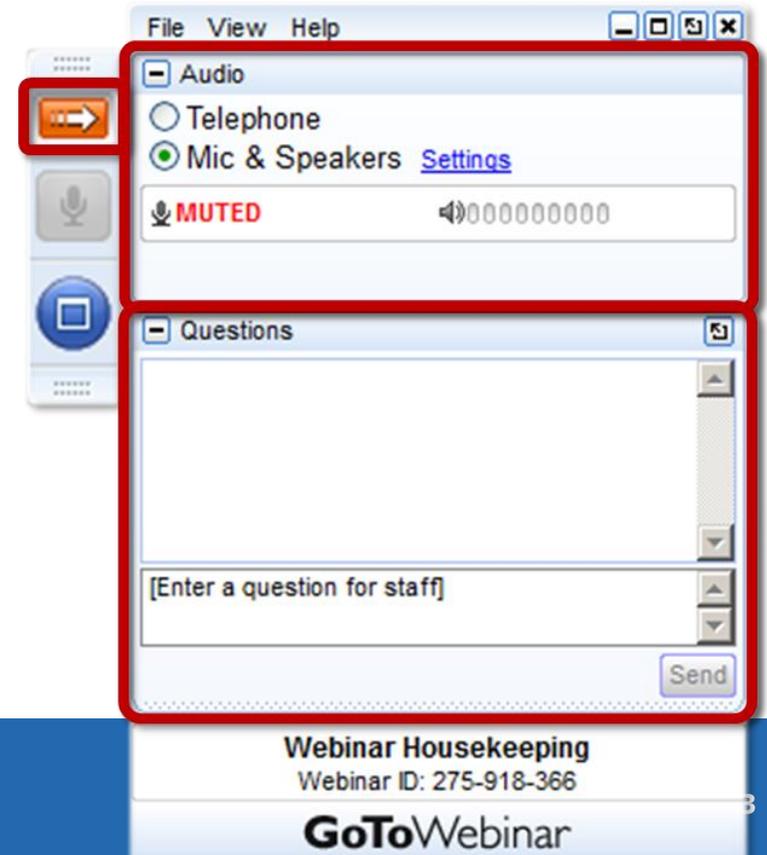
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Learning Objectives

- 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.



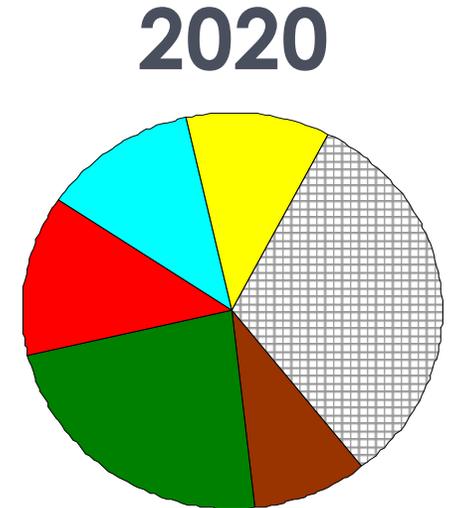
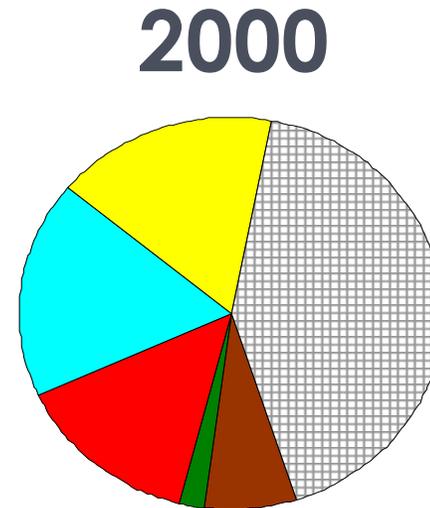
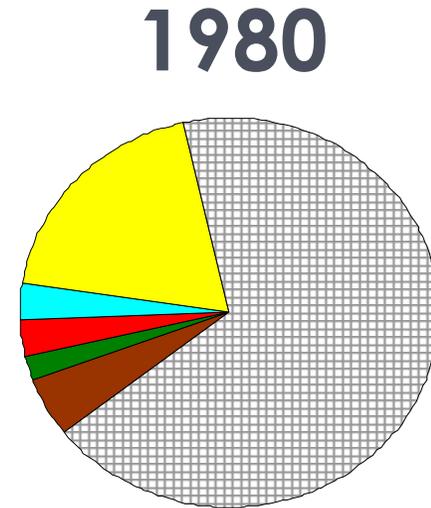
Assets are...

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



Asset Condition Over Time



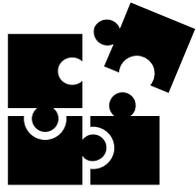
This example is drawn from w/w pipes, but the same general patterns applies to all urban systems

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**



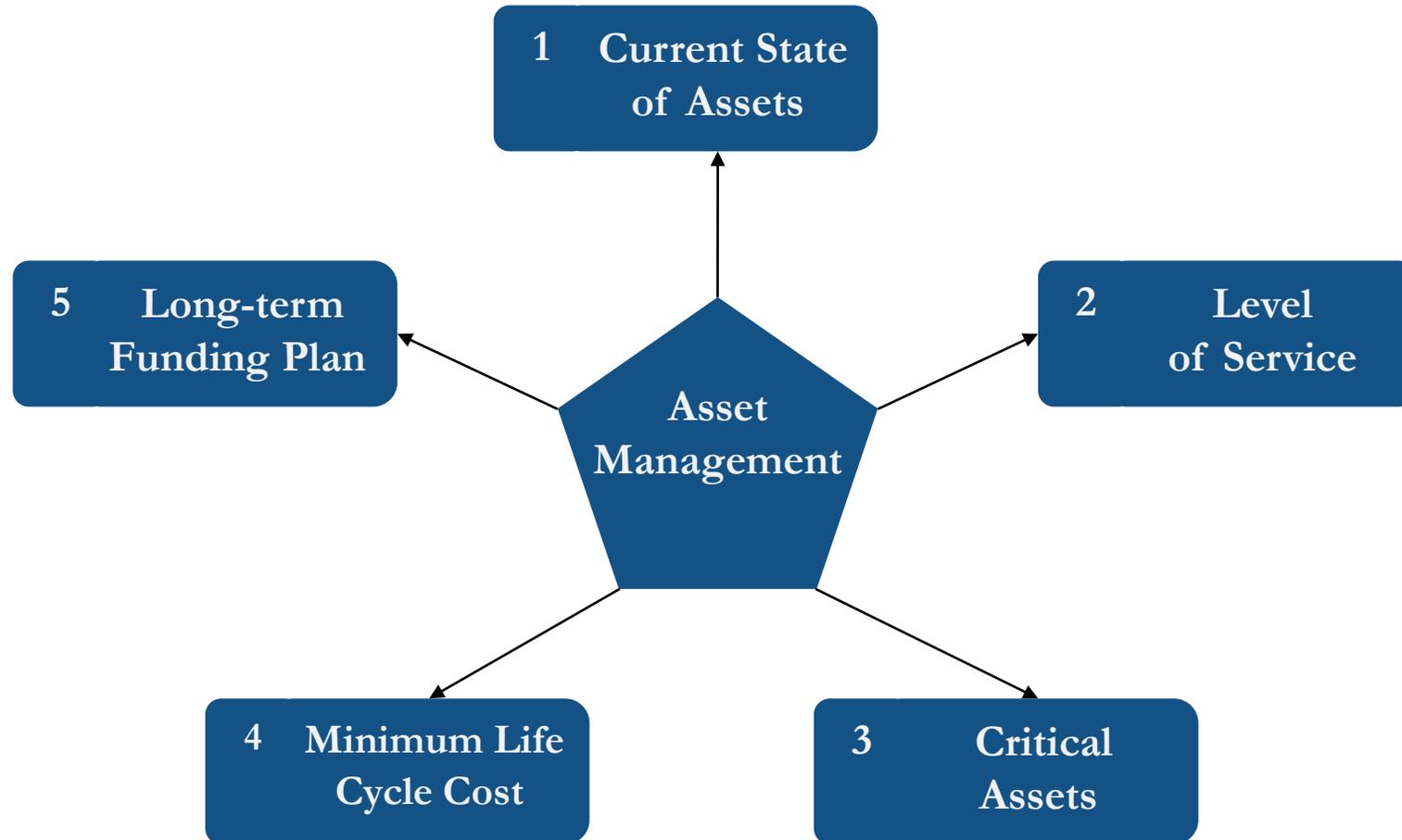
Improved Compliance



**Better Prepared And
Positioned To Respond To
New Regulations And Any
Type Of Emergency**

The 5 Core Questions

An Asset Management Framework



1) 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?

*Ruptured Wooden Water
Tower, March 1999*

*Credit: Charles Myers, Rolla,
MO*



Generating an Asset Inventory

Retrospective

What we already have

- Critical first
- Use existing crews as they respond to work orders



Prospective

What we are about to acquire

- Tie to commissioning or handover process
- Use contract retainage to ensure control



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)?



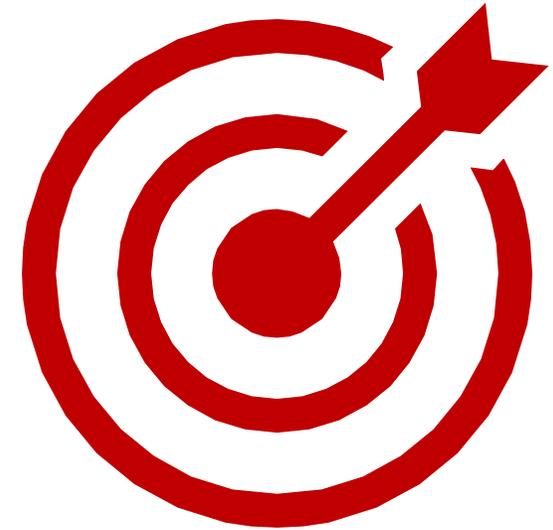
Rusted iron water pipe

Credit: Timothy Ford, Montana State University

- 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?



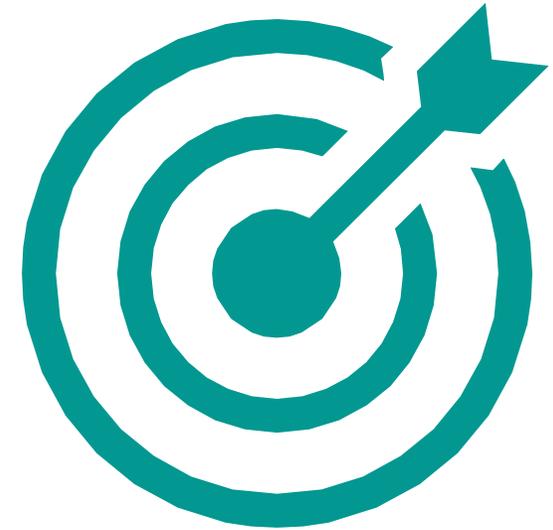
WHAT ALTERNATIVE MANAGEMENT STRATEGIES EXIST?



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?

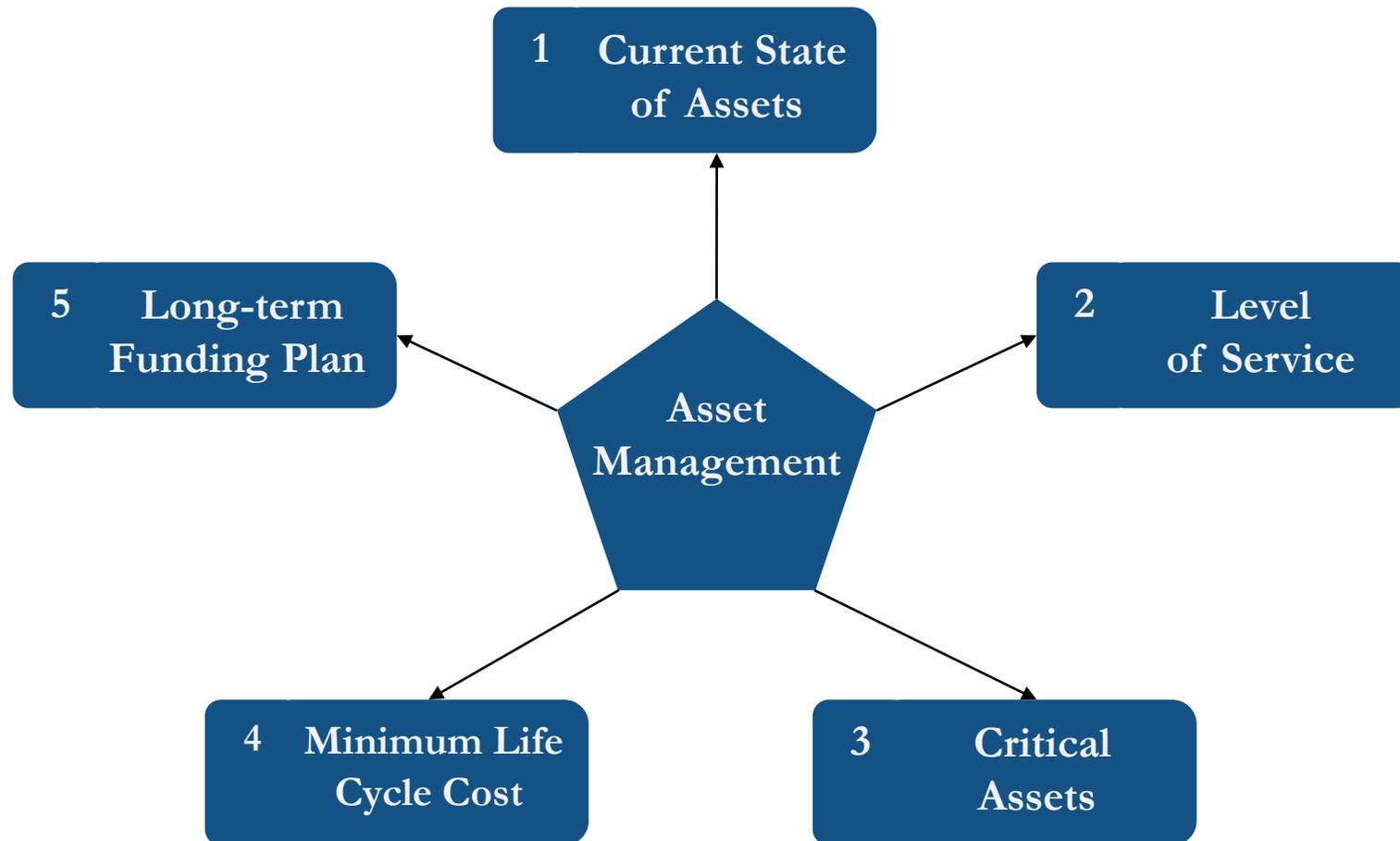


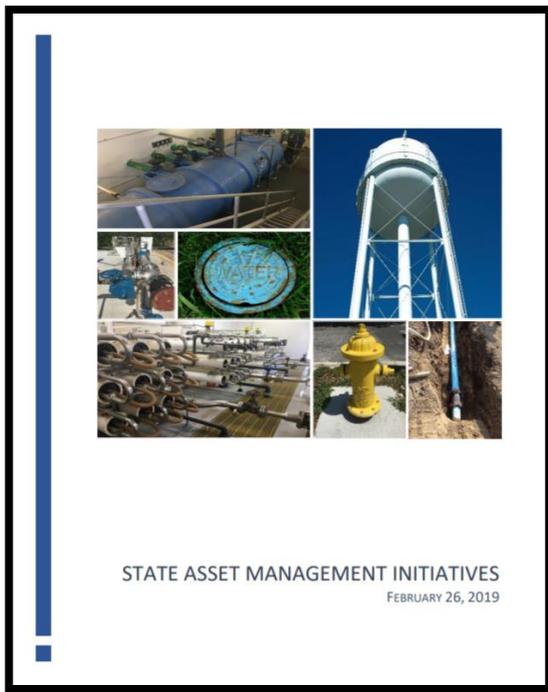
Best Practice

- ✓ 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



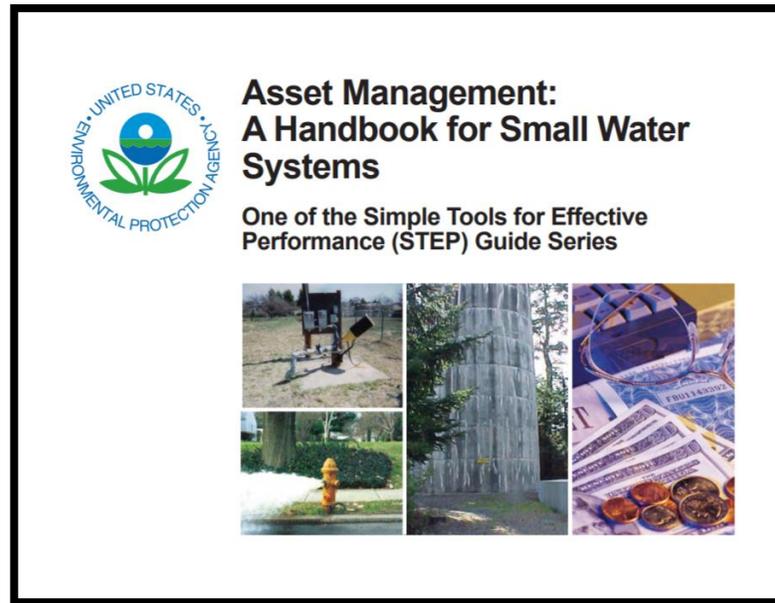
What do I do with this information?





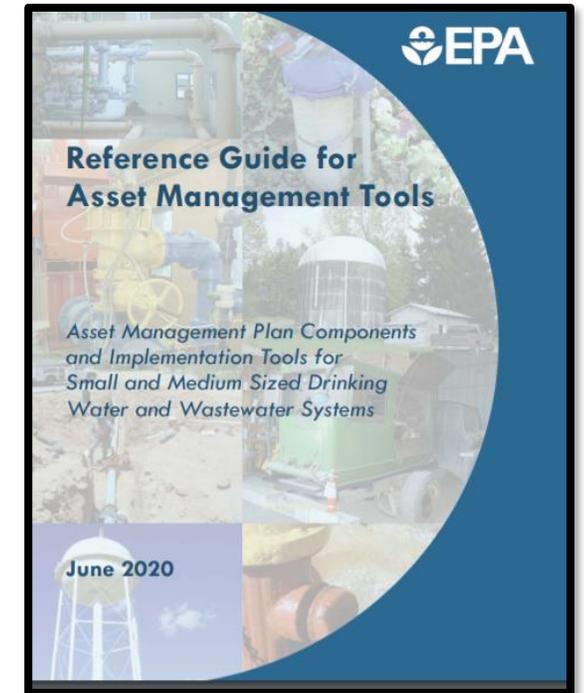
2018 State Asset Management Initiatives Document

An updated document that includes funding, regulatory, assistance, and internal activities that States are undertaking involving the promotion of asset management.



Asset Management: A Handbook for Small Water Systems (STEP Guide)

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.



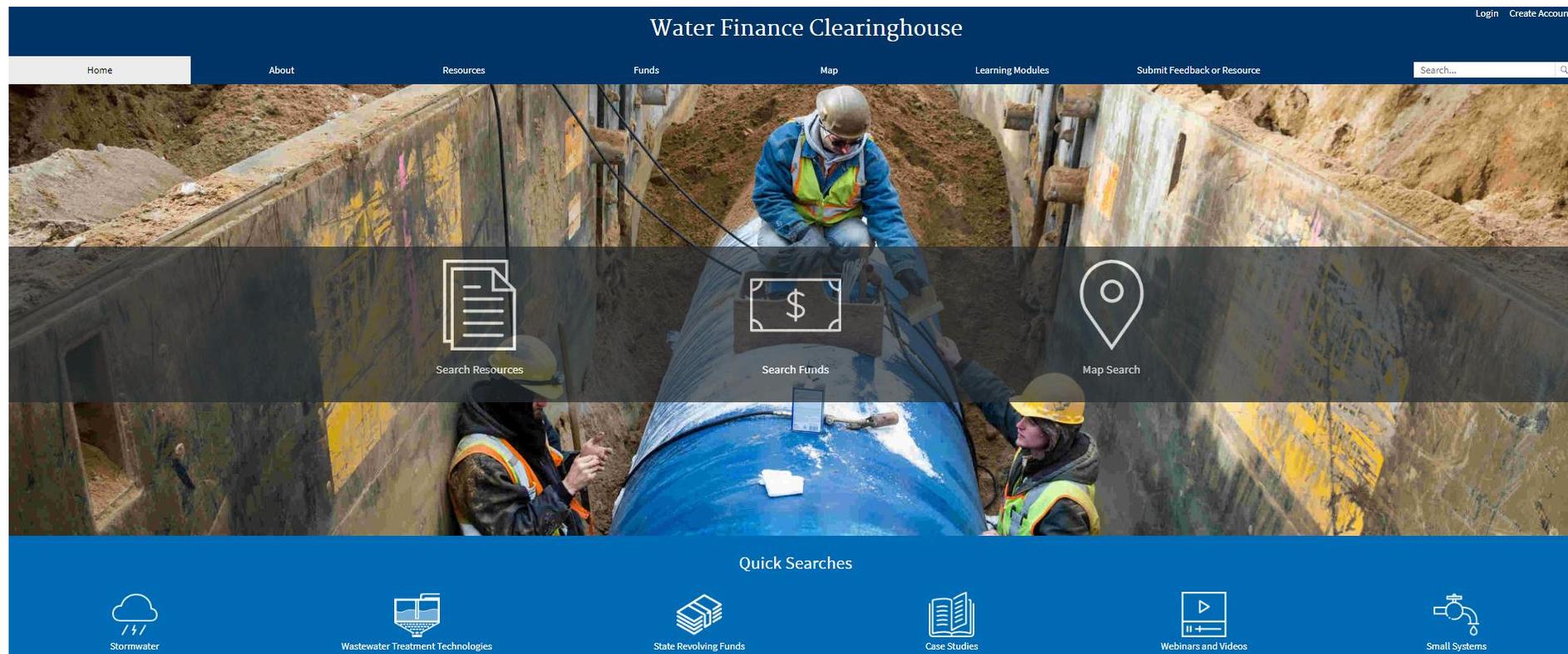
2020 Reference Guide for Asset Management Tools

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



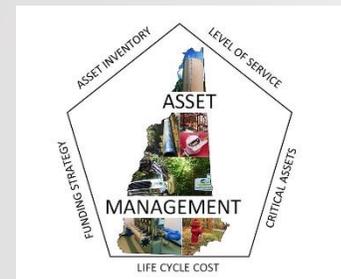
Alison Flenniken
U.S. EPA
Office of Ground Water and Drinking Water
(202) 564-4412
Flenniken.Alison@epa.gov



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AND DRINKING WATER



Asset Management NH DWSRF Set-Asides Grant Programs



New Hampshire

Nickname: The Granite State

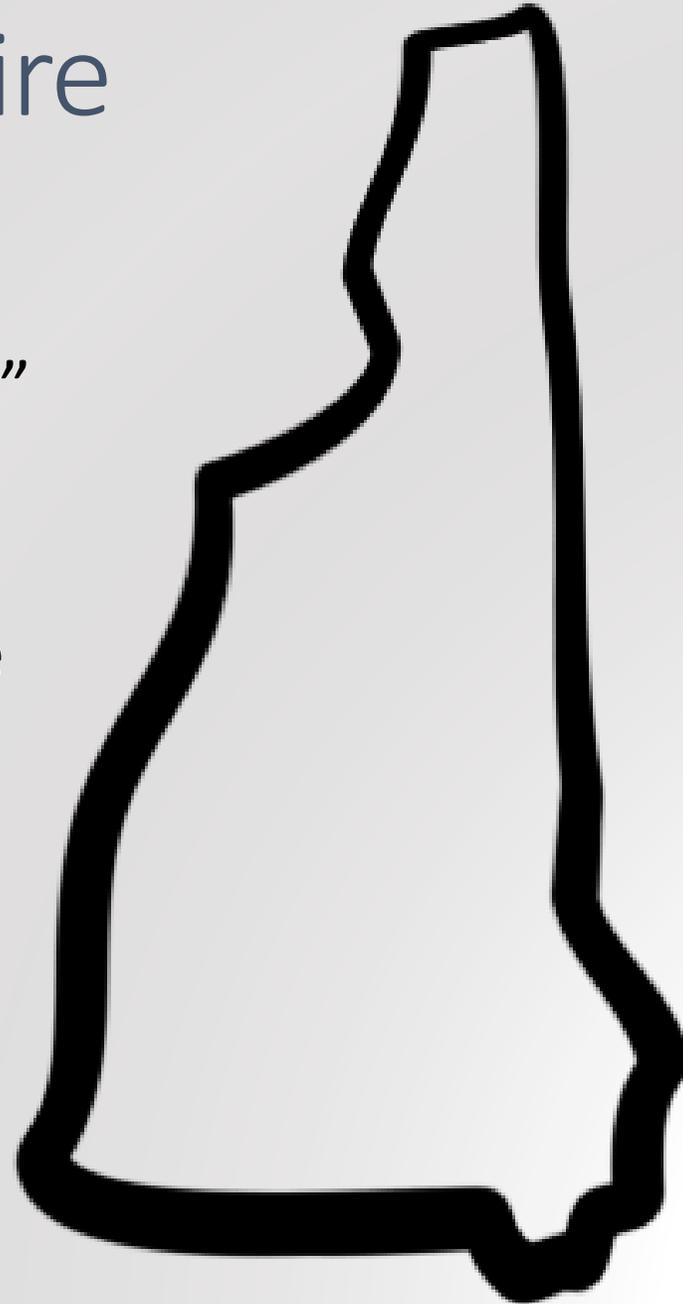
State's Motto: "Live Free or Die"

Costal Line: Only 18 miles long

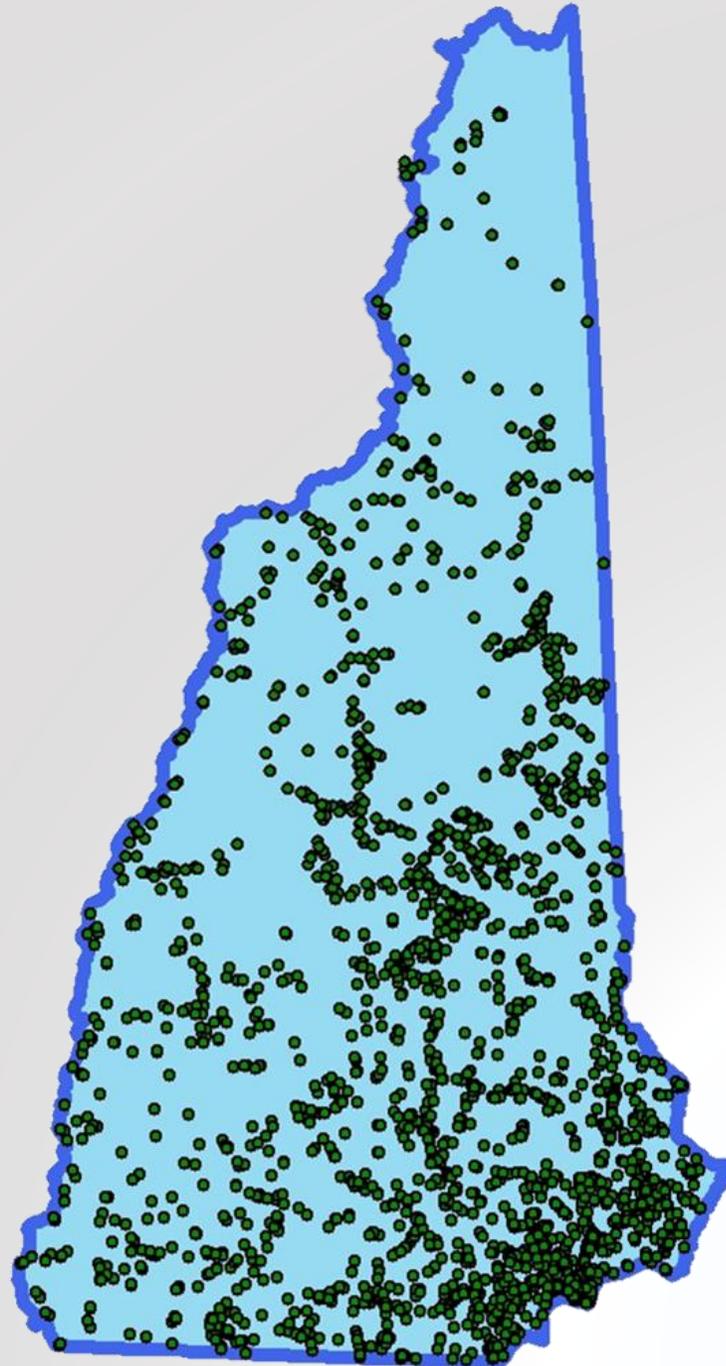
Population: 1.36 million people

MHI: \$76,768

Land Area: 8,952 Square Miles



**NH's
Public
Water
Systems**



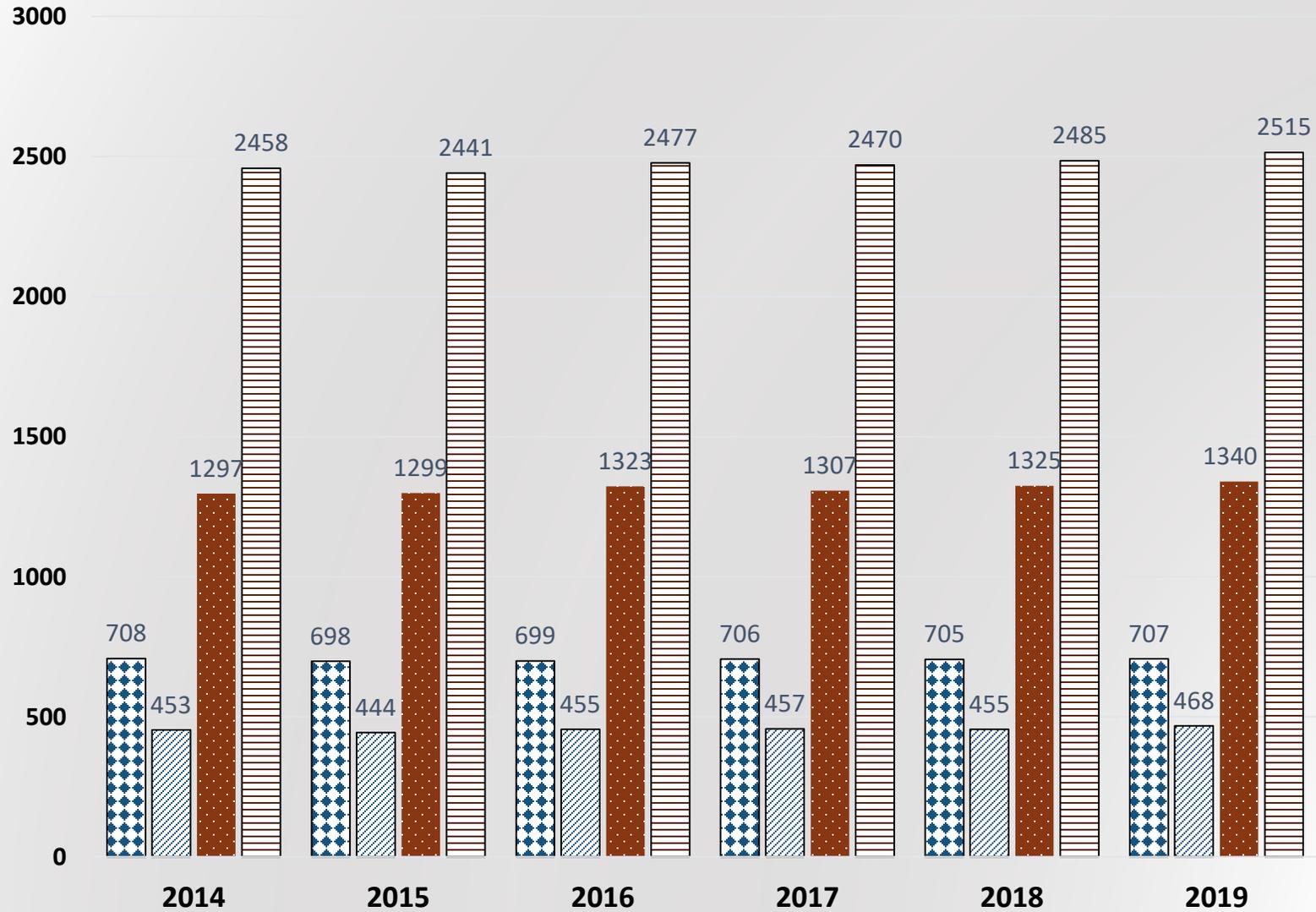
New Hampshire Department of Environmental Services:

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



Asset Management

15% Set-Aside

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

Source Water Protection Grant

Project Types	Develop and implement programs to protect existing (active or planned) sources of public drinking water (delineation, assessment, planning, implementation, security)
Eligible PWSs	'C & P' systems, Municipalities, Regional Planning Commissions, Non-profit Organizations, County Conservation Districts, Watershed Associations, Educational Institutions
Max Grant Amount	\$20,000
Match Required	0
Schedule	Annually—Fall
Year Program Began	1997



Record Drawing Grant

Project Types	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.
Eligible PWSs	'C' systems serving 500 people or less
Max Grant Amount	\$1,500
Match Required	50%
Schedule	Year Round
Year Program Began	2010

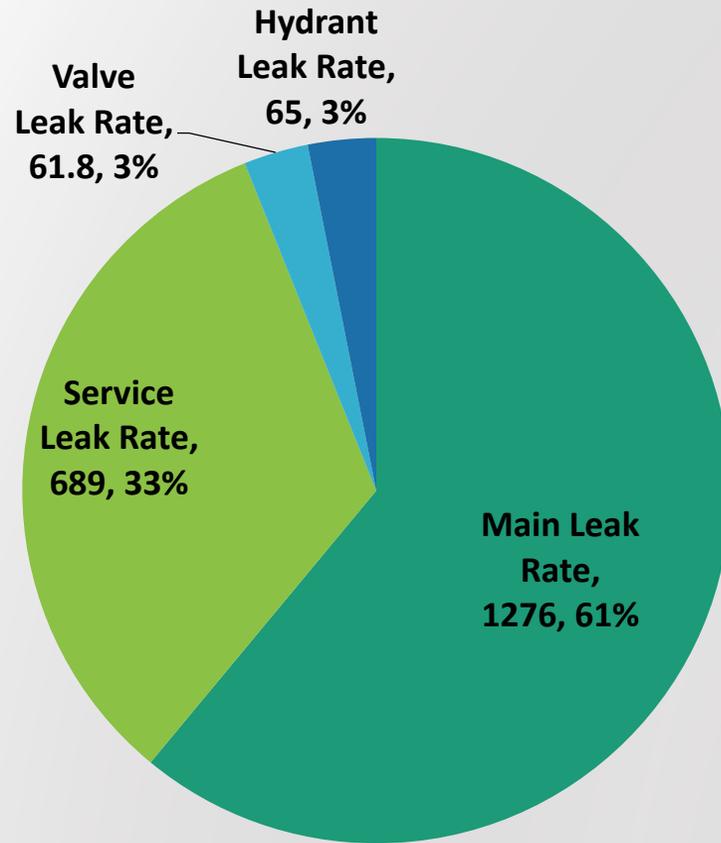


Leak Detection Grant

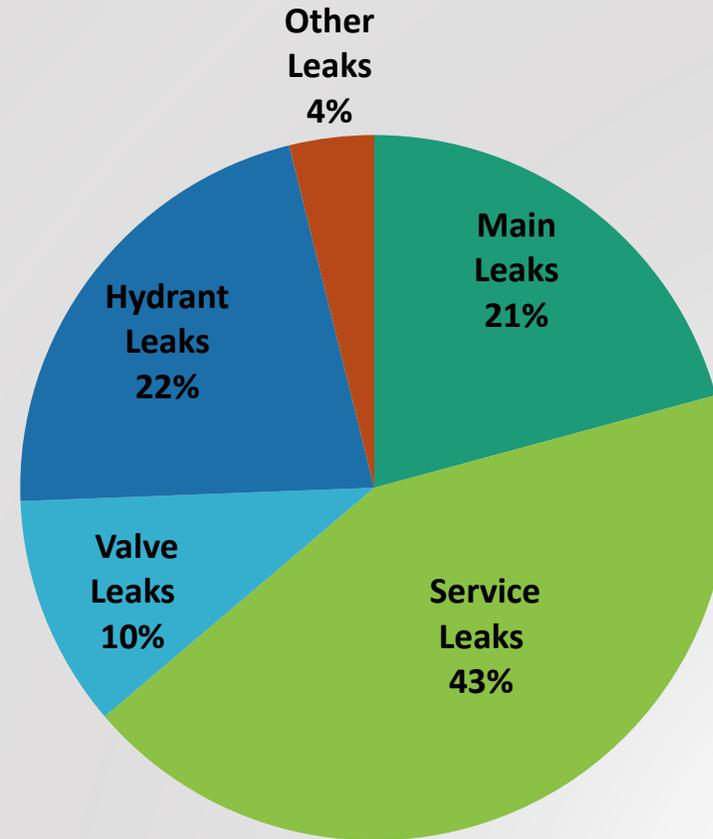
Project Types	Free acoustic leak detection survey (demonstration that the water system will repair identified leaks in a timely manner, accuracy and detail of as-built plans, system need or benefit to the system (ex. high water losses, water shortage, or results of last survey performed)).
Eligible PWSs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



Leak Detection Grant



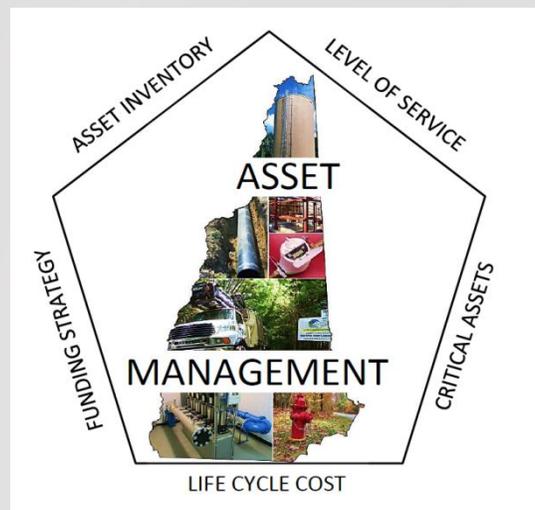
Volume of Leaks by Type



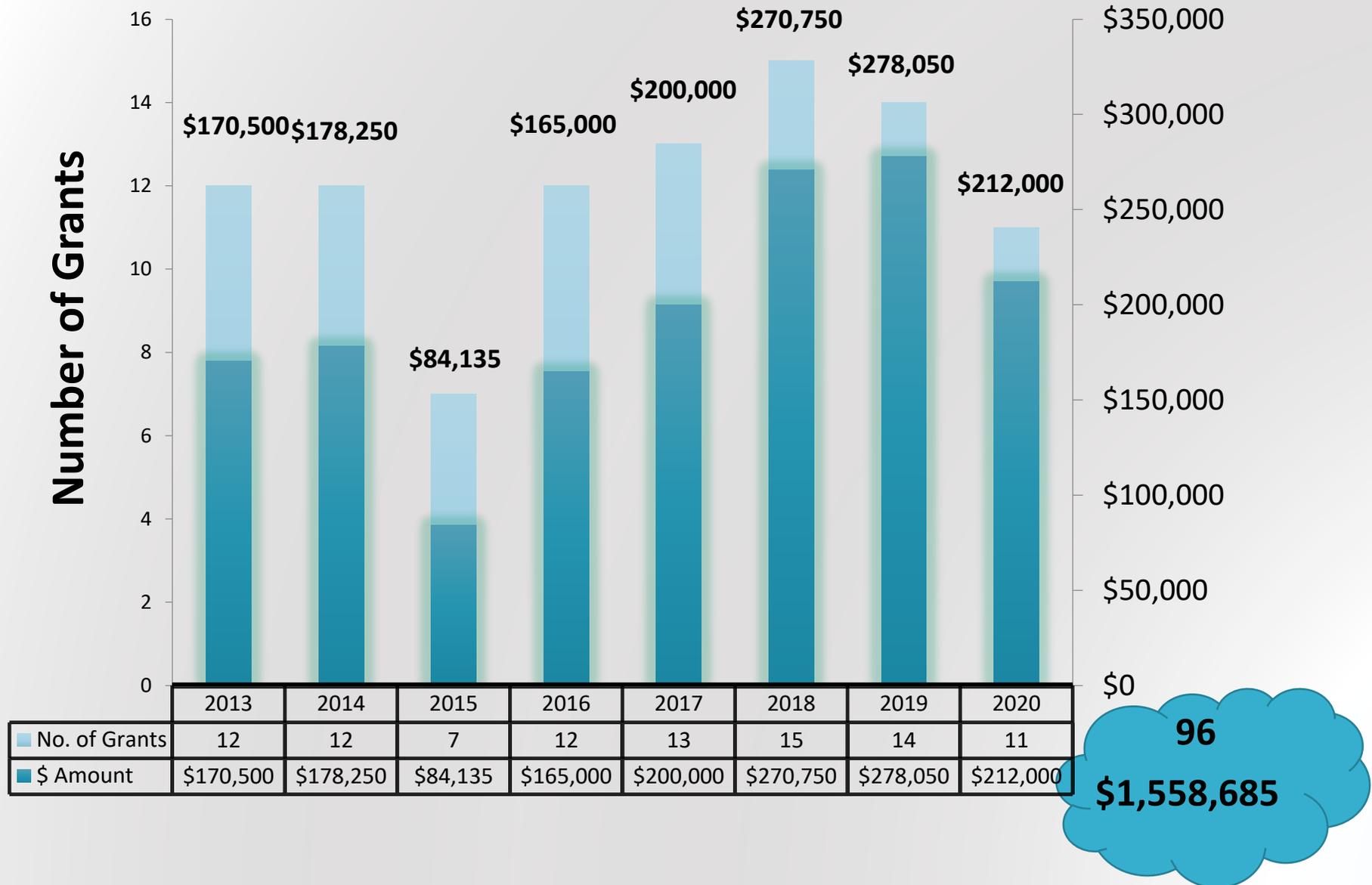
Leaks by Type

Asset Management Grant

Project Types	Develop or expand asset management activities (inventory, financial, implementation)
Eligible PWSs	'C' systems serving 200 people or more
Max Grant Amount	\$20,000
Match Required	50%
Schedule	Annually—Fall
Year Program Began	2012



Asset Management Grants Awarded through CY 2020



**STORMWATER ASSET MANAGEMENT
LOANS AS OF DECEMBER 2020**

DWGB Grants Overtime

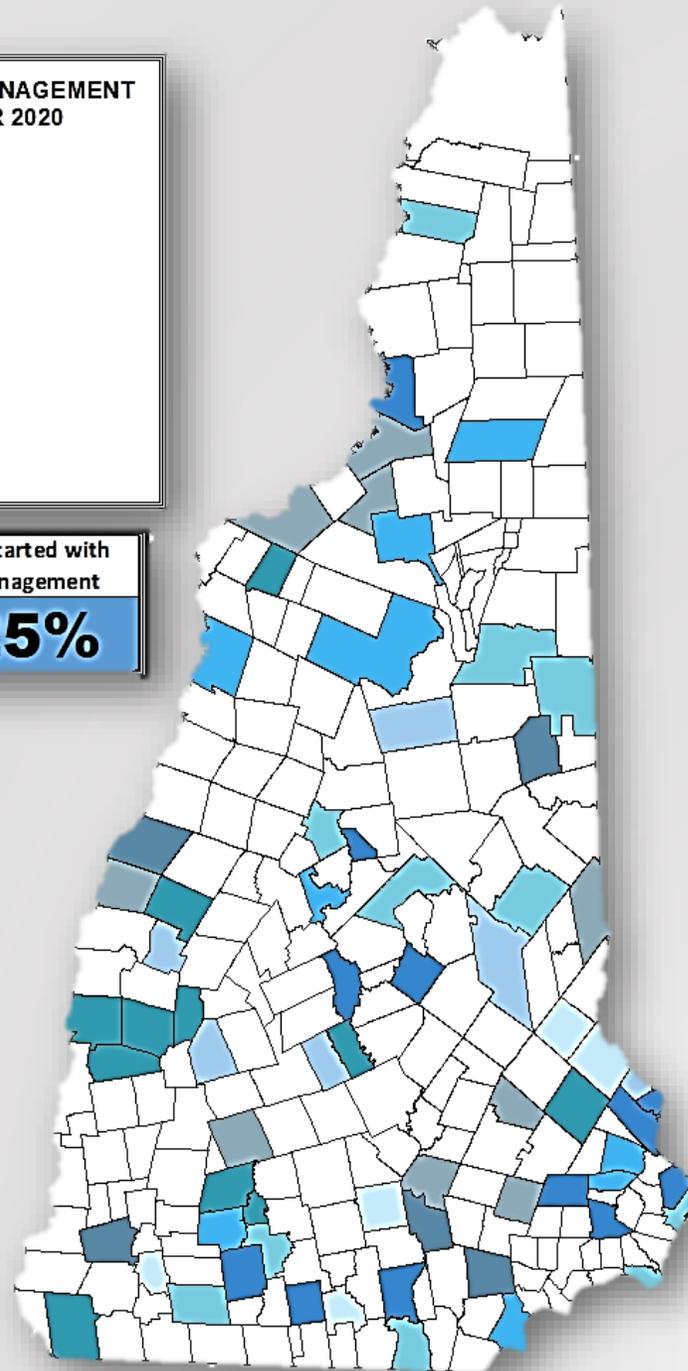
Year

- 2013
- 2014
- 2015
- 2016
- 2017
- 2018
- 2019
- 2020

**Percent of Communities Started with
Drinking Water Asset Management**



25%



NEW HAMPSHIRE
DEPARTMENT OF
**Environmental
Services**

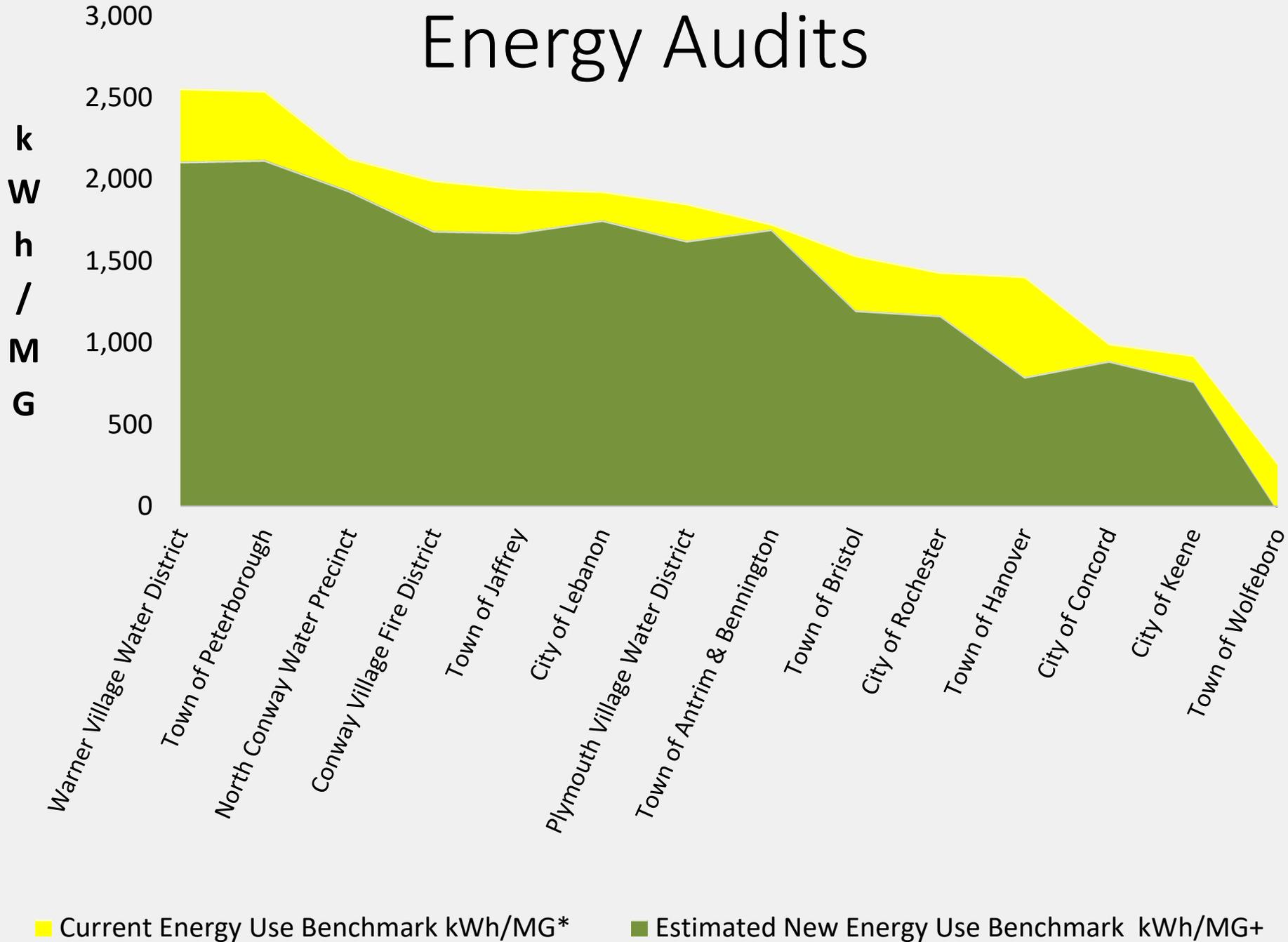


Energy Audits

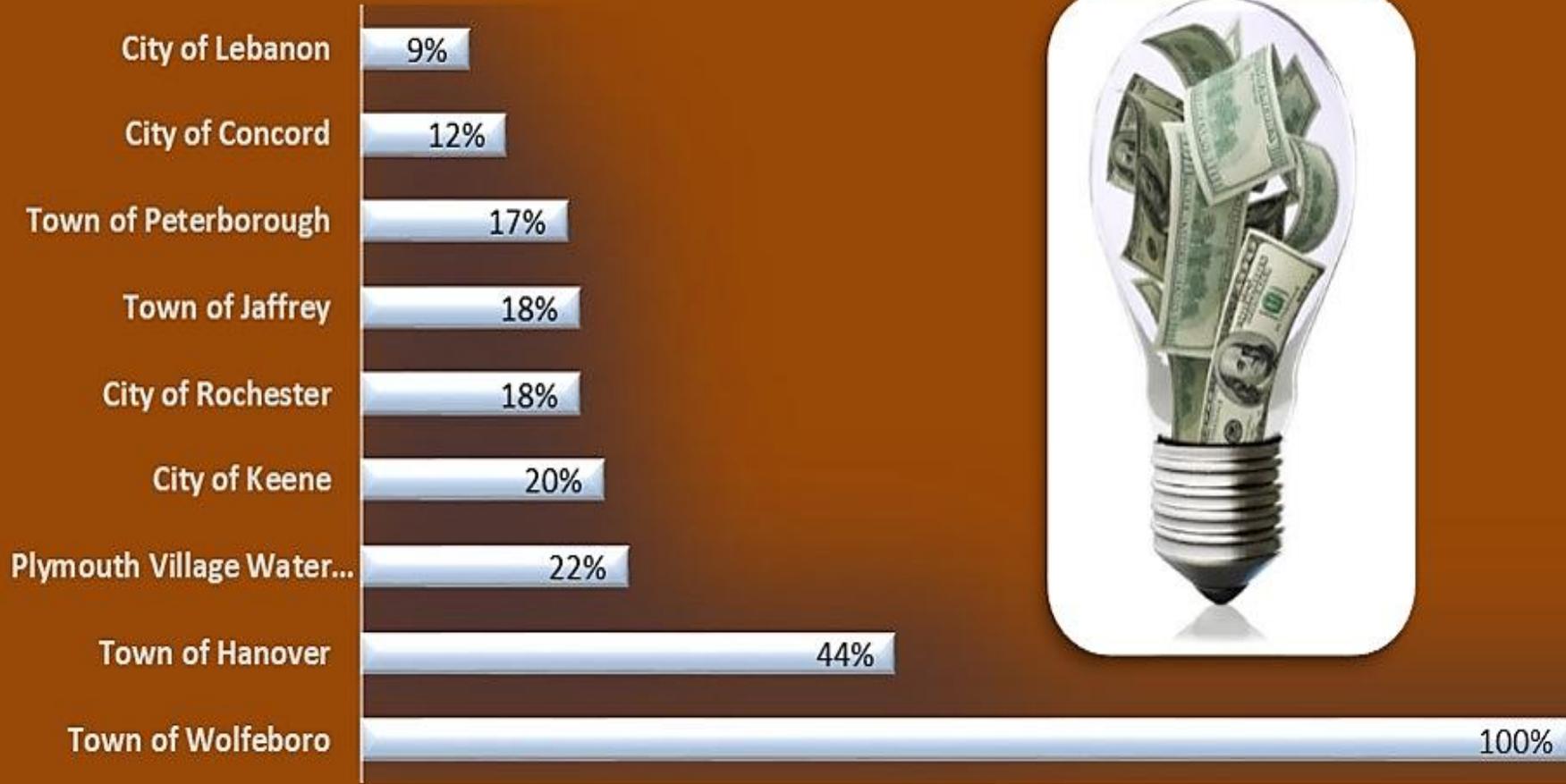
Project Types	Provide comprehensive energy audits of the entire water system process.
Eligible PWSs	'C' systems with asset management programs
Max Grant Amount	No set Amounts
Match Required	No match required
Schedule	Year round
Year Program Began	2016



Energy Audits



Annual Estimated Savings %



NHDES Guidance for the Energy Efficient Design of Drinking Water System Infrastructure



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WORKSHOPS

2016

BRIDGING THE GAP



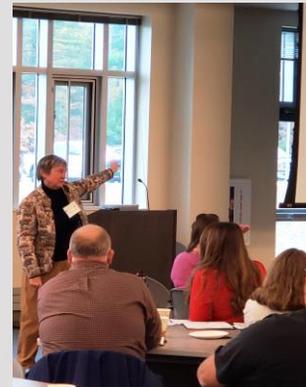
2017

THE NEXT DIMENSION



2018

THE LOST ART OF COMMUNICATION



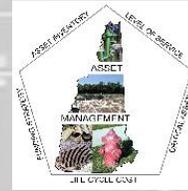
2019

STRATEGIC COMMUNICATION



Asset Management Workshop for Water Infrastructure

- Drinking Water
- Wastewater
- Stormwater



“Data to Dollars” Asset Management Workshop

January 19, 2021
2–Hour Online Event

Asset Filters (1 criteria selected) [RESET ALL](#)
 Select from the following criteria to see which communities have an Asset Management Program or a specific Asset Management component.

Has the community conducted an Inventory? [RESET](#)

- All of the assets
- Majority of the assets
- Most of the assets
- Not Yet
- I don't know

Is the community currently using CMMS software? [RESET](#)

- Yes
- No

Has the community done Digital Mapping of their system? [RESET](#)

- All of the assets
- Majority of the assets
- Critical or key assets
- Barely any assets
- Not Yet
- No

Has the community conducted Criticality assessment on the assets? [RESET](#)

- All of the assets
- Majority of the assets
- Most of the assets
- Barely any assets
- Not Yet
- No

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.

[USE THE NHAMD TOOL >](#)



System Contacts

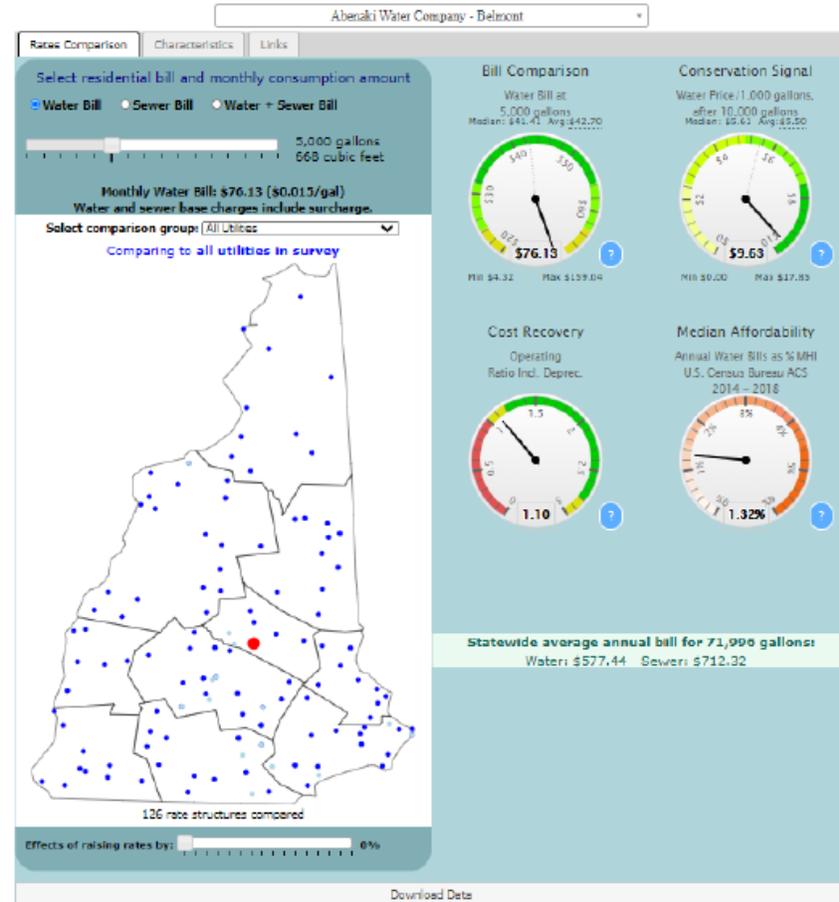
Displaying 9 records [Save as Excel](#)

PWS ID	SYSTEM NAME	TOWN	POP	CMMS	NHDES AM GRANT YEAR	CONTACT
0231010	BERLIN WATER WORKS	BERLIN	9575	PeopleGIS	2017	CRAIG CARRIGAN 603-752-1677 craig@bwwwberlinnh.org
0461010	CLAREMONT WATER DEPT	CLAREMONT	9000	Cartegraph	2018	JEREMY CLAY 603-542-7020 jclay@claremontnh.com
0611010	DERRY WATER DEPT	DERRY	17200	Lucity	2015	DAVID CARON 603-432-6100 davecaron@derrynh.org
1181020	HOOKSETT VILLAGE WATER PCT	HOOKSETT	3000	None	N/A	TODD SMITH 603-485-3392 tsmith7614@outlook.com
1221010	JAFFREY WATER WORKS	JAFFREY	3650	Pubworks	2017	JON FREDERICK 603-532-7880 jfrederick@townofjaffrey.com
1481010	MARLBOROUGH WATER WORKS	MARLBOROUGH	750	None	2017	GINA PAIGHT 603-876-3751 selectmen@marlboroughnh.org

New Hampshire Water and Wastewater Rates Dashboard



NH Water and Wastewater Rates Dashboard
Rates as of January 1, 2021
Last updated: January 12, 2021



Created
in
2018

Updated
in
2021

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SCHOOL OF GOVERNMENT
Environmental Finance Center





Luis Adorno

NH Department of Environmental
Services

Drinking Water and Groundwater
Bureau

603-271-2472 (office)

Luis.adorno@des.nh.gov