

Asset Management 101

For everyone helping
small systems, on the
ground, every day!



What We'll Cover



- What is an asset?
- What is asset management (AM)?
- All about AM
- Starting an AM program
- Tips & lessons learned
- Resources

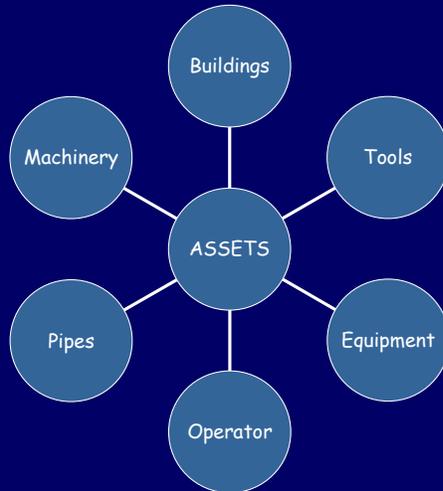
This course was designed to be a first look at asset management or a brief refresher for those that took training previously. For those that do have advanced expertise, we hope to leverage your knowledge during the discussion session. We hope everyone finds a nugget of value in this course.

What Are We Learning?

What Is An Asset?

We want to start from the ground up, to remind you of what we are talking about, before we teach you how to manage it.

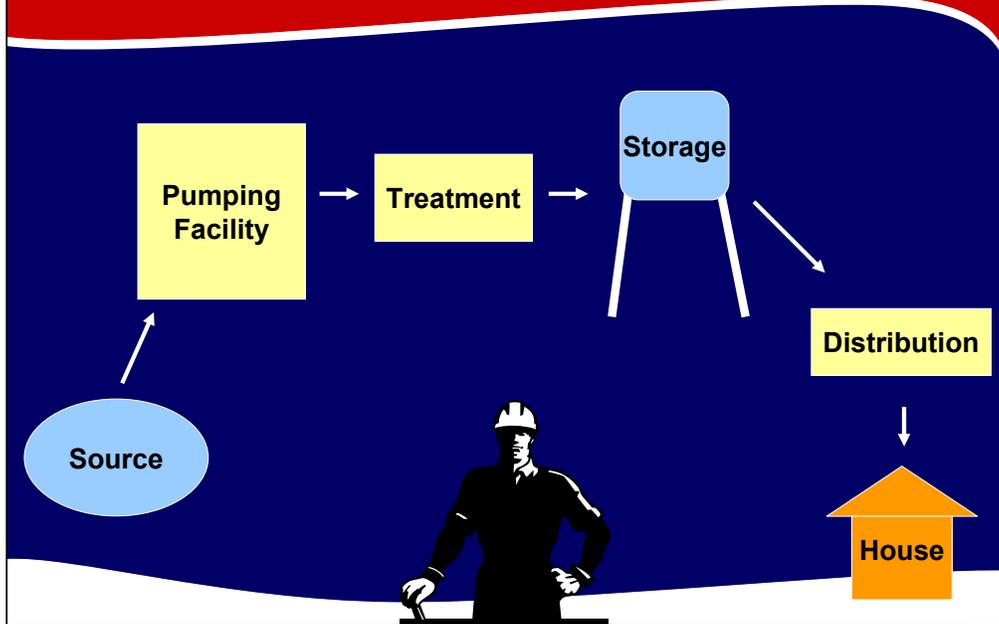
Assets Are...



Tangibles that are used in the operation of a drinking water or wastewater utility

Assets are any building, tool, piece of equipment, pipe, or machinery used in the operation of a utility. Assets also include people, such as the utility operator. Managing assets ensures that a system gets the most value from each of its assets and has the financial resources to rehabilitate and replace them when necessary. Managing assets also includes developing a plan to reduce costs while increasing the efficiency and the reliability of a system's assets. Successful asset management depends on knowledge of a system's assets and regular communication with management and customers about the system's future needs.

Common Assets At A Water Utility



Thinking about categorizing your assets is a great first step. This helps a utility identify which areas of the system might need the most attention. It is really all about focusing your efforts to get the biggest bang for your buck.

Don't forget the operator is your most valuable asset!

Assets Truths

- All assets are not created equal
- All assets eventually fail
- Failures directly affect system performance; failures constrained by cost
- Investment should be guided by the likelihood and consequence of failure



*Grit removal and grinder/screener units
Credit: Village of Boyd, WI*

There are many realities utilities must face when it comes to their assets:

- Different assets have different probabilities of failure, as determined by age, materials and assembly processes, operating environment, demand/usage, and maintenance.
- Assets are not built to last forever, they will eventually fail regardless of O&M
- Utilities want to manage the failure rates of assets. When an asset fails, it affects the whole utility process.
- The management of failures is highly constrained by cost; that is, customers are not typically willing to pay for zero likelihood of failure. There must be a balance.
- Investment in assets (their acquisition, operation, maintenance, renewal and disposal) should be guided by the likelihood of failure and its consequence to the customer and regulator. Condition and criticality analyses should be performed.

The more a utility understands their assets - the demand for the assets, their condition and remaining useful life, their risk and consequence of failure, their feasible renewal options (repair, refurbish, replace), and the cost of those options - the higher the confidence everyone can have that the utility's investment decisions are indeed the lowest life cycle cost strategies for sustained performance at a level of risk the community is willing to accept. This process is called asset management.

What Are We Learning?

What Is Asset Management?

What Is Asset Management?



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

This is a good definition of asset management that small systems can relate to.

There are longer, more complex definitions that are good definitions too. And really, there is no right way or standard to-do list for practicing asset management. Our emphasis for small systems should be getting them to just start... to jump right in wherever they are. Their own definition, of what asset management means to the utility and the community, will come in time.

What Asset Management Means To A Utility

- Back up budget talks with solid facts
- Boost utility efficiency
- Save staff time
- Understand that a utility is running a customer service business
- Improve customer service



Large systems here in the US, like Seattle Public Utilities and Orange County Sanitation District, have been practicing asset management and have well-developed programs. Their lessons learned are pretty detailed, but the concepts can be boiled down and made relevant for anyone contemplating the process.

Asset management will help utilities:

- Back up budget talks with solid facts
- Boost utility efficiency
- Save staff time
- Understand that a utility is running a customer service business
- Improve customer service

The bottom line is that utilities can make better decisions because they're more informed. Its really an organizational and communication process that you can baby step your way into. We all know that major change doesn't happen over night.

Why Care About Managing Assets?

- They are large, expensive, long-lived, and often buried
- Well maintained assets are essential to protect public health
- Economic development depends on reliable and safe water delivery



Return Activated Sludge (RAS) Station and two associated Pad mounted Transformers (PMTs)

Credit: City of Lincoln, IL

There are many reasons to care about managing drinking water and wastewater infrastructure assets.

- Assets are large pieces of complicated equipment that can be very expensive. Assets usually last a fairly long time so utilities want to keep them in good shape. The infrastructure is aging and failing in this country at an alarm rate. And we don't even know where it all is! It's important to remember not only the large pieces of equipment that we see above ground, but also all the equipment that is located underground.

- Performing routine operation and maintenance to these assets is essential to protect public health. Malfunctioning equipment can cause people to get sick, especially the very young and the very old, or those with weakened immune systems.

- Economic development depends on either reliable and safe water delivery or wastewater management. But are utilities charging enough to meet today and tomorrow's demand?

There is a way to address all of these issues – and that is **Asset management**. To gain buy-in from utilities, from local decision-makers, you will have to advocate for the process. Your role is as much a marketer as it is a mentor, a fixer, or even the “bad guy”, the regulator.

How Does Asset Management Relate To Strategic Planning?

- Strategic Planning
 - Requires fundamental decisions about water system's purpose, structure, & functions
 - Helps systems address & prepare for both anticipated & unexpected problems



Strategic planning is a management concept that helps systems address and prepare for both anticipated and unexpected problems. Strategic planning evaluates the current physical, financial, and managerial situation of a system. It requires water systems to make fundamental decisions about the system's purpose, structure, and functions.

Strategic planning paints a broad picture of a utility's future. A written strategic plan is typically a short document that summarizes what a utility does, why it does it, what it is trying to accomplish, and how it will meet its goals and values. An asset management plan is more detailed version of a strategic plan.

How Does Asset Management Relate To Strategic Planning?

- Strategic planning uses asset management to evaluate a system's current physical and financial situation
- Asset management can provide information that will allow a system to make intelligent, informed decisions about the system's future

In order to make Strategic Planning work for a water system, the system needs to collect the information that will allow it to make intelligent, informed decisions about its future. Developing an asset management plan can provide some of that information and help evaluate the current physical and financial situation of a system.

Strategic Planning Workbook



Copies of this document can be obtained by:

- Calling EPA's Safe Drinking Water Hotline at **1-800-426-4791**
- Visiting EPA's website at <http://www.epa.gov/safewater/smallsys/>

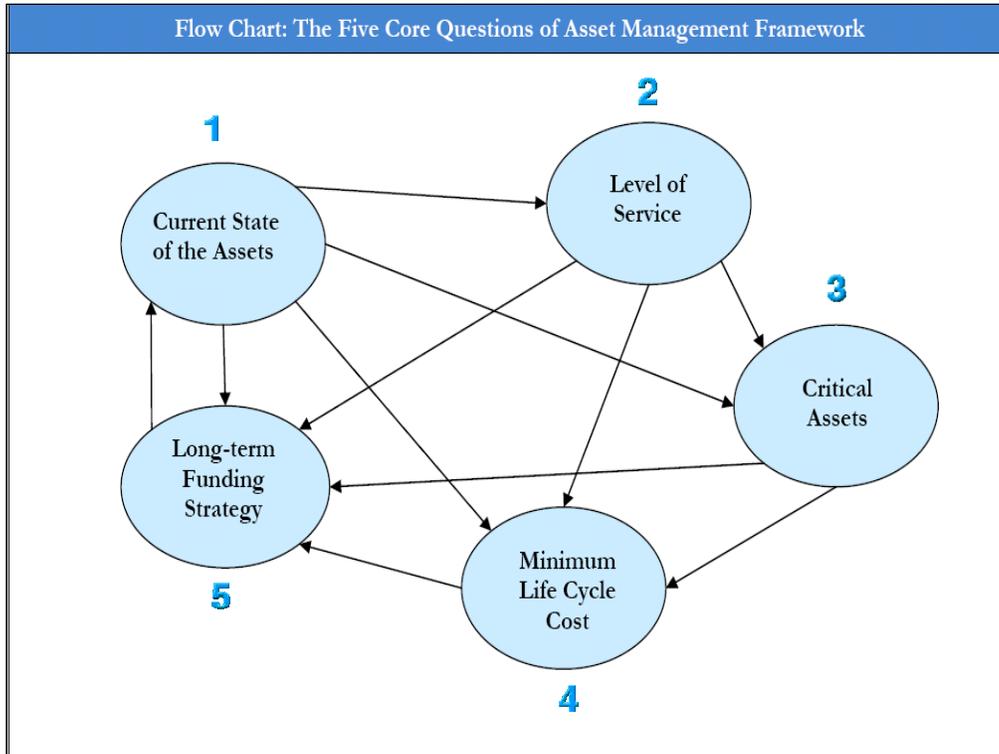
Strategic Planning: A Handbook for Small Water Systems (September 2003): EPA has developed a STEP Guide to assist small systems in strategic planning. The STEP Guide provides worksheets and related tools to help systems organize data and systematically assess their strengths, weaknesses, challenges, and opportunities. This Guide is based on the strategic planning workshops held around the country in 2000. Copies of this document can be obtained from the EPA Safe Drinking Water Hotline at 800-426-4791. Please reference EPA Document # 816-R-03-015. Copies of this document can also be obtained from the EPA website at http://www.epa.gov/safewater/smallsys/pdfs/guide_smallsystems_stratplan.pdf.

QUESTIONS

Remember to submit your questions in the text box on the bottom of your screen!

What Are We Learning?

All About Asset Management



There are many asset management best practices that are constantly being improved upon. Utilities will become more familiar with these approaches as an asset management program is implemented. A good starting point for any size system is the five core questions framework. This framework walks you through all of the major activities associated with asset management and can be implemented at the level of sophistication reasonable for a given system.

The five core questions of an asset management framework are:

- What Is The Current State Of The Utility's Assets?
- What Is The Utility's Required Sustained Level Of Service?
- Which Assets Are Critical To Sustained Performance?
- What Are The Utility's Best "Minimum Life-Cycle-Cost" CIP And O&M Strategies?
- What Is The Utility's Best Long-term Financing Strategy?

These questions all relate to each other!

1

What Is The Current State Of The Utility's Assets?

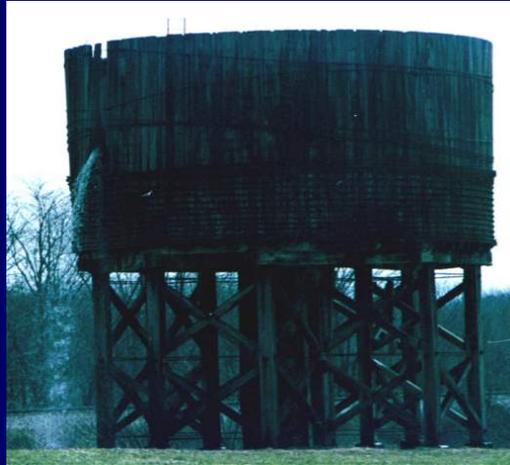
- What does the utility own?
- Where is it?
- What is its condition?
- What is its useful life?
- What is its value?

The first step in managing a utilities assets is knowing their current state. Because some of this information may be difficult to find, estimates can be used when necessary. Over time, as assets are replaced or rehabilitated, the utility's inventory will become more accurate.

Questions to ask:

- What does the utility own?
- Where is it?
- What is its condition?
- What is its useful life?
- What is its value?

Age



Ruptured Wooden Water Tower, March 1999

Credit: Charles Myers, Rolla, MO

Example of an old water tower that has reached the end of its useful life.

Condition



Leaking reservoir

Credit: Rural Community Assistance Corporation

Example of a reservoir in poor condition. This is easy to see because it's above ground. Think about leaking pipes that could be underground!

Best Practices

- ✓ Asset inventory
- ✓ System maps
- ✓ Condition assessment and rating system
- ✓ Useful life assessment
- ✓ Asset values determination

The best practices in figuring out the current state of a utility's assets are:

- Prepare an asset inventory and system map
- Develop condition assessment and rating system
- Assess remaining useful life
- Determine asset values and replacement costs

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?

Knowing the utility's required "sustainable" level of service will help the utility implement an asset management plan and communicate to stakeholders what is being done. The required sustainable level of service is the set of features that describe the utility's short- and long-term performance standards as well as the customer's expectations. Quality, quantity, reliability, and environmental standards are elements that can define level of service and associated system performance goals. The utility's level of service "statement" can be updated to account for changes due to growth, regulatory requirements, and technology improvements (Level of service standards or goals are usually contained in a "service agreement" or "service statement"). Information about customer demand, data from utility commissions or boards, and information from other stakeholders can be used to develop the statement.

Questions to ask in determining Level of Service:

- What do the regulators require? Find out what you have to provide and how.
- What are the utility's performance goals? Or what services is the utility currently providing? Find out if the services can be improved.
- What level of service do the utility's stakeholders and customers demand or expect? Another way to ask this is what is the best way to meet the needs of the customers? Find out from customers what services are most important to them.
- What are the physical capabilities of the utility's assets? Or what else can the utility do in it's current capacity? Find out if the utility is doing all it can do.

Knowing the capabilities of assets is key in setting level of service goals. This is directly tied to Core Question 3: "Which Assets are Critical to Sustained Performance"?

The Utility Can Do More



Spring Box with open access

Credit: Rural Community Assistance Corporation

Note the open door to the spring box!

One Level of Service goal could be keeping the utility's asset safe and secure.

Hazardous To Public Health



*Fuel tank leaking diesel next to wellhead
Credit: Rural Community Assistance Corporation*

Note the fuel leaking near the wellhead! (yes, there is a wellhead there)

One Level of Service goal could to protect the public from hazards of source water contamination by implementing source water protection practices.

Performance Indicators

- Failures per year
- Stoppages per year per mile of pipe
- Overflows per year per mile of pipe
- Electrical usage
- Customer complaints per mile of pipe

Or:

-Meeting/going beyond regulatory standards or permit requirements

-Tracking number of customer complaints per month/quarter/year

Mapping customer complaints can help a utility pinpoint problems within its service area – can lead to an efficient way of problem solving. Once those complaints have been addressed, it can help the utility demonstrate commitment in meeting customer expectations.

Best Practices

- ✓ 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

Best practices for maintaining a utility’s required sustained level of service are:

- Analyzing current and anticipated customer demand and satisfaction with the system.
- Understanding current and anticipated regulatory requirements.
- Writing and communicating to the public a level of service “agreement” that describes your system’s performance targets.
- Using level of service standards to track system performance over time.

Seattle Public Utilities LOS Goal

Less than 1.5% of customers (or 2700 properties) experience a pressure incident (where the water pressure to a property falls below 30 psi) at the point of connection of the property to the utility's main during the peak hour other than as a result of:

- a water interruption,
- during a fire, or
- temporary operational problems

This is an example of a potential LOS goal that a drinking water utility can put in its asset management plan.

While Seattle is a large utility, this type of service goal can benefit any size utility.

3

Which Assets Are Critical To Sustained Performance?

- How can assets fail?
- How do assets fail?
- What are the likelihoods and consequences of asset failure?



Leaking valve

Credit: Rural Community Assistance Corporation

Because assets fail, how the utility manages the consequences of failure is vital. Not every asset presents the same failure risk, or is equally critical to the drinking water or wastewater system's operations. Therefore, it is important to know which assets are required to sustain the utility's performance. Critical assets are those the utility decides have a high risk of failing (like if the asset is old or in poor condition) and major consequences if they do fail (major expense, system failure, safety concerns, etc.). The utility can decide how critical each asset is and rank them accordingly.

Questions to ask:

- How can assets fail? Different things contribute to an asset failing including: Demand exceeds design capacity (which comes from population growth); or physical deterioration from age, usage, or nature.
- How do assets fail? The type of failure depends on the type of asset: Water pipes can leak or disinfection equipment can stop working.
- What are the likelihoods (probabilities) and consequences of asset failure? Likelihoods of failure depend on age and condition. Consequences of failure depend on how critical the asset is: Is it the Chlorinator in small system that has no other backup?

We call this a criticality analysis, but all that really means is looking at the importance of an asset and thinking about how bad it would be if it failed tomorrow.

3

Which Assets Are Critical To Sustained Performance?

- What does it cost to repair the asset?
- What are other costs that are associated with asset failure?



There are two more important questions to ask:

- What does it cost to repair or replace the asset? Cost depends upon if the utility has to repair, rehabilitate, or replace the asset.
- What are the other costs (such as social costs or environmental costs) that are associated with asset failure?

These are important values to know, understand and consider in any decision-making process. Running a utility is fundamentally a business operation and we have to treat it that way.

Approaching End of Life Cycle



Wellhead that needs to be replaced

Credit: Rural Community Assistance Corporation



Failed booster pump results in well house flooding

Credit: Rural Community Assistance Corporation

Examples of assets that should be repaired, rehabilitated or replaced. Understanding the answers to the first three core questions will prepare a utility for determining the best approach to managing each asset and their utility.

High Costs For This Repair



*NYC pipe explosion, July 2007
Credit: Mario Tama, Getty Images*

Steam pipe explosion near Grand Central Terminal in Manhattan. Sent 40 story high hot steam, mud, and debris onto crowded rush-hour for 2 hours. Possible causes include water hammer (cold water coming into contact with steam pipes), broken water main, heavy rain that day, or a crack in the pipe. The steam pipe was installed in 1924.

Extreme examples are good for illustrating, but we know small system realities are more like the photos on the previous page. However, these examples can be powerfully motivating for utilities and communities on the fence about the asset management process.

Understanding Asset Risks



- Perfect World = Knowing Asset Risks
 - Predict when an asset will fail (i.e., likelihood)
 - Fully understand consequences of failure (i.e., impact)

A fuller, more complete understanding is at the heart of core question 3.

What are the utility's highest risk activities?

What is the likelihood of failure of the utility's assets?

What is the consequence of failure of the utility's assets?

Best Practices

- ✓ List assets based on criticality
- ✓ Conduct a failure analysis
- ✓ Determine probability of failure
- ✓ Analyze failure risk and consequences

It is helpful to have a step-by-step approach. Here are some best practices for determining which assets are critical to the utility's sustained performance.

- Listing assets according to how critical they are to system operations.
- Conducting a failure analysis to understand how and why a failure happens
- Determining the probability of failure and listing assets by failure type.
- Analyzing failure risk and consequences.

The first bullet is the nugget here for small systems. Having a prioritized list with associated costs is a huge milestone in a small system's asset management program.

Core questions 4 and 5 then assist with next steps.

QUESTIONS

Remember to submit your questions in the text box on the bottom of your screen!

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?

It is important to recognize that operations and maintenance (O&M), personnel, and the capital budget account for an estimated 85 percent of a typical system's expenses. Asset management enables a system to determine the lowest cost options for providing the highest level of service over time. Utilities want to optimize the work O&M crews are doing, where they are doing it, and why. An asset management program helps a utility make risk-based decisions by choosing the right project, at the right time, for the right reason.

Questions to ask:

- What alternative management strategies exist? Run to failure may be a very real option for some utilities. Is it necessarily the best option?
- What strategies are the most feasible for my organization?

Operation & Maintenance Issues



Poorly maintained reservoir

Credit: Rural Community Assistance Corporation

Example of an asset that has not had proper O&M.

What Are Asset Maintenance Options?

- Non-preventive
(wait until it breaks)
 - Preventive
(plan before it breaks)
- Repair
 - Refurbish/rehabilitate
 - Replace
 - Decommission

Developing an asset management plan can reduce unplanned and emergency repairs because it increases emphasis on preventive and predictive maintenance. It will help a utility determine which assets will be maintained and which will “run to failure”.

Understanding Management Decisions

- What are utility work crews doing and where are they doing it – AND WHY!!?
- What CIP projects should be done and when?
- When to repair, when to rehab, and when to replace?

These decisions typically account for 85% of a utility's annual expenditures!

Bad Decision



#1 is the saddle clamp- this is usually used for small leaks in water mains. Easy to install and fairly reasonable to install while the pipe is under pressure while limiting service interruptions. Not intended for long-term, just short-term until that section of pipe can be properly replaced.

#2- Another leak within a foot of the previous leak. This water system has had to block off this section of road, re-dig, and will probably place another clamp right next to the older one in an attempt to rush the job. This does several things:

- 1- this section of pipe is apparently too weak and old to maintain its integrity.
- 2- the town has had to dig the same hole twice, and possibly a 3rd time before the year is out.
- 3- if the repairs on this aging pipe had been scheduled through asset management, the extra money used for these numerous repeat repairs could have been used elsewhere- say to replace 50 or more service meters.

Best Practices

- ✓ 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

Best practices for determining the utility's best "minimum life-cycle-cost" Capital Improvement Plan and Operation & Maintenance strategies.

- Moving from reactive maintenance to proactive maintenance.
- Knowing the costs and benefits of rehabilitation versus replacement.
- Looking at lifecycle costs, especially for critical assets.
- Deploying resources based on an assets conditions.
- Analyzing the causes of asset failure to develop specific response plans.
- Developing and validating the utility's Capital Improvement Plan, including linking engineering project needs with anticipated financial costs.

5

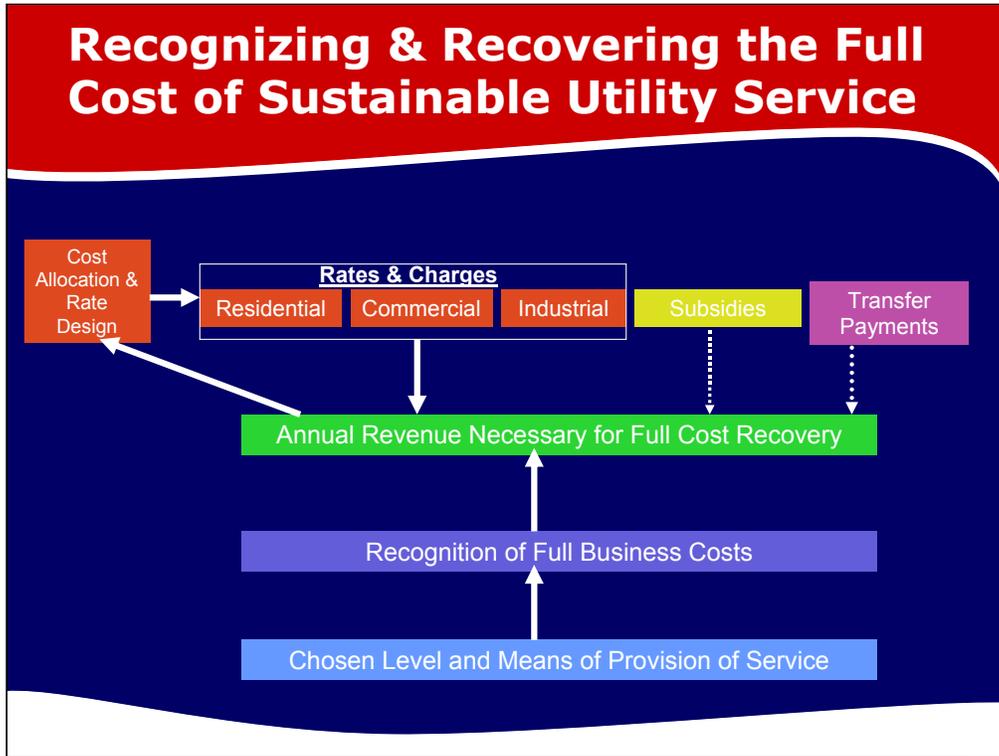
What Is The Utility's Best Long-term Financing Strategy?

- What is the full economic costs associated with the utility?
- How can full cost pricing be implemented?

Knowing the full economic costs of services provided is critical for making sound financial decisions and developing an effective long-term funding strategy. Having this information in an asset management plan will help tell the utility's "story." An asset management plan that refers to the utility's sustainable level of service is good for communicating this information to decision makers and customers. The utility can decide how to fund its strategies by knowing the system's financial forecast.

Questions to ask:

- What is the full economic costs associated with the utility?
- How can full cost pricing be implemented?



One Definition of Full Cost Pricing:

A pricing structure for Drinking Water and Wastewater service which fully recovers the cost of providing that service in an economically efficient, environmentally sound, and socially acceptable manner, and which promotes efficient water use by customers.

Best Practices

- ✓ Routinely review and revise the rate structure
- ✓ Fund a dedicated reserve from current revenues
- ✓ Finance asset renewal and replacement through borrowing

Best practices for determining the utility's best long-term financing strategy.

Some strategies to consider:

- Revising the rate structure. Knowing the answers to the previous questions puts the utility in a good position to justify scheduled rate increases.
- Funding a dedicated reserve from current revenues (i.e., creating an asset annuity).
- Financing asset renewal and replacement through borrowing or other financial assistance.

QUESTIONS

Remember to submit your questions in the text box on the bottom of your screen!

What Are We Learning?

Starting An Asset Management Program

Before you tackle the 5 core questions – you must be able to answer two very important questions – what do you want to provide and what do your customers want?

What do you want to provide?

Example Mission Statement

“Our mission is to operate in an efficient and cost-effective manner without jeopardizing the health of an employee and/or the quality of service we provide to the public.”

The first step is to establish a mission statement for the utility. Think about why you have come to asset management and how you want your utility to be in the end.

What do your customers want?

- Develop goals to form the basis for a plan
- Translate goal statements into specific, quantifiable tasks that can be tracked
- Assign personnel to manage, execute tasks
- Establish method for tracking steps, activities

After creating a mission statement, the team will need to identify level of service goals and objectives.

Understanding who you serve and what it is they require is essential to asset management.

Make sure to gather input from external stakeholders. A stakeholder is anyone who holds an opinion about the way in which the plant is run and might include the following groups: residential, retail and industrial customers elected officials, developers, consultants, auditors, regulatory agencies

You should translate the goal statements into specific, quantifiable tasks that can be tracked (e.g., if the objective is to determine the condition of all 500 miles of collection system piping in a 5-year period, then the strategy might outline the number of miles of pipeline that have to be inspected per year)

You can assign specific people to manage and execute each task (e.g., Joe, the system superintendent, is responsible for ensuring that his maintenance department inspects an average of 2 miles of pipeline per week for 50 weeks, for a total of 100 miles per year, or 500 miles in 5 years)

It's a good idea to establish a mechanism to track the progress of each step in the task and begin tracking the activity (e.g., on a weekly basis, Joe must enter data into a spreadsheet which tracks the location, length, and condition of all pipeline inspected).

Asset Management Plan

Develop basic Asset Management plans based on:

- Best available current information
 - Existing levels of service
 - Existing management strategies and opportunities for improvement
- Cash flow projection – five to ten years
- Establish financial and performance benchmarks

An asset management plan should be developed based on the best current information that is readily available. The more information the utility has, the better the plan can be.

What is the utility's cash flow projection for the next five to ten years? Knowing how much money will be coming in and going out will help with managing assets.

It's very important for the plan to establish financial and performance benchmarks – lack of goals equals lack of growth (both financial and capacity).

An asset management plan should be reviewed at least once a year, noting any relevant changes. Throughout the year, systems should keep a running list of items to consider or include in the annual update.

Get Started While Producing The Plan

“This highlighted for us that you can start small and “cut your teeth” on smaller asset groups and still experience the benefits of asset management.”

-Jeff Leighton, City of Portland Water Bureau

We want to emphasize not to wait until the plan is complete before beginning asset management.

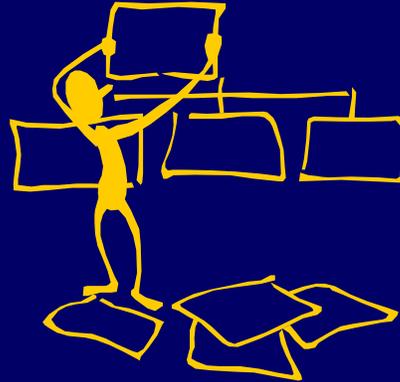
This is a quote from Jeff Leighton, City of Portland Water Bureau

“We were considering increasing the rate of hydrant overhauls. When we compared the cost of doing more frequent overhauls to the benefit, in terms of avoided repairs and replacements, we concluded that we should eliminate overhauls. Evaluating the hydrants was our first attempt at applying asset management concepts to our assets. **This highlighted for us that you can start small and “cut your teeth” on smaller asset groups and still experience the benefits of asset management.** It also allowed us to master the asset management concepts without becoming overwhelmed by the magnitude of our system needs.”

This is a tip any size of system can use.

Considerations When Starting An Asset Management Program

- Organizational and cultural change
 - Centered on team
 - Public knowledge and acceptance
- Will not work overnight
- Start up may increase budget



Asset management is a culture change.. a new way of thinking and doing business.

Changing the culture requires a champion to promote and articulate the benefits of asset management to decision makers, stakeholders, and employees. The champion can be an operator, manager, town clerk, elected official, or stakeholder who coordinates the team as it develops and implements the asset management program. Maybe you are the champion?!?

That role is a challenge, because might be many hurdles to face.

- Organization must change from operations-centered culture to an asset-centric management model. There is no "I" in "Team" - Public knowledge and acceptance is crucial to the success of an asset management program.
- Will not work overnight, should expect several years to see results
- Start up may increase budget with results unrealized for a period after

Effective AM Implementation

Assemble a TEAM to get the program started

- Develop Goals and Mission Statement
 - Gain community support
- Prepare Asset Management Plan
 - Implement the program



We keep hearing success stories and want to emphasize that teams work. Bringing in every decision maker into the process, as central to the team, will make all the difference.

Identify a Dedicated Team

- Identify the appropriate personnel and outside stakeholders
- Clarify roles, responsibilities, accountabilities, and decision making authority

"People, teams, partnerships are the Number One Asset!"

-Barry Buchanan, City of Milwaukie, OR

Key team members include:

Utility operators and engineers (including upper management)

- Knowledge of the current state of water infrastructure assets.
- Ability to describe the costs and benefits of changes to infrastructure assets.
- Experience with the current capital improvement plan and the operations and maintenance strategy.

Local and elected officials (e.g., mayor, council, town manager)

- Authority to commit resources.
- Knowledge of the political landscape.
- Ability to create new financing mechanisms and restructure ineffective institutions.

Accounting

- Ability to help estimate the replacement cost of assets.
- Knowledge of the existing financing strategy, potential financial resources and challenges, and the need for rate changes.

Information Technology

- Ability to determine the most practical way to collect, store, and present the information needed to make strategic decisions.

Treasurer

- Ability to implement new financing mechanisms (e.g., bonds, loans, and other debt instruments) and create dedicated reserve accounts

Don't forget other stakeholders such as:

- Other infrastructure managers and utilities (e.g., roads, sewers, and electric)
- Conservation and environmental groups
- Neighboring water districts
- Community members

What The Team Should Have

- Asset knowledge
- Ability to apply best appropriate practices at the utility
- Vision of financial measures leading to system sustainability



Influent sampling station and flow meter

Credit: Village of Vesper, WI

The team members should possess certain qualities to make the asset management program work:

Asset Knowledge – what they have, where it is located, what condition it's in, and the financial plan to manage priorities

Best appropriate practices – need to understand system risks and consequence of system failures. Identify failures within the norms and those that are catastrophic.

Vision – Asset Management is the basis for full cost pricing of services.

An asset management team should also:

- Be flexible and encourages critical thinking.
- Creates opportunities for sharing ideas and information through open and transparent debate.
- Works through problems and shares the success, not the blame.
- Fosters an atmosphere that builds trust and develops partnerships.
- Uses existing elements of asset management as a basis for the program.
- Starts implementation during planning to achieve early gains.

Stop Breaking The Bank!

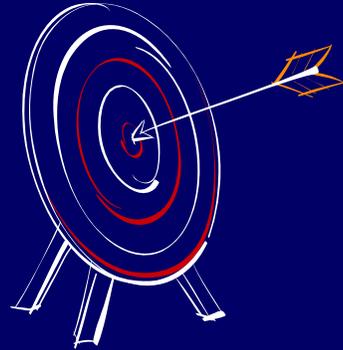
"Programs emphasize life of asset cost, recognizing that properly maintained assets will last longer and therefore cost less money."

-Wayne Cannon (Ohio RCAP) on Circleville, OH Water & Sewer Departments



The End Result

- Ultimately, implementing an asset management plan will help:
 - Identify the full costs of operating the utility
 - Set the stage for sustainable level of service discussions
 - Address high-priority asset needs critical to a utility's performance

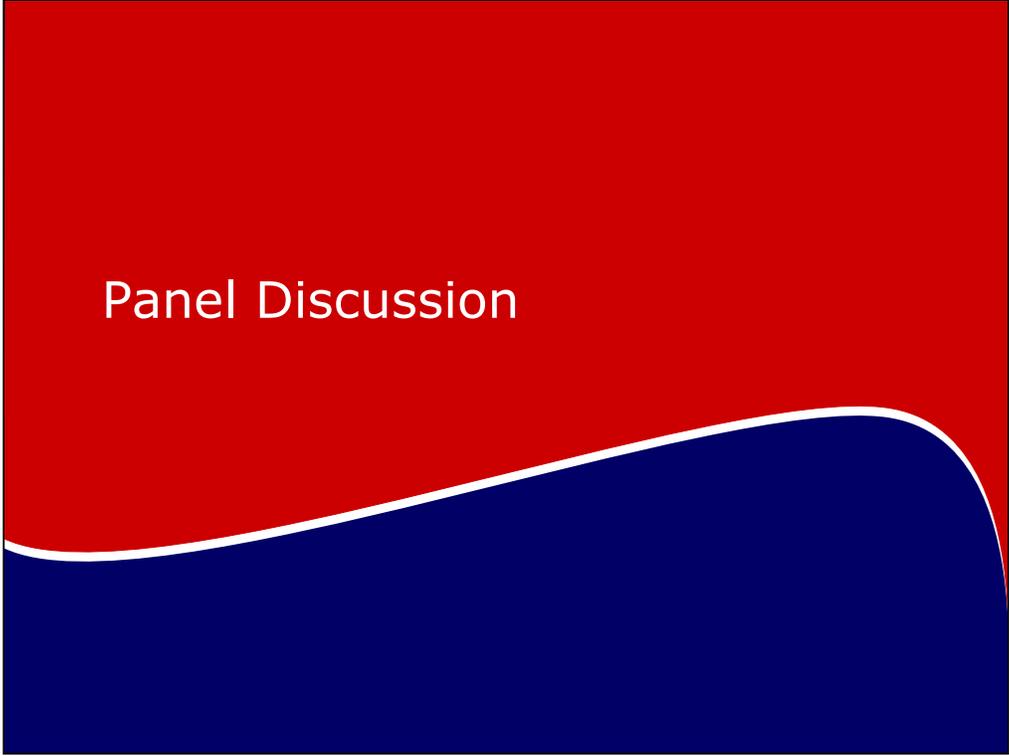


As asset management is implemented, it really becomes a broader way of thinking about utility management.

- Improve intergovernmental relations by improving relationships that lead to better decision-making
- Have better pricing and asset valuation
- Improve technical, managerial, and financial capacity
- Sleep better knowing the chances are reduced that you will have to answer emergencies in the middle of the night

Implementing an asset management plan will help the utility will optimize the TOTAL cost of ownership

- Operation (identifying the full costs of operating the utility)
- Maintenance (setting the stage for sustainable level of service discussions)
- Capital (addressing high-priority asset needs critical to a utility's performance)
- Disposal (addressing the costs to dispose of unneeded assets)



Panel Discussion



FINAL QUESTIONS

What Are We Learning?

Asset Management Resources

EPA's Newest Resource



Asset Management Doesn't Have To Be Difficult

CUPSS Will Help!

What Is CUPSS?

Check Up Program for Small Systems (CUPSS)

- Free, easy-to-use software
- Asset Management 101 for water/wastewater systems
- Prepare an asset management plan in 7 steps

cupss@epa.gov



- CUPSS is software that helps utilities do asset management – just insert the CD in a computer

- Water or wastewater systems can use the tool

Webcasts and Training presentations help get the concept of asset management to stick:

- Getting Started with CUPSS (webcast and presentation)

Geared toward CUPSS Trainers

- CUPSS 6-hour and 2-hour Training Sessions (webcast and presentation)

Geared toward CUPSS Users

- CUPSS and Us (presentation)

Geared toward Local Decision Makers (use the CUPSS and Us presentation to get your local officials interested in asset management.)

New Best Practices Guide and Fact Sheets

Asset Management for Local Officials

This guide will help you understand:

- The basics of asset management.
- Local officials' role in successfully implementing an asset management program.
- The first steps to consider for local officials, citizens and operators of public water systems.

Asset Management

Asset management is maintaining a desired level of service, thereby, where costs are minimized. This means the best appropriate cost – not without cost. Public water systems should consider the following:

- Address aging water infrastructure assets before they fail.
- Keep assets performing well and allow them to become obsolete.
- Minimize limited financial resources by testing all decisions to invest in new assets.
- Make cost transparent to help justify proper priorities to the public.

Asset Management requires:

- Support and involvement of local officials who have the authority to make decisions on asset management.
- A commitment of time and money to make more effective asset management decisions.
- A team made up of key decision makers.

Improving Service and Maintaining Infrastructure Through Asset Management

A sustainable water system delivers safe, clean water to communities and businesses that need it. An asset management program will help you understand the risks of aging assets and how to manage them. Public water systems that have a strong asset management plan can:

- Have more efficient and longer operating assets.
- Choose capital projects that meet the system's long-term needs.
- Have more on-time operational decisions.
- Improve financial health.
- Reduce environmental violations due to failed or poor performing assets.
- Improve the safety and safety of infrastructure assets.

The Five Core Questions of Asset Management

A good starting point for any system are the five core questions, which make up the asset management framework.

- What is the current state of our assets?
 - Your asset management team has the data to understand the current state of your system's assets.
- What is our desired "reasonable" level of service?
 - You define "reasonable" level of service in the set of factors that define the desired level of service in the long run, providing you use water.
- Which assets are critical to sustained performance?
 - Identifying critical assets will help you make decisions about asset management level of service.

Asset Management: A Best Practices Guide

Introduction

This guide will help you understand:

- What asset management means.
- The benefits of asset management.
- Best practices in asset management.
- How to implement an asset management plan.

Target Audience

This guide is intended for owners, managers and operators of public water systems, local officials, regulated assistance providers, and state personnel.

Asset Management

Maintaining a desired level of service (what you want your assets to provide) at the lowest life cycle cost (best appropriate cost – not without cost).

Challenges faced by Public Water Systems	Benefits of Asset Management
<ul style="list-style-type: none"> Aging assets. Increasing demand for services. Resistance to cost increases. Diminishing resources. Determining the best (or optimal) time to repair, replace, or assess assets. Rising service expectations of customers. Increasingly stringent regulatory requirements. 	<ul style="list-style-type: none"> Engaged focused on activities critical to sustained performance. Financial management and rates based on sound operational information. Efficient and focused operations and maintenance to prolong asset life and aid repair/replace decisions. Ability to meet customer demands with a focus on system sustainability. Improved response to emergencies. Security and safety of assets improved.

Implementing Asset Management: Five Core Questions Framework

There are many asset management best practices that are constantly being improved upon. You will become more familiar with these approaches as you implement your asset management program. A good starting point for any water system is the five core questions framework. This framework helps you through all of the asset activities associated with asset management and can be implemented at the level of sophistication reasonable for a given system.

Building an Asset Management Team

Identify the key personnel who will be responsible for implementing an asset management program. This includes local officials, citizens and operators of public water systems, regulated assistance providers, and state personnel.

Asset Management Team

The asset management team should include:

- Local officials who have the authority and willingness to commit public resources and personnel to implement the program.
- Public water system officials who have the authority and willingness to commit public resources and personnel to implement the program.
- Regulated assistance providers who have the authority and willingness to commit public resources and personnel to implement the program.
- State personnel who have the authority and willingness to commit public resources and personnel to implement the program.

Asset Management Culture

Identify the key personnel who will be responsible for implementing an asset management program. This includes local officials, citizens and operators of public water systems, regulated assistance providers, and state personnel.

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- State personnel who have the authority and willingness to commit public resources and personnel to implement the program.

Coming Soon!

Asset Management: A Best Practices Guide

- Asset Management for Local Officials
- Building an Asset Management Team

EPA Websites

- CUPSS Website
 - <http://www.epa.gov/cupss> **(Coming Soon!)**
- Drinking Water Small Systems Website
 - <http://www.epa.gov/safewater/smallsys.html>
- Wastewater Asset Management Website
 - <http://www.epa.gov/OWM/assetmanage/>

These websites contain links to asset management guidance materials, case studies, and upcoming training events.

Thanks For Attending!

