

# The Importance of Developing an Asset Management Plan for Your Water or Wastewater Facility

It's 3:00 PM on Friday and you receive a call from your boss. They ask for a complete asset inventory for ALL the water distribution system assets to include purchase dates, equipment ages, and remaining useful life. To top off the request, they have asked for copies of all the work orders generated from a specific section of a water main that has been a trouble spot for several years. The final request is that you need this information turned in prior to a city council meeting Monday morning at 8:00 a.m.!

During my eighteen years of operating and managing water treatment facilities I have been in this exact situation, scrambling to capture information and compiling data into a useable format. Now as I assist water and wastewater utilities implement SEMS Software, it's gratifying to see the easy implementation of software that assists utilities with this very problem. Still, if you don't have a software application to help you establish an asset management plan, there are a variety of things you may want to consider when developing an asset management program.

**In today's economic environment, it is essential for utilities to effectively manage and maintain their assets.**

In the past, managers had to capture this information through massive volumes of hard copy data. This required a large block of time. However, if this facility had implemented an effective asset management program these tasks would be completed in a matter of minutes and transmitted to the boss's email by the end of the business day. That would leave more time to complete other assignments for the utility.

In today's economic environment, it is essential for utilities to effectively manage and maintain their assets. Why is it so important? First let's look at a

definition of asset management: *Asset management is maintaining a desired level of service for what you want your assets to provide at the lowest life cycle cost. Lowest life cycle cost refers to the best appropriate cost for rehabilitating, repairing or replacing an asset. Asset management is implemented through an asset management program and typically includes a written asset management plan. (Asset Management: A Best Practices Guide, USEPA)*

There are definite challenges that water and wastewater utilities face when managing their assets. Not to mention that there is much industry talk of the government making asset management plans mandatory since it helps to cut unnecessary spending. Several of these challenges are due to shrinking workforce, determining the best time to rehabilitate/repair/replace aging assets, increasing demand for services, overcoming resistance to rate increases, diminishing resources, rising service expectations of customers, overwhelming regulatory requirements, responding to emergencies as a result of asset failures and protecting assets.

Water and wastewater utilities which utilize an effective asset management program or use software tools like SEMS, realize the benefits of prolonging asset life. These benefits include aiding in rehabilitate/repair/replacement decisions through efficient and focused operations and maintenance, meeting consumer demands by focusing on system sustainability, setting rates based on sound



operational and financial planning, budgets focusing on activities critical to sustained performance, meeting service expectations along with regulatory requirements, improving response to emergencies, improving security and safety of assets.

The first step in establishing an effective asset management program is to identify the current state of the utilities assets. Some of the data that should be captured is:

- What equipment does the utility own?
- Where is it?
- What is its condition?
- What is its useful life?
- What is its value?
- Does the utility have a current asset inventory and system map.
- Developing a condition assessment and rating system.
- Assessing remaining useful life by consulting projected-useful-life tables or decay curves. This information is typically found in equipment operations and maintenance manuals.

The next step would be to determine the required level of sustainable service. This step will help implement an asset management program and communicate to stakeholders the goals of the utility. Quality, quantity, reliability, and environmental standards are elements that can define

Asset Name	Purchase Date	Age	Remaining Useful Life	Last Service Date
2A frame traffic barricades	04/09/2000	10 Years	-3520 Days	
(3 ea) Telephones	03/20/2008	2 Years	5 Years	03/29/2010
10 hp lcy View Pressure Pump	11/08/2006	4 Years	5 Years	03/30/2010
20 hp VFD 3 (EA)	07/18/1999	11 Years	13 Years	
20 Miles of Distribution System Piping	04/01/1988	27 Years	33 Years	
25 hp Circulation Pumps	05/12/2001	9 Years	3 Years	08/25/2009
25 hp lcy View Pressure Pumps 2 ea	07/22/2000	10 Years	10 Years	03/04/2010
25 person industrial first aid kit	04/09/2000	10 Years	-3520 Days	
3 hp Grundfos Circulation Pump	07/23/2002	8 Years	7 Years	10/20/2009
30 hp back-up pumps	07/23/2004	6 Years	6 Years	01/26/2010
30 HP VFD Pressure Pumps 4 Each	07/23/1999	11 Years	9 Years	02/25/2010
4'-12" Distribution Gate Valves	07/23/2005	5 Years	5 Years	03/01/2010
5 min escape air pack	04/09/2000	10 Years	-3520 Days	
8th Avenue Pressure tanks	07/23/2007	3 Years	17 Years	10/07/2009
100 1/2" dia. 1500' Manholes	07/23/1997	13 Years	14 Years	07/23/2010

**Effective asset management optimizes the work O&M crews are doing, where they are doing it, and why do they need to. An asset management program helps make risk-based decisions by choosing the right project, at the right time, for the right reason.**

level of service and associate system short- and long-term performance goals. Utilities may use information about customer demand, data from utility commissions or boards, and information from other stakeholders to develop your level of service requirements. The level of service requirements can be updated to track changes due to growth, regulatory requirements, and technology improvements.

Data utilities should capture:

- What level of service do stakeholders and customers demand?
- What do the regulators require?
- What is the actual performance?
- What are the physical capabilities of the assets?

The next step in implementing an effective asset management program is to identify which assets are critical for sustained performance. Because assets fail, how utilities manage the consequences of failure is vital. Not every asset presents the same failure risk, or is equally critical to your water system's operations. It is important to know which assets are required to sustain the water system's performance. Critical assets are those identified as having a high risk of failure (old, poor condition, etc.) and major consequences if they do fail (major expense, system failure, safety concerns, etc.). Utilities must decide how critical each asset is and rank them accordingly. Many water systems may have already accomplished this type of analysis in vulnerability assessments.

**Asset Financial Information**

**BackOffice**  
03/08/2010 1P:STJING / KEY Springfield Public Works

**Asset Information**

Attachments: Images Vendors & Specifications Security Depreciation & Asset Management Service Sched

Install Date: 05/12/2001 Purchase Price: 12,500.00  
Useful Life: 144 months Salvage Value: 400.00  
Estimated Replacement Date: May 12, 2013 Depreciation Method: [Dropdown]  
Replacement Cost: 13,000.00

**Depreciation Schedule**

Redundancy %: 75  
Condition Rating: Minor Defects Only  
Consequence of Failure: Major Component Failure  
Renewal/Replacement Strategy: Increase Maintenance

Save Cancel Close

Data that utilities should capture is:

- How can assets fail?
- How do assets fail?
- What are the likelihoods (probabilities) and consequences of asset failure?
- What does it cost to repair the asset?
- What are the other costs (social, environmental, etc.) that are associated with asset failure?

Identifying equipment life cycle costs provides a basis for allocating resources, both in financial and materials. Operations and maintenance (O&M), personnel, and the capital budget account for an estimated 85 percent of a typical water system’s expenses. Asset management enables a system to determine the lowest cost options for providing the highest level of service over time. Effective asset management optimizes the work O&M crews are doing, where they are doing it, and why do they need to. An asset management program helps make risk-based decisions by choosing the right project, at the right time, for the right reason.

Questions utility managers should ask are:

- What alternative strategies exist for managing O&M, personnel and capital budget accounts?
- What strategies are the most feasible for my organization?
- What are the costs of rehabilitation, repair, and replacement for critical assets?

Sound financial decisions and developing an effective long-term funding strategy are critical to the implementation of an asset management program. Knowing the full economic costs and revenues generated by your water system will enable utility managers to determine the

system’s financial forecast. Accurate financial forecasts can then help managers decide what changes should be made to your system’s long-term funding strategy.

Effective asset management requires an investment in time and resources and is not a one-year project, or even a five-year project. It is a continual, fundamental change in the way infrastructure assets are managed. Successful asset management programs are committed to spending time and money to implement the program by focusing on making cost-effective asset decisions with the ultimate goal of providing a sustainable level of customer service for the community.

To achieve this level of commitment, asset management should be implemented by a team that is supported by local political leaders who have the authority and are willing to commit resources and personnel. This team should be made up of key utility decision makers who represent the departments involved with asset management.

Thinking about your assets differently can be the first step towards having a sustainable water system. With the limited resources of most systems, shifting away from reacting to events and towards making strategic plans can lead to real financial resource savings. Or if you want to take away some of the dedicated time and money, I would recommend purchasing a software such as SEMS to assist you with the process of planning for your asset management program.

As I mentioned earlier, I have been in the same situation as the manager in the first paragraph. Now on the other end of the spectrum, I assist water and wastewater utilities implement SEMS Software Suite. It’s gratifying to see the proverbial “Light Come On” as we are implementing the program and they realize the value that SEMS Software brings to their utility. We not only provide Asset Management but other management tools to assist water and wastewater municipalities with managing their time and restrictive spending. See

[www.semstechnologies.com](http://www.semstechnologies.com) or call 866.758.6582 for more information. There is always

someone who is willing to assist you with your questions or issues at the company should you want to dive deeper into the idea of using a computer maintenance management system like SEMS and how it could help your utility save time, resources and money.

Specific Asset Service History Report

*Kevin Williams holds Class One Water Plant Operator certification in Georgia. He has more than 18 years of experience in the water treatment field. His experience in all levels of facility operations, maintenance and management enables him to bring an operators perspective to projects.*

