The core questions you need to answer to help develop an asset management plan

WHY ASSET MANAGEMENT?

By **Jean Holloway,**
SIAP Circuit Rider

ASSET MANAGEMENT **Maintain system assets and equipment to sustain utilities over time**

What is asset management? Dictionary definitions of both words would indicate the term means "managing one's assets." That's correct, but that's only a part of it. There is so much more to asset management than simply "managing assets" and taking care of equipment. More accurately, asset management is a comprehensive, integrated system for maintaining system assets and equipment for the most effective, least cost allocation of resources, in order to *sustain* the utility over time.

If you read that and say to yourself, "I'm already doing that," you're probably right, at least in part. Some of what you *may* be doing already would include periodic servicing of equipment like pumps and hydrants, exercising of valves, and planning for replacement of equipment that's wearing out. But, is that "asset management"? It's a part. Why isn't that asset management? Because a true asset management approach takes more things into account than just the equipment alone; it looks at each piece of equipment in a big picture, "whole life" way that includes planning, finance, risk assessment, maintenance, record-keeping and prioritization of replacement. In short, asset management looks at every aspect of an asset during its entire life span from planning and design to obsolescence and removal. To do this requires asking and answering five critical "core" questions.[1]

What is the Current State of my Borough's Assets?

Answering this question first requires a full inventory of the system and all its equipment, in as much detail as you can manage, along with an assessment of the condition of each piece of equipment and the consequences to the system if that individual piece of equipment should fail. The inventory step is quite possibly the most labor-intensive and time consuming step in the process, depending on the level of information you already have. You will need, at minimum, an approximate date of installation, the original expected useful life, any updates or maintenance history, and some judgment of the asset's present condition – excellent, good, fair, poor, very poor, or similar ratings.

The risk and condition assessment requires two judgments to be made: what is the likelihood of an asset's failing, and what will it mean to the system if it does fail? These judgments involve identifying the age of the asset or piece of equipment, along with its intended useful life and service record. From that type of objective information, a subjective judgment on how likely it is to fail can be made.

The consequences of an asset's failing can be gauged in the context of seasonal fluctuations, long range goals or anything that might have bearing on the impact of component's failure. For example, if a major water system asset fails during the summer peak water use season, the consequences are likely to be much more severe than if that same asset were to fail during the winter. Each asset's risk assessment must be based on these two components – likelihood and consequences of failure. High consequences but low likelihood equals a lower level of risk. Conversely, low consequences and high likelihood equals a relatively low level of risk. Higher consequences and higher likelihood of failure put an asset in the higher risk category. The risk of failure coupled with the age and expected life of an asset are what help to determine the asset's condition and priority for prospective action.

What are the Sustainable Level of Service Goals?

Level of service (LOS) goals should be measurable, attainable and realistic while just far enough ahead of the present reality to represent a target requiring effort and striving. Likewise, LOS goals should be stated in quantifiable terms. To say, "I want my system to be run in the most efficient way possible," might be a simple mission statement, but there is no way to measure performance

[1] CUPSS Software by EPA

ASSESSING RISK **Each asset's risk assessment must be based on these two components – likelihood and consequences of failure**

in terms of striving for, or reaching that as a goal. A more realistic, measurable goal, for example, might be to say that you want the system to be run with no more than 1 (or 2, or 3) water outages in a 12 month period. That can be both measured and striven for by the utility.

These LOS goals would be worded and measured differently depending on the service area in question, as well. A level of service goal for the area of health and safety might be, "0 MCL violations in a 12-month period," while a goal for customer service and satisfaction might be, "reduce customer complaints by 25 percent over the next 12 month period and respond to customer complaints within 24 hours of receipt." The system's goals for each of four service areas would thus be very different. The general service areas are usually some variation of: health and safety; asset preservation and condition; conservation, compliance and enhancement; and service quality and cost.[2]

What Assets are Critical to Attaining These Goals?

Here the risk assessment gets juxtaposed with values like the level of redundancy for an individual asset, whether a bypass or an alternative is available for a given piece of equipment or whether it can be repaired or re-built as opposed to replaced. All of these issues, along with the likelihood and consequences of an asset's failing, go into the "criticality" determination.

What are the Minimum life Cycle Costs?

Answering this core question requires some knowledge of more than just what a piece of equipment costs to install. One must also have some idea of what the asset's operating costs are over its useful life, as well as some way to estimate what it will cost to remove or rebuild when that useful life is over. If an asset has a maintenance contract, such is frequently the case with a water storage tower, that contract amount is part of those minimum life cycle costs, and is easily documented. If, however, the asset is a piece of pipe, then the minimum life cycle costs might amount to almost nothing over the life of the pipe. The point is that different assets will have different cost centers, certainly, and will most likely have different means of calculating or documenting what those costs may be.

What is the Best Long-Term Funding Strategy?

Answering this question requires an examination of the level of reserves available for self-funding asset restoration/rebuilding/replacement as well as adequacy of revenues over time. It's important to remember that funding, in this context, pertains to the dollars needed to maintain the level of

[2] Ibid

service goals that have been set as well as the cost of asset maintenance and replacement. Anything less than the levels needed for both functions could mean that the system is not operating on a sustainable basis. And in these days of scarce funding, sustainability is everything. Outside funding sources may be available, but these days, they rarely fund all of a replacement or upgrade project.

Of course, no consideration of funding adequacy would be complete without an examination of user rates and other fees to determine the need for increases. User rates must be set so that the full cost of operation and provision of service is recovered for the utility to be sustainable over time, or at least for the immediate future. Fees other than user charges should also be realistic and tied to some demonstrable cost in order to meet any potential legal challenges. If fees haven't been reviewed or changed in the last few years, chances are they are out-dated and need to keep pace with the times just as much as rates.

The source of funding that everyone wants to hear about is programs for "free" or low cost such as the state revolving fund or the U.S. Department of Agriculture (USDA) Rural Development program. These programs are always the first ones to think of when outside funding is needed. Putting all one's hopes in those programs, or any other potential program hoping for "free" money or grants is misguided for two reasons. First, there are fewer and fewer outright grant programs nowadays, and those that do exist rarely fund 100 percent of project or upgrade costs. Second, almost any program, whether grant or loan, will require some sort of local match or other source of funding. If your reserves are at an adequate level, you will have no trouble coming up with that match. Even if you're not trying to save enough for complete self-funding of an asset or system replacement, the match requirements of various programs are reason enough for establishing and annual funding of a reserve.

Whatever your funding plans for sustaining your system through repair, restoration and/or replacement of equipment, having a plan in the first place is a large part of the battle. If that "battle" is about how to fund, then asset management is the war itself. That war can be won with a sound plan, based on solid management practices, and an asset management program that starts with these five core questions. **(B)**

In August, be sure to read the Common Ground column of Borough News. The column will look at communities that have implemented asset management with the Check Up Program for Small Systems, which is a free software tool made available through the Environmental Protection Agency.

LEVEL OF SERVICE Goals for LOS should be measurable, attainable and realistic while just far enough ahead of the present reality to represent a target requiring effort and striving, and in addition, LOS goals should be stated in quantifiable terms

Helpful Resources

EPA STEP Guides – Simple Tools for Effective Performance

- *Asset Management : A Handbook for Small Water Systems*
- *Strategic Planning: A Handbook for Small Water Systems*
- *Taking Stock of Your Water System: A Simple Asset Inventory for Very Small Water Systems*

Other EPA Guides

- *Asset Management for Local Officials*
- *Asset Management: A Best Practices Guide*

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