DRAFT

Appendix C

Asset Management Plans for Public Water Systems

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

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Table of Contents

Background and Introduction

The 2018 America's Water Infrastructure Act (AWIA) requires state drinking water programs to consider and include as appropriate asset management into their state capacity development strategies. The revised capacity development strategy must include how the state plans to:

> (i) encourage public water systems (PWSs) to develop of asset management plans that include best practices for asset management; and
>
> (ii) assist, including through the provisions of technical assistance, PWSs in training operators or other relevant and appropriate persons in implementing such asset management plans.

In accordance with this requirement, the Georgia Environmental Protection Division (EPD) is updating its EPA-approved Capacity Development Program to assist PWSs in the development and implementation of their asset management plans.

Chapter 1. Asset Management Planning and its Benefits

1.1 What is asset management?

As described in EPA's Asset Management: A Handbook for Small Water Systems (Small Systems Handbook):

> "An asset is any building, tool, piece of equipment, pipe, or machinery used by a public water system to deliver safe and clean water. Assets are often large, expensive, long-lived, and often buried underground. Asset management is a planning process that ensures that you get the most value from each of your assets and have the financial resources to rehabilitate and replace them when necessary. Asset management maintains a desired level of service for what you want your assets to provide at the lowest life cycle cost." (p. 6)

1.2 How does asset management benefit a PWS?

The intent of asset management is to ensure the long-term sustainability of water utilities. Asset management helps PWSs make better decisions about when to repair, replace, or rehabilitate specific assets and motivates the development of a long-term funding strategy to ensure that the required level of service is delivered in perpetuity.

Other tangible benefits of asset management plans include:

- Increased knowledge of your system, which will allow you to make better decisions when considering options to address various system challenges, such as meeting regulatory requirements or upgrading system security.
- Reducing system "down-time" and the number of emergency repairs, since you will have planned for the replacement and rehabilitation of your assets.
- Prioritizing rehabilitation and replacement needs and providing time to research cost-effective alternatives.
- Showing stakeholders and the public that you are "using their money effectively and efficiently, which may make them more likely to increase investment or tolerate rate increases" (Small Systems Handbook, p. 5).
- Giving you greater access to financial assistance. "Some funding sources give applicants extra credit (higher priority ratings) for having an asset management plan or a capital improvement plan" (Small Systems Handbook, p. 5).

Chapter 2. Developing the asset management plan

2.1 Who must develop an asset management plan and when

- Beginning January 1, 2024, all new community water systems (CWS) and non-transient non-community water systems (NTNCWS) must submit an asset management plan that addresses the five core question framework, along with their business plan, before EPD can issue the system's drinking water permit.

- Beginning January 1, 2024, during the next ownership transfer or permit renewal process, all existing CWS and NTNCWS that serve populations greater than 3,300 must submit an asset management plan that addresses the five core question framework.

- The Director may, based on compliance history or deficiencies noted during inspections, require an existing PWS to submit an asset management plan.

Accordingly, this Appendix amends the Georgia Minimum Standards for Public Water Systems (April 2021). EPD has revised the Rules for Safe Drinking Water Chapter to include a requirement for preparing asset management plans. [NOTE: This is a draft document and the rulemaking process will be initiated following the stakeholder process for reviewing this draft document. The document will be updated to include the specific rulemaking process prior to finalization.]

2.2 How do asset management plans differ from business plans?

Business plans and asset management plans complement each other towards developing financial capacity. Business plans focus on the revenues and expenses to ensure that the PWSs are financially viable and include current and forward profit and loss statements with some allowance for routine repairs and maintenance. Business plans do not account for the state of the asset, life of the asset, or the capital needed for replacement of various assets.

Asset management plans provide the PWS with a better understanding of their assets, current state of their asset, life cycle of the asset, critical asset(s), and replacement cost for each of their assets. This allows the PWS to estimate the necessary reserve fund, a key output of the asset management plan. As a result, the PWS can put away the needed capital on a monthly or annual basis in a reserve fund, which can then be used to fund repairs and replacement in the future without the need for raising additional capital. Including the reserve fund in the business plan will assure the long term sustainability of the water system.

Chapter 3. What must be included in an asset management plan

All asset management plans must incorporate the five core questions framework for implementing asset management. This framework walks you through all the major activities associated with asset management and can be implemented at the appropriate level for a given system. These five core framework questions provide the foundation for any asset management best practices. Several asset management best practices are listed for each core question on the following pages. Keep in mind that these best practices are constantly being improved upon.

3.1 Five core questions framework of an asset management plan

An asset management plan prepared by a PWS must address the following five core questions:

1. What is the current state of the PWS's assets? (i.e. asset inventory)
2. What is the PWS's required "sustainable" level-of-service?
3. Which assets are critical to sustained performance?
4. What are the PWS's best "minimum life-cycle cost" capital improvement plan and operations and maintenance strategies?
5. What is the PWS's best long-term financing strategy?

The flow chart below shows the relationships and dependencies between each core framework question.

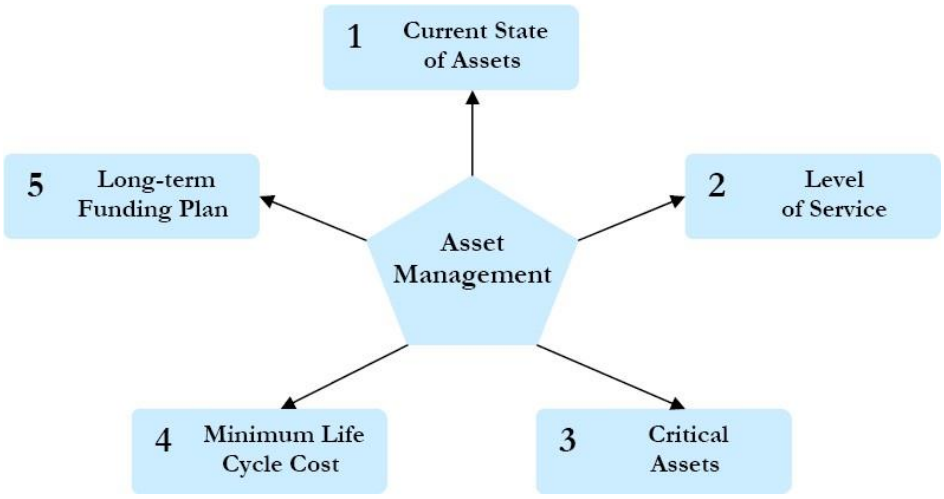

Figure 1. From the Kentucky Division of Water's Guidance on Asset Management and Asset Inventory Report, 2010

3.2 Asset Management Plan

The system may wish to compile its approaches to asset management into a single document discussing each element and how that is handled. However, the document must be flexible and should contain an explanation of how the system is doing each component, not the actual data obtained from each component. The actual data should be in a format that is continually changeable (e.g., computer data base, map that can be drawn on, etc.).

The Asset Management Plan should be thought of as a "road map" to explain how the system is going to develop and implement each component and how the system will continue with asset management over the long-term.

The Asset Management Plan should also be written in such a way that all levels of the organization can make use of it. It can also be made available on the web to customers of the organization. The document provides information to the customers on exactly how the system is being run and creates more confidence in the proper operation of the system and the applicability of the rates that are charged.

The data that is part of the Asset Management Plan should be updated continually as the system performs its operational duties (e.g., as breaks are repaired, information is gathered). This type of updating should not require the overall plan to be revised.

The Asset Management Plan should be reviewed periodically (such as annually or every three years) to determine if the overall methodology used for each component has changed in any way. If so, the document should be revised and redistributed. If not, the document can be left in its current status until the next review.

Chapter 4. How to prepare an asset management plan

Developing and using an asset management plan consists of the following five steps. Before you begin the asset management plan development process it is critical to have the commitment from the management and the management should be ready to commit the resources needed for successful implementation of the asset management plan (See Chapter5).

Step 1: Take an inventory. Before you can manage your assets, you need to know what assets you have and their condition. This information will help you schedule rehabilitations and replacements of your assets.

Step 2: Determine your Level of Service (LOS). Describing the PWS's short- and long-term performance goals, as well as the customer's expectations, is key to communicate with customers and stakeholders to provide transparency and accountability. This step is critical for an asset management plan to address any gaps with the current LOS.

Step 3: Identify Critical Assets. Your water system probably has a limited budget. Identifying critical assets will ensure that you allocate funds to the rehabilitation or replacement of your most critical assets.

Step 4: Life Cycle Cost. Planning for the rehabilitation and replacement of your assets includes estimating how much money you will need each year to maintain the operation of your system each year. This includes developing a budget and calculating your required reserves.

Step 5: Long Term Funding Plan: Once you have determined how much money you will have to set aside each year and how much additional funding (if any) you will need to match that amount, you need to work with your management and customers and with regulators to carry out your plan and ensure that you have the technical and financial means to deliver safe water to your customers.

Each of these steps are detailed in the following pages of this chapter.

4.1 Step 1: Take an inventory

The first step in managing your assets is knowing their current state. Because some of this information may be difficult to find, you should use estimates when necessary. Over time, as assets are rehabilitated, repaired, or replaced, your inventory will become more accurate.

You should ask:

- What do I own?
- Where is it?
- What is its condition?
- What is its useful life?
- What is its value (e.g., original and replacement cost)?

Best practices include:

- Preparing an 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.
- Determining asset values and replacement costs.

It is recommended that at a minimum PWSs track the assets listed in table that follows in this section. If a water system does not have any item from the list in the table, they should make a note of that in their asset management plan.

Inventorying your assets can be an intensive job. Get the best information that you can but do not get bogged down in this step. Remember, use estimates where needed. It is best to determine in advance what data you want to track for your assets, such as age, condition, location, manufacturer, model number, or date built. As crews respond to work orders, they can build the asset inventory by collecting the data that you want to track. As you acquire new assets, immediately add them to your inventory. This can be done in the handover process from the engineers to the organization. If you keep up with an asset management program, your inventory will only improve.

As a general practice, determine the expected useful life by using the manufacturer's recommendations. If that data is not readily available, then use the estimates provided in table below as suggested in the Small System Handbook. Adjust these numbers based on the specific conditions and experiences of your water system.

Estimated Useful Lives	
Asset	Expected Useful Life (in years)
Intake Structures	35-45
Wells and Springs	25-35
Galleries and Tunnels	30-40
Chlorination Equipment	10-15
Other Treatment Equipment	10-15
Storage Tanks	30-60
Pumps	10-15
Buildings	30-60
Electrical Systems	7-10
Transmission Mains	35-40
Distribution Pipes	35-40
Valves	35-40
Blow-off Valves	35-40
Backflow Prevention	35-40
Meters	10-15
Service Lines	30-50
Hydrants	40-60

Lab/Monitoring Equipment	5-7
Tools and Shop Equipment	10-15
Landscaping/Grading	40-60
Office Furniture/Supplies	10
Computers	5
Transportation Equipment	10
Note: These numbers are ranges of expected useful lives drawn from a variety of sources. The ranges assume that assets have been properly maintained.	

4.2 Step 2: Determining your Level of Service (LOS)

Knowing your required "sustainable" LOS will help you implement an asset management program and communicate to stakeholders what you are doing. The required LOS is the basis for justifying your user rates. Quality, quantity, reliability, and environmental standards are elements that can define the LOS and associated system performance goals. You can use information about customer demand, data from PWS commissions or boards, and information from other stakeholders to develop your LOS requirements. Your LOS requirements can be updated to account for changes due to growth, regulatory requirements, and technology improvements.

LOS is split into two groups: customer LOS values and technical LOS categories. Customer LOS values refer to "your customer's expectations of service. Values are measured through tangible attributes, such [as] reliability and quality, but also in satisfaction of customer services and public engagement" (Small Systems Handbook, p. 10). Technical LOS categories refer to the PWS's "internal goals of operational performance. Identifying what the system and their assets need to do in order to achieve the delivery of services to the customer will help determine gaps in the technical LOS and Customer LOS and benchmark performance" (Small Systems Handbook, p. 10).

As described in the Small Systems Handbook:

> "The following list is composed of common values and categories that you may wish to consider when developing your LOS goals. There are certainly other categories and values that can be included but try not to overcomplicate things. At the end of the day, these goals should be meaningful to your customers and employees." (p. 10)

Customer LOS Values	Technical LOS Categories
• Accessibility • Reliability • Quality • Efficiency and Capacity • Customer Service • Public Health and Safety • Legislative • Sustainability • Affordability • Environmental Impacts • Stakeholder and Public Engagement	• Operations • Maintenance • Asset Replacements • Rehabilitation, or Repair • PWS Management • Hazard and Risk Management • Response • Water Loss Control • Drought and/or Demand • Water System Partnerships • Partnerships

	• Staff and Workforce • Efficiency and Capacity

Note: Table reproduced from the Small Systems Handbook, p. 10.

The Small Systems Handbook encourages "S.M.A.R.T" goals:

"When defining your goals, remember to think S.M.A.R.T.!

Specific – Be clear and specific about what you want to accomplish and the actions to take. Think of popular "W" questions: who, what, when, where, and why? Use action verbs such as "Implement", "Update", "Maintain", "Support", "Provide", etc.

Measurable – Measurable goals can be used to track performance and maintain motivation. If a long-term goal seems daunting, then set milestones of smaller tasks that will add up to the completion of the main goal. Measurement methods can be quantitative (audits or benchmark analysis) or qualitative (customer surveys).

Achievable – Goals should inspire motivation, not discouragement. Think about how important the goal is and what you can do to make sure it is attainable. This may require developing new skills or a change in workplace culture.

Relevant – Keep the focus on the expectations and values of your customers and stakeholders. Sometimes goals are not realistic for the time being due to other priorities and needs, or you simply do not have the capacity to reach this goal. Set it aside for now and reconsider in the future.

Time Bound – When applicable, it is good to set a deadline to work toward. Some goals may be ongoing or long-term, so you may want to set milestones (i.e., half-way or every quarter) and define what could be achieved during that time." (p. 9)

4.3 Step 3: Identifying Critical Asset

Critical assets are those that a PWS determines have a high risk of failing (old, poor condition, etc.) and major consequences if they do fail (environmental damage, public health hazards, permit violations, major expense, system failure, safety concerns, etc.). There are many ways to prioritize your assets. "Most often, assets are prioritized based on their remaining useful life. However, this is not the only way to prioritize your assets and may not be the best way for your system" (Small Systems Handbook, p. 22).

Because assets fail, how you manage the consequences of failure is vital. Identifying critical assets will help you make decisions about resource allocation and about maintaining or improving your required LOS. Not all assets are equally important to the system's operation; some assets are highly critical to operations and others are not as critical. Furthermore, critical assets are completely system specific. Certain assets or types of assets may be critical in one location but not critical in another. A system must examine its own assets very carefully to determine which assets are critical and why. You can decide how critical each asset is and rank them accordingly. Many water systems may have already accomplished this type of analysis in vulnerability assessments.

You should ask:

- How can assets fail?
- How do assets fail?
- What are the likelihoods 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?

Best practices include:

- Listing assets according to how critical they are to system operations.
- Conducting a failure analysis (root cause analysis, failure mode analysis).
- Determining the probability of failure and listing assets by failure type.
- Analyzing failure risk and consequences.
- Using asset decay curves.
- Reviewing and updating your system's vulnerability assessment (if your system has one).

Assessing Criticality

Assessing criticality requires an examination of the likelihood of failure and the consequence of failure as discussed above. The assets that have the greatest likelihood of failure and the greatest consequences associated with the failure will be the assets that are the most critical. The next most critical assets will fall into three main categories:

- Assets that have a very high likelihood of failure with low consequence;
- Assets that have a very high consequence with a low likelihood; and
- Assets that have a medium likelihood and medium consequence.

The remaining assets that have low consequence and low likelihood will be the least critical assets.

4.4 Step 4: Life Cycle Cost

Once a PWS has prioritized its assets, it should determine how much it will cost to rehabilitate and replace them as they deteriorate. "Many systems will need considerable lead-time to budget and gather the necessary funds" (Small Systems Handbook, p. 29).

You can use the Reserve Requirement Worksheet (See Attachment 1) "to determine how much money you need to put in reserve each year (for the next five years) to fund your highest priority activities. This reserve should be protected from other use" (Small Systems Handbook, p. 29).

As described in the Small Systems Handbook:

> "The worksheet will give you an idea of how much money you should set aside to fund your reserve account each year. This money is required in addition to your operation and maintenance expenses. Changes in your water system's finances and costs of new assets can change from year to year. It is important that you update this worksheet every year. This will ensure that you have enough reserves to cover necessary rehabilitations and improvements." (p. 29)

4.5 **Step 5: What is my long term funding strategy?**

The objective in preparing long-term financial forecasts is to outline the organization's future financial requirements based on all information relating to asset creation, maintenance, renewal/rehabilitation, and disposals. Three questions must be answered when preparing the strategy:

1. What funds are needed to acquire, operate, maintain and renew the asset?
2. When will the funds be required?

3. How do these affect the utilities rates?

In preparing long term financial plan a system needs to have a thorough understanding of their revenues, expenditure, reserve requirements and rate structure.

System Revenue
System revenues are a major component of an asset management plan. The system revenues will fund the operation and maintenance of the system; generally, there are no outside funding sources for routine operation and maintenance of a water utility.

The sources of funding for the overall operation and maintenance of a water system, include the following:

- System revenues from user fees
- hook up fees,
- late fees, penalties
- reconnect charges, and
- developer impact fees.

System Expenditures
There are five types of expenditures that a PWS needs to plan for. Each type of expenditure has a typical funding source associated with it as well.

Expenditure Type	Description Funding	Source
Operational	Activities which have no effect on asset condition but are necessary to keep the asset utilized appropriately (i.e. power costs, overhead costs, etc.).	Annual Budget, Rates, Revenue
Maintenance	The ongoing day-to-day work required to keep assets operating at required service levels (i.e. repairs, minor replacements).	Annual Budget, Rates, Revenue
Renewal	Significant work that restores or replaces an existing asset towards its original size, condition or capacity.	Annual Budget, Rates, Revenue, Grants, Loans
New Work, Development (e.g., tap-on fees, impact fees, etc.), Capital Projects	Works to create a new asset, or to upgrade or improve an existing asset beyond its original capacity or performance, in response to changes in usage, customer expectations, or anticipated future need.	Annual Budget, Rates, Revenue, Grants, Loans
Disposal	Any costs associated with the disposal of a decommissioned asset.	Annual Budget, Rates, Revenue

Rate Structure
The rates need to be adjusted to fund reserve accounts for emergencies, repairs, and debt coverage for any loans. A well-developed rate structure will take into account needs for the water system for the current year as well as needs for the water system in future years, through reserve accounts. For example, if the water system is anticipating a new regulation that will require additional

treatment, the system should be collecting money through the rates to help pay for the needed equipment. The rate structure should also anticipate routine replacements of parts, particularly those parts that wear out regularly. For example, if the system replaces its screen every 5 years, the rates should cover this expense, rather than seeking state or federal funding to cover these types of needs. If a system engages in asset management as it sets rates, the rates may increase as the system moves from traditionally being underfunded (i.e., collecting insufficient revenues to cover all expenses) to being properly funded. However, rates that are set based on sound asset management principles are very defensible to the public. Asset management brings transparency to the process so that it is clear what the rate is based on. The more clearly the rate can be defended, the more likely it is to be accepted by the public. There are many sources of rate setting assistance, including trainings and free rate setting programs.

Bringing it all together- Revenue, Expenses and Reserve requirements

Knowing the full costs and revenues generated by your water system will enable you to determine your system's financial forecast. Your system's financial forecast can then help you decide what changes need to be made to your system's long-term funding strategy.

You should ask:

- Do we have enough funding to maintain our assets for our required level of service?
- Is the current rate structure sufficient for the system's long-term needs?
- If the current rate structure is not sufficient than a system should consider
  - Adjusting the rate structure.
  - Funding a dedicated reserve from current revenues (i.e., creating an asset annuity).
  - Financing asset rehabilitation, repair, and replacement through borrowing like bonds or other financial assistance like special option taxes.

Chapter 5. Implementing and Maintaining the Asset Management Plan

5.1 Making the commitment

Asset management requires an investment in time and resources. Asset management is not a 1-year project, or even a 5-year project. It is a continual, fundamental change in the way infrastructure assets are managed. Successful asset management programs are characterized by a commitment to:

- Spending time and money to implement the program.
- Focusing on making cost-effective asset decisions.
- Providing a sustainable level of customer service for the community.
- Building the team of key decision makers who represent the departments involved with asset management.

5.2 Creating and maintaining an asset management culture

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 savings. Asset management focuses on the long-term life cycle of an asset and its sustained performance, not on the day-to-day aspects of the asset. It involves a shift in a water system's philosophy characterized by:

- Changing the management culture.
- Understanding that all asset decisions are investment decisions.
- Focusing on continual improvement driven by results (sustainability).

Changing the culture requires champions who use a team approach to promote and articulate the benefits of asset management. The champions are the motivating force behind the team that can consist of operators, managers, elected officials, and stakeholders. Each team member fulfills a role and function in implementing an effective asset management program.

5.3 Building an effective asset management team

The composition of the team should have the authority and resources to answer the core questions that lead to asset investment decisions. An asset management team:

- Is 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.

The table below describes the personnel, departments, and organizations that are good candidates for an asset management team; however, highly effective teams can consist of as few as two members. In the case of a very small system, there may be only one person who will implement an asset management program. Do not let the size of your team prevent you from getting started. The team approach works because it brings together the right people to coordinate and drive asset management activities.

Key Team Members	Role and Knowledge Base
Water system operators and engineers (including upper management)	• Knowledge of the current state of water system 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, county judge, executives', councils)	• Authority to commit resources. • Knowledge of the political landscape. • Ability to create new financing mechanisms
Accountants	• 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.
IT Specialist (e.g., Area Development Districts)	• 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.
Other Relevant Departments and Stakeholders	
Other infrastructure managers and utilities (e.g., roads, sewers, and electric)	• Ability to coordinate activities that affect multiple infrastructure sectors and help establish new opportunities for collaboration.
Neighboring water and water districts	• Share lessons learned, exchange best practices, and enter into new collaborative efforts. Regional and national experts can share innovative ways on how other water systems have overcome their challenges.
Community members	• Knowledge of current and future service expectations. • Ability to reinvest in shared assets. Desire to preserve the community's assets as the ultimate beneficiaries of a sustainable water service.

5.4 Follow-up and Continuing Steps

The five core questions framework for asset management is the starting point for asset management. Beyond planning, asset management should be implemented to achieve continual improvements through a series of "plan, do, check, act" steps.

- Plan: Five core questions framework (short-term), revise asset management plan (long-term).
- Do: Implement asset management program.
- Check: Evaluate progress, changing factors and new best practices.
- Act: Take action based on review results.

Chapter 6. Reference and Resources

Simple Tools for Effective Performance (STEP) Guide Series
Available at https://www.epa.gov/dwcapacity/simple-tools-effective-performance-step-guide-series has the following resources available to assist small water system in preparing asset management plans.

- Asset Management: A Handbook for Small Water Systems - Intended for small systems to develop an asset management plan. Updated to reflect the five-core components of asset management and include level of service worksheets.
- Taking Stock of Your Water System: A Simple Asset Inventory for Very Small Drinking Water Systems - Basic principles for very small systems (homeowners associations, manufactured houses) to prepare and create an asset inventory. Updates to worksheets to be fillable online.
- Setting Small Drinking Water System Rates for a Sustainable Future - Guide to help understand the full cost of provide drinking water and how to set rates that reflect those costs. Updates include new graphics and worksheets to be fillable online.

About Asset Management: https://www.epa.gov/dwcapacity/about-asset-management

- EFC AM Switchboard: https://swefcamswitchboard.unm.edu/. This is a repository of all documents related to Asset Management.
- Building an Asset Management Team: https://nepis.epa.gov/Exe/ZyPdf.cgi?Dockey=P1000LTZ.txt
- Talking to Your Decision Makers: A Best Practices Guide: https://www.epa.gov/dwcapacity/interactive-tools-owners-and-operators
- Electronic Preventive Maintenance Logs: https://www.epa.gov/dwcapacity/electronic-preventive-maintenance-logs
- Knowledge Retention Tool Spreadsheet (Excel): https://www.epa.gov/dwcapacity/interactive-tools-owners-and-operators
- Reference Guide for Asset Management Tools (pdf): https://www.epa.gov/dwcapacity/reference-guide-asset-management-tools

Additional Organizations
American Water Works Association: www.awwa.org
Association of Metropolitan Water Agencies: www.amwa.net Association of State Drinking Water Administrators: www.asdwa.org Government Finance Officers Association: www.gfoa.org
National Association of Regulatory Utility Commissioners: www.naruc.org National Association of Water Companies: www.nawc.org
National Rural Water Association: www.nrwa.org Rural Community Assistance Program: www.rcap.org Rural Utilities Service: www.usda.gov/rus

Attachment 1
Worksheets
(From EPA's Small System Handbook)

Attachment 1: Worksheets

Level of Service Worksheet

Date Worksheet Completed/Updated:					
Customer LOS					
Value	**I.D.**	**LOS Measure**	**Goals**	**Measurement of Data**	**Status or Grade** (Very Good, Good, Fair, Poor, Very Poor)
Technical LOS					
Category	**I.D.**	**LOS Measure**	**Goals**	**Measurement of Data**	**Status or Grade** (Very Good, Good, Fair, Poor, Very Poor)

System Inventory Worksheet

Date Worksheet Completed/Updated:						
Asset	**Expected Useful Life**	**Condition**	**Service History**	**Adjusted Useful Life**	**Age**	**Remaining Useful Life**

Prioritization Worksheet

Date Worksheet Completed/Updated:				
Asset	**Remaining Useful Life**	**Importance**	**Redundancy**	**Priority (1 is high)**

Required Reserve Worksheet[1]

Date Worksheet Completed/Updated:

Asset (list from highest to lowest priority)	Activity	Years until action needed	Cost ($)	Reserve required current year
			Total reserve in the current year	

[1] Note: The Required Reserve Worksheet only helps you account for the additional funds you will require to rehabilitate or replace your asset. Standard O&M costs are not included in this calculation.

Budgeting Worksheet

Date Worksheet Completed/Updated:

Revenues		Expenses		Net Income	
Service Fees:		Maintenance:		Total Revenue:	
Fees and Service (late fee, connection fee, fire fee, etc.):		Utilities (power, telephone):		Total Expenses:	
Impact Fees (demand fee, system development fee, etc.):		Salaries and Benefits:			
Secured Funding:		Equipment Cost:		Net Income: (Revenue - Expenses)	
Interest:		Chemicals:			
Other:		Monitoring and Testing:			
		Rent or Mortgage:			
		Insurance:			
		Professional Services (legal, accounting, engineering, etc.):		**Additional Reserves Needed**	
		Training Costs			
		Billing Costs:			
		Fees (state PWS fee, franchise fee, conservation fee, etc.):		Total Required Reserves:	
		Security:			
		Other (debt payments, taxes, miscellaneous, etc.):		Net Income:	
Total Revenues:		**Total Expenses:**			
				Additional Reserves Needed: (Income - Required Reserves)	