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New Jersey Department of Environmental Protection

Division of Water Quality
(609) 292-9977

[ASSET MANAGEMENT PLAN ASSESSMENT GUIDE]

This document is intended to provide water system personnel with a tool to evaluate and improve the accuracy and completeness of the facility's Asset Management Plan (AMP). This document is intended to be a resource on components that should be considered for inclusion in the AMP; as well as to help identify areas of the AMP that need to be updated. Each system is unique and personnel should use their expertise and knowledge of their system to determine what is needed in the Plan. This document is a resource only and does not supersede or replace statutory, regulatory, or permit requirements. Using this Asset Management Plan Assessment Guide should help personnel identify if each topic is included in the AMP and if the information related to that topic is current. The information contained in the Departments "Asset Management Guidance and Best Practices" http://www.nj.gov/dep/watersupply/pdf/guidance-amp.pdf and EPA's "Asset Management: A Best Practices Guide" was used as a starting point for this guide, but is supplemented with additional information. Tools as well as additional resources are listed on the last page of this document.

Asset Management Plan Assessment Guide

Title/System Name:	Date:
Prepared For:	Prepared By:

Prior to beginning your Plan, the Department of Environmental Protection (DEP) suggests taking these **first steps,** which will provide a background and introduction in Asset Management Planning for your Utility:

1. **Reflect on the History of Asset Management in your Utility**
    a. Identify if a Plan is already in place
        i. Discuss past strengths and areas for improvement in your updated document
        ii. Highlight areas in which a revised Plan improves upon previous iterations
    b. Identify the current Mission Statement and Level of Service Goals for the utility
2. **Prepare Your Organization for Asset Management**
    a. Develop a list of asset management roles and responsibilities (Asset Management Team)
        i. Some key staff members to include on the Asset Management Team may be well versed in the following
            1. **Overlapping Programs/Initiatives**: Operations and Maintenance, Capacity Development, Emergency Response, Finance/Budgeting, Water Quality Management Planning, State Revolving Fund, EPA Clean Water and Drinking Water Infrastructure Sustainability Policy, Effective Utility Management
            2. **Software/Tools:** GIS, CAD, Database (such as Microsoft Access), Spreadsheets, CUPPS, Dashboard, Pubworks
    b. Develop a schedule for ongoing staff training and engagement
3. **Discuss the Past, Present, and Future of your Utility**
    a. Define the mission statement and purpose of Asset Management Planning for your utility
    b. Describe the history and present state of your utility: indicate when major system components/assets began operations, the overall advancement of treatment, conveyance, and distribution processes, source(s), miles of pipe, the number of customers and connections for each service area (i.e. residential, commercial, industrial)
    c. Describe the future outlook for the utility: summarize the anticipated conditions the utility will face – economic conditions, user/customer demographics, future types of industry and businesses to be served, whether the service population or systems demands are expected to grow, stabilize, or diminish.

❖ Definitions are provided for all terms underlined hereinafter.

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Certifications Recommended signatures from appropriate officials committing to Asset Management Planning.				
Page #	**Evaluation Criteria**	**Notes**	**Completed (Y/N/Partial)**	**Best Practices**
	In order to ensure the utility is committed to asset management planning, the Department suggests obtaining the following certifications[1]: • By a professional engineer licensed in the State of New Jersey, certifying that the AMP is complete and that all the technical aspects, supporting information, and conclusions about system reliability, vulnerability, and asset prioritization are true and accurate, and were developed with a commitment to ensuring the safe and efficient operation of the entire system and continually meeting all applicable rules, permit requirements and standards; and • By an authorized water system/municipal official or employee with primary fiscal responsibility, certifying their commitment to reserve and expend such moneys as are necessary to fully implement the submitted Action Plan, Preventative Maintenance Program, and Capital Improvement Program.			

[1] Obtaining the listed certifications may be required in certain cases.

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Asset Inventory and Condition Assessment Knowledge of what physical components are owned (assets), where those assets are located, the current condition of assets, and how much longer assets are expected to last.				
Page #	**Evaluation Criteria**	**Notes**	**Completed (Y/N/Partial)**	**Best Practices**
	For each asset, prepare an inventory by collecting information including but not limited to the following: • unique identifier (can be given at the time of collection if not already labeled) • type of asset • condition • size/length • age • construction materials/techniques • soil conditions/characteristics, as applicable • service history • criticality* see critical assets section below • location • remaining useful life • present value • replacement cost			*If restricted by time/staffing, inventory critical assets first. Utilize an asset registry or utility management program (e.g. Microsoft Access, CREAT, CUPPS, VueWorks, Maximo, SEMS) Incorporate O&M into your asset registry.
	Clearly define asset locations with local names or unique identifiers and coordinates on a map/blueprint/schematic.			Prepare a system map utilizing GIS that includes all information collected for the inventory[2].
	Assess the current condition and performance of each asset.			Develop a condition assessment and rating system Utilize standard condition categories

[2] When utilizing GIS, mapping shall be in accordance with Department standards at http://www.nj.gov/dep/gis/standards.html

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Page #	Evaluation Criteria	Notes	Completed (Y/N/Partial)	Best Practices
Level of Service A function of how the utility operates infrastructure and manages assets to meet stakeholder expectations.				
	Determine Level of Service Goals, which are reflective of the following: • The level of service the stakeholders and customers expect. • The level of service the utility intends to provide. • The level of service the regulators require			Write/Communicate/Publish level of service "agreement" to the public
	Define realistic goals that are updated regularly.			Levels of service are informed by the current actual performance and physical capabilities of assets as well as current staffing and resources available to the utility.
Critical Assets Above and below ground owned physical components that have a high risk of failing and/or major consequences associated with failure.				
	Summarize and list past asset failure.			Reference the utility's maintenance records that include the maintenance history, needs, and cost of each asset Include this information in the asset inventory.
	Rank assets according to the likelihood and consequence of asset failure. Analyze the criticality of your assets based on the information obtained during the asset inventory.			Utilizing a standard scale, list assets according to how critical they are to system operations, developing a ranking system (think about the consequence of failure related to expenses, safety, social impacts, or health concerns)
	Based on the asset criticality determination above, assess the vulnerability of assets and the potential to adversely affect system functioning. Estimate the effects in terms of the following: • Power supply (primary and auxiliary) • Communication • Equipment and Supplies • Personnel • Security • Emergency Procedures to be followed • Treatment Processes • Conveyance/Distribution capability			Consult the utility's Emergency Response Plan Review Vulnerability Index Tools Include this information in the asset inventory. Describe how criticality will be updated over time (who and how often?)

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Page #	Evaluation Criteria	Notes	Completed (Y/N/Partial)	Best Practices
Life Cycle Costing A management strategy with both fiscal and physical considerations to implement at different phases during an assets life.				
	For each asset consider the past and present maintenance needs (utilizing your Operations and Maintenance Manual) of existing assets. Determine the costs for rehabilitation, repair, replacement and disposal.			*Keep in mind- costing for critical assets is the priority Note cost benefits when comparing rehab to replacement Deploy resources based on asset conditions
	Based on results from the above criteria and in concert with your utility's O&M program, develop and implement a preventative maintenance program.			Identify the Plan's actions that extend useful life or lower cost.
	Develop and implement a capital improvement program based on the life cycle of assets.			* Critical assets should remain the priority
Long Term Funding Strategy A financial strategy to ensure level of service goals are met with adequate sources of funding for current, future operation and maintenance and capital needs				
	Review the current financial status of the utility and determine how to allocate funds based on desired Asset Management Planning Goals. • Ensure that all sources of funding (revenues/loans/bonds, etc.) are sufficient to maintain system assets at the desired level of service • Ensure the rate structure and other sources of revenue are sustainable for the system's long-term needs.			*Keep in mind- costing for critical assets is the priority Fund a dedicated reserve Consider revising the rate structure if needed Consider investments based on risk of failure
	Based on results from the above criteria and in concert with your utility's O&M program, develop and implement an overall funding plan.			Relate level of service goals and the overall funding plan to a CIP, O&M, and PMP.

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Implementation A course of action that is informed by each of the sections above				
Page #	**Evaluation Criteria**	**Notes**	**Completed (Y/N/Partial)**	**Best Practices**
	Describe the overall implementation process or action plan.			Incorporate goals into an action plan to prioritize and implement sustainability in the facility's infrastructure Include who will be involved, what the next steps are, how the plans will be funded, and the time frame for implementation.
	Develop a schedule for Plan revisions.			Consider the plan to be a "living document"
	Determine a method to measure success and evaluate progress.			Use level of service standards to track performance over time Conduct ongoing staff training programs
	Discuss updated manuals and plans associated with Asset Management that have been made available to staff (i.e. Operations and Maintenance Manual, Standard Operation Procedures and Guidance, Emergency Response Plan, Capital Improvement Program, Preventative Maintenance Program etc)			Develop a schedule for updates
	Review and implement, where appropriate, energy/water conservation measures that may advance asset management			Provide incentives for those who practice conservation

References

Tools

1. Environmental Finance Center Network Tools http://efcnetwork.org/resources/tools/
2. The West Virginia Bureau for Public Health Guidance, Utility Self-Assessments, Tables, Worksheet, and Templates http://www.wvdhhr.org/oehs/eed/i&cd/Asset_management.asp

Resources

1. Asset Management for Water and Wastewater Treatment Systems: A Best Practices Guide, USEPA, https://www.epa.gov/sites/production/files/2015-02/documents/asset_management_best_practices_guide.pdf
2. Asset Management Guidance and Best Practices, NJDEP, 2014, http://www.nj.gov/dep/watersupply/pdf/guidance-amp.pdf
3. Asset Management for Water and Wastewater Treatment Systems for Local Officials, USEPA, https://www.epa.gov/sites/production/files/2015-02/documents/guide_smallsystems_assetmanagement_localofficials.pdf
4. Emergency Response Preparedness/Planning: Guidance and Best Practices, NJDEP, http://www.nj.gov/dep/dwq/pdf/guidance_erp.pdf
5. Sustainable Infrastructure Management Program Learning Environment (SIMPLE), Water Environment Research Foundation and Water Research Foundation, http://simple.werf.org/Books/Contents/What-is-SIMPLE-/Overview
6. Kansas, AM KAN Work! An Asset Management and Energy Efficiency Manual, New Mexico Environmental Finance Center, http://southwestefc.unm.edu/main.php?page=2
7. Asset Management: A Guide for Water and Wastewater Systems, 2006 Edition, Environmental Finance Center, New Mexico Tech, New Mexico Environmental Finance Center http://www.nmenv.state.nm.us/dwb/assistance/documents/AssetManagementGuide.pdf

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Definitions

- ***Asset*** – Infrastructure, equipment, machinery, property, buildings, vehicles, and other components that have a distinct value to the organization.
- ***Asset Registry –*** A systematic record of assets and their attributes. The asset register provides information for strategic planning and operational management by asset custodian including physical condition details, financial details, asset performance and service delivery performance indicators and targets.
- ***Capital Improvement Program-*** is a short-range plan, usually four to ten years, which identifies capital projects and equipment purchases, provides a planning schedule and identifies options for financing the plan.
- ***Condition Assessment*** – A technical assessment of an asset based on a physical inspection, for the purpose of determining its condition and remaining useful life relative to a defined standard.
- ***Critical Asset*** – An asset whose failure would have significant consequences, either in the ability of the system to provide service to its customers, comply with regulatory requirements, or adversely affect the environment.
- ***Criticality*** – The qualitative determination of the significance of an asset based on its importance to the continued, effective operation of the system, as may be determined by its likelihood of failure and the consequence of failure.
- ***Disposal Costs*** – Certain activities are often necessary to dispose of a decommissioned asset. The costs associated with such asset disposal are recognized as part of the life cycle costs of the asset.
- ***Level of Service*** – The defined service quality for a particular asset or service, against which performance can be measured.
- ***Life Cycle Costing*** – The Life Cycle Costs of an asset is the total costs associated with an asset over the entire period it is owned; includes planning, design, construction, acquisition costs, total life time operational & maintenance costs, potential repair costs, possible rehabilitation costs, and disposal costs.
- ***Preventative Maintenance Program-*** a program to commit to maintenance that is regularly performed on a piece of equipment to lessen the likelihood of it failing. Preventative maintenance is performed while the equipment is still working, so that it does not break down unexpectedly.
- ***Remaining Useful Life*** – The difference between the asset's actual age and the adjusted useful life. Estimate the adjusted useful life for each asset by considering the manufacturer's recommendation, its current condition and service history.
  - ***Useful Life*** – or Economic Life – the period from the acquisition of an asset to the time when the asset, while able to provide a service, ceases to be the lowest cost alternative to satisfy a particular level of service.
- ***Replacement Costs*** – the value of an asset as determined by the estimated cost of replacing it, includes all costs inclusive of material, equipment, construction, engineering planning, design etc. fees, administration and all other costs necessary for the replacement of the asset under typical conditions.