

New Mexico Environment Department Asset Management Report Criteria for Technical Assistance Providers



This asset management criterion sets expectations for asset management training and report deliverables for water and wastewater utilities as part of a Fiscal Sustainability Plan (FSP). It is supported by the following agencies and groups: New Mexico Environment Department; Office of the State Engineer; New Mexico Finance Authority; Department of Finance Administration; New Mexico Legislative Finance Committee; New Mexico Association of Counties; New Mexico Municipal League; Rural Water Association; Rural Community Assistance Corporation; and the Southwest Environmental Finance Center at The University of New Mexico.

The criteria were developed to provide consistent requirements and high quality plans for communities state wide. Each section of the report listed below should be addressed. The utilities should be trained on how to maintain the information in each section of the report in order to implement the asset management program. The purpose of this report is to document the asset management process and the decisions made for future reference. It will also be used to judge the completeness of the asset management process.

This report should be considered a living document and updated on a regular basis. If the utility is unable to fully address all the items in a section, the plan and timeline for addressing them should be documented in the report. The most important item is to begin the asset management thought process to more efficiently and effectively operate and maintain water and wastewater systems.

1) Introduction and Overview

Provide a general overview of the main elements of the report, including the level of service determination and implementation schedule.

2) Asset Inventory

- a) *Definition of assets to be tracked within the Asset Inventory* – It should be recognized that all assets are important to overall service delivery and system integrity. However, not all assets warrant tracking within an asset inventory system. Describe the criteria developed for choosing which assets to track, such as criticality, dollar amount, and/or procurement system. The description should inform the reader what criteria were decided upon and why these assets are being tracked. This section should also describe what assets are not being tracked and why, such as focused only on critical elements now and will expand as resources are available in the future.
- b) *Inventory List* – An inventory of assets should be prepared. Either reference an electronic inventory program (i.e., a link to an on-line listing, or description of the database) or include a print out of the inventory listing as an appendix to the report. The inventory should include the items listed below. This report should discuss how these items were completed (i.e., the process used) in the inventory process.
 - i. Asset ID
 - ii. Asset Name
 - iii. Asset Location
 - iv. Asset Condition and performance

- v. Asset remaining useful life
 - vi. Asset Replacement Value and if available, current asset value
 - vii. Type and amount of energy usage of the asset
 - viii. Other information included in the inventory
- c) *Plan for updating and maintaining the asset inventory* – Describe the method and schedule for updating and maintaining the inventory, such as annual review, add second tier assets in year two, or add new items as installed. Discuss how corrections will be made to the inventory if inaccuracies are discovered.
- d) *Asset Map* – Include a copy of the system map in whatever form it exists, from hand sketch to GIS. Describe how the map is used by system operators and how it will be kept current. Describe the process for correcting inaccuracies.

3) Level of Service

- a) *Level of Service* – Develop overall goals and targets by discussing the customers, the system and its operation as a preface to identifying what the customers value and how the system intends to provide it. For example, if a system does not respond to their customers, this is still a level of service to be identified and a starting point for goal setting. This should be considered in the context of “Is what the system is doing what the customers want and if not, why is the system doing it?”
- b) *Develop performance measures and frequency of review* – How will the system measure whether they are providing value to their customers successfully? What data will the system need to measure performance and how will they gather it and evaluate it? For example, if one of the goals was providing a minimum of 30 psi pressure at every residence 98% of the time, monthly pressure measurements at select stations could be the performance measure and frequency of review.
- c) *Develop a plan for measuring success and updating level of service list* – Describe how the system will measure success in meeting the goals for service and how the system will update them. For example, this might be a topic at an annual meeting, incorporated into the Consumer Confidence Report (CCR), or be a customer satisfaction survey. If goals are not being achieved, discuss what would be done to meet them and how the goals will be updated.
- d) *Evaluate current water and energy conservation efforts and plan for future implementation of water and energy conservation efforts* – Establish a baseline of energy use from key equipment, such as pumps or mixers, from sources like the Power Company, SCADA system, or equipment tags that contain horsepower and load information. Obtain the energy rate structure from the energy company to determine the total energy cost and how it would be affected by loading and time of day. This information can then be used to develop, implement, and measure energy usage goals. The same should be done for water conservation beginning by establishing a baseline gallons of water used per person as detailed in the Office of the State Engineer’s (OSE) Water Conservation Planning Guide – Technical Report 53 (available on the OSE website). http://www.ose.state.nm.us/WUC/PDF/Planning%20Guide_Final_.pdf

4) Prioritization – Critical Assets Analysis

- a) *Definition of Critical Asset* – Define what makes an asset critical, such as likelihood of failure, consequences of failure, cost to correct, or future needs.
- b) *Define how the system will determine the likelihood of failure for an asset* – This may be a single numeric score, such as 1 to 5, or it may be a combination of scores for several factors. In this latter case, a 1 to 5 rating can be given for several factors that would contribute to the probability of failure and they can be added up to determine overall probability of failure for that asset. In either case, the factors included, such as run time, age, or repair history should be listed.
- c) *Define how the system will determine the consequence of failure for an asset* – This may be a single numeric score, such as 1 to 5, or it may be a combination of scores for several factors. In this latter case, a 1 to 5 rating can be given for several factors that would contribute to the consequence

of failure and they can be added up to determine overall consequence of failure for that asset. In either case, the factors included, such as financial concerns, environmental consequences or social consequences, like customers out of service should be listed.

- d) *Define how the system will account for redundancy* – This may be a percentage based on the overall amount of redundancy. An asset with no redundancy would rank as a 1. An asset with 100% redundancy may be a 0.1. In no case would redundancy be given a zero.
- e) *Overall risk or criticality* – Show how criticality was calculated. This may be probability of failure, times consequence of failure, times redundancy.
- f) *Criticality Matrix* – Provide a visual representation in table or graph form to show criticality.
- g) *Develop a system for prioritization* – Describe the method being used by the system to prioritize assets and needs. For example, this might just be a “low, medium, high” rating. A Prioritized Asset List will present the prioritized list derived from the application of the criticality matrix. This will be used to determine how best to utilize resources in the long term funding strategy.
- h) *Plan for updating the asset list* – Describe how the asset list will be evaluated as circumstances and needs change and at what frequency it will be updated.

5) Life Cycle Costing

- a) *Cost Accounting Method and Measures Description* – Describe what measures will be included in the cost components, such as initial cost of installation, Operation & Maintenance (O&M) expenses, repair costs, rehabilitation costs, disposal costs, and legal, environmental, or social costs. For O&M costs, describe the approach to maintenance, such as run to failure, repair, rehabilitation, or replacement. The approach could depend on the criticality of the asset and should not only consider the initial cost, but the life cycle cost (O&M, replacement, and energy).
- b) *Capital Improvement Plan* – The capital improvement plan should take into consideration the need for replacement or rehabilitation of high risk assets, improvements required to meet upcoming regulations, assets required for planned growth or regionalization, and asset replacement to improve energy efficiency. The plan should include a description of the project, need for and benefit of the project, estimated project cost, estimated O&M cost (including any reduction in energy cost), and funding sources (both internal and external). The result should be a prioritized list of capital projects for next year and perhaps the next five to twenty years that will preserve and increase the value of service to the customer.
- c) *Operation, Maintenance, Replacement Accounting* – Explain how the utility plans to track O&M and replacement costs that separate field assets (pipe, valves, meters) from plant assets (wells, treatment, storage) and ideally track individual assets. The goal is to identify specific costs that would trigger capital improvement projects, such as frequent leaks in a particular section of pipe or continuing repair costs for an aging pump that may be cheaper to replace.
- d) *Plan for review and update of cost accounting* – Explain how the cost accounting will be updated and the frequency of review. This might be annually or updates could happen with the completion of capital projects.

6) Long Term Funding Strategy

- a) *Budget Analysis, Budget Projection, Rate Structure, and Reserve Set Aside* – Present the budget information for the current year and the projection for the next one to five years to include the reserve set aside with identified annual targets and the rate structure to meet the O&M budget and reserves. The impacts on total revenue from user rate increases and conservation should be considered. Gaps between projected revenue and projected expenditures should be identified for consideration in increasing internal revenue or for seeking external sources.
- b) *Funding Sources* – External funding is frequently sought for large capital projects in the form of loans and grants. Funding for shortfalls recognized in the budget analysis should be identified, both

internal and external. Requirements for external funding sources (PER, audit, regulatory compliance, bond counsel) should be identified along with the expected cost for each item.

- c) *Comprehensive Funding Strategy* – The funding strategy should:
 - i. Clearly define the sources of funding for all the utility’s current and future needs, both operational and capital, over the next five years.
 - ii. Clearly demonstrate the source and adequacy of revenue for day-to-day operations
 - iii. Specify the anticipated sources of funding for capital projects from design to implementation, include repayment of debt
 - iv. Anticipate any increases in operational costs resulting from capital projects
 - v. Account for inflation and rising energy costs, and
 - vi. Move the community to a sustainable future.

The strategy should consider the nature of the customers, such as MHI, usage categories, and demand patterns. Strategies for very low income customers should be developed that could include outside assistance programs such as food stamps or voluntary donations for assistance like PNM has. Water accounting through metering should be part of the strategy because it directly affects revenue as well as collection on past due accounts.

- d) *Plan for review and update of the funding strategy, priorities, reserves and rate evaluation* – Describe how the funding strategy will be updated and the frequency of review.

7) Implementation

- a) *Resources (People and Tools)* – Describe the plan for implementing the asset management process and the resources that will be applied, both people and tools. This could include a resolution from the governing body committing to the program.
- b) *Implementation Schedule* – Provide a timeline for implementation delineating the order of progression through the five core elements. Include clearly identifiable milestones for measuring progress.
- c) *Frequency of Review and Updating* – Describe how implementation will be monitored, the schedule updated, and the frequency of review.

8) Appendix (as needed)

Additional Resources

- a) *EPA’s Asset Management Resources Page*,
at http://water.epa.gov/infrastructure/sustain/am_resources.cfm
- b) *The Southwest Environmental Finance Center manual, A.M. Kan Work*
at <https://southwestefc.unm.edu/main.php>
- c) *Asset Management: A Handbook for Small Water Systems* http://www.epa.gov/ogwdw/smallsystems/pdfs/guide_smallsystems_asset_mgmt.pdf