

Asset Management Plan (AMP) Minimum Requirements Checklist

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The Asset Management Plan (AMP) Minimum Requirements Checklist may assist Grantees in evaluating their AMP to meet the minimum requirements outlined in the [TDEC AMP Guide](#). Grantees should use the following prompts to assess the content of their AMPs and determine if each core component is reasonably met.

By using this checklist to assess their AMPs before the final submission, Grantees can reduce the number of revisions requested and shorten the approval timeline. However, it is important to note that this checklist and any subsequent personal determination of AMP acceptability cannot replace the final AMP approval by TDEC.

Component 1: Current State of Assets – Inventory and Condition Assessment

- ✓ **Inventory** – Create the best inventory possible given the utility’s records, personnel, and financial condition.
 - **Has the utility created a complete list of all the assets in the system to the best of their ability and documented key information about each asset?**
 - Each asset record should display unique information such as, but not limited to:
 - Unique asset ID
 - Asset category (pipe, manhole, facility, station, valve, meter, etc.)
 - Asset size (diameter, length, depth, square footage, etc.)
 - Material (PVC, DIP, clay, copper, concrete, etc.)
 - Manufacturer
 - Installation date
 - Last maintenance date and type (repair, CCTV, flushing, etc.)
 - Model number
 - Depth to burial
 - Invert elevation
 - Facility attributes (wet well depth, electrical components, etc.)

- Etc.
- **If the utility is limited in historical records, personnel, and financial resources, has the utility developed an approach to providing better and more complete information over time?**
 - The utility should provide methods and strategies for collecting missing asset information over time. Examples include:
 - Deploying field crews to locate assets and collect information
 - Developing a plan to have field crews enter information as they perform routine maintenance or respond to emergencies
 - Developing a plan for onboarding and decommissioning assets
 - Developing a plan to file and maintain as-builts and other engineering documents
 - Implementing QAQC processes
 - Other methods and strategies for collecting missing asset information that are best practice or the most effective for the utility
- **If the utility's scorecard indicates <50% for this scorecard requirement, does the AMP include a statement that the utility will meet the minimum requirement of 50% of their listed assets at the time of project completion?**
 - The AMP must include:
 - A statement that the utility intends to meet the minimum requirement by the project completion date and
 - A well-defined plan for how the utility will meet the minimum requirement of 50% of its listed assets by the project completion date
- ✓ **Digital Map of the System** – Map assets in the field and record their location in a digital mapping system easily accessible for use by the utility's employees.
 - **Has the utility selected a digital mapping product (GIS software)?**
 - Examples of digital mapping products:
 - ESRI maps (ArcMap, ArcGIS Online, ArcGIS Pro)
 - QGIS
 - Diamond Maps
 - MapInfo
 - Any other mapping software that satisfies the mapping requirements.
 - **If the utility has not selected a digital mapping product (GIS software), when and how will the utility be selecting a digital mapping product (GIS software)?**

- The utility should provide their approach to selecting a mapping product and an estimated timeframe for selection and implementation.
- **Is the asset inventory already mapped out in a digital mapping system?**
 - The AMP should specify whether the utility's assets are mapped and the percentage mapped
- **If the utility's inventory is not yet mapped out (or only a portion of assets are mapped) in a digital mapping system, has an approach been developed to mapping their assets over time?**
 - If the AMP states that assets are not mapped, or only a percentage of assets are mapped, the utility should provide their methods and strategies for mapping out their assets over time. Methods and strategies may include:
 - Leveraging existing digital record drawings and/or as-built documents that can be imported into common mapping file formats
 - Scan, georeference, and digitize paper maps to place asset features in their approximate location
 - Collecting GPS coordinates of assets and asset information over time while performing routine operation and maintenance (O&M) or completing capital projects
- **If the utility's scorecard indicates <75% for this scorecard requirement, does the AMP include a statement that the utility will meet the minimum requirement of at least 75% mapped of the utility system at the time of project completion?**
 - The AMP must include:
 - A statement that the utility intends to meet the minimum requirement by the project completion date and
 - A well-defined plan for how the utility will meet the minimum requirement of 75% mapped by the project completion date
- ✓ **Condition** – The physical condition of each asset should be assessed and documented. This process includes the asset's anticipated useful life of service and when the asset was installed or purchased.
 - **Is there an outlined method and process for assessing conditions based on physical condition, remaining useful life, and failure history?**
 - Physical condition can be determined or documented through the following:
 - Repairs and maintenance, history of failures
 - CCTV inspections or other inspection records
 - Opinions of utility personnel who work on the asset

- Date of installation
- Estimate of total useful life
- Assessment of engineers or other professionals on large or costly assets when economically feasible
- Remaining useful life can be determined through the following:
 - Assigning a percentage to the estimated total useful life of the asset (i.e., an asset with an anticipated useful life of 80 years has 75% of its useful life remaining; it is estimated to have 60 years remaining of its useful life)
- Failure history should be recorded and documented during routine maintenance, repairs and rehabilitation. It can be used to determine the following:
 - Future risk of failure and remaining useful life
 - Maintenance frequency
 - Need for asset replacement

Component 2: Level of Service

- ✓ **Level of Service** – A measure of how well an asset, an infrastructure system, or an organizational function meets its intended purpose. Expected Level of Service (LOS) should be defined at the asset, system, and customer levels.
 - **Does the utility's LOS consider customer expectations?**
 - Examples include, but are not limited to:
 - Clean and safe drinking water
 - Sufficient water quantity and supply
 - Service and repair response time
 - **Does the utility's LOS consider the physical performance of assets?**
 - Examples include, but are not limited to:
 - Can the system handle regular and peak flows?
 - Is the system equipped to handle wet weather flows?
 - Is the system designed with future growth in mind?
 - Does the system have adequate pressure?
 - **Does the utility's LOS consider regulatory requirements?**
 - Examples include, but are not limited to:
 - Water quality standards
 - Compliance with local, state, and federal laws
 - **Does the utility's LOS address the minimum service level targets?**
 - Examples include, but are not limited to:
 - Comply with all safe drinking water standards and/or wastewater discharge permit limits

- Achieve a satisfactory score on an annual compliance audit or drinking water sanitary survey
- Respond to customer complaints within x-hours

Component 3: Critical Assets

- ✓ **Critical Assets** – Some assets are critical to operations, and others are not. Asset criticality should be considered when determining the level of investment of utility personnel and financial resources.
 - **Is a Likelihood of Failure (LOF) score assigned to each asset in the utility's inventory?**
 - **Is a Consequence of Failure (COF) score assigned to each asset in the utility's inventory?**
 - **Is the COF calculated using the correct criteria?**
 - Is redundancy included in your calculation?
 - Is population served affected by a failure included in your calculation?
 - Is regulatory impact of a failure included in your calculation?
 - Is public health or environmental concerns resulting from a failure included in your calculation?
 - **Is the failure analysis included?**
 - **Is the criticality score used to rank the criticality of all assets in the utility's inventory?**

Component 4: Minimizing Life Cycle Costs – Capital Improvement Plan

- ✓ **Capital Improvement Plan** – After developing an inventory, determining the current condition and capacity, and criticality of its assets, the utility needs to prioritize repairing, rehabilitating, and replacing its capital assets.
 - **Is a mix of capital investment and alternative O&M strategies considered?**
 - Repair, replacement, and rehabilitation analysis
 - Alternative strategies for O&M include, but are not limited to:
 - Adjusting organizational structure
 - Prioritization of staff based on asset criticality
 - Adopting new techniques for more effective condition assessment and LOS monitoring
 - Capital investments
 - Funding the replacement of existing assets that cannot meet the level of service required
 - **Has a Capital Improvement Plan (CIP) been developed?**
 - A CIP must be submitted with AMP

- The CIP should include a prioritized list of critical assets in need of replacement
- The CIP should specify project priorities and anticipated funding source
- Minimum information requirements for a CIP:
 - Description of project
 - Establish the need for and benefits of the project, including reductions in energy costs, sewer overflows, or water loss where applicable
 - Estimate of project cost
 - Estimate of impacts on operations and maintenance
 - Funding source(s)

Component 5: Long-Term Funding Plan – Rate Evaluation

- ✓ **Rate Evaluation** – A utility should review and evaluate its rates annually as part of its budgeting process for each fiscal year. At a minimum, rates must produce sufficient revenues to cover the utility’s annual operating expenses, including depreciation and annual debt costs.
 - Is an annual rates review included in the budgeting process each fiscal year?**
 - Is there a detailed list of what the utility will consider when evaluating rates annually?**
 - Considerations for rate evaluations:
 - Amount of fixed operating costs
 - Amount of variable operating costs
 - Inflation
 - Anticipated changes in employee staffing levels
 - New depreciation from major infrastructure placed in service
 - New debt costs for the next fiscal year
 - Anticipated customer growth
 - New operating expenses caused by regulatory compliance
 - Other known and anticipated changes

Additional Scorecard Requirements

- ✓ **Meter Testing and Changeout Program** – Utilities should establish testing zones and pick an appropriate number of residential meters and small commercial meters to test annually
 - If the utility’s scorecard indicates “No” for this scorecard requirement, are details included in the AMP for setting up and implementing a Meter Testing and Changeout Program? If the utility’s scorecard**

indicates "Yes," does the AMP include details about the utility's Meter Testing and Changeout Program?

- Large commercial meters of 6 inches and above should be tested annually
 - Small meters may be tested less frequently
 - Additional considerations
 - Age of utility meters
 - Length of warranty for each type of meter
 - Cost-effectiveness of testing meters in-house or outsourcing meter testing
- ✓ **IT Infrastructure** – IT infrastructure is a critical tool in locating, inventorying and making decisions on maintaining, repairing, or replacing capital assets. IT infrastructure may be “purchased” in a variety of ways (ownership, leases, service contracts, licenses, etc.) and may be implemented “on-premise” or in the “cloud”.
- **If the utility's scorecard indicates “No” for this scorecard requirement, are details included in the AMP for the purchase and implementation of IT Infrastructure? If the grantee's scorecard indicates "Yes," does the AMP include details about their IT Infrastructure?**
 - Includes the following components:
 - Computers and devices such as tablets or mobile phones (w/ updated software)
 - Software including Geographic Information Systems (GIS), work order management (CMMS), etc.
 - Secure network and data storage
 - Internet Connectivity in the office and field
 - Appropriate high-speed internet for facilities E-Reporting to TDEC
- ✓ **Work Order System** – A work order system is a valuable tool for maintaining records of failures, preventative maintenance, inspections, and repair work performed on utility assets. Work order systems can be included in the utility's billing and accounting software program or can also be standalone software solutions or programs. A work order system – computerized or otherwise – can be a valuable tool for a water, wastewater, or stormwater utility.
- **If the utility's scorecard indicates “No” for this scorecard requirement, are details included in the AMP for implementing a work order management system? If the grantee's scorecard indicates "Yes," does the AMP include details about the utility's work order management system?**
 - Examples of standalone software solutions:
 - Cityworks

- Lucity
- Maximo
- ESRI Workforce
- Small utilities may find it difficult to manage a computerized system or may not see a sufficient benefit due to the cost or its limited number of employees. If this is the case for your utility, a description of the selected alternative work order system (non-computerized) should be provided.
 - An example work order form and standard operating procedure can be found in Appendix 3 of the AMP guide.