Department of Environment & Conservation

Tennessee Association of Utility Districts
Vital for Tennessee's future

Tennessee Asset Management Guidance and Minimum Requirements

January 2025

Agenda

- What is an Asset Management Plan (AMP)?
- Tennessee Infrastructure Scorecard and AMP
- Capital Assets in an AMP
- Five Core Components of an AMP
- Additional Tennessee Infrastructure Scorecard Requirements
- Building an AMP
- Wrap-up & Q&A

Meet the Presenters

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What is an AMP?

AMPs

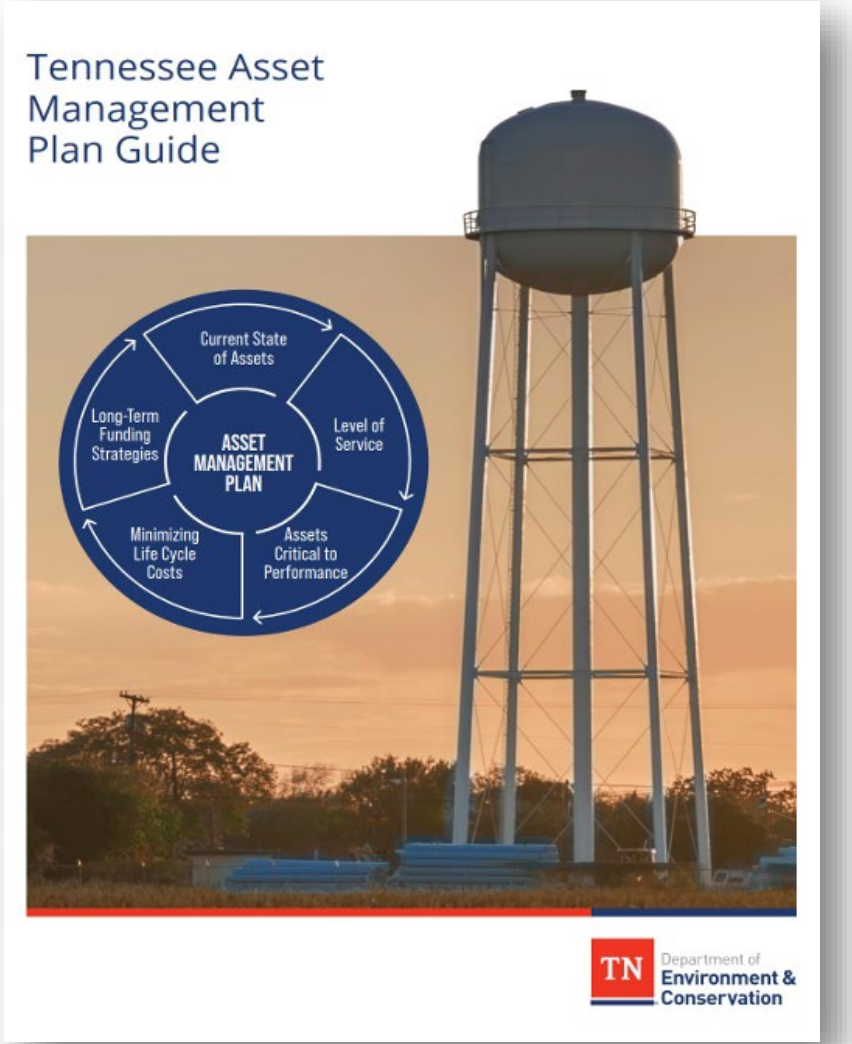
- The Environmental Protection Agency defines AMPs as the practice of managing infrastructure capital assets to minimize the total cost of owning and operating them, while delivering the desired level of services to customers.
- Well-developed plans for asset management can:
  - Improve service, reliability, and regulatory compliance;
  - Reduce risk and unexpected costs; and
  - Enhance communication with customers and stakeholders
- **AMPs are critical to effectively managing water, wastewater, and stormwater infrastructure.**

Purpose of an AMP

- A comprehensive AMP, aligned with state standards, bolsters a utility's technical, managerial, and financial capacities to ensure the delivery of safe, reliable drinking water, wastewater, and stormwater services.
- An AMP will provide the utility with the information needed to make informed decisions, which includes:
  - The repair and maintenance of existing capital assets,
  - The replacement of existing capital assets, and
  - The addition of new capital assets
- Without a proper AMP, utilities can struggle to:
  - Maintain compliance with state and federal regulations,
  - Secure adequate funding for capital improvements, and
  - Address customer needs

TDEC Development of State Guidance for AMPs

- The Tennessee Department of Environment and Conservation's (TDEC) Division of Water Resources (DWR) convened public and private partners to develop state AMP guidance.
- **DWR aims to increase consistency across the state** for water, wastewater, and stormwater infrastructure planning documents.
- The AMP guide outlines the essential AMP components and is designed to meet the minimum criteria for
  Water Infrastructure Investment Plan (WIIP)
  American Rescue Plan (ARP) grants.



TN Infrastructure Scorecard and AMP

TN Infrastructure Scorecard – Asset Management Section

- The Tennessee Infrastructure Scorecard and the utility's AMP can help identify deficiencies in their system and prioritize improvements.
- The scorecard provides system metrics to quickly identify critical needs that should be addressed in the short term and document future progress.

ASSET MANAGEMENT		WATER LOSS	
Asset Mangement Plan	No	**Unaccounted Water Loss**	17%
GIS Mapping	0-25%	Millions of Gallons/year	420.00
Inventory and Condition Assessment	No	Production Cost/year	$1,000,000
Planned O&M and Work Order System	No	**INFLOW and INFILTRATION**	
Meter Testing & Changeouts	Yes	**Inflow and Infiltration**	60%
Captital Improvement Plan & Budget	Yes	Millions of Gallons/year	41.00
IT Infrastructure	Yes	Treatment Cost/year	$1,000,000,000
MODERNIZATION			
Drinking Water Plant >80% Capacity	No	Wastewater Plant >80% Capacity	No
Age of Drinking Water Plant	30-50 years	Age of Wastewater Treatment Plant	10-30 years
Percentage of lines older than 50 years	25-50%	Percentage of lines older than 50 years	25-50%
COMPLIANCE			
Drinking Water Violations	No	Meeting Wastewater Permit Requirements	No
State Mandated Compliance Order (Water)	No	State Mandated Compliance Order (WW)	Yes
Meeting Order Requirements (Water)	NA	Meeting Order Requirements (WW)	No

TN Infrastructure Scorecard – Asset Management Minimum Requirements

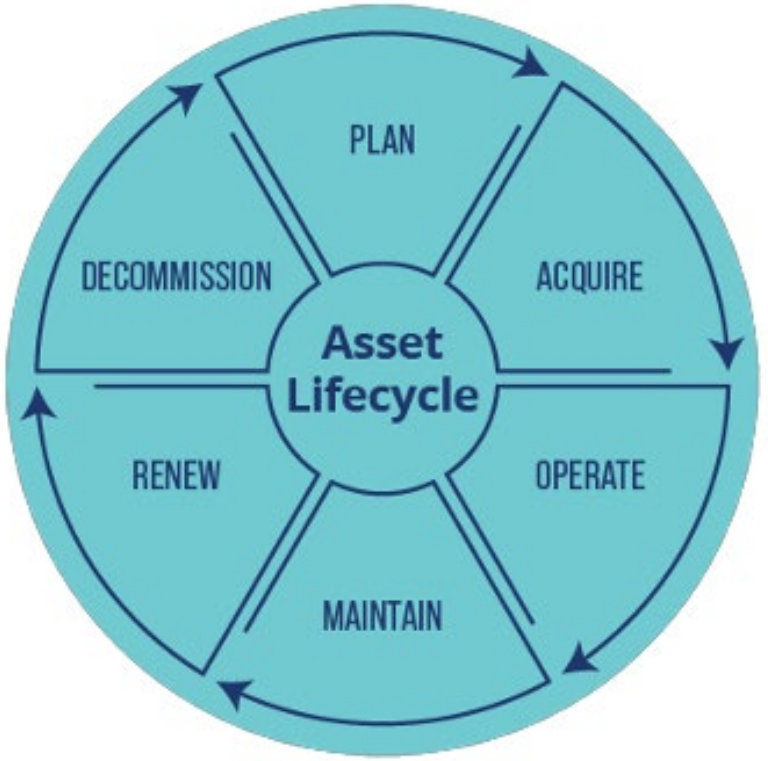
- To be considered satisfactory on the Scorecard, a utility must have an AMP that meets the following criteria:
  - Digital map greater than 75% of the system
  - Current asset inventory and condition assessment
  - Planned operation and maintenance
  - Work order system
  - Meter testing and changeout program
  - Capital improvement plan and budget
  - IT infrastructure to support management decision-making

ASSET MANAGEMENT	
Asset Mangement Plan	No
GIS Mapping	0-25%
Inventory and Condition Assessment	No
Planned O&M and Work Order System	No
Meter Testing & Changeouts	Yes
Captital Improvement Plan & Budget	Yes
IT Infrastructure	Yes

Capital Assets

Capital Asset Criteria for AMPs

- Drinking water, stormwater, and wastewater systems consist of assets that include above-ground and below-ground utility infrastructure.
- To be included in the utility's AMP, an asset should meet at least one of these criteria:
  - Have a cost of $5,000 or greater
  - Have a useful life greater than one year
  - Is the lowest level where work orders can be generated
  - The asset is critical to the delivery of utility service, employee safety, or regulatory compliance



Drinking Water, Wastewater, and Stormwater Capital Assets

Water Systems	Wastewater Systems	Stormwater Systems
Water Treatment Plants (WTPs)	*Wastewater Treatment Plants (WWTPs)*	*Catch Basins*
Pumps	*Pumps*	*Junction Chambers*
Pump Stations	*Pump Stations*	*Stormwater Pipes*
Storage Tanks	*Gravity Mains*	*Outfalls*
Mains	*Force Mains*	*Ponds*
Valves	*Valves*	*Bioretention Cells*
Meters	*Meters*	*Permeable Parking Lots*
	Manholes	*Rain Gardens*
	Cleanouts	
Other facilities and assets necessary to operate: Fleet (trucks/vehicles), cranes and excavators, SCADA, and other specialized equipment		

Five Core Components of an AMP

The Five Core AMP Components

- Effective management of these assets can be done through a simple yet **comprehensive five-component planning process**.
  1. Current State of the Assets – Inventory and Condition Assessment
  2. Level of Services (LOS)
  3. Critical Assets
  4. Minimizing Life Cycle Costs – Capital Improvement Plan (CIP)
  5. Long-Term Funding Plan – Rate Evaluation
- These strategies help ensure the system's longevity in operations at a desired level of service for its customers.

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

- To begin an asset inventory and condition assessment, **the utility should address the following questions**:
  - What assets are owned?
  - Where are they?
  - What is their current condition?
- Addressing the current state of the utility's assets involves the following:
  - Make a complete list of all assets in the system and document key information about each asset.
  - Mapping assets in the field and recording their location in a digital mapping system easily accessible for use by the utility's employees.
  - Assessing the physical condition of each asset using useful life of services and when the asset was installed or purchased.

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

Inventory

- The utility should create the best inventory possible given the utility's records, personnel, and financial condition.
- **Each asset record should display unique and key information** including, 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
  - Cost
  - Last maintenance date and type (repair, CCTV, flushing, etc.)
  - Model number
  - Depth to burial
  - Invert elevation (lowest point)
  - Facility attributes (wet well depth, electrical components, etc.)

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

Inventory

- If a utility has limited historical records, personnel, or financial resources, it should develop an approach to collect additional information.
- **Methods and strategies to collect missing asset information** include, but are not limited to:
  - Deploying field crews to locate assets and collect information
  - Develop a plan to have field crews collect and update data as they perform routine maintenance
  - Developing a plan for onboarding and decommissioning assets
  - Developing a plan to file and maintain as-builts and other engineering documents
  - Implementing QAQC processes

Digital Map of the System

- A utility must develop and refine a digital map of its assets over time.
  - A digital map consists of shapefiles or feature classes overlain by a geographic reference map.
- Examples of digital mapping software packages:
  - ESRI maps (ArcMap, ArcGIS Online, ArcGIS Pro)
  - QGIS (free)
  - Diamond Maps
  - MapInfo
  - Any other mapping software that satisfies the mapping requirement

Digital Map of the System

- If the utility's inventory is not yet mapped out (or only a portion of assets are mapped), **the utility should develop methods and strategies for mapping its assets over time**. These may include:
  - Leveraging existing digital record drawings and/or as-built documents that can be imported into common mapping file formats
  - Scan, geo-reference, 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 maintenance or completing capital projects

Condition

- This process includes the asset's anticipated useful life of service and when the asset was installed or purchased.
- Evaluating the remaining useful life of each asset will assist the utility in deciding whether to continue **maintaining or repairing** it and when to **replace** it.
- Condition assessment should be based on:
  - Physical condition
  - Estimated remaining useful life
  - Failure history
- A consistent assessment method should be used when collecting data.

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

Condition

Industry Standards and Methods for Condition Assessment			
Water Mains and Force Mains (Pressure Pipes)	**Gravity Pipes (Storm and Sanitary Sewers)**	**Treatment Facilities and Pump Stations**	**Tanks and Reservoirs**
Leak Detection	*CCTV Inspection*	*Vibration Analysis*	*Visual Inspection*
CCTV Inspection	*Flow Monitoring*	*Thermal Imaging*	*Water Quality Testing*
Soil Corrosivity and Resistivity Survey	*Smoke Testing*	*Electrical Testing*	*Review Historical O&M Data*
Free swimming sensors (Smart Ball)	*Dyed Water Testing*	*Acoustic*	*Steel and Coatings Testing*
Electromagnetic Inspection (EMI)	*Laser Profiling*	*Pump Performance Testing*	*Ultrasonic Thickness Testing*
Ground Penetrating Radar (GPR)	*Acoustic*	*Visual Inspection / Walkthrough Surveys*	*Crack Monitoring*
		Ultrasonic Testing	*Pressure Testing and Dye Testing*
		Corrosion Testing	

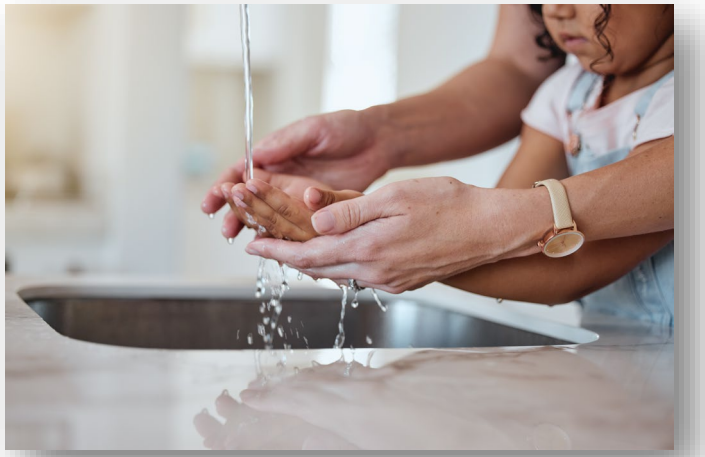
Component 1 – Current State of Assets - Inventory and Condition Assessment

Condition

- Physical condition can be determined 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 by assigning a percentage to the estimated total useful life of the asset.
- Failure history should be recorded and documented during routine maintenance, repairs, and rehabilitation.

Component 2 – Level of Service (LOS)

- The Level of Services (LOS) measures how well an asset, infrastructure, or organizational function meets its intended purpose.
- LOS should be **defined at the asset, system, and customer levels**.
- Clearly defining the required level of service is critical to successful utility operations.



Component 2 – Level of Service (LOS)

- The Tennessee Infrastructure Scorecard provides **minimum service level targets** that utilities should strive to achieve. Examples include:
  - 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

Customer Expectations	Physical Performance of Assets	Regulatory Requirements
Clean and safe drinking water	*Can the system handle regular and peak flows?*	*Water quality standards*
Sufficient water quantity and supply	*Is the system equipped to handle wet weather flows?*	*Compliance with local, state, and federal laws*
Service and repair response time	*Is the system designed with future growth in mind?*	
	Does the system have adequate pressure?	

Component 3 – Critical Assets

- Some assets are critical to operations, others are not. Asset criticality should be considered when determining the level of investment of utility personnel and financial resources.
- The criticality of assets should be considered when determining the level of investment of utility personnel and financial resources.
- Assets should be ranked by criticality based on their **Likelihood of Failure (LoF)** score and various criteria relating to **Consequence of Failure (CoF)**.

Component 3 – Critical Assets

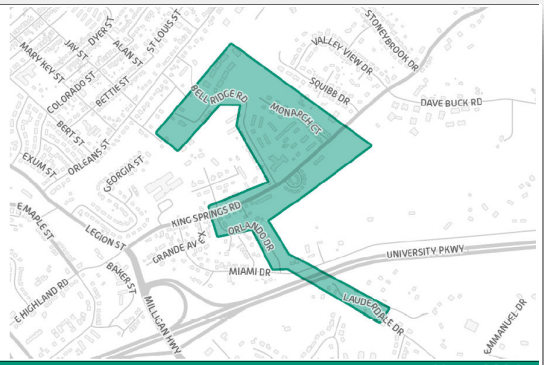
- The utility should assign a Likelihood of Failure (LoF) and Consequence of Failure (CoF) score to each asset in their inventory.
- Consequence of Failure (CoF) should be calculated using the following criteria:
  - Redundancy
  - Population served affected by failure
  - Regulatory impact of failure
  - Public health or environmental concerns of failure
- Asset criticality is determined by multiplying the risk of failure score times the aggregate of the consequence of failure scores.

Component 4 – Minimizing Life Cycle Costs (Capital Improvement Plan)

- After developing an inventory and determining the current condition, capacity, and criticality of its assets, the utility needs to **prioritize the repair, rehabilitation, and replacement of its capital assets**.
- Minimizing life cycle costs often involves a balance between…
  - Operations and maintenance (O&M) to preserve assets that meet their level of service requirements and
  - Capital investment in cases where existing assets cannot meet the required level of service.

12" Water Transmission Main to reinforce the Southeast portion of the water distribution system, between the 1838 and 2009 water pressure zones to eliminate booster pump stations, increase flow protection and enhance water storage West of Interstate 26.
(Partially programmed into the 19-22 Capital Plan)

FY27- $1,000,000 (Finalize Next Phase Design/ Begin Construction)
FY28- $600,000 (Complete Construction)



Expenditure Allocation (in $000s)	Projected FY 2023	Proposed FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	Years 2024-2028
Engineering/Construction	500	-	-	-	1,000	600	1,600
TOTAL	$500	-	-	-	$1,000	$600	$1,600

Expenditure Allocation (in $000s)	Projected FY 2023	Proposed FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	Years 2024-2028
Water/Sewer Bond Issue	500	-	-	-	1,000	600	1,600
TOTAL	$500	-	-	-	$1,000	$600	$1,600

Component 4 – Minimizing Life Cycle Costs (Capital Improvement Plan)

- Utilities should consider alternative strategies for O&M, such as:
  - Adjusting the organizational structure
  - Prioritization of staff based on asset criticality
  - Adopting new techniques for more effective condition assessment and level of service monitoring
- Utilities should also develop a Capital Improvement Plan (CIP) based on a prioritized list of critical assets needing replacement. **At a minimum, a CIP should include the following**:
  - Description of the project
  - Need and benefits of the project, including reductions in energy costs, sewer overflows, or water loss where applicable
  - Estimated project cost
  - Estimated impacts on O&M
  - Funding source(s)

Water System CIP					
Priority	Description	Benefits	Est. Cost	Impacts on O&M	Funding Source
1	Replace asbestos cement water distribution piping	Minimizing future water losses	$552,049	Reductions in future maintenance	Grants
2	Update WTP	Reduce energy and water loss	$616,000	Reductions in future maintenance	Grants
3	Replace Water Storage Tank on Swanson Dr.	Reduction in future maintenance cost	$1,060,000	Reductions in future maintenance	Grants

Component 5 – Long Term Funding Plan (Rate Evaluation)

- **Long-term funding is critical to meeting future operating and capital improvement needs.**
- Drinking water and wastewater utilities owned and operated by local governments (including utility districts and utility authorities) are legally required to set rates to cover operating expenses, debt costs, depreciation, and reasonable reserves.
- Utilities may consider hiring an independent consultant to perform rate studies to ensure its rates meet all statutory and regulatory requirements.
- Some counties and municipalities have established a fee and/or stormwater utility to fund and respond to stormwater system needs.

Component 5 – Long Term Funding Plan (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.
- If the utility seeks to fund any capital improvements through its monthly rate structure, the rates must be sufficient to produce the cash needed to finance such rate-funded capital improvements.

Component 5 – Long Term Funding Plan (Rate Evaluation)

- A utility should consider the following when evaluating its' rates annually:
  - Amount of fixed operating costs
  - Amount of variable operating costs
  - Inflation
  - Anticipated changes in employee staffing levels
  - New depreciation form 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 TN Infrastructure Scorecard Requirements

Meter Testing and Changeout Program

- Utilities should establish a testing zone and pick an appropriate number of residential meters and small commercial meters to **test annually**.
  - 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 for locating, inventorying, and making decisions about 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."
- IT infrastructure includes the following:
  - Computers and devices such as tablets or mobile phones (with updated software)
  - Software including Geographic Information System (GIS), work order management, 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

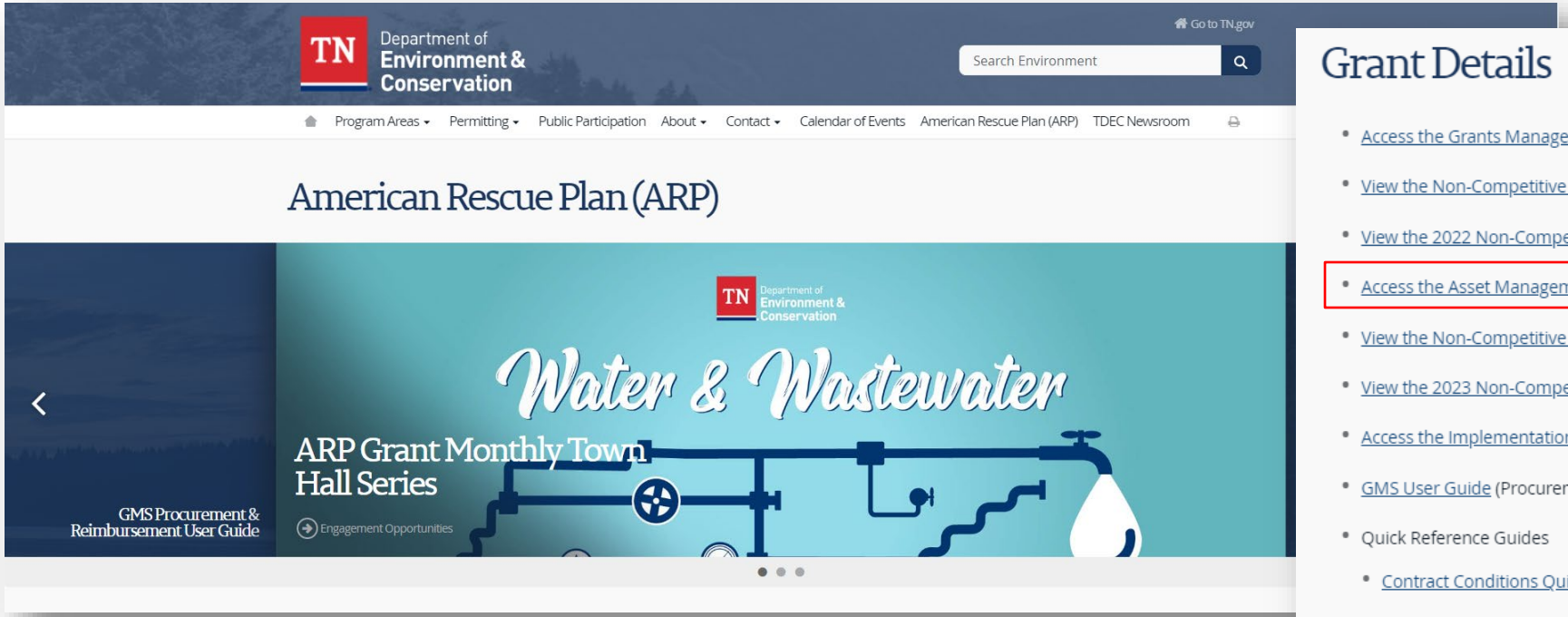
- A work order system – computerized or otherwise – is **a valuable tool for maintaining records of failures, preventative maintenance, inspections, and repair work performed on utility assets**.
- Work order systems can be included in the utility's billing and accounting software program or can also be standalone software solutions or programs.
- Standalone software solutions:
  - Cityworks
  - Lucity
  - Maximo
  - ESRI Workforce
- Small utilities may find it difficult to manage a computerized system or may not see sufficient benefit due to the cost or its limited number of employees. If this is the case, an alternative work order system (non-computerized) may be acceptable.

Building an AMP

Getting Started

- Utilities should do the following to begin developing an AMP that meets the minimum requirements and standards:
  1. Review the Tennessee Asset Management Plan Guide
  2. Make a list of information they have already developed which is needed for the asset management template
  3. Use the companion Tennessee Asset Management Plan template(s) to assemble the minimum required data and information to begin building a comprehensive plan
  4. Assess whether the AMP meets or exceeds all elements for the AMP standard template by using the AMP Minimum Requirements Checklist

Available Resources

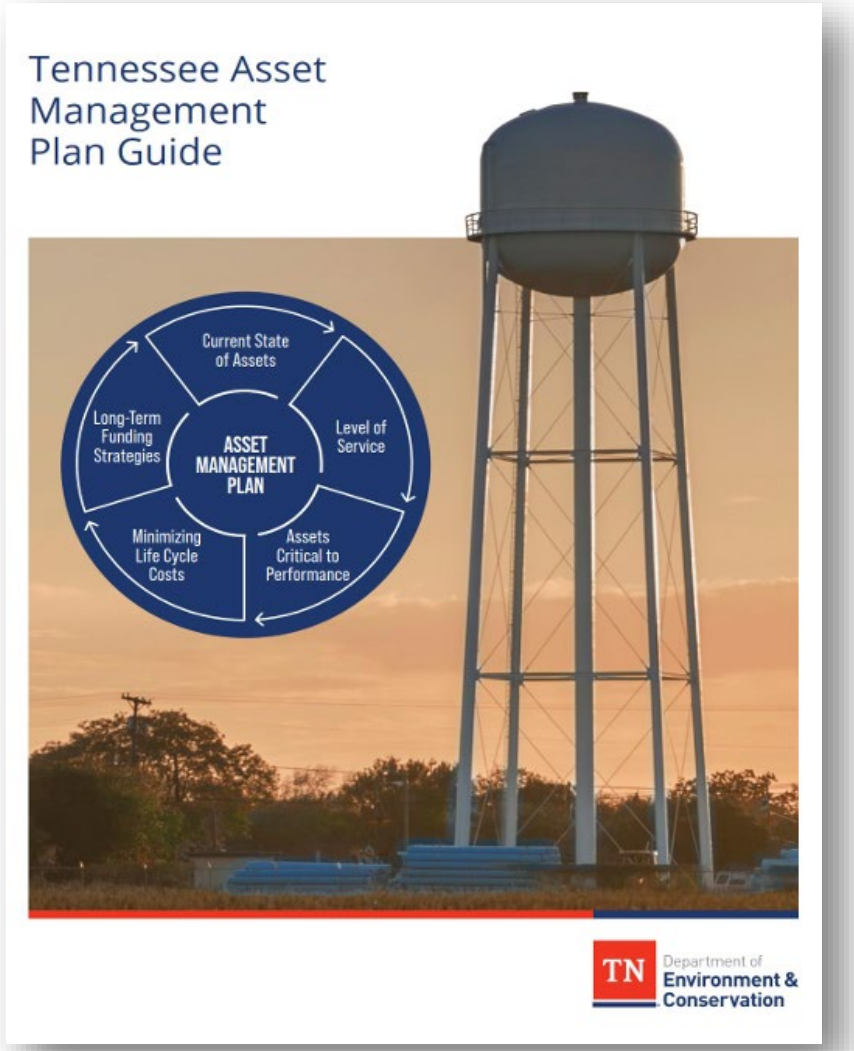


Grant Details

- Access the Grants Management System
- View the Non-Competitive Grant Manual (*updated 10/19/2023*)
- View the 2022 Non-Competitive Grant Workshop Presentation (*added 04/21/2022*)
- Access the Asset Management Plan Guide (*added 01/20/2023*)
- View the Non-Competitive Grant Contract (*added 02/17/2023*)
- View the 2023 Non-Competitive Grant Workshop Presentation (*added 03/16/2023*)
- Access the Implementation Guide (*updated 10/19/2023*)
- GMS User Guide (Procurement, Reimbursement, Deliverables and Site Inspections) (*updated 10/27/2023*)
- Quick Reference Guides
  - Contract Conditions Quick Reference Guide (*added 10/02/2023*)
  - Deliverables Quick Reference Guide (*updated 4/9/2024*)
  - PER Quick Reference Guide (*updated 4/9/2024*)
  - Reimbursement Quick Reference Guide (*updated 10/19/2023*)
  - Site Inspections Quick Reference Guide (*added 4/9/2024*)
- Asset Management Plan (AMP) Resources
  - AMP Minimum Requirements Checklist (*updated 5/13/2024*)
  - AMP FAQs (*added 4/9/2024*)

Available Resources – AMP Guide

- The AMP guide outlines the five core components of an AMP.
- Some utilities may have asset management programs and plans that far exceed this guide and its companion templates.
- Even if your utility has a robust AMP, **your utility should use the guidance to assess your current AMP for areas of potential updates.**

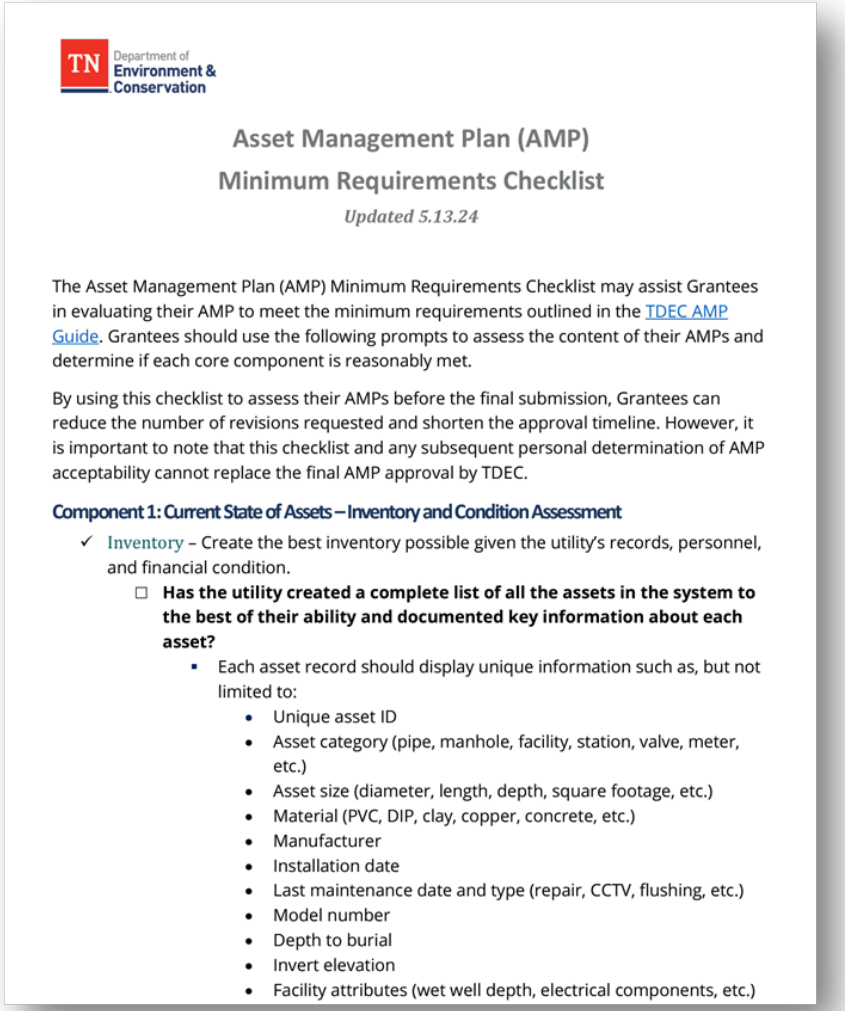


Available Resources – Asset Management Spreadsheet Templates

- Companion Tennessee Asset Management Templates (located in Appendix 1 of the AMP guide) can be used to **help users assemble the minimum required data and information to begin building a comprehensive plan**.
  - The templates were designed for use by utility systems of any size.
- Asset Management Templates are available for drinking water, wastewater, and stormwater systems.
- The templates include areas to document the following:
  - Inventory of the system's assets
  - Age and estimated useful lives of existing assets
  - Condition of the assets
  - Critical nature of the assets
  - Description of timing and expected cost of the replacement of existing assets
- Customization of the templates is allowable and can be requested by emailing TDEC at tdec.arp@tn.gov

Available Resources – AMP Minimum Requirements Checklist

- The AMP Minimum Requirements Checklist was developed to **assist utilities evaluate their AMP against the minimum requirements outlined in the AMP guide.**
- Utilities should use the guided prompts to assess the content of their AMPs and determine if each core component is reasonably met.
- The checklist and any subsequent personal determination of AMP acceptability cannot replace final AMP approval and acceptance by TDEC for utilities required to develop an AMP as a condition of SRF or SWIG funding.



TN Department of Environment & Conservation

Asset Management Plan (AMP)

Minimum Requirements Checklist

Updated 5.13.24

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.)

AMP Example – Cover Page

- Grantee Name: [Insert Name of Grantee]
- System Name: [Insert Name of Drinking Water System]
- Permit Number(s) [Insert PWSID, NPDES, SOP, or MS4's covered]
- Submission Date: [Insert Date]
- Contact Information and/or Prepared By Organization:
  - Name: [Insert Contact Name]
  - Title: [Insert Title]
  - Phone: [Insert Phone Number]
  - Email: [Insert Email Address]

AMP Example – Executive Summary / Purpose

- Brief overview of the AMP objectives, scope, and purpose.
- Summary of how the plan aligns with TDEC's requirements and EPA's asset management principles.
- Key highlights, such as funding needs, priority projects, and improvement goals.
- Include a summary table of major asset categories, critical needs, and planned investments.

AMP Example – Current State of Assets

- Asset Inventory
  - Provide a comprehensive inventory of all assets, including:

Asset ID	Category	Size	Material	Installation Date	Location (GPS)	Condition Rating (1-5)	Estimated Remaining Life	Maintenance History

- Asset Description and Evaluation
- Operations
  - O & M Manuals
  - Organization Charts
  - Daily Operations SOPs
  - Water and Energy Conservation Efforts
- Data Gaps and Improvements Strategy
- Identify missing data in the asset inventory
- Provide strategies to address data gaps, including:
  - Proposed timelines
  - Required resources, such as staff, funding, or technology upgrades
  - Interim measures to manage assets with incomplete data

AMP Example – Level of Service (LOS)

- LOS Definitions
  - Describes system LOS goals
    - Customer expectations
    - Regulatory requirements
    - Physical Performance metrics
    - Environmental and sustainability goals
- Performance Metrics
  - Establish measurable LOS indicators

Indicator	Baseline Value	Target Value	Measurement Frequency	Notes

AMP Example – Critical Assets

- Criticality Analysis
  - Assign Likelihood of Failure (LOF) and Consequence of Failure (COF) scores for each asset.
  - List Methodology and Rating Definitions.
  - Provide a criticality ranking based on:

Asset ID	LOF Score	COF Score	Criticality Ranking	Population Impacted	Environmental Consequences	Replacement Cost

- Failure Analysis
  - Include risk assessments for high-criticality assets.
  - Summarize known failure histories and conditions.
  - Identify mitigation strategies, such as increased maintenance, inspections, or replacements.

AMP Example – Capital Improvement Plan

- List project in priority order

Project Name	Description	Justification	Estimated Cost	Funding Sources	Start Date	Completion Date	LOS Goal Alignment

- Describe the benefits of each project

Project Name	Benefit Description	Impact on Reliability	Water Loss Reduction	Compliance Improvement

AMP Example – Long-Term Funding Plan

- Financial Planning
  - Summarize current and project operating costs
  - Provide a breakdown of fixed and variable costs
  - Describe revenue sources, including

Revenue Source	Annual Revenue ($)	Fixed Costs ($)	Variable Costs ($)	Reserve Contributions ($)	Debt Service ($)	Notes

- Rate Evaluations
  - Provide an annual rate evaluation plan
  - Explain how rates cover

Year	Rate ($/Customer)	Operating Expenses Coverage	Reserve Fund Contribution	Debt Service Coverage

AMP Example – Supporting Documentation

- Appendices
  - Include additional relevant documents, such as:
    - GIS / Digital maps
    - Asset inventory tables
    - Historical performance data
    - Previous inspection reports
    - Condition assessment methodologies
    - Written Procedures:
      - Security, including Cybersecurity
      - Calculating user rates
      - Billing system description
      - User ordinances
      - Training
      - Purchasing policies

Available Resources – Other

- In addition to TDEC resources, utilities can use Asset Management References directly in developing the Tennessee AMP guidance.
- These are referenced on pg. 23 of the guide and include:
  - North Carolina Department of Environmental Quality – Water and Wastewater Utility Evaluation Guidance Document: Asset Inventory & Assessment, Capital Cost, and Operating Analyses.
  - US Environmental Protection Agency – Reference Guide for Asset Management Tools
  - American Water Works Association (AWWA) - Leading Business Practices in Asset Management

Updating your AMP

- Once a comprehensive AMP is developed, **the utility should treat the AMP as a "living" document**. Improving data quality will improve decision-making.
- The AMP should be updated annually as assets age, new assets are added or decommissioned, maintenance is performed, and the level of desired service mandates the replacement of assets.

Implementing your AMP

- The AMP should provide the utility's management and governing board with important and relevant information on the maintenance and replacement of aging system infrastructure.
- This information can be used in capital budget planning to ensure that the utility’s financial resources are used efficiently and effectively to maintain and improve the utility’s infrastructure.
- **AMPs need to act as an action plan rather than a list of recommendations.** It is critical to provide a road map addressing how deficiencies in your scorecard will be addressed.

Q&A

Contacts

For questions on Asset Management Plan guidance and resources:

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