City of
Belle Meade
Public Works Department

REQUEST FOR QUALIFICATIONS
for Engineering Services

RFQ—Sanitary Sewer System Asset Management Plan

Due Date:
Tuesday,
April 30, 2024,
by 4:00 p.m.
(CST)

Issued By:

City of Belle Meade
City Manager
4705 Harding Road
Nashville, Tennessee 37205

SECTION I - GENERAL INFORMATION

A. INTRODUCTION

The City of Belle Meade is seeking a qualified engineering firm to develop an asset management plan for its Sanitary Sewer Collection System ("the System"). The Asset Management program must meet or exceed all elements of the Asset Management Plan standard template (per the Tennessee Asset Management Plan Guide (https://www.tn.gov/content/dam/tn/environment/arp/documents/arp_tn-amp-guide.pdf and attached to this bid package). This project is being funded by the Tennessee Department of Environment and Conservation (TDEC), under the State Water Infrastructure Grants (SWIG) program, utilizing American Rescue Plan (ARP) grant funding. The project must meet all requirements of the grant program. Proposals must contain evidence of the engineering firm's specific experience and qualifications in project management and development of asset management plans for other local governments or utilities meeting the requirements of the Tennessee Asset Management Plan Guide. Evidence of other abilities or disciplines directly related to the proposed services should also be provided for consideration.

Project Goals

Establish a strategic and proactive plan for management of the System that shall:

- Enable staff to quickly assess existing conditions of assets in the system
- Optimize existing operations and maintenance procedures
- Optimize use of available capital investment funds
- Identify resource needs (e.g., equipment, staffing, funding, technology)

Background and Preliminary Scope of Services

The City of Belle Meade operates a municipal sewer utility that provides sanitary sewage collection, primarily described as a grinder pump and force main system, for a small, residential community of approximately 2,900 people (1,200 households). The City of Belle Meade is a "satellite city" as a result of not consolidating with the greater Metro-Nashville and Davidson County government ("Metro-Nashville"), but rather, retaining its own unique identity and incorporation as a city within a larger city. Belle Meade consists of a 3-square mile area entirely within the larger jurisdictional boundaries of Metro-Nashville. Belle Meade does not perform water treatment and is a customer of Metro-Nashville Water Department. The sewage collected by Belle Meade's system is discharged into and treated by Metro-Nashville's system. In accordance with the City's Charter, the City cannot expand its jurisdictional boundaries and will always remain a residential community; commercial land uses are prohibited within the City with only the following exceptions: Belle

Meade City Hall, the Belle Meade Country Club, the Belle Meade Historic Site, and three religious institutions.

The City of Belle Meade's Sanitary Sewer Collection System is a network of about 14,164 linear feet (2.79 miles) of gravity sewer lines all heading roughly northeast to Metro-Nashville's Dry Creek wastewater treatment plant. The system pipe sizes are 6-inch and 8-inch only. The system includes 76 sanitary sewer manholes, five odor control stations, and 332,640 linear feet (63 miles) of force mains. The sanitary sewer system has 281 residential gravity sewer connections and 923 residential grinder pump stations.

Overall asset management for the system is implemented by the City of Belle Meade Public Works Employees. A work order and service request management system will need to be created as a part of this project scope.

The City currently relies upon a legacy system consisting of a Microsoft Access database, some hand-drawn and some GIS-based mapping of city-owned assets. The City seeks to utilize a more dynamic, centralized, GIS-based solution that incorporates decision making tools to manage our assets. It is anticipated that the selected firm will conduct field survey work and the use of ground penetrating radar will be necessary to locate the physical location of some assets.

Information Available

The following information is available for use for those wishing to submit a proposal or, where noted, will be made available to the selected consultant.

Available to proposers (Upon request):

- Financial Information for the City's General and Sewer Funds

Available to selected consultant:

- Historical maintenance records
- Digital CCTV videos (2023) of gravity pipe segments available for viewing
- GIS-mapping layers that exist all grinder pump locations and/or access to historical databases providing information about the location of city-owned assets

B. QUALIFICATIONS

Engineering firms submitting qualifications must respond in writing to all requirements of this Request for Qualifications (RFQ). Responses should reflect detailed considerations of the issues and opportunities presented by this specific project. Any additional information or tasks that are felt to be relevant by the responding firm should be included together with the submittal requirements.

Applicants must provide proof that they are listed on SAM.gov; a screenshot showing the firm's debarment status from SAM.gov should be submitted in the proposal package.

C. SUBMISSION REQUIREMENTS

Consultants should organize Proposals into the following Sections:

A. General Information
B. Professional Qualifications of Key Personnel
C. Proposed Work Plan/Technical Approach
D. Proposed Timeline
E. Past Performance and References
F. Statement of Conflicts (see form attached)
G. Supplemental Required Certifications (see forms attached)

Statements of Qualifications must include the following in their response:

- General Information - A brief history of the proposing entity, including general background, knowledge of wastewater collection systems, and experience working with relevant agencies such as the Tennessee Department of Environmental and Conservation (TDEC).
- Key Personnel - Resumes of the key personnel assigned to the project and a staff plan that details the personnel by skill levels, duties and or roles, and estimates the number of hours needed to satisfy the requirements of the RFQ.
- Work Plan - A narrative description of the firm's technical approach to the project that identifies the methods and techniques that will be used to develop the Asset Management Plan for the City of Belle Meade.
- Timeline - A proposed timeline for completion of proposed tasks which should begin with an engineering services contract being awarded by the City no later than June 30, 2024 and a total project completion no later than June 30, 2025. Additionally, include a statement substantiating the resources of the proposed entity and the ability of the key personnel proposed to carry out the scope of work requested within the proposed timeline.
- Past Performance - A narrative description of past performance by key personnel assigned to the project and their recent, relevant projects that demonstrate the likelihood of success in performing the requirements of this RFQ. Examples provided should be similar in scope and complexity.
- References - Provide reference for the examples of past projects highlighted, including name, address, telephone number, and e-mail address of the point of contact.
- Conflicts of Interest Disclosure – Complete the Conflict-of-Interest Disclosure Form (enclosed/attached to this bid package).
- Supplementary Required Certifications – Complete all attached certification forms required to fulfill the obligations of the grant contract which provides the funding for this project.

D. EVALUATION CRITERIA

The City of Belle Meade will evaluate each firm's qualifications to ensure that the most qualified engineering firm is selected and the final award of the contract with be subject to negotiation of fair and reasonable compensation. Price will not be used as a selection factor and should not be included with the qualifications package submitted.

The statement of qualifications must include names and qualifications of the team to be used on the project, substitutions must be approved in advance. The Statement of Qualifications should give a past history and references in order to satisfy the City in regard to the firm's qualifications. The City may make reasonable investigations deemed necessary and proper to determine the ability of each firm to perform the work, and each firm shall furnish to the City all information for this purpose that may be requested. The City reserves the right to reject any offer if the evidence submitted by, or investigation of, the firm fails to satisfy that it is properly qualified to carry out the obligations as described within this RFQ.

Responses to this RFQ will be evaluated by a selection panel comprised of key staff from the City using a point system. The evaluation scorecard is included for reference in this bid package.

Criteria for evaluation will include (maximum 100 points):

- Up to 25 points – Proposal/Technical Approach
- Up to 25 points – Professional Qualifications and Staffing Plan
- Up to 25 points – Past Performance and References
- Up to 25 points – Proposed Schedule

This solicitation is for engineering professional services and will be a qualifications-based procurement. Cost/fees for services will not be reviewed during this evaluation process. Only after the evaluation committee has scored and recommended a top firm as the most qualified for this project, then, the City Manager will solicit a price proposal with the top firm. All proposals submitted may be subject to clarifications and further negotiation. Final award of the contract will be subject to successful negotiation of fair and reasonable compensation.

E. QUESTIONS AND CLARIFICATIONS

All questions regarding this Request for Qualifications (RFQ) shall be submitted via e- mail. Questions will be accepted and answered in accordance with the terms and conditions of this RFQ.

All questions must be submitted **on or before April 25, 2024, at 4:00 p.m.**, and should be e-mailed to - Jennifer Moody, jmoody@citybellemeade.org

Should any prospective consultant be in doubt as to the true meaning of any portion of this RFQ, or should the consultant find any ambiguity, inconsistency, or omission therein, the consultant shall make a written request for an official interpretation or correction by the due date above.

All interpretations, corrections, or additions to this RFQ will be made only as an official addendum that will be posted **to www.citybellemeade.org** and it shall be the consultant's responsibility to ensure they have received all addenda before submitting a proposal. Any addendum issued by the City shall become part of the RFQ and must be incorporated in the proposal where applicable.

F. DEADLINE FOR SUBMISSIONS

All proposals are due and must be delivered to Belle Meade City Hall on, or before, **April 30, 2024, at 4:00 p.m.** (local time). Proposals submitted late or via oral, telephonic, telegraphic, electronic mail or facsimile **will not** be considered or accepted.

Each respondent must submit in a sealed envelope:

- four (4) original proposal
- one (1) digital copy of the proposal on a thumb drive, preferably in PDF format, or by e-mail to jmoody@citybellemeade.org

On the outside of the mailing envelope, addressed to:

City of Belle Meade
Jennifer Moody, City Manager
4705 Harding Road
Nashville, Tennessee 37205

Qualification statements will be accepted until close of business at 4:00 p.m. on Tuesday, April 30, 2024, at Belle Meade City Hall. Four (4) hard copies of the proposal, including signatures, and one electronic copy (submitted via email to jmoody@citybellemeade.org or on an enclosed thumb drive) shall be submitted.

Hand delivered proposals must be date/time stamped by city staff at Belle Meade City Hall, 4705 Harding Road, Nashville, Tennessee, 37205, to be considered. Delivery hours are 8:00 a.m. to 4:00 p.m. Monday through Friday, excluding Holidays.

All proposals received on or before the due date will be reviewed by the evaluation panel. No immediate decisions will be rendered.

The City of Belle Meade reserves the right to select or reject any consulting firm that it deems to be in the best interest to accomplish the project specified. The City reserves the right to waive defects and informalities of the qualification statements.

G. TYPE OF CONTRACT

A Professional Services Agreement will be negotiated immediately following evaluation and selection of a qualified firm. The City will consider Professional Services Agreements proposed by the engineering firm selected. This RFQ and the selected consultant's response thereto shall constitute the basis of the scope of services in the contract by reference.

H. PROPOSAL PROTEST

All proposal protests must be in writing and filed with the City Manager within five (5) business days of the award action. The consultant must clearly state the reasons for the protest. The City Manager will provide the consultant with the appropriate instructions for filing the protest. The protest shall be reviewed by the City Manager or designee, whose decision shall be final.

I. SCHEDULE OF ACTIVITIES

It is expected that the Selection Process will proceed as follows:

Activity/Event	**Anticipated Date**
Advertisement of RFQ	April 1, 2024
Written Question Deadline	April 25, 2024 at 4:00 p.m.
Proposal Due Date	April 30, 2024 at 4:00 p.m.
Selection	on or before May 15, 2024
Executed Contract	on or before June 30, 2024

The above schedule is for information purposes only and is subject to change at the City's discretion.

SECTION II - ATTACHMENTS

A. EVALUATION SCORECARD

B. TENNESSEE ASSET MANAGEMENT PLAN GUIDE

C. CONFLICT OF INTEREST DISCLOSURE FORM

D. SUPPLEMENTAL REQUIRED CERTIFICATIONS

- **a. BYRD Anti-Lobbying Amendment Certification**
- **b. Iran Divestment Act Certification**
- **c. Debarment Certification**
- **d. Non-Boycott of Israel Certification**

ATTACHMENT A

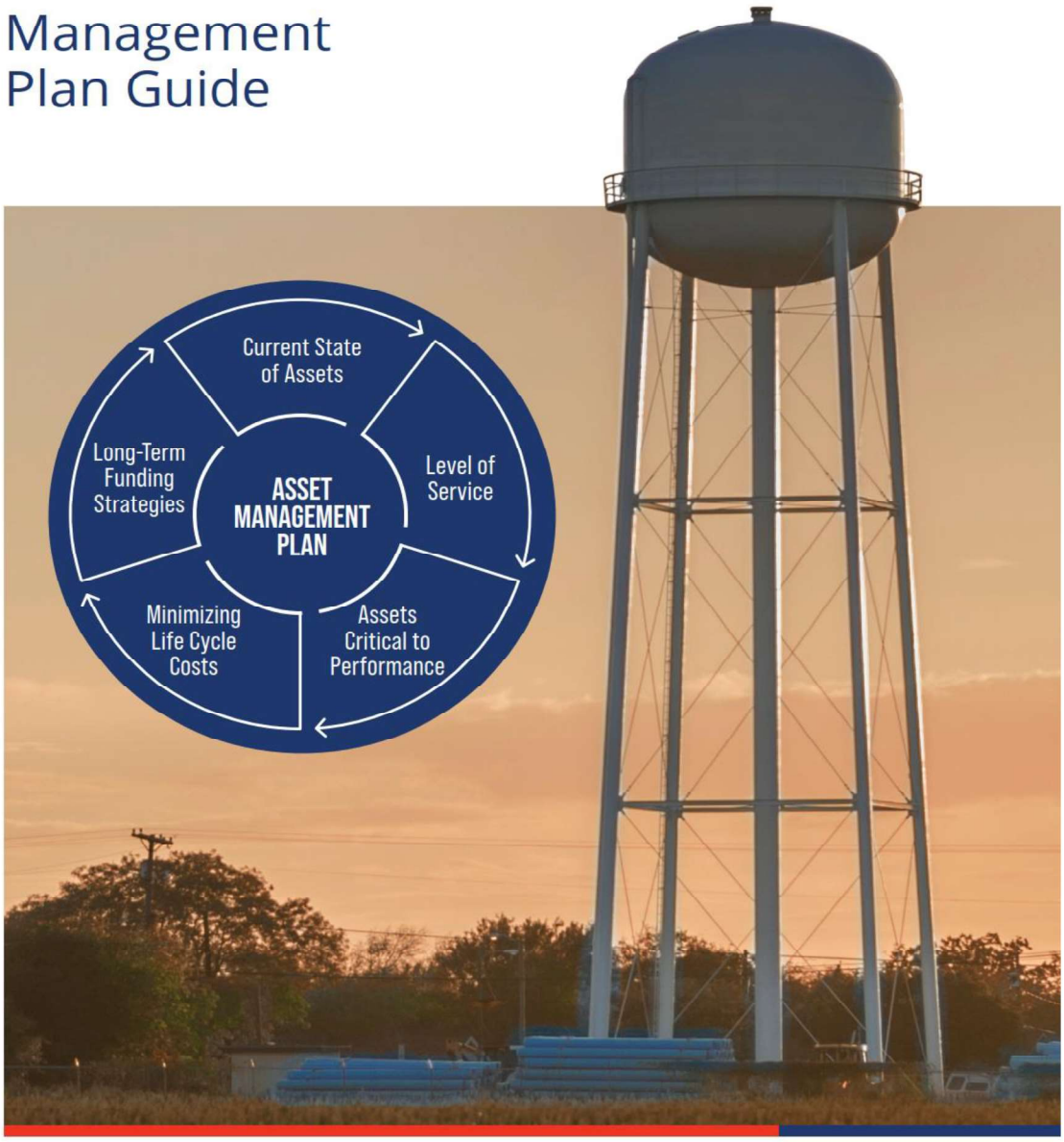
EVALUATION SCORECARD -CITY OF BELLE MEADE - RFQ - SANITARY SEWER SYSTEM ASSET MANAGEMENT PLAN

NAME/REVIEWER:

	EVALUATION CRITERIA	*SCORING*	*(INSERT NAMES OF FIRMS)*				
1)	**Technical Approach**	up to 25 points	**1**	**2**	**3**	**4**	**5**
	The firm's technical approach should demonstrate the firm's knowledge and understanding of the requirements and objectives outlined in the Tennessee Asset Management Plan Guide. Identify the methods and techniques that will be used to develop the Asset Management Plan, including a work order system and any field work (i.e. GPR survey) the firm will use to meet or exceed the technical requirements and objectives of the AMP standard template. Clearly describe the deliverables to be produced and the firm's qualifications and capabilities specifically related to perform the work.	Scoring based upon how well the proposed approach demonstrates abilities and knowledge of project issues, opportunites, and constraints					
2)	**Staffing Plan**	up to 25 points					
	Provide a staffing plan detailing the number of personnel by skill levels, duties or roles, and estimated number of hours needed to satisfy the requirements. A list of the key personnel by name, title, contact information and proposed duties and roles. Describe any proposed teaming or subcontractor arrangements, including names, addresses, and points of contact.	Scoring based upon the documented relevance of experience, education, and availability of staff and subcontractors that will be utilized for this project					
3)	**Past Performance**	up to 25 points					
	For each of the proposed key staff members, provide examples of recent, relevant performance demonstrating the likelihood of success in performing the requirements of this RFQ. A narrative describing how referenced projects are similar in scope and complexity should be provided. Provide references with the name, address, telephone number, and e-mail address of the point of contact.	Scoring based upon documented success of previous programs or projects similar in nature. Specifically note any past projects where key staff member or firm successfully submitted an Asset Management Plan to TDEC that successfully achieved certification of compliance with the standard template.					
4)	**Proposed Schedule**	up to 25 points					
	Provide a proposed time schedule for completion of the proposed tasks with a statement describing the proposed key staff members capacity to perform the services within the established timeframe. The proposed schedule should begin with a contract being awarded by the City no later than June 30, 2024 and total project completion no later than June 30, 2025.	Scoring based upon demonstration of an efficient timeline that can meet all scheduling deadlines required by the terms of the grant and American Rescue Plan funds.					

ATTACHMENT B

Tennessee Asset Management Plan Guide



TN Department of Environment & Conservation

Asset Management Plan Guide

July 2023

Lead Agency:

Tennessee Department of Environment and Conservation (TDEC)

Contributors:

Tennessee Association of Utility Districts (TAUD)

KCI Technologies

Division of Water Resources Programs:

State Water Infrastructure Grants

Drinking Water

State Revolving Fund

Engineering Services

Contents

DISCLAIMER: The Tennessee Asset Management Plan, including the spreadsheet and assessment methods are intended for the development of an asset management plan (AMP), condition assessment and prioritization of critical asset renewal needs. The assessment of individual assets is scored based on their current condition as compared to a reference standard. In part, or as a whole, the AMP guidance documents are not intended as a substitute for engineered planning and design. The Tennessee Department of Environment and Conservation assumes no liability for utility decisions based on these tools. This document is guidance only and does not create legal rights or obligations. Mention of trade names or commercial products does not constitute an endorsement or recommendation for use.

Executive Summary

Asset management plans (AMP) are a critical component of effectively managing water, wastewater, and stormwater infrastructure. 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 service level customers desire. This management framework has been widely adopted by the water sector to pursue and achieve sustainable infrastructure. Although utility owners and operators build AMPs specific to their system, the foundation of this process is the same. 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. A proper AMP strongly supports a utility's technical, managerial, and financial (TMF) capacity to continuously provide safe, reliable drinking water, wastewater, or stormwater services. 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. These plans also help budget for ongoing maintenance while planning for asset renewal, growth, and capacity expansion in a strategic manner.

This AMP guide outlines basic asset management plan components and is designed to meet the minimum criteria for Water Infrastructure Investment Plan (WIIP) American Rescue Plan (ARP) grants. Some utilities may have asset management programs and plans that far exceed this guide and its companion templates. Other utilities may have elements of an AMP but lack a comprehensive plan to meet the grant requirements. Even if your utility has a robust AMP, your utility should use this guidance to assess your current AMP for areas of potential updates.

The Tennessee Department of Environment and Conservation (TDEC), Division of Water Resources (DWR), convened public and private partners for the development of this guidance. DWR program managers and staff from Engineering Services, State Revolving Fund (SRF), Drinking Water, and State Water Infrastructure Grants programs along with the Tennessee Association of Utility Districts (TAUD), and KCI Technologies contributed to the guide. Through this working group, DWR has considered the aspects of planning requirements across our drinking water, wastewater, stormwater, and loan programs for the development of this document.

DWR's goal is to increase consistency across the state for water, wastewater, and stormwater infrastructure planning documents. Nevertheless, we suggest users of this guide check with DWR program staff prior to substituting this AMP model in lieu of (or to fulfill) regulatory or loan program requirements.

Using this Guide and Template

Building an asset management plan is not complicated but is does take time and effort. This guide breaks down the specific tasks needed to address the five core components of an AMP. The companion ***Tennessee Asset Management Templates located Appendix 1*** help users assemble the minimum required data and information to begin building a comprehensive plan. These basic spreadsheet templates were designed for use by utility systems of any size. Users should review the entire guide and make a list of information they have already developed which is needed for the template. The templates include areas to document the inventory of the system's assets, the age and estimated useful lives of existing assets, the condition of the assets, the critical nature of the assets, and a description of the timing and expected cost of the replacement of existing assets. Users should contact TDEC at tdec.arp@tn.gov if they would like to customize the templates.

Where possible, this guide highlights the connection between building a comprehensive AMP and addressing critical needs identified as red flags in the Tennessee Infrastructure Scorecard (Scorecard). Users should use this guide to assist them in addressing Scorecard AMP red flags to meet grant criteria in the Non-Competitive Grant Manual for Water Infrastructure Investment Plan funds. Where relevant, call out boxes have been added throughout this guide to highlight certain Scorecard requirements.

In addition, this AMP guide also addresses DWR Drinking Water program and SRF program requirements for Asset Management Planning and Fiscal Sustainability Plans. While some program requirements may have slight modifications or go beyond this basic AMP format, the foundation is the same. More detailed plans (e.g., Master Plans, Capacity, Management, Operation, and Maintenance (CMOM) Plans, Infiltration / Inflow Assessments, Leak Detection Studies, etc.) are often required to support investment decisions, critical needs, or in response to significant non-compliance issues. We suggest users of this guide check with DWR program staff prior to substituting this AMP model in lieu of (or to fulfill) regulatory or loan program requirements.

Figure 1 Capital Improvement Plan Scorecard Requirement

Scorecard Overview and Relationship with the AMP

The Tennessee Infrastructure Scorecard (Scorecard) and the utility's asset management plan can help identify deficiencies in the utility's system and prioritize improvements. The Scorecard provides system metrics for easy identification of the critical needs that should be addressed in the short term and document future progress. To be considered satisfactory on the Scorecard, a utility must have an asset management plan that meets the following criteria:

- Digital map of greater than 75% of the system
- Current asset inventory and condition assessment
- Planned operation and maintenance

- Work order system
- Capital improvement plan and budget
- Meter testing and changeout program
- IT infrastructure to support management decision-making

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

Figure 2 Example Tennessee Infrastructure Scorecard

Building an Asset Management Plan

The purpose of asset management planning is to provide the utility with information to make good decisions on the repair and maintenance of existing capital assets, the replacement of existing capital assets, and the addition of new capital assets to the utility's infrastructure.

Once a comprehensive AMP is developed, the utility should treat the AMP as a "living" document. The AMP should be updated annually as assets age, new assets are added, maintenance is performed, and the level of desired service mandates the replacement of assets. The original AMP and annual updates to the AMP give a utility's management and governing board important and relevant information on the maintenance and replacement of aging water 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.

Figure 3 Asset Management Plan

Capital Assets in an AMP

Drinking water, stormwater, and wastewater systems are made up of assets which include above and below ground utility infrastructure. Defining the business processes for planning, acquiring, operating, maintaining, renewing (includes repair, rehabilitate, and replacement), and decommissioning assets connects an AMP to each asset's lifecycle.

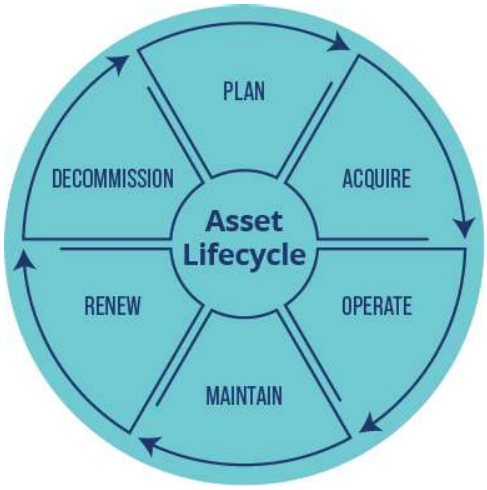


Figure 4 Asset Lifecycle

Water system assets include water treatment plants, pumps, pump stations, storage tanks, mains, valves, meters, and other facilities necessary to operate a water system. Wastewater system assets include treatment plants, pumps, pump stations, gravity mains, force mains, valves, meters, manholes, cleanouts, and other facilities necessary to operate a wastewater system. Stormwater system assets include grey and green infrastructure components like catch basins, junction chambers, stormwater pipes, outfalls, ponds, bioretention cells, permeable parking lots, rain gardens, and other assets necessary to manage, reduce, treat, or recapture stormwater or subsurface drainage water.

To be included in the utility's AMP, an asset should meet at least one of the following criteria:

- Have a cost of $5,000 or greater. Individual utility systems may have established a different cost threshold for a capital asset which should be used by the utility.

- Have a useful life greater than one (1) 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.

While developing the AMP, be mindful of the full asset lifecycle of each individual asset. Costs are accumulated over the life cycle of an asset (lifecycle costs) and each component of the cycle can have significant financial impact and affect whether level of service commitments are met.

The Five Core Asset Management Plan Components

Effective management of these assets can be done through a simple, yet comprehensive five component planning process. Utilities begin by identifying all assets and determining the current state of the assets. Next utilities must establish the level of service they intend to provide and strategies for meeting regulatory requirements. Additional components include assessing asset criticality to understand the most serious needs, minimizing the cost of assets over their life cycle through proper operation and maintenance and optimizing efficiency at the plant as well as in the organization. Finally, utility managers and operators need to develop a long-term funding plan and capital investment strategies. These strategies help ensure the system's longevity in operations at a desired level of service for its customers. Finally, developing and maintaining a comprehensive AMP does not have to be linear. Utilities can integrate asset inventories into routine maintenance schedules, build on the level of provided service over time, or work to minimize costs through organizational restructuring when appropriate for your system. The key is to recognize the need for a comprehensive AMP, make a target goal for completion date, and start at the beginning, one step at a time.

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

To begin an inventory and condition assessment of the utility's assets, these fundamental questions should be addressed:

- What assets do we own?
- Where are they?
- What is their current condition?

Practitioners need to take inventory of utility assets, listing what is owned, documenting the location of each asset, and detailing the condition of the asset. This data should be gathered in one location and be comprehensive, including new and old assets in the system.

Figure 5 Condition Assessment Scorecard Requirement

Inventory

Addressing the current state of the utility's assets involves making a complete list of all assets in the system and documenting key information about each asset. The utility should name each asset (often by using a unique identification number/text); assign a category for the asset; document key attributes such as size, material, manufacturer, model number, etc.; and describe the asset in as much detail as practicable. The utility should include dates of installation or provide its best date estimate using existing records and information provided by employees. If the utility has an asset identification system or has a serial number for the asset, this information should be included in the inventory as a unique identifier. Established utility mapping systems may serve as an inventory so long as it contains the necessary data outlined in this guide and referenced in the companion templates.

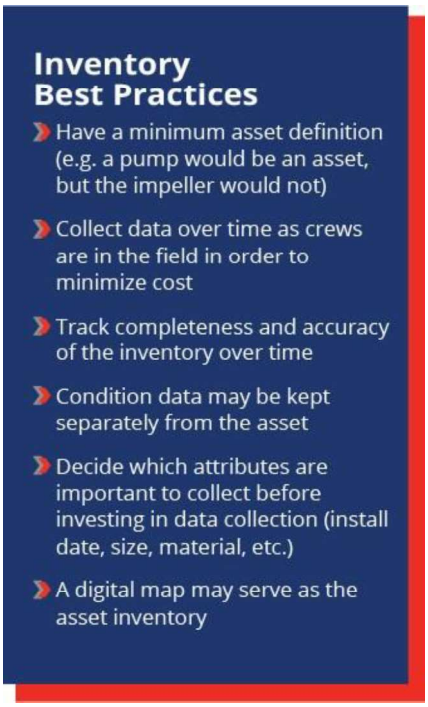


Figure 6 Inventory Best Practices

The goal is to create the best inventory possible given the utility's records, personnel, and financial condition. After the completion of the first inventory, the utility should develop an approach to providing better and more complete information when annual updates are made to the AMP.

Utilities that do not have comprehensive records of their capital assets may find deploying field crews to locate assets and document conditions takes considerable effort. However, over time, maintaining the inventory should become routine and managers and operators will find significant benefits having this knowledge in hand. Do not attempt to complete an inventory all at once. Start with existing information on old and new assets. Utilities may choose to build the inventory and condition information over time, collecting data when field crews respond to maintenance issues or routine system checks. As annual updates are done, more comprehensive data can be included.

Digital Map of System

Once the assets owned by the utility have been identified, it is critical to also establish where those assets are located. This involves mapping the assets that are in the field and recording the location in a digital mapping system easily accessible for use by the utility's employees. The digital map can help operators, managers, and governing board members conceptualize the utility as an entire, interconnected system.

There are several methods of developing and refining a digital map over time. To start, a utility may leverage existing digital record drawings and/or as built documents that can be imported into more common mapping file formats, such as Geographic Information System (GIS) software.

Figure 7 Digital Map Scorecard Requirement

A utility may digitize paper maps by scanning and tracing, or as a guide to place asset features in their approximate location. Often both digital and paper drawings include attribute information (size, material, etc.) that should be populated into the asset inventory spreadsheet or into the GIS layer. Leveraging existing documentation is the most cost-effective method of developing a digital map.

Once existing information has been fully leveraged, field work can fill in data gaps and provide more accurate data. Field work may include spatial data acquisition; collecting attribute data and taking photos to associate with the assets. Spatial data acquisition can range from "redlining" assets in their approximate location into the digital map, to collected "sub-meter" GPS data, or "survey-grade" data that may be "sub-centimeter." Utilities can deploy existing staff armed with cell phones to snap photos and pin those images to the asset location. Including a visual picture of asset locations as part of the digital map is useful, especially for buried assets.

There is a wide range of cost between the lowest and the highest accuracy spatial data acquisition approaches. Also, there is a wide range of costs for non-spatial data collection (e.g., sizes, materials, etc.) When planning, it is recommended to calculate "per asset" costs to collect the data. If using internal staff, you may estimate the time to collect data on each asset, or how many assets can be collected in a day, and then use burdened labor rates along with an estimate of how many assets need data collection to improve estimate cost and schedules. It is important to also include the cost of needed equipment (e.g., GPS equipment, tablets/laptops, etc.) in cost estimate planning. Contracting out asset data collection may be more efficient for the utility. Always request several quotes from survey companies if contracting this work out.

Figure 8 Digital Map Best Practices

There is a wide range of digital mapping products, ranging from free open-source software that work well for small systems, to more costly and powerful enterprise products. Products with broad local government and utility user communities come with a higher price. Free and lower cost products may be less feature rich and less widely used in the water, wastewater, and stormwater utility market. Regardless of the system, data ownership and security policies and procedures should be established. Utilities should consult with their peers and are encouraged to share industry best practices when sourcing mapping

software. Examples of a few digital mapping software products include Diamond Maps and QGIS, or ESRI and MapInfo for higher end, feature rich software systems. There are many alternative products that are equivalent to the software mentioned above. It is recommended that utilities research software options to select the product that will suit the systems needs best.

Asset Condition

The physical condition of each asset should be assessed and documented. This process includes the anticipated useful life of service of the asset and when the asset was installed or purchased. The remaining useful life is assessed by assigning a percentage to the estimated total useful life of the asset (e.g., if an asset's anticipated useful life is 80 years, and has 75% of its remaining useful life remaining, it is estimated to have 60 years remaining of useful life). An individual asset may or may not function as needed over its anticipated useful life. If the functionality of an asset has been reviewed, and it is in worse condition than anticipated, the remaining useful life may need to be reduced, or if the condition is better than anticipated, the useful life may be extended.

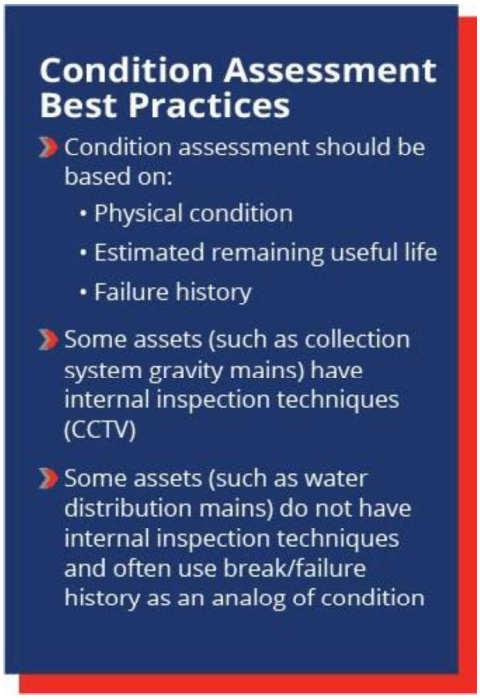


Figure 9 Condition Assessment Best Practices

If repairs or maintenance of an asset has extended its useful life, then the length of any such extension should be recorded. When performing a condition assessment, the date of the review and condition information should be documented.

An evaluation of the remaining useful life of each asset will assist the utility in deciding to continue to maintain or repair an asset, and when to replace it. Routine maintenance to extend the life of an asset may be more cost effective than replacing an asset. Typically, spending more on routine maintenance means spending less on replacement. Routine maintenance may be prioritized forcritical assets rather than expending funds on those that are less critical.

Information on the remaining useful life of each asset, as well as routine maintenance and repairs will help determine an assets likelihood for failure.

The templates in this guide walk a user through the inventory and condition assessment process. Drop-down categories for asset types, asset rankings, asset history, and risk of failure formulas are provided for each asset entry. This allows the utility to create a comprehensive inventory and condition assessment as detailed or as simple as the user decides. Information which can be used to make these assessments include:

- the date of installation of the asset (from the inventory section above)
- estimate of total useful life (i.e. when first installed)

- recent inspection records
- the history of failures, repairs and maintenance to the asset
- the opinions of utility personnel who work on the asset
- the assessment of engineers or other professionals on large or costly assets when economically feasible.

Component 2: Level of Service

Clearly defining the required level of service is critical to successful utility operations.
All Asset Management Plan components contribute to improving the utility's level of service through better decision-making.

The utility's needed level of service is a measure of how well an asset, an infrastructure system, or an organizational function is meeting its intended purpose. Levels of service may be tied to physical performance of asset(s), customer expectations, or be defined via regulatory requirements.

A utility's primary focus for level of service should be its customers. Customers expect clean, safe drinking water from their taps and sufficient quantity to meet their needs. They expect a similar level of service when they flush their toilet. When a water related issue arises, and the service breaks down, they expect quick repair response times from their water provider.

Figure 10 Level of Service Best Practices

At an asset specific level, a common level of service relates to its capacity. For example, a sewer pipeline may be designed to convey a certain peak flow while keeping the flow within a certain portion of the pipe (commonly measured as depth of flow (d) divided by the diameter of the pipe (D), or d/D). If the peak flows are less than the design d/D, the pipe is exceeding its level of service expectation. If the peak flows are more than the design d/D (e.g., surcharging into the manhole), it is not meeting its level of service expectation.

At an infrastructure system level, common levels of service relate to regulatory compliance. The water distribution system assets, collectively, must meet water quality standards. Many assets and organizational functions that manage, operate, and maintain those assets must work together to meet these requirements. At a minimum, regulatory requirements under water, wastewater, and stormwater permits must be met. If the level of service is not met, the utility risks regulatory enforcement action.

Regardless of the type of level of service, it is important for utilities to define the expected level of service at the asset, system, and customer levels. Then measure the actual levels of service being provided and compare those to the expectations. This is key in prioritizing system investments.

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 respond to customer complaints within X-hours

Understanding both the condition and capacity of assets helps a utility understand whether those assets are meeting their expected level of service. An asset may not perform at the appropriate level of service as it degrades over its useful life. In addition, the required level of service may have changed with time, due to increases in customer demand or more stringent regulatory requirements. The more critical the asset the more important it is that the asset meets (or exceeds) its expected level of service.

Component 3: Critical Assets

Not all assets are equally important for meeting the utility's level of service goals and maintaining regulatory compliance. Some assets are extremely critical to operations and others are not. The criticality of assets should be considered when determining the level of investment of utility personnel and financial resources.

The template provides a table for utilities to rank the criticality of each asset based on its likelihood of failure score and various criteria relating to consequence of failure. The consequence of failure criteria include:

- Redundancy
- Population served affected by failure
- Regulatory impact of failure
- Public health or environmental concern of failure

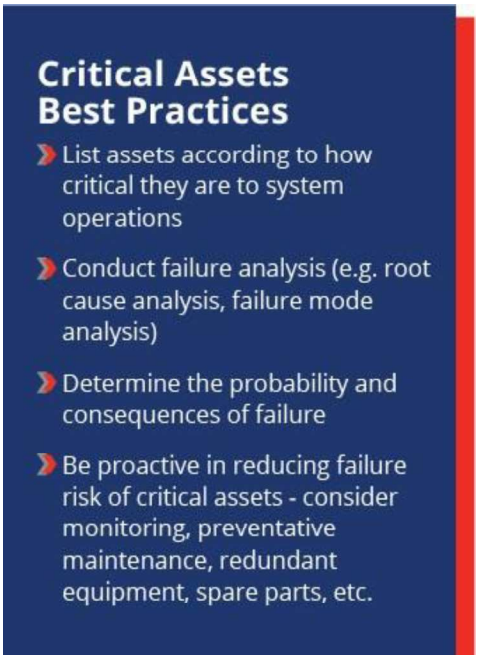


Figure 11 Critical Assets Best Practices

The asset criticality score is determined by multiplying the risk of failure score times the aggregate of the consequence of failure scores. The criticality score is then used to rank the criticality of all assets included in the table.

Component 4: Minimizing Life Cycle Costs – Capital Improvement Plan

After developing an inventory, determining current condition and capacity, and criticality of its assets, the utility needs to prioritize the repair, rehabilitation, and replacement of its capital assets. In some cases, optimizing operation and maintenance efforts can extend the useful life of assets and defer capital investments. Minimizing life cycle costs often involves a balance between operations and maintenance to preserve assets that meet their level of service requirements and capital investment in cases where existing assets simply cannot meet the level of service required.

Alternative strategies for operations and maintenance may involve adjusting the organizational structure, prioritization of staff based on asset criticality, or adopting new techniques for more effective condition assessment and level of service monitoring. Examples may include establishing a dedicated maintenance division, updating standard operating procedures, or upgrading information technology infrastructure and software (e.g., maintenance management or work order system, field/mobile applications, etc.).

Figure 12 Life Cycle Cost Best Practices

Understanding which assets to replace, and how to fund each project, will determine the long-term capital improvement strategy of a utility. The excel workbook template assists the utility in prioritizing the replacement of assets by the completion of the following information on each asset:

- The estimated replacement cost
- The expected replacement date
- The asset's condition (from the Asset Condition section above)
- The asset's criticality (from the Critical Assets section above)

If the utility takes the time to fill out the template correctly, the tool will generate a prioritized list of critical assets in need of replacement. Utility management and operators should use the list as a tool to show decision makers the importance of capital projects. The template will give elected or appointed officials a vision for the future needs of the utility past the current fiscal year. Current and future needs, in conjunction with the critical asset list, are the basis for a capital improvement plan.

Once a utility establishes a prioritized list of critical assets in need of replacement, a capital improvement plan should be developed. The capital improvement plan should specify project priorities and the anticipated funding source for each one. The projects should be listed by the

year in which they are planned. At a minimum, the capital improvement plan (CIP) should include the following information:

- Description of the 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

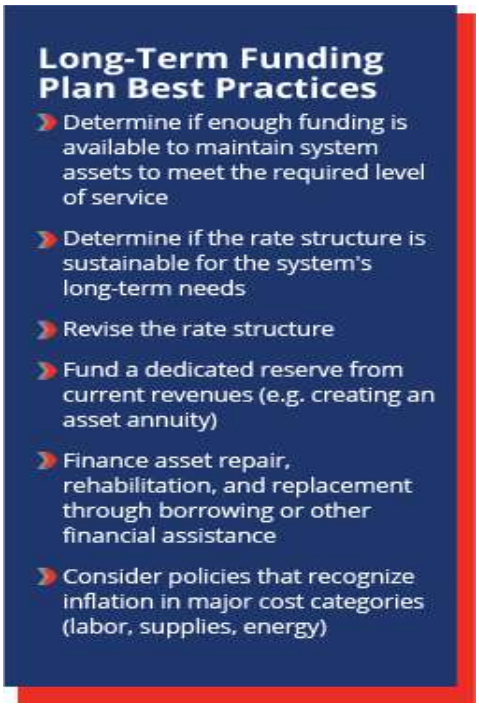


Figure 13 Long-Term Funding Best Practices

Long-term funding is critical to meeting future operating and capital improvement needs. Asset management provides the basis for reasonable rate setting and long-term fiscal sustainability. 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 its annual debt costs. If the utility has outstanding debt, rates must be sufficient to produce enough revenues to meet the utility's debt service coverage ratio. If the utility seeks to finance 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.

Water and wastewater utilities owned and operated by local governments (including utility districts and utility authorities) are legally required to set rates to cover their operating expenses, debt costs, depreciation, and reasonable reserves. Utilities may want to 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.

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 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 anticipate changes

When a utility has established customer classes with different rate structures, the utility must ensure these rate classes are just and reasonable. Using an outside rate consultant is recommended when the utility seeks to establish different rate structures for customer classes or to verify that existing rates are covering the costs of each customer class. A rate consultant will perform a cost of service study to support the rates for each customer class.

Rate evaluation for each customer class is a straightforward process. Typically, costs are broken down into two categories, fixed and variable. Variable costs change based on the amount of water produced or wastewater treated. These costs include energy, chemicals, and wages of employees working in the treatment plant, among others. Fixed costs do not change no matter the amount of water produced, or wastewater treated. Fixed costs include wages of customer service employees, debt payments, insurance, lease payments, and professional fees.

Other Considerations: Scorecard Summaries & Fiscal Sustainability Plans

TDEC has adopted Asset Management Plan requirements that address other regulatory and state-wide priorities. This section highlights requirements of a Fiscal Sustainability Plan that is required by the State Revolving Fund for Clean Water treatment works loan projects. It also includes additional Scorecard requirements for IT Infrastructure, Work Order Management, and Meter Testing and Changeouts.

Fiscal Sustainability Plan Requirements

To meet the minimum requirements for a Fiscal Sustainability Plan as required by the State Revolving Fund program, the AMP should also include the following elements:

- Organizational structure
- Plan of operation
- Operation and maintenance manual
- Water and energy conservation efforts

Excerpts from SRF's Fiscal Sustainability Plan Guidelines are included in Appendix 4 for reference.

Organizational Structure

Employees are the utility's biggest asset. When evaluating asset needs, utilities should determine the optimal organizational structure for the utility. A strong organizational structure fosters employee communications and expectations and reduces internal staff conflicts and staff

turnover. The organizational structure should lay out a clear chain of command for the management of employees and the management of the infrastructure.

Utilities should consider the following when creating an organizational structure (or chart):

- Job descriptions that include primary roles and responsibilities
- Number of staff/direct reports
- License requirements
- Minimum requirements for each position

Additional staffing recommendations:

- Salary surveys
- Staffing plan
- Workforce development and training needs
- Administrative support

Plan of Operation

A plan of operation is important for any utility system. This plan may also be known as standard operating procedures. The utility should have a plan detailed enough that any qualified individual can operate the system with appropriate training. This will also preserve institutional knowledge when employees retire or find other employment.

Staffing and training procedures are an important element in the Plan of Operation. These procedures assure supervisory, operations, maintenance, laboratory support, and administration personnel are hired and trained in a timely manner. A staffing plan and organizational structure can be independent of the Plan of Operations, as described in the previous section, or as part of the Plan describe here.

The establishment of an adequate laboratory, data recording, and reporting system should be developed for reporting or process control requirements. Any special training needs related to a laboratory control program should also be included. After a significant upgrade or construction of new facilities, utilities should consider plant start-up costs and procedures. These start-up procedures will assist in optimizing operations and set the proper framework for long-term, trouble-free, efficient plant operation under all operating conditions. The Plan of Operation should also identify any necessary actions such as dry and wet testing of equipment, instrument calibration, and a review of process control procedures during the start-up period.

Safety procedures and expectations need to be detailed in the Plan of Operations. All drinking water and wastewater treatment facilities employees must adhere to all Federal, State and local safety requirements. Effective training for employees on safety protocols, as well as the development of a safety program should be part of the Plan of Operations. Training updates should be conducted when major updates to a facility have occurred. All hazardous conditions should be appraised and appropriately considered in the safety and health plan. The training program should be responsive to identified needs and guidance.

Additional considerations:

- Having comprehensive rules and regulations governing water and wastewater services to customers and keeping such rules and regulations up to date
- Developing a robust safety and technical training program for employees to safely and effectively operate and maintain utility assets and meet level of service expectations
- Developing procedures to comply with the regulatory requirements of state agencies such as the Comptroller's Office and the Tennessee Public Utilities Commission (TPUC) when applicable
- Establishing and maintaining internal controls as recommended by the Comptroller's office
- Ensuring billing and accounting programs are adequate for the collection of utility revenues, financial reporting, and the assessment of capital assets
- Establishing a system for securing and maintaining capital improvement construction records and as-built utility infrastructure
- Identifying and implementing recordkeeping and record retention procedures

Operations and Maintenance Manual

The utility should have an operations and maintenance manual (O&M manual) which describes standard operation procedures and preventive maintenance schedules or plans, for the utility's water, wastewater, or stormwater system. Utilities may have chapters for each facet of the operation of the utility's system including the utility's water or wastewater treatment plant, water distribution system, wastewater collection system, water meters, pump stations, water tanks, and laboratory. The O & M manual should also include emergency preparedness plans. Appropriate preparedness plans detail specific emergency response guidance to minimize the possibility of plant failures under all emergency conditions which may occur. Utilities should also highlight a training regime to ensure all staff are knowledgeable on how to respond in an emergency scenario.

Part of a robust O & M manual will include information on proper maintenance management. A maintenance management system considers the need for training to operate the system and/or to deal with complex equipment maintenance problems.

Additional considerations:

- Develop forms to properly document compliance with the utility operating procedures and maintenance schedules
- Have a scalable work order system to support the size of the utility
- Ensure that operating procedures are designed to comply with TDEC rules and regulations governing water and wastewater systems
- Supply lists for chemicals used in the treatment, process or process control, and laboratory supplies
- The provision of necessary maintenance tools and spare parts

- Include training required to properly perform the operating procedures and record keeping
- Include appropriate inspection procedures for management and supervisory employees to achieve compliance with the O&M manual
- Include a safety manual for all facets of the utility's system

Water and Energy Conservation Measures

Utilities should identify water and energy conservation measures as part of a comprehensive asset management strategy. These measures should be reviewed and updated as necessary annually. Moreover, a utility must certify that it has evaluated water and energy conservation project opportunities as part of an SRF loan application.

Systems should consider the following when reviewing water and energy efficiency projects:

- Examining future costs and future cost savings. Not all programs labeled as energy efficient will make sense from a cost standpoint. If the cost of a program which conserves energy exceeds the eventual cost savings, then the utility must consider the willingness of its customers to pay higher rates to obtain energy savings.
- Using renewable energy sources such as solar panels or wind turbines. Renewable energy sources may be used to power a water or wastewater plant or a pump station. Small solar panels may be used to power zone meters and its telemetry systems. Natural gas may be considered as an alternative energy source.
- Retrofitting or replacing high energy use components of a system immediately or waiting until additional upgrades are needed. If a blower motor in a wastewater plant still has 10 years of useful life, replacement to save a few dollars on an electric bill may not make sense.
- Reviewing water-loss audits and determining whether water conservation measures make financial sense. The cost to install zone meters and appropriate software to pinpoint what areas of a system have the most water loss may be the most economical first step to address water loss.
- Considering water reuse or reclamation projects which use treated wastewater for irrigation or other permitted uses. Water reuse can be viewed as recycling water. A utility may consider using non-potable water for cleaning vehicles and flushing toilets.

Additional Scorecard Requirements

The remainder of this section provides guidance on the following elements that must be addressed as requirements in the Scorecard, but not been specifically covered previously:

- Meter Testing and Changeout Program

Figure 14 Additional Scorecard Requirements

- IT Infrastructure
- Work Order System

Meter Testing and Changeout Program

Meters are the cash registers for a utility. Large commercial meters of 6 inches and above should be tested annually. Smaller meters may be tested less frequently. Utilities should establish testing zones and pick an appropriate number of residential meters and small commercial meters to test annually. For example, if a testing zone has 200 residential meters, the utility may choose to test 10% of those residential meters, 20 meters, annually.

Additional considerations:

- The age of the utility's meters
- The 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/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 components:

- Computers and devices such as tablets or mobile phones (w/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

IT Infrastructure can save a utility both fiscally and in human capital by managing assets in a proactive rather than reactive way and increasing efficiency. Being proactive allows for better time management of employees. Using technology to help identify and prioritize the replacement and maintenance of the utility's assets frees up employees to perform other duties.

Work Order System

A valuable tool for maintaining records of failures, preventive maintenance, inspections, and repair work performed on utility assets is commonly called a work order system. 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. An example work order and standard operating procedure are provided in Appendix 3. 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. For all others, a computerized work order system may be highly beneficial in scheduling work, tracking costs, ensuring maintenance is performed on schedule, and

determining what parts were used during the repairs. They can also help identify assets that need to be replaced due to the cost of repair exceeding an asset's value.

Asset Management References

- Water and Wastewater Utility Evaluation Guidance Document: Asset Inventory & Assessment, Capital Cost, and Operating Cost Analyses; NCDEQ, February 2022.
  This reference is relatively current and has very good tables and appendices, including photographs of typical utility assets with the authors' condition ratings.

- Reference Guide for Asset Management Tools; USEPA, May 2014.
  This reference provides asset management plan components and implementation tools for small and medium sized drinking water and wastewater systems.

- Leading Business Practices in Asset Management; AWWA, May 2017.
  This reference includes case studies in best practices from 13 utilities ranging from 10,000 to 1,000,000 customers.

Appendix 1: Example Asset Management Spreadsheet Templates

- **Drinking Water Inventory Workbook-Version 1.1**
  - If you own or operate a drinking water system, please use this workbook.
- **Drinking Water Inventory Workbook Example-Version 1.1**
  - Illustrative example of a drinking water system inventory.
- **Wastewater Inventory Workbook-Version 1.1**
  - If you own or operate a wastewater system, please use this workbook.
- **Wastewater Inventory Workbook Example-Version 1.1**
  - Illustrative example of a wastewater system inventory.
- **Stormwater Inventory Workbook-Version 1.1**
  - If you own or operate a stormwater system, please use this work.
- **Stormwater Inventory Workbook Example-Version 1.1**
  - Illustrative example of a stormwater system inventory.

Please note that these workbooks were updated to Version 1.1 as of May 16, 2023. If you used the Version 1 template and need assistance converting to the new versions, reach out to **TDEC.ARP@tn.gov** for support.

Appendix 2: Example Description of Asset Classes and Criticality

Water Systems		
Asset Class	**Description**	**Criticality**
Transmission Mains	Larger pipes that move large quantities of water from source to distribution mains	High
Distribution Mains	Distributes water to the system	High - Medium
Services	Conveys water from the main to a building or fire protection system	Low - Medium
Valves	Control flow in the distribution system. Categorized as critical, in-line, and specialty (blow off, ARV, PRV)	Varies
Fire Hydrants	Connection structure used for extracting water	High
Meters	Measure the volume of water passing through a pipe or to a customer	Low for small meters and Medium for large meters
Storage Tanks	Holds water for system	High
Pumps	Moves water from one location to another	High
Water Treatment Plants	Removes or reduces unwanted chemicals or microorganisms from water system	High

Stormwater Systems		
Asset Class	**Description**	**Criticality**
Conveyance	Transport stormwater from location to location	High
Catch Basins (Inlets)	Device that intakes water into stormwater drainage system	Medium
Stormwater Outfalls	Discharges stormwater into drainage system	High - Medium
Ponds	Collects and stores stormwater runoff	Low - Medium
Channel	Open conveyance that transports water from location to location	Medium - Low
Stormwater management features, e.g., rain gardens, bioretention cells, permeable parking lots	Used to manage, reduce, treat, or recapture stormwater and subsurface drainage	High - Low

Wastewater Systems		
Asset Class	**Description**	**Criticality**
Pump Stations	Lifts wastewater in the system	High
Force Mains	Conveys wastewater in the system using pressure	High - Medium
Gravity Mains	Conveys wastewater in the system using gravity	High - Medium
Services	Connection between mains and building	Low - Medium
Manholes	Used to access conveyance	Varies
Meters	Measure the flow rate of water passing through a pipe or outlet	Low for small meters and Medium for large meters
Pumps	Transfers sewage solids and liquids from one place to another	High
Wastewater Treatment Plants	Facility used to treat wastewater in order to remove pollutants	High

Appendix 3: Example Work Order Form and Standard Operating Procedure

(Insert Name of Utility) WORK ORDER #

Requested by

NAME:		DATE:	
EMAIL:		PHONE:	

Completed by

NAME:		DATE:	
EMAIL:		PHONE:	

ASSET ID:		ASSET CATEGORY:		
ADDRESS:				
GIS LOCATION:	LONGITUDE:		LATITUDE:	

STEP 1: DESCRIBE NEEDED WORK	STEP 2: DESCRIBE WORK PERFORMED	STEP 3: DESCRIBE ASSET CONDITION

RESPONSIBLE PERSONNEL FOR REPAIRS:		CONFIRMATION OF COMPLETE WORK:	
DATE COMPLETED:		DATE COMPLETED:	
COMPLETED BY:		REVIEWED BY:	

Personnel Signature:

_____

Reviewer Signature:

_____

Utility Work Order Standard Operating Procedure

Introduction

A work order system is an important aspect to a utilities ability to properly operate and maintenance equipment. Work orders also provide valuable data that ties into a utilities Asset Management Plan (AMP). Utilities should ensure that work orders are delegated to appropriate personnel who are familiar with the inventory and O&M information to keep all utility assets in appropriate working order. This SOP is designed to guide system personnel in assigning and completing work orders in an efficient manner.

Requested By

The Requested By boxes are intended to provide data as to who is requesting the work be done on the asset. Typically, this will be Utility Supervisor or administrative support personnel. The name, date of request, email, and phone number provide important data to the individual reviewing the work order later in the process and gives the assigned personnel points of contact during the project's progress.

Completed By

The Completed By section is intended to be filled out by the personnel responsible for completing the required task. This section is where the bulk of information will be managed. It is, therefore, important for the personnel completing this information to be aware of asset details for work to be completed in an efficient manner and to tie into the utilities AMP. The individual responsible for completing the work order should fill out the Name, Date of Request, Email, and Phone number for proper communication with the requestee.

Additionally, the responsible individual will also add important data about the asset. The ***Asset I.D.*** will be the official name and/or number assigned to the asset that links to the utilities AMP. The ***Asset Category*** will be an indicator of the area of the utility that applies to the specific asset (i.e., Water Plant, Wastewater Plant). The category will also link directly to the utilities AMP. ***GIS Location (with a minimum of 5 decimal places)*** will provide the utility the precise location that the asset being maintenance is located. Longitude and Latitude should be provided and can be linked from the utilities mapping system. A description box has been provided to detail the exact work done to the asset. Responsible personnel can provide valuable data such as parts used to complete the task (linked back to Inventory), current condition of the asset, and likelihood of asset failure. These components can assist the personnel responsible for the utilities AMP to keep the assets updated for future considerations.

Signatory Lines

Upon completion of the work assigned, the Requestee and the Responsible Party should provide confirmation that work was completed, date work was completed, reviewing personnel name, and signatures to assist future utility personnel in tracking the assets O&M and condition.

Appendix 4: State Revolving Fund - Fiscal Sustainability Plan (FSP) Guidance

For loans approved after October 1, 2014, loan recipients shall develop and implement a fiscal sustainability plan for treatment works proposed for repair, replacement, or expansion.

Exemptions:

- Projects not classified as treatment works
- New treatment works (Does not include physically replacing i.e. demolition and replacement or adding capacity of an existing system)
- Upgrades that do not involve repair, replacement, or expansion (i.e. adding advance treatment)

The following are **minimum** requirements for FSPs:

- An inventory of the critical assets that are part of the treatment works,
- An evaluation of the condition and performance of the critical assets,
- Implementation of water and energy conservation efforts,
- A plan for maintaining, repairing, and replacing the treatment works,
- A plan for funding operation and maintenance activities

Resources for Asset Management Planning

- EPA's Asset Management Best Practices Guide (2008)
- EPA's Handbook for Small Public Water Systems STEP Guide Series (2003)
- EPA's Check Up Program for Small Systems (CUPSS), Free asset management software for small wastewater and drinking water systems
- Cityworks – An ESRI based, public asset management software for water infrastructure
- Plan-It - Capital Improvement Plan Software
- PubWorks – Software for Public Works
- Cartegraph - Public Works and Utilities Software

Energy Use Assessments

- EPA's Energy Use Assessment Tool
- New York State Energy Research and Development Agency (NYSERDA) Energy Benchmarking Tool
- The Office of Energy Efficiency and Renewable Energy Facilities Self-Audit Checklists

Water Efficiency Tools

- EPA's WaterSense Program
- EPA's Water Conservation Plan Guidelines
- AWWA Water Audit Software
- AWE Water Conservation Tracking Tool

THIS PAGE INTENTIONALLY LEFT BLANK

Department of Environment & Conservation

Asset Management Plan Certification Form

Inclusive of Fiscal Sustainability Plan Certification

Utility Name		
Street Address		**P. O. Box Number**
City	**State**	**Zip Code**

Asset management plans (AMP) are a critical component to effectively managing a water infrastructure system. Technical, managerial, and financial capacity is necessary for a water system to continuously provide safe, reliable drinking water and wastewater services. Systems that have a robust AMP demonstrate improved technical, managerial, and financial capability to operate and maintain the system.

The AMP shall include at a minimum the following. Personnel will check the appropriate box as it applies:

Organizational Structure	
Plan of Operation (Drinking Water and/or Wastewater Facilities)	
Operation and Maintenance Manual (Drinking Water and/or Wastewater Facilities)	
Digital Map of System	
Asset Inventory and Condition Assessment	
Capital Improvement Plan	
Water and Energy Conservation Efforts	
Rate Evaluation	

I hereby certify that I am an authorized representative for [UTILITY NAME] and pursuant to the ARP Non-Competitive Grant Contract [APPLICATION ID] the [UTILITY NAME] has developed and is implementing an AMP (inclusive of the requirements of an FSP) that meets the requirements established by the State of Tennessee. Upon the request of the State of Tennessee, the Participant agrees to make the AMP (which includes the FSP requirements) available for inspection and/or review.

Signature of Authorized Representative	**Date**
Printed Name	**Phone Number / Email Address**

ATTACHMENT C

VENDOR CONFLICT OF INTEREST DISCLOSURE FORM

All vendors interested in conducting business with the City of Belle Meade must complete and return the Vendor Conflict of Interest Disclosure Form in order to be eligible to be awarded a contract. Please note that all vendors are subject to comply with the City of Belle Meade's conflict interest policies as stated within the certification section below.

If a vendor has a relationship with a City of Belle Meade official or employee, an immediate family member of a City of Belle Meade official or employee, the vendor shall disclose the information required below.

Certification: I hereby certify that to my knowledge, there is no conflict of interest involving the vendor named below:

1. No City official or employee or City employee's immediate family member has an ownership interest in vendor's company or is deriving personal financial gain from this contract.
2. No retired or separated City official or employee who has been retired or separated from the City for less than one (1) year has an ownership interest in vendor's Company.
3. No City employee is contemporaneously employed or prospectively to be employed with the vendor.
4. Vendor hereby declares it has not and will not provide gifts or hospitality of any dollar value or any other gratuities to any City employee or elected official to obtain or maintain a contract.
5. Please note any exceptions below:

Vendor Name	Vendor Phone Number
Conflict of Interest Disclosure *	
Name of City of Belle Meade employees, elected officials, or immediate family members with whom there maybe a potential conflict of interest.	( ) Relationship to employee ( ) Interest in vendor's company ( ) Other

*Disclosing a potential conflict of interest does not disqualify vendors. In the event vendors do not disclose potential conflicts of interest and they are detected by the City, vendor will be exempt from doing business with the City.

I certify that the information provided is true and correct by my signature below:

Signature of Vendor Authorized Representative _____ Date _____ Printed Name of Vendor Authorized Representative _____

PROCUREMENT USE ONLY

☐ Yes, named employee was involved in Bid / Proposal process.

☐ No, named employee was not involved in procurement process or decision

STATE OF TENNESSEE

BYRD ANTI-LOBBYING AMENDMENT CERTIFICATION

Contractors who apply or bid for an award of $100,000 or more shall file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352.

Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the awarding agency.

APPENDIX A, 44 C.F.R. PART 18 – CERTIFICATION REGARDING LOBBYING – REQUIRED FOR CONTRACTS OVER $100,000 *Certification for Contracts, Grants, Loans, and Cooperative Agreements*

The undersigned certifies, to the best of his or her knowledge and belief, that:

☐ No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

☐ If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions.

☐ The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The Contractor certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chap. 38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

Signature of Authorized Representative	**Date**
Printed Name and Title	**Phone Number / Email Address**

STATE OF TENNESSEE

IRAN DIVESTMENT ACT CERTIFICATION

SUBJECT CONTRACT NUMBER(S):	
CONTRACTOR LEGAL ENTITY NAME:	
EDISON SUPPLIER IDENTIFICATION NUMBER:	

The Iran Divestment Act, Tenn. Code Ann. § 12-12-101 et. seq. requires a person that attempts to contract with the state, including a contract renewal or assumption, to certify at the time the bid is submitted or the contract is entered into, renewed, or assigned, that the person or the assignee is not identified on a list created pursuant to § 12-12-106.

Currently, the list is available online at the following website: https://www.tn.gov/generalservices/procurement/central-procurement-office--cpo-/library-/public-information-library.html

The Contractor, identified above, certifies by signature below that it is not included on the list of persons created pursuant to Tenn. Code Ann. § 12-12-106 of the Iran Divestment Act.

CONTRACTOR SIGNATURE

NOTICE: This certification MUST be signed by an individual with legal capacity to contractually bind the Contractor.

PRINTED NAME AND TITLE OF SIGNATORY

DATE

STATE OF TENNESSEE

CERTIFICATION REGARDING DEBARMENT, SUSPENSION AND OTHER RESPONSBILITY MATTERS

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

☐ Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

☐ Have not within a three-year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statues or
commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

☐ Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (b) of this certification; and

☐ Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to $10,000 or imprisonment for up to 5 years, or both.

Signature of Authorized Representative	**Date**
Printed Name	**Phone Number / Email Address**

☐ I am unable to certify to the above statements. Explanation is attached.

STATE OF TENNESSEE

NON-BOYCOTT OF ISRAEL CERTIFICATION

The Bidder certifies that it is not currently engaged in, and will not for the duration of the contract engage in, a boycott of Israel as defined by Tenn. Code Ann. § 12-4-119. This provision shall not apply to contracts with a total value of less than two hundred fifty thousand dollars ($250,000) or to contractors with less than ten (10) employees.

According to the law, a boycott of Israel means engaging in refusals to deal, terminating business activities, or other commercial actions that are intended to limit commercial relations with Israel, or companies doing business in or with Israel or authorized by, licensed by, or organized under the laws of the State of Israel to do business, or persons or entities doing business in Israel, when such actions are taken:

1) In compliance with, or adherence to, calls for a boycott of Israel, or

2) In a manner that discriminates on the basis of nationality, national origin, religion, or other unreasonable basis, and is not based on a valid business reason. Tenn. Code Ann. § 12-4-119.

Signature of Authorized Representative	**Date**
Printed Name	**Phone Number / Email Address**