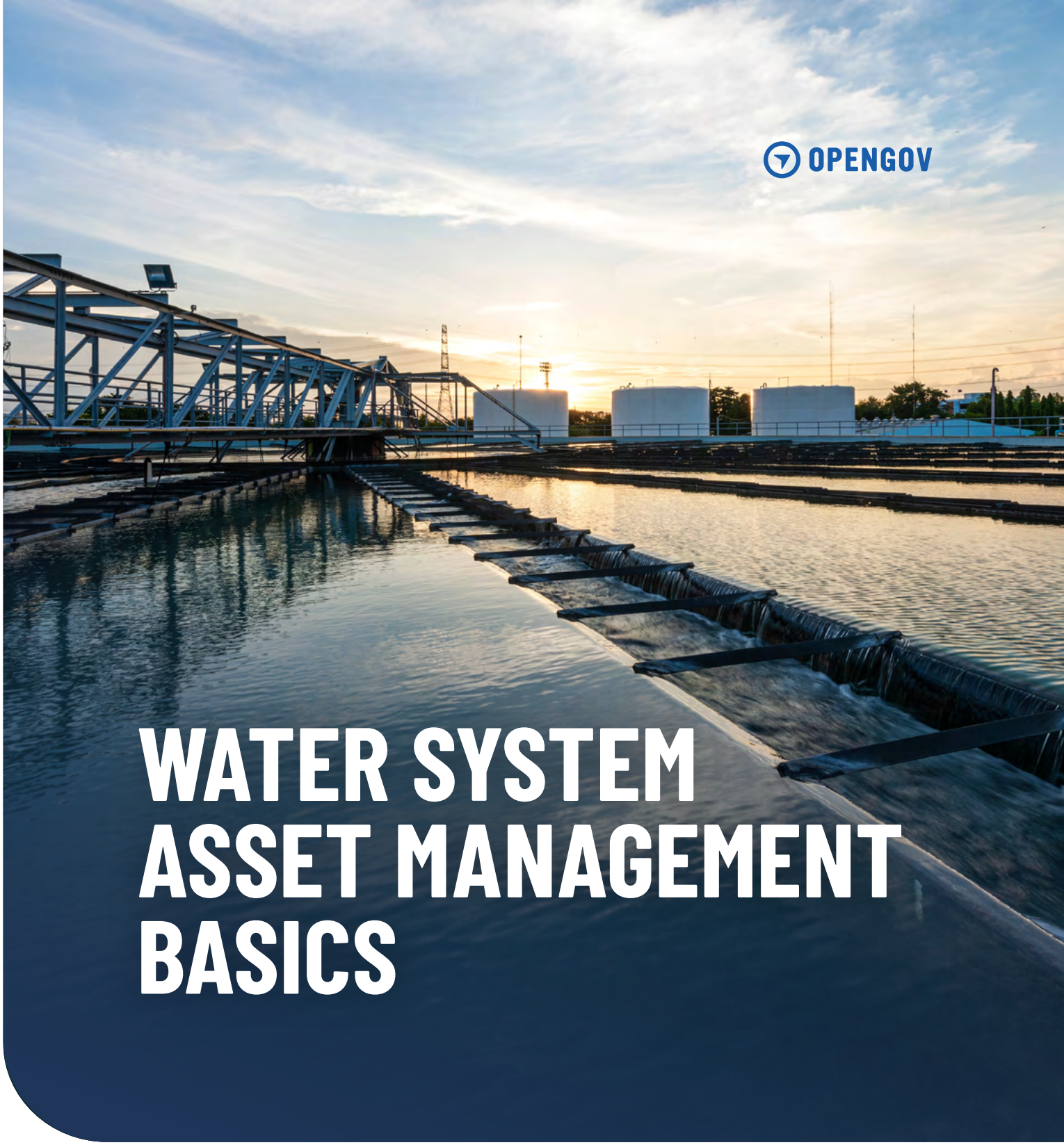

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WATER SYSTEM ASSET MANAGEMENT BASICS

A Guide for Communities of All Sizes

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5 Steps to Success

1. What Is Asset Management?
2. Specific Considerations for Water Systems
3. Where Is Your Water System Today?
4. Creating Your Water System Asset Management Strategy
5. Choose Your Asset Management System

Before We Begin

Your Residents Are Counting On You

You work in local government because you care. You try to use taxpayer dollars to deliver the best possible outcomes for your residents' water system, and your blood, sweat, and tears have gone into building a safe, sustainable community that will last for generations.

But . . . It's Time to Change

The truth is, if you're managing water infrastructure assets with spreadsheets and stacks of paper, you're wasting time and resources. And, if your community is like so many others throughout our nation, resident demands are higher than ever right now—just as you're facing potential budget cuts.

Add to this the looming October 16, 2024 deadline for the EPA's Lead and Copper Rule Revisions (LCRR), and you have a lot on your plate.

That's why it's time to change how water systems do asset management. Right now, there are easier, more cost-effective approaches for managing water system assets. New tools can help your team increase efficiency and productivity while improving regulatory compliance—and providing data to justify your budget requests.

Whether you're looking to adopt a more modern approach to water system asset management, fix your current asset management system, or take your use of technology to the next level, this guide is for you.

1 What Is Asset Management?

> *"Asset management refers to the current and future activities of deciding how to develop, operate, and maintain your infrastructure in order to achieve the greatest possible economic, environmental, and social benefits from that investment."*

AMERICAN PUBLIC WORKS ASSOCIATION

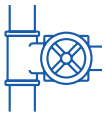
Your residents invest tax dollars, land, and other resources into your community to ensure a good quality of life. As an asset manager overseeing water systems, it's your job to make sure your assets are maintained and used responsibly so your residents get the best bang for their buck.

It sounds simple. But when you're dealing with thousands upon thousands of assets, it's no easy task.

There are so many assets your water system might oversee:


Water Distribution Systems


Water Treatment Plants


Valves and Hydrants


Water Meters


Resevoirs and Storage Tanks


Pumps and Pumping Stations


Storage Facilities


Water Quality Monitoring Equipment

Now just think of all the work that goes into keeping those assets functional:

- Budgeting
- Resident requests
- Construction
- Coordinating office staff and field crews
- Routine maintenance
- Prioritizing maintenance projects
- Providing information and reports
- Working with vendors and contractors

Managing all these assets can be incredibly complicated, especially if you're doing it with paper and spreadsheets. Without accurate, up-to-date information on the assets you have, the condition they're in, and how much they're costing you, it's likely your water system's assets simply aren't being managed efficiently.

The Evolution of Water System Asset Management

> *You can only know where you're going if you know where you've been.*

Managing assets is an age-old practice. In fact, water infrastructure assets are among the earliest and persistently most important when you look at the history of asset management.

In ancient Rome, the aqueducts that supplied fresh water to the City were regularly inspected and maintained by teams who repaired cracks and cleared debris. The Romans even appointed a high-profile curator aquarum—or water commissioner—to care for and govern them.

But the term "infrastructure asset management" is fairly new—and its adoption was driven in part by water systems.

- In the 1980s, the term first became widely used when Great Britain privatized its water utilities.
- In 1993, the term gained greater adoption when the Australian Accounting Standard 27-AAS27 was issued, requiring government agencies to consider the life and cost effectiveness of asset investments.
- By the early 2000s, infrastructure asset management principles were described in detail by new international handbooks and manuals, nudging cities to move from disorganized, stand-alone actions toward the use of established systems and methodologies for managing assets.

Fast forward to today, and you see that infrastructure asset management for water systems has gone digital. High-performing water systems are ditching manual tools like spreadsheets, endless rows of filing cabinets, and paper maps in favor of modern, mobile asset management technology.

Instead of dreaded morning assignment meetings or hours of end-of-day paperwork, field crews can now inventory assets, assign work, and monitor costs while still in the field using their mobile devices. These modern asset management tools make your work easier and more organized, helping you get more done with the same amount of resources—while collecting key data to inform future efforts.

CASE STUDY

How the City of Kingsport's Water and Wastewater Teams Took Back 30 Min a Day

Tracking work and assets used to be cumbersome for the City of Kingsport, TN's water and wastewater teams. Jobs were entered into a DOS (Disk Operating System) program, printed out with maps, and physically assigned to 250 field professionals each morning.

The process was inefficient and ineffective, and the City knew it was time for a change. Today, Kingsport crews use a mobile wastewater asset management system and iPads to receive assignments and complete work on the go. The move to mobile has eliminated Kingsport's morning assignment meeting, saving more than 30 minutes a day for their entire team—representing 125 hours total of work saved a day, on average.

READ THE FULL CASE STUDY

2 Specific Considerations for Water Systems

The work of managing water system assets comes with its own unique considerations, which are crucial for asset managers to understand.

Here are the top six.

1. Water Quality Assurance

Water systems must prioritize asset management to ensure the consistent delivery of clean and safe drinking water. Asset condition directly impacts water quality, making regular inspections and maintenance critical to keep communities safe from contaminated drinking water, not to mention meet stringent regulatory standards.

2. Seasonal Variability

Water systems often face seasonal fluctuations in demand and weather conditions. Asset management strategies need to account for these variations, including the potential impact of extreme weather events such as droughts, floods, or freezing temperatures on asset performance and reliability.

3. Aging Infrastructure

Many water systems have aging infrastructure, with assets that have been in service for decades. Managing these older assets involves unique challenges, such as dealing with deteriorating materials, increasing maintenance needs, and planning for timely replacements to avoid service disruptions.

4. Regulatory Compliance

Water systems are subject to stringent regulatory requirements governing water quality and infrastructure integrity. Asset management in this context includes ensuring compliance with regulations, including requirements for reporting and the documentation of maintenance and inspections to satisfy regulatory bodies.

5. Communication and Customer Expectations

Water is a vital resource, and customers have high expectations for the reliability and quality of their water. Asset managers overseeing water systems must consider customer satisfaction in their work and prioritize clear communication regarding planned maintenance, service interruptions, or water quality issues that may impact the public.

In the unfortunate event that you have to issue a Boil Water Advisory, the last thing you want is to make things worse by doing a poor job conveying the information to the public. A proactive communication plan could be as simple as sending out an email and doing a short segment on the local news station. Doing these things can save you the hassle of dealing with a PR fiasco, and the anger of unhappy customers.

7. Emergency Preparedness

When an emergency happens, a loss of water can make things even worse.

That's why asset management plans for water systems should include resilience and redundancy strategies to ensure continued service during emergencies, including equipment failures, natural disasters, or contamination incidents.

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Where Is Your Water System Today?

For decades, water systems have relied heavily on complex spreadsheets, stacks of paper, folded maps, and the knowledge of veteran employees to manage their assets.

But this manual approach just isn't working anymore.

30 Days in 5 Minutes: How Does Your Water System Stack Up?

Wonder if you're running your water system with confidence and clarity?

Take 5 minutes, and see how many of these questions you can answer about the last month:

1. How many outstanding requests do you currently have?
2. On average, how long did it take you to resolve your requests?
3. How many residents reached out to you with requests?
4. What was your most common maintenance activity?
5. What was the last asset your team inspected?
6. What was the condition of the last asset your team inspected?
7. Are you able to prioritize your riskiest assets first?
8. What asset cost you the most to maintain?
9. Which of your field professionals accomplished the most work?
10. What is the current value of one of your vehicles?

A modern asset management system with good data will give you the answers to all nine questions in a few keystrokes.

Not happy with your results? It may be time to refine your strategy and consider adopting an asset management system—or reevaluate the one you're currently using.

But having data on demand is just the starting place. **The key to improving your water system's asset management is to create your own strategy, and then implement it.**

4 Creating Your Water system Asset Management Strategy

Asset management strategies have two main goals:

- Extend asset life through data-driven, proactive maintenance.
- Make your life easier AND your work better by proactively organizing, prioritizing, and automating your daily asset management work.

The first goal—extending asset life—is accomplished by intervening at strategic points in an asset's lifecycle to improve its performance and extend its expected service life.

And the second goal—making your life easier and your work better—is accomplished by leveraging technologies purpose-built for water system asset management to automate work orders, evaluate risk, and build future scenarios so you can make informed decisions.

So how do you work toward these goals? By creating a data-driven strategy.

Here are five steps to help you do that.

5 Steps to Create Your Water System Asset Management Strategy

When considered carefully, and followed in order, these five steps will help your team create an asset management strategy tailored to your water system's unique needs.

1. Establish Performance and Condition Benchmarks

First, list all the asset types your water system manages. Then, identify the key performance indicators for each one of these assets.

Answer questions like:

- At what point is the asset considered faulty or unsafe?
- Does the public expect the asset to look good?
- What do regulatory bodies require for the asset's maintenance?
- What is the asset's expected life expectancy?
- What is the value of the asset now, and how much would it cost to replace?

Answering these questions will establish baseline metrics and timelines for maintaining each of your water system's assets.

2. Collect Inventory and Condition Data

Successful water system asset management is powered by data—current, accurate data that tells you exactly what assets you have, where they're located, how much they're worth, and what their condition is.

Collecting accurate inventory data is crucial to making good decisions and implementing a productive asset management strategy.

While creating your inventory, save time by doing a thorough inspection of the asset's condition, collecting data on asset performance, longevity, and remaining asset life. This data will guide future decision-making.

3. Prioritize Your Work

Now that you have your inventory started, it's time to use it.

Use your inventory, condition, and value data to create a proactive asset management plan tailored to your water system's needs.

When planning, you'll want to consider risk and make decisions on which maintenance can be deferred, and which can't. A robust asset management system can be crucial for this phase, helping you organize your data and build potential scenarios to help you make informed decisions.

4. Get to Work

After you prioritize, it's time to do the work!

Install, maintain, inspect, and—if need be—replace. Implement your plan consistently across all water network segments and assets to ensure the continuous improvement of your water system infrastructure and the resilience of your system.

5. Monitor and Maintain

High-performance asset management is all about patience, planning, and execution.

Regular, proactive monitoring is the key to making sure your water system's assets are maintained to your satisfaction.

CASE STUDY

Saving 1,500 hours and $80,000+ in Rosemount with Catch Basin Sump Asset Data

The City of Rosemount, MN, reviewed its asset management system data and discovered it was inefficiently spending $35,000 a year to clean catch basin sumps.

Since the work was assigned by region, sumps containing very little debris were needlessly cleaned while sumps with higher debris amounts were often skipped. With its mobile asset management technology in hand, the City established a data-driven maintenance schedule that has saved it 1,500 staff hours and more than $80,000 in equipment costs over a five-year period.

READ THE FULL CASE STUDY

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5 Choose Your Asset Management System

To implement your strategy and make the move from paper to digital processes, you'll need to choose a water asset management system.

Before you start, it's important to understand that implementing an asset management system is not a one-off project—it's a process. There is no beginning or end, but a series of ongoing steps toward creating a successful system.

> *"..This is a multimillion-dollar business. There's a lot of money out there—taxpayer dollars. We need to be efficient and competitive, put out quality work, and have good outcomes. That's what the citizens expect, and that's what we should expect out of ourselves too."*

JEREMY REICHERT

Transportation Dept. Operations Manager, Adams County, CO

Here are seven steps to help you build an asset management system that meets your unique needs.

1. Determine Your Key Players

Most system implementations are unsuccessful due to a lack of the three C's—commitment, coordination, and communication.

The key to keeping the process moving forward is to build agreement throughout your entire organization from the get-go, looping in all areas that will use, manage, approve, and purchase your system components.

2. Define Your Goals for the System

This fundamental—yet often overlooked—step in the process will make sure everyone is on the same page, aligning your efforts with the larger vision and priorities of your city, county, or state and helping establish metrics for success you can use later to evaluate the initiative.

3. Pinpoint Your System Requirements

What pain points do you want your new asset management system to solve? What does your team expect to get out of the system?

Internally, maybe you want to build an asset inventory that includes features, location, and present condition—but externally you need to be compliant with external requirements such as GASB34, 0.0.T., or E.P.A. reporting.

Some common requirements for water system asset management include a bi-directional GIS integration, a modern mobile application, cloud-hosting, and automated work orders. Taking time now to identify your requirements can save you major headaches down the road.

4. Identify Your Data Points

Identifying the data you need ahead of time will streamline the collection process by guaranteeing you're only collecting the information that matters most.

Start by reviewing procedures from past inventories and current activities. Data points may come from a variety of sources, including existing databases, paper files and index cards, spreadsheets, whiteboards, paper maps, past work orders, or even the memory of current employees.

5. Verify Your Data Sources

Data in a digital format can be converted easily into your new system. But some of your data may be on paper.

If that's the case, you'll need to decide whether to manually key the information into the system yourself, or outsource the data entry.

6. Evaluate Your Processes

Choosing a new system is the perfect time for reevaluating how you do your work.

Why? Because a new system that runs on old practices will still provide mediocre performance. By closely evaluating your processes, you can find opportunities to improve your asset management work, making sure you upgrade your processes along with upgrading your system.

Areas to evaluate include:

- Documentation—are there gaps in the data?
- Workflows—are there manual steps that automation could do for you?
- Reporting—how do you pull data together?
- Training—how do you onboard new employees to your asset management system?
- Asset identification and classification—are you satisfied with how you currently organize your assets?
- Asset tracking and location management—if you didn't have a GIS integration before but you will now, what are the implications?

7. Establish Your Timeline

Your system implementation timeline is going to be unique—just like your organization. But even though timeframes may shift, defining milestone dates will keep you moving along. Here are some guidelines for establishing your timeline:

- **Get real.** Be realistic about your system goals. Start with a manageable system and plan for future enhancements.
- **Don't delay.** Limit the amount of time for initial data entry or conversion this helps you avoid delaying the entire project.
- **Save room.** Allow some buffer time to accommodate for changes.

This Is Just the Beginning

No matter how you currently track and manage assets, every water system can make small and meaningful changes to increase the maturity of its processes and better align its system to strategic priorities.

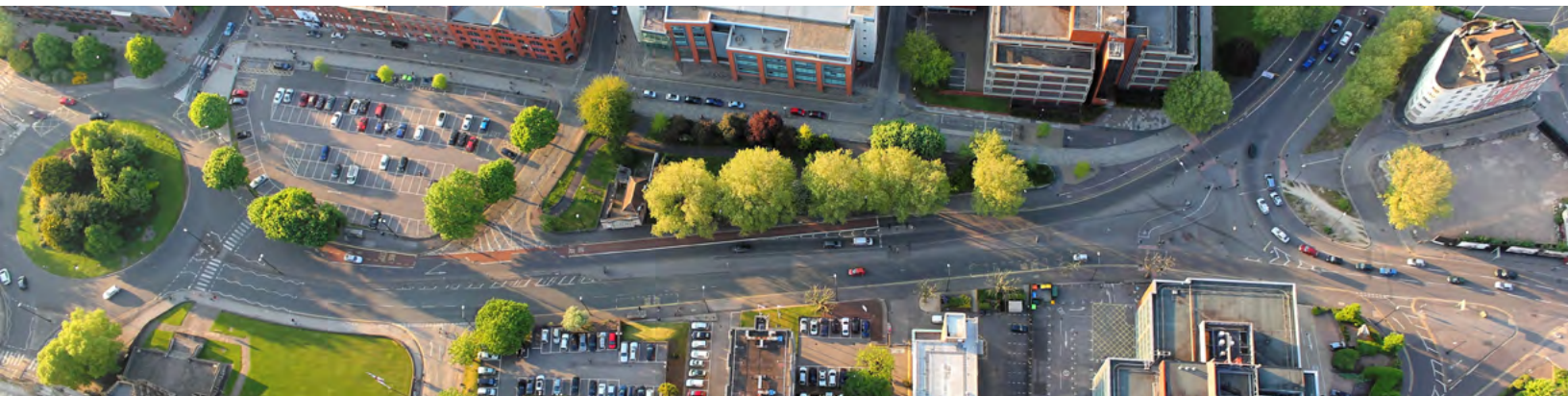
In reality, if you decide to adopt a new asset management system, you probably won't complete your full water asset inventory before you start to use the system to do things like prioritize work, automate work orders, and create future scenarios to evaluate risk for deferred maintenance decisions.

But as you work to complete your inventory you'll still be able to use it as a database, even if it's incomplete.

And that database will be a powerful resource, allowing you to create:

- **Long-term strategic plans** that look beyond current needs and budgets and align with larger CIP priorities.
- **Documentation for your budget**, including data to quantify the impact of delays and inadequate funding as well as evidence of the need for funding renovations and replacements.
- **Comprehensive audits** that evaluate performance measures, pulling from historic data on maintenance hours and materials to track changes over time.
- **Feedback mechanisms** that confirm the achievement of intended results, providing transparency and accountability for both residents and internal stakeholders.

SEE HOW OPENGOV SUPPORTS WATER SYSTEMS >



About OpenGov

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