The Big Guide for Small Systems
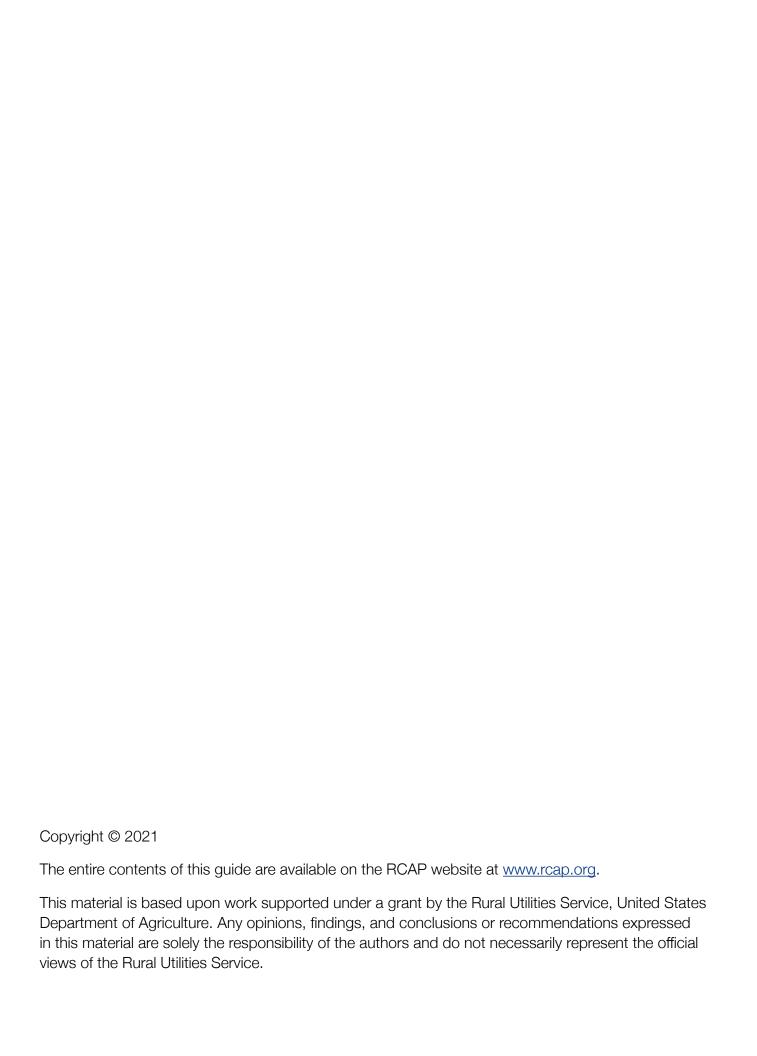
A Resource for Board Members

RURAL COMMUNITY ASSISTANCE PARTNERSHIP

an equal opportunity provider and employer

The Big Guide for
Small Systems

A Resource for Board Members

RCAP

Rural Community Assistance Partnership, Inc.

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Introduction

As a board or council member, you play a vital role in the health, safety, prosperity, and sustainability of your community. One of your most important functions to promote all these goals is as a leader of your water or wastewater system. It's a big job. Whether you serve on a board for a drinking water or wastewater utility specifically or whether you serve on a more general board that oversees water, wastewater and other functions for your municipality, county, Tribe, homeowner's association, or condominium complex, you are responsible for ensuring that your water and/or wastewater systems provide safe and reliable service now and for years to come.

Your systems' ability to be successful over time depends on the board ensuring proper regulatory compliance, proper operations and maintenance of the system, and proper capital investment. As a board member, you do this by hiring the right employees, charging rates that cover the full cost of running the system(s) into the future, and making decisions based on the best available data and industry standards. When things go right, your customers will largely take the water and wastewater services for granted. When things go wrong, you will have to make the tough decisions to get your system back on track.

This publication is intended both for new board members and for experienced board members. For new board members, this guide serves as an ideal orientation to all the aspects of your new role. For those with some experience, this guide

is a useful reference for your continuing role. Used on a group basis with whole boards, it can help set some standards in your work together, enabling everybody to get on the same page and to get moving in the same direction.

Chapter 1 defines your responsibilities as a governing board and identifies strategies to make your board more effective. Chapter 2 discusses establishing annual budgets and setting rates, which are one of your primary responsibilities as utility leaders. Chapter 3 summarizes programs available to help cover the cost of infrastructure installation, rehabilitation, and replacement. Chapter 4 lists some water and wastewater utility best practices that you may wish to implement at your utility. And Chapter 5 explains some of your regulatory responsibilities as a board member.

Throughout this guidebook, blue boxes appear that identify tools and resources available to help you lead your water and wastewater utility more effectively.

Engaging Technical Assistance Providers

Water and wastewater systems are complicated. As a result, you may wish to engage the services of a technical assistance provider with experience working with similar utilities. Small systems may be able to receive free technical assistance from the Rural Community Assistance Partnership (RCAP, who produced

this guide) and other organizations, and there are consultants for hire for most areas of utility operations, finance, and management. The inside back cover of the guide provides information about RCAP's national network of nonprofit organizations working to ensure that rural, small, and Tribal communities throughout the United States have access to safe drinking water and sanitary waste disposal.

Technical assistance providers bring an array of ideas and experience from working with multiple water and wastewater systems across a geographic area. Technical assistance providers also often have more time to invest in analyses and evaluations than utility staff and boards may have on their own.

Funding agencies tend to look more favorably on applications from water and wastewater systems that have engaged with technical assistance providers. Your customers may also be more accepting of your actions as a board when they are proposed by a neutral, third-party expert rather than from utility or community staff.

If you decide to engage the expertise of a technical assistance provider, it is important to find one who can best assist your community. Find out what services the technical assistance provider can offer to you. Ensure that they are familiar with the regulations in your state, territory, or Tribal Nation. Make sure to ask for references from water systems that have worked with them previously that are similar to you in size, demographics, and ownership.

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Chapter 1:
Making Your Board More Effective

Legal Authority

Utilities can provide water/sewer service if they are granted that right by the appropriate federal, state, territorial, or Tribal government. Therefore, the laws of your state, territory, or Tribe regulate your services. With the authority and responsibilities you as the governing body are expected to carry, you need to know the laws and regulations your board needs to follow.

The legal right to supply public water services can be granted to different types of entities. The state, territorial or Tribal laws that grant this authority vary, but most will include at least the following:

- The legal process for forming and governing the entity;
- General and specific powers granted to the entity by the state, territory, or Tribe;
- Powers or authority prohibited by the state, territory or Tribe; and
- A variety of other special provisions relating to the functioning of the entity, such as legally prescribed methods of operation, recordkeeping, and reporting requirements to specific state, territorial, or Tribal agencies and authorities.

It is your responsibility as a board member to become familiar with and knowledgeable about:

- State, territorial, or Tribal laws granting the system the authority to operate;
- The municipal or corporate charter, if applicable;

- County or municipal ordinances establishing the system, if applicable;
- Articles of incorporation and bylaws; and
- Any other documents relating to the organization and structure of the system.

Without a full understanding of the authority and responsibility granted to the utility, you as a decision maker for that utility cannot exercise prudent or proper judgment.

Role of Board Members

Your board or council collectively leads and directs the activities of the water or wastewater utility. Different members of the board have different responsibilities for the system.

Each board or council has its own structure depending on how it is established. Many water and wastewater system boards have officers such as the president, vice president, secretary, and treasurer and then often have other board members.

The leader of the board may be called the president or the chairperson. For local governments, the leader of the council may be the mayor. They

- Ensure that the board is carrying out duties that are mandated by law or board policy;
- Facilitate meetings to keep them on schedule and on task;
- Ensure that the board's business gets done between meetings;

- Appoint board members to committees to accomplish the work of the board;

- Act as the liaison between the board and the facility manager (if your facility has a manager) or the operator and/or other key staff; and

- Foster a spirit of teamwork among the board's members.

The board's vice president takes over the president's duties when the president is absent. The vice president must know the president's duties and may have other duties of his/her own, like being a committee member.

The secretary of the board takes minutes at the meetings and is responsible for the care and maintenance of historical documents for the board. The secretary functions as the board's "memory" and oversees the information that is kept on the board in the form of paperwork and other records.

The board's treasurer oversees the financial aspects of the board's work, ensures accurate financial recordkeeping, sees that an annual audit is performed, assists in the preparation of the budget, and interprets financial reports.

Board members without formal titles also play a vital role, providing guidance and support to the other board members and employees of the system. Your presence is necessary at board meetings to make up the board (help meet a **quorum**), and you should actively participate in the board's activities. Pay attention to the policies, finances, and regulatory compliance of your facility. Treat all customers fairly, respectfully, and equally when they bring their problems or complaints to the board. Someday you may assume a leadership role.

Whether you were appointed, elected, or have volunteered to be a board member, you will find that much of the work is common sense. There will be many different educational and training resources to aid you in applying your common sense, as well as technical assistance. You will, however, have many demands placed on you, and some may compete with each other:

- Your customers want to trust that you can provide clean, safe and good-tasting drinking water on demand and efficient, thorough and environmentally sound wastewater treatment for the lowest cost possible.

- State, territorial, Tribal, and/or federal regulators want monitoring and testing according to the rules.

- Your operators and other staff want the tools, equipment, and training to perform their jobs efficiently.

- You want to be confident and know that you have made decisions rationally and ethically within your budgetary constraints.

The board is legally and morally responsible for all aspects of the water or wastewater system, including employee supervision, finances, operation and maintenance, planning, and complying with regulations. Keeping that in mind, how do you satisfy everyone?

The first step in working efficiently together as a board is to ensure that you are following the rules. If your system is structured as a private entity, the rules may be different from those followed by one that is structured as a public or as a nonprofit entity. State, territorial, Tribal, and federal laws that grant the authority to provide water and wastewater services typically spell out:

- Procedures for purchasing and procuring goods and services;

- Freedom of information and open meeting laws;

- Procedures for accounting and auditing financial records;

- Ethics standards applicable to boards and council members;

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- Insurance and bonding for public facilities and public officials;

- Laws affecting the ability to incur debt by the entity;

- Rights of eminent domain and property acquisition;

- Laws regulating service areas or establishing service boundaries;

- Laws dealing with sales taxes, use taxes, franchise taxes, and income taxes;

- Labor relations statutes of all types;

- Laws affecting the frequency, form, and general conduct of the meetings of boards of directors;

- Contracts and contracting for services and/ or construction activities; and

- Proper recordkeeping and reports relating to system operation and management.

Know what rules and laws pertain to your utility and follow them.

Mission Statement

If the board hasn't done so already, you may want to write a mission statement for the utility, which is also called a statement of purpose. A mission statement spells out what your utility is working to achieve. It gives your system focus and points everybody's efforts toward a common purpose. Consider the following questions:

- Why does your utility exist?

- What is your general plan for setting rates?

- What are your level of service goals?

- In what way will your utility operate?

- Whom should you seek to serve?

When you come to a statement for each of the above questions that the entire board can agree to, write it down. The discussion process that comes from developing a statement of purpose can give board members the chance to develop closer ties, share plans for the future, and better identify and discuss their differences of opinion. Having a clear statement of purpose is like using a compass, keeping all day-to-day and long-term decisions pointed in the right direction.

You can develop an external mission statement to share with your customers describing how the utility serves the community. You can also have an internal mission statement for the board of directors only that would address how you will lead and govern the utility. An internal mission statement helps board members focus on their roles because it is specific to utility leadership.

It is important that mission statements be written in language that is familiar to the intended audience. As the leader of a water or wastewater utility, you are familiar with terminology from the sector that an average customer would not know. Avoid using jargon or technical terms when you craft your mission statement, especially the external statement. Good mission statements are concise and memorable. And they should sound good when spoken out loud. For example, Google's mission statement is "to organize the world's information and make it universally accessible and useful." Netflix's mission statement is "to entertain the world." Notice that these short statements mention nothing about search engines or streaming platforms, but they provide a clear direction for their companies. Eagle River Water and Sanitation District in Colorado has a mission of providing "efficient, effective, and reliable water and wastewater utility services in a manner that respects the natural environment."[1] WaterOne, a utility that serves Johnson County, Kansas,

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[1] https://www.erwsd.org/about/mission-vision-values/

has a mission "to provide a safe, reliable, high-quality water supply with exceptional service and value."[2] The boards of these utilities can use these statements of purpose to decide on the best policies for the future.

Rules for Conducting Board Meetings

Boards have a lot of important work to complete, and you cannot afford to have meetings that are disorganized, run too long, waste time, or avoid important discussions. For these reasons, the rules for conducting meetings should be in writing and followed at each meeting. Note that the rules for conducting your board meetings may be driven by state or territorial statutes depending upon the organization of your board (mutual domestics, nonprofit corporations, special districts, city or town utilities, etc.). Your board's rules for conducting meetings should include:

- The procedure for scheduling meetings and notifying board members and the public;
- What items are to be included in the written agenda;
- How minutes are to be taken;
- The rules for making motions; and
- Any other rules that will make doing business easier.

Meetings should be scheduled for the same week during each month and for the same day during that week (the third Tuesday of each month, for example). Being consistent like this makes it easier for board members to schedule their personal and professional lives around the meetings. It also helps to encourage community attendance and engagement. Try not to miss a meeting unless you are sick or unless a true

emergency arises. Many boards find it effective to remind members by email a week before the meeting occurs and then follow up with a phone call or text message a few days prior to the meeting.

A written agenda covers the business to be discussed and should be sent to the board members with the e-mailed meeting reminder. An agenda should contain the following items:

- Call to order and proof of quorum;
- Evidence of notices of when the meeting is held;
- Reading and acceptance of the previous meeting's minutes;
- Reports from board officers and committees;
- Reports on utility finances;
- Reports from the utility manager and from operators;
- Election and voting results (if applicable);
- Unfinished business (if applicable);
- New business;
- Public comment; and
- Adjournment.

Agendas should be specific enough that every board member knows what is to be discussed but not so detailed that the agenda takes up more than one page. Proof of a quorum at the meeting can be as simple as a sign-in sheet or as formal as a roll call. Reading and acceptance of the previous meeting's minutes should be taken very seriously. Minutes are the legitimate record and legal proof of the board's business decisions. Unfinished business is required to be discussed and voted upon before new business can be brought up. The new business element should contain enough information so that board members can think about the topic, obtain information about it, and be prepared for the

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meeting. To speed up the agenda a bit, your board may want to use a **consent agenda** for items that need to be voted upon but do not need further discussion. Common items on a consent agenda are approval of meeting minutes and acceptance of reports that are attached to the minutes, all in hard-copy form. A consent agenda prevents wasting time on matters that have already been discussed, reported, and evaluated. If a board member wants to discuss an item on the consent agenda, they can always move that the item be placed on the regular agenda.

Because minutes are the legal record for board actions, accuracy is of the utmost importance. Copies of the minutes should be distributed to the board as soon as they are developed from the notes and as soon after the meeting as possible to give the members time to comment on them while their memory of the meeting is still fresh. After the minutes are accepted and finalized (with any changes that need to be made), they should be redistributed to the board for acceptance. Minutes should include:

- The purpose of the meeting (regular, special, emergency, annual);
- Time, date, and location of the meeting;
- The names of board members in attendance and names of those absent;
- The matters discussed, actions taken, and votes on actions (in order of occurrence);
- Precise wording of the motions made, who made the motions, who seconded the motions, and how each board member voted (yea, nay or abstain);
- Time, date, and location of the next meeting; and
- The time the meeting was adjourned

Many boards use *Robert's Rules of Order*, a comprehensive guide for meetings of any type, as their basis for business. Being knowledgeable about the entire contents of *Robert's Rules of Order* requires a lot of study, and many board members don't have the time to study them. Instead, you can use a short set of rules of conduct that the board has adopted, which should not conflict with *Robert's Rules of Order*. If your board doesn't have a short set of rules, you may want to consider adopting the example below.

Example Short Set of Rules for Conducting Board Meetings

1. The chairperson is responsible for presiding over business meetings and following the rules of conduct.

2. A member is recognized by the chairperson when no other business is "on the floor" (currently under discussion). The member then presents the motion.

3. Another member seconds the motion. If there is no second, the motion does not go forward.

4. If there is a second to the motion, the chairperson restates the motion either as written by the member or as written by the secretary. All motions made and seconded must be written to ensure accuracy. The motion should include what is to be done, who is to do it, how much is to be spent, and when it is to be done.

5. The chairperson calls for discussion. The board member who made the motion is entitled to be recognized first. Each member may comment on the motion twice, but the second comment may be stated only after *all* board members have made a first comment. Discussion is limited to 3 minutes per comment, unless the chairperson decides that discussion should be extended. If there is no discussion, or after the discussion has ended, the chairperson calls for a vote on the motion.

6. A written amendment to the motion can be made when a member is recognized by the chairperson and another member seconds the amendment. If there is no second, the amendment does not go forward. If there is a second to the amendment, the chairperson restates the amendment, either as written by the member or as written by the secretary. The chairperson calls for discussion of the amendment, following the same steps as in 5. The chairperson calls for a vote on the written amendment. If the amendment is adopted, the chairperson calls for a vote on the amended motion. If the amendment is *not* adopted, the chairperson calls for a vote on the original motion.

7. When a vote is called for, the vote is announced, and the exact wording of the motion and the vote of every member is recorded in the minutes.

8. If a member is disruptive, abusive or refuses to follow the rules, that member may be asked to leave. If the member refuses to leave, charges of disturbing the peace may be brought against him or her.

9. If the chairperson does not follow the above rules as prescribed in the policy of the board, members may ask for a procedural explanation from the chairperson. The chairperson (or parliamentarian, if your board has designated such a person) is responsible for ensuring that a copy of the rules is available at every meeting.

Other rules that your board may want to implement for efficient meetings are:

- Posting the time, date, and location of regular board meetings in a publicly accessible place (on your website, on the community bulletin board at the grocery store, etc.);

- Non-board members (such as customers) must submit requests for agenda items to a board member;

- Making distribution of the meeting minutes within one week of the meeting mandatory; and

- Making contact with the chairperson mandatory for discussion of new problems or issues a minimum amount of time prior to the meeting (the chairperson has final say over whether the problem or issue is included on the agenda for the meeting).

You will need to know whether state, territorial, or Tribal statutes regarding your board's legal configuration require the board to establish rules for **proxy voting**, definitions of "attendance" (that is does the member have to be physically present at the meeting to vote, or is phoning in a vote allowed?), or other special situations.

Working together as a team is quite important for your board to function well. To encourage teamwork, actively listen to other members of the board, and try to understand their perspectives and positions. Each board member brings his or her unique experiences, knowledge, and feelings to the meetings, and that is often the beauty of a board. Rather than one person making decisions, a board can collectively make a decision (many heads are better than one), and boards are often composed carefully so different expertise and perspectives are brought in. One member might be an accountant, while another knows what it's like to run a business. Treat each other with respect and courtesy, and reach consensus where possible. Be supportive of the board and the decisions it makes, even if a vote doesn't result in favoring your position. If this doesn't happen, conflicts can arise, and this works against the efficiency of a board and can lead to worse things.

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Conflict Resolution

Conflict resolution is a big part of a board's business. Conflict occurs because individuals have different values, goals, positions, and perceptions. Conflict can actually be a good thing when it leads to open discussion and debate of issues, allowing you to hear points of view you may not have considered when forming your own opinion. Many people avoid conflict, however, because of the potential for problems. Belittling comments, carrying anger from one issue to another, and raised voices can make conflict stressful or unpleasant. Failure to agree on an issue doesn't mean the end of the world. Look for common ground and ways to compromise, and remember the goal is to seek consensus on the issues, not simply majority votes.

Here are some tips on conflict resolution:

- Listen to the other members of the board, and try to understand their perspectives and positions;

- Ensure that each board member has individually expressed his/her opinion; don't let one board member dominate the discussion or assume they are speaking for others;

- When discussing agenda items, state opinions clearly in a courteous and respectful manner. Remember that your customers elected all the board members, and each brings his/her own expertise and experience to the discussion;

- If you agree with others' opinions, say so. Be supportive whenever possible. If you disagree, do so in a cordial and respectful manner. Speak for yourself only, and use statements that begin with "I" ("I believe…" or "I feel…"), rather than attacking someone else's opinion (not: "they don't believe…");

- Work toward consensus on all board decisions. Avoid the appearance that the board is split on every important issue facing the system;

- If you are having trouble reaching consensus on an issue, break it up into smaller components, and try to reach consensus on the components first;

- Do not allow a disagreement on one issue affect your decision on other issues;

- Leave any disagreements with other board members at the meeting. Remember that you will be working with these board members for quite a long time;

- If board decisions result from a split vote, accept and support the majority decision;

- Seek out training or education sessions on conflict management;

- When a vote is taken, move on to the next issue with an open mind, whether you were in the majority or minority;

- Compromise is not defeat; and

- Express your viewpoint and respect the viewpoints of others. Accept the fact that others will not always agree with your viewpoint.

Day-to-Day Management Duties

If your system is able to hire a manager, your board will rely on the manager to perform the following tasks and require the manager to report on those tasks to make its decisions. However, many small systems don't have the budget to hire a manager, so the board performs many management duties, often with the assistance of the clerk or another administrative professional. Day-to-day management of a water or wastewater utility (distinct from the functions

at the level of a board of directors) requires attention to all the following:

- Employee and customer relations;
- Financial operations and management;
- Operations and maintenance of the facility and infrastructure;
- Planning and development; and
- Regulatory compliance.

Each of these elements of day-to-day operations can be time-consuming. A simple way to share responsibility is to split oversight of these duties among the board members. Each member of the board may have a talent or interest in one of the specific categories above, or the duties may be rotated every few months. If your board has more than five members, you might assign small committees of board members to each of the categories.

After the board member or committees have an assignment, they are responsible for that assignment, including fact-finding, setting and implementing objectives, oversight, and reporting to the full board. The fact-finding step exists to determine what is currently being done, what should (or should not) be done, and things that should be done better. Setting objectives for the future is fairly self-explanatory, but implementing the objectives is a little harder—there may be several ways to implement each objective, and the member/committee should detail pros and cons for each method. A report to the full board from the member/committee should be required at each board meeting.

It's nearly impossible to make good decisions on these matters when you are unfamiliar with your system. You may not need to know detailed specifics of water treatment or become a certified operator, but you should have a basic understanding of how your utility acquires, treats, and distributes water and/or collects, treats, and discharges wastewater. And you

should also have a sense of the condition of your assets. Tour your facilities regularly and ask your operator lots of questions!

Technical Processes Explained in Everyday Language

There is no substitute for an in-person visit to your community's drinking water or wastewater treatment plant. On a walk-through with your system's operator, you can see, touch, and learn about your community's particular facilities and what the operator does to keep them running.

To support what you learn and to keep as a reference after your visit, RCAP has produced two publications for members of utility governing bodies like you:

- *A Drop of Knowledge: The Non-operator's Guide to Drinking Water Systems*
- *A Drop of Knowledge: The Non-operator's Guide to Wastewater Systems*

The operator of your system has a technical mindset, but these guides are written especially for people who aren't technically oriented or who have had little or no exposure to water/wastewater treatment. These guides provide basic explanations of the treatment processes in plain, everyday language for nontechnical audiences. Included are many diagrams, illustrations and photos that explain the treatment steps.

The guides can be downloaded from RCAP's website:

https://www.rcap.org/resources/

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If your system has a manager, let that person manage. There is a fine line, but a line nonetheless, that boards should abide by that separates the responsibilities of a board and those of a manager. Boards should focus on higher-level issues of strategy and policy and set larger goals and directions for the system, while managers implement these desires. One school of thought on this division of roles relates the board to the legislative branch of a government, while the management is like the executive branch. The board establishes the rules and sets parameters for operating a system, while the management enforces the rules and carries out the day-to-day tasks to run the system.

Many boards begin losing their efficiency when they start taking on management responsibilities. This is an easy trap to fall into. A manager comes across many problems in the day-to-day management of a system, and many are challenges that arise in every typical office environment. It is then tempting for individual board members or the board as a whole to get involved and want to fix a problem. It is also sometimes challenging to know when a problem rises to the level that warrants board consideration. Also, don't micromanage the entire staff. The manager is the board's employee, and everyone else at the utility is the manager's employee. Even with the best of intentions, boards that step over this line run the risk of not having enough time to complete their important leadership work. A board chair with experience working with management and with good discernment skills can navigate these situations well and can know when to bring an issue before the board or let management resolve it on its own. Boards and managers that have a good working relationship and trust each other will be able to keep these functions separate and complementary rather than mixing them.

If your utility is small enough that you do not have a manager and instead the board must take on some management responsibilities, you must take extra care that one set of your responsibilities does not come at the expense of the other. Delegate as much of the management responsibility to the administrative professional and/or operator as is appropriate, and be sure to allocate enough time to cover all of your duties. Be aware that your position will be more time-consuming than it would be if you had a full-time manager working with the utility.

Example Member Assignment

Jerry is a new volunteer board member who owns a hardware store and is also interested in customer service. In fact, he volunteered to be a board member because he was unhappy with how a friend's service complaint was handled. In this new role as a board member, he decides to take responsibility for the system's employee relations and customer service.

Starting with the fact-finding step, Jerry investigates how customer complaints are currently being handled. He finds that customers phone in to complain and leave a message on voicemail. The secretary checks the voicemail once a day and passes any messages to the operator, who will drive to the customer's home to explore the problem. The operator may need to return later to fix the problem, but sometimes this process takes several days. Delays in repairs are mainly due to a lack of spare parts, which have to be ordered and shipped from the nearest city. Sometimes the delay is caused by the method in which the message is received—the secretary works only part-time, so if a call comes in after he leaves,

it doesn't get forwarded until the next day. Jerry believes that a realistic goal for customer service would be a maximum of 48 hours for resolution of customer complaints.

Jerry realizes that there are several ways to cut the average time to address customer complaints. These methods include:

- Purchasing a cell phone dedicated to customer service, which the operator on duty answers directly;

- Having the operator call the customer back to get a better idea of the issue before making the initial trip; and

- Keeping an inventory of the most commonly used spare parts and pipe repair kits on hand.

Each of these has an associated cost—a dedicated cell phone costs money for the initial purchase and monthly plan, changing the service call number on stationery, billing and your website will cost money and time, and keeping an inventory involves the initial purchase cost and associated storage and tracking costs. Jerry does some research to determine these costs and estimates the time saved by adopting each method. He presents his time-savings methods to the board at the next meeting, and the board votes on whether to adopt them. Then Jerry tracks the changes and how they affect actual customer response time to see how well his ideas worked.

Policies

Policies are documents created to clarify intent and describe how regular functions of the system are administered. They are used to protect the board from misunderstandings that might lead

to unauthorized behavior or lawsuits. A written policy helps to ensure that everyone is treated equally by the board. Policies ensure consistency and help credibility.

The first part of each policy statement should be an overview, including why the policy was created. The second part should explain who the policy applies to, who has authority to determine whether the policy is being adhered to, and how and to whom appeals should be directed if there is a dispute. The last part of each policy gives details on what is required, who is exempt from the policy, how misunderstandings and deviations are to be handled, and how long the policy remains in effect.

There are three main categories of written policies that your board should have in place:

- Personnel policies;
- Customer service policies; and
- Billing and collection policies.

Personnel policies are very important. They spell out exactly what are the roles and responsibilities of both the employee and the employers. If you as a board hire people, then your board is an employer, and all employers should have personnel policies. If your board has never created personnel policies before, you should contact your state, territorial, or Tribal Department of Labor. It can help you get started with templates for:

- Job descriptions and requirements (see the appendices for examples), including operator classes;
- Compensation and pay periods;
- Benefits, including vacations, sick leave, insurance, and retirement funding;
- Training and educational assistance;
- Shift scheduling;
- Performance evaluation procedures;

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- HHiring and firing procedures;
- Grievance procedures;
- Equal Employment Opportunity Commission (EEOC) rules (see also the EEOC website at www.eeoc.gov);
- Safe and respectful work environment; and
- Conflict of interest and ethics codes;

Customer-service policies have an important role too. Have you ever heard one of your customers claim they were treated unfairly? If you have written policies in place, everybody should be treated the same, and you can point to the policies for justification. Customer-service policies should include:

- Service rules and regulations;
- Rates and service fees;
- Water-demand management;
- Non-standard service requirements; and
- Service agreements.

Billing and collection policies include:

- Routine billing and collection procedures;
- Late payment procedures;
- Cessation of service procedures (discontinuance, shutoff, non-payment);
- Procedures for re-establishment of service; and
- Procedures for new service connections.

Policies should be established only after considering the recommendations of staff and possibly consultants, studying the issues and needs of your customers, gathering facts, and discussing options. But policies are not static documents that are done once and then blindly adhered to. If situations change, it's okay to change policies as well. A review of policies should be an ongoing process. Instead of reviewing all the policies your board oversees at once, consider reviewing a few at each monthly meeting, with the goal of an annual review of each.

Project Management

Replacement of equipment, upgrading or changing treatment, service for new residential or commercial developments—all these activities and more call for skills in project management. Project management means planning, organizing, and obtaining resources and personnel to bring about the successful completion of specific objectives. Depending upon the size and complexity of your project, your board may be justified in hiring a consultant to carry out project management. Smaller projects may be handled by the board.

Project management requires organization, time management, and knowledge of the law. Project-management activities can be grouped into the following steps:

1. Initiating;
2. Planning;
3. Executing;
4. Monitoring and controlling; and
5. Closing.

A project is *initiated* when a need is discovered. For example, a wastewater pump starts to fail regularly, and despite the best efforts of your operator and the vendor to keep it running, it is finally determined that the pump needs to be replaced. So, a project to replace the pump is initiated when the operator (or facility manager, if you have one) approaches the board to tell it a new pump is required. Initiation also includes figuring out who will do what in each of the following steps of project management.

Planning the project takes quite a bit of thought. This step should not be rushed. Going through the planning phase carefully and thoughtfully will save both time and money later. Integration of different department functions, costs, human-resource requirements (Will you have to hire outside help for installation, or pay for overtime for existing personnel?), scope of the project, quality control (How will you know the pump is functioning according to the design?), communications, time, procurement procedures, and risk management all must work together to produce the end result of a reliable pump installed in your facility.

Some of the considerations that must be addressed for the pump project are:

- Should the pump be replaced with the same type, size, and manufacturer, or should a different type, size, or manufacturer be used? How will you decide which vendor is the best—cost, reliability, ease of repair, availability of parts, other?

- What bidding and procurement laws govern the purchase of a new pump for your particular situation? Do you have to accept the lowest bid, or is there a different method you are allowed to use? How will you pay for it?

- How long will the old pump last, and how long will it take to get a new pump installed? What will your system do if the old pump quits for good before the new one is ready?

- What training will your operators need for the new pump? Will the new pump be compatible with the other equipment in your facility?

- How will you communicate with your customers, the vendor, and your regulators while the pump is being installed?

- Will the installation cause sampling or effluent changes? What will you do if there are problems with the new pump?

- How long will each step in the project take?

As with any major undertaking, it's best to figure out the answers to the above questions (and many others you can probably think of for your specific project/situation) before the pump is purchased, rather than doing it as you go. Once the board agrees on the steps and timeline, a project plan can be finalized. Planning a project, even a relatively straightforward one, generally takes the longest time in project management. After you've established a plan for replacing the pump, chosen the vendor, and obtained funding for the project, it's time for *executing* the project by alerting the vendor to manufacture the pump, letting your stakeholders know the project has started, and making sure your operators are aware of who is allowed access to the site for the project. Your board might want to think about investing in project-management software for this step. Software is handy for tracking the availability of people, materials and equipment that are essential for getting the project to completion. There are some project-management software packages freely available on the internet, and others are inexpensive to license.

You can see from the previous list of questions that some tasks need to be performed in a certain order while others can happen before, during or after the installation of the pump. This is where *monitoring and controlling* come in. It's important to know if the tasks associated with the project are being completed on time and within the budget for the project. And if the tasks are not being completed on time or are costing too much, you can spot that and find out why.

Once the pump has been installed, the operators trained and the vendor is paid, it's time to *close* the project. During this phase, you can depend on your project-management software to provide detailed summary reports of everything from missed timelines to the amount of money spent during the project and how

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that information matches up with the original project plan. The summary reports can help you assess progress as well as help streamline future project-management assignments. The *sign-off* is probably the single most important closing document. Getting sign- off on a closing document formalizes the end of the project. This doesn't mean changes or enhancements can't still be made, but if they didn't fall under the original project scope, those changes become their own project.

> ## Help For Managing Large Infrastructure Construction Projects
>
> RCAP has produced *Getting Your Project to Flow Smoothly: A Guide to Developing Water and Wastewater Infrastructure* as a companion to this guide to assist small communities in carrying out large infrastructure construction projects, such as constructing a drinking water treatment plant or installing a wastewater collection system.
>
> The guide is comprehensive and detailed and walks project owners—boards of small systems—through all the steps of the planning, design, and construction phases of a project. It discusses funding possibilities for each of the phases, hiring an engineer and many other matters to consider in the process. The guide helps owners avoid the common pitfalls seen in many community projects.
>
> The guide is available for download at:
>
> https://www.rcap.org/resource/getting-your-project-to-flow-smoothly-a-guide-to-developing-water-and-wastewater-infrastructure/

Recordkeeping

Documents that pertain to the origination and/or incorporation of the legal entity authorized to operate your water or wastewater utility are *extremely* important. These documents must be kept in the system's permanent records. They form the legal basis for the system's existence and detail the conditions under which the system must operate. They should be kept in a safe place and reviewed by the board periodically. These documents include:

- Articles of incorporation;
- Petitions to courts, court orders, resolutions and judgments;
- Bylaws;
- Certificates of operating authority;
- Certificates of public convenience and necessity;
- Public-trust **indentures** or agreements;
- Local ordinances and acts;
- State, territorial, Tribal, or local enabling legislation;
- Municipal charter, if applicable; and
- Agreements with other entities or agencies.

Other financial and legal records to be kept permanently include:

- Financial audit reports;
- Capital stock and bonds records;
- Cancelled checks for important purchases (property or special contracts);
- Contracts, mortgages, notes and leases;
- Grant and loan agreements from state and federal funders;
- Correspondence concerning legal and important matters;
- Depreciation schedules;

- Year-end financial statements;

- Insurance records, accident reports, claims and policies;

- Minutes of board meetings;

- Tax returns and other documents relating to the determination of tax liability;

- Rights of way and easements; and

- Trademark registrations and copyrights.

Other important records have various retention times dictated by federal regulations, from six months to more than 30 years. Records on **asset** purchases ranging from land and buildings to equipment should be kept for the life of the asset or until six years after the asset is disposed of in order to satisfy taxation requirements on recordkeeping. Personnel records should be kept for an additional three years beyond when an individual is employed. If a worker is injured on the job, then his or her personnel records should be kept for 30 years. Laboratory testing data should be kept for ten years. State Revolving Fund and USDA loan records should be kept for at least the life of the loan, if not beyond. Examples of records to keep for seven years are:

- Accident claims and reports that have been settled;

- Cancelled checks (except for those listed in "permanent records");

- Donations;

- Expired contracts and leases;

- Invoices from vendors to the utility;

- Payroll records and summaries;

- Cancelled stock and bond certificates;

- Subsidiary ledgers; and

- Withholding tax statements.

Bank statements, internal audit reports, and bank reconciliation records should be retained for at least three years.

Communications

Water and wastewater are vital community services. But do your customers value the community's water and wastewater utilities? Developing a sense of value within your community is not something that happens overnight. It is the result of not only providing effective, reliable service, but also effective, ongoing communications. Once you have your community's support and approval, it's easier to get support for new projects and rate increases. With customers on your side, they will trust your system in times of crisis or disaster, and negative news doesn't affect the system's reputation as severely.

When your board is establishing a communications strategy, it should begin with the end in mind. Think about the system's goals and objectives, and consider what the public wants from its water and wastewater systems. To gain public confidence in your system, you must show that:

- Your treatment meets or exceeds all standards (and if it does not, that you are working diligently toward this);

- Your service is reliable;

- Your employees are qualified, knowledgeable, competent, friendly, and polite;

- The board of directors operates the system in a responsible manner;

- Customer bills are accurate and equitable; and

- Your system is trustworthy.

Appoint a spokesperson for your system to avoid conflicting messages coming from different individuals. The spokesperson should have excellent speaking and writing skills and be friendly, knowledgeable, professional, and trustworthy. They should obviously not be afraid

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of speaking in public, appearing on camera, or speaking to the media. This person is representing your utility with your credibility and image at stake. You want the best person you can find. If a board or staff member does not fit the above criteria, perhaps you could look for a volunteer spokesperson within community civic groups or churches.

Your spokesperson should have different communications styles for different audiences. First, consider what audience your spokesperson will be addressing—Regulatory agencies? The media? Customers? Board and staff members? Then think about what the audience has on its mind. Are they worried due to a natural disaster? Are they angry because of a rate hike? Perhaps the audience just wants information or to be reminded that they can trust their system. Although brand-awareness campaigns or messages may not seem to produce any tangible or immediate results, they are still helpful and serve a certain purpose.

It is worth taking the time to write some scripts (also put in the form of a written news release) for different scenarios, so that the spokesperson doesn't have to improvise under pressure. Events like water main breaks or construction activities, or even natural disasters that happen fairly regularly (like flooding or power outages) can be described in a script ahead of time. Leave blanks in the text for the type of problem, the area affected by the problem, and how the public will be affected. The spokesperson can fill in these blanks when the event occurs.

Your system's website and social media, including Facebook, Twitter, and others, are very effective ways of getting your message out. But remember that whatever you post on a social media outlet could be online forever! People can save pages or cut and paste any type of post made and redistribute it very easily.

> ## Social Media Account Safety
>
> Ensure you have adequate cyber security in place to help prevent your utility's social media accounts from getting hacked. Require strong passwords (at least eight characters long, including a number, symbol, and one capital letter) that are unique for each social media website, and change passwords when an employee who has had access to the account leaves his or her position. You may wish to use a password manager that can generate strong, random passwords and to require **multi-factor authentication**. Other security tips include not linking social media accounts together, denying use of all applications offered, learning what sensitive system data is and not posting it, not identifying workers by name, not "friending" people who aren't identifiable customers, not chatting, and not answering surveys that pop up.

Crisis communication is a special type of communication and should be considered very carefully. It may seem that the best course to take in a crisis is to remain silent. This is not always the case. It is very easy for rumors to fly among customers, and people's minds often gravitate to the worst-case scenario in a situation. Becoming an authority in a crisis and taking charge with the information will actually give you a degree of control of the situation with the public. In some cases, but not all, being honest and upfront with information, such as admitting wrong-doing and apologizing, is the best course of action and a way to get through a crisis more quickly. If this is done quickly, be sure to then take command of a situation and communicate how you are correcting a problem.

Consumer confidence reports (CCRs) are a part of communications that are driven by law. The Safe Drinking Water Act amendments of 1996 require that water systems send out CCRs annually, no matter what population they serve. CCRs must contain the following components:

- Information on the water source;

- A list of all contaminants that the system tests for;

- A list of the maximum, minimum and average results of the contaminant tests;

- Any violations of contaminant levels;

- The health effects of the contaminants; and

- Definitions of terms (like mcl, mg/l, TT, or any others that an average person wouldn't be familiar with).

The CCR can also contain information on upgrades, new projects, the goals of the water system, and other items that can strengthen relations with the community. Because your system is required by law to create a CCR anyway, you might as well make it work as a public relations tool for your system. The CCR rule applies to drinking water systems only, not wastewater systems.

Limiting Board Liability

As the governing body for your utility, there is potential liability for actions you take as a board member, as well as actions taken by others (that is, staff) on behalf of the utility. Historically, public officials from municipalities and districts have not been held personally liable for good-faith acts performed within the scope of their duties as directors. However, a board member may be liable for any act or action that is beyond his/her authority, that is performed in bad faith or malice, that involves intentional misconduct, or is a known violation of the law. There is no way to completely shield you or other board members

from lawsuits. However, there are actions that you can take to minimize risk.

Insurance: The utility should maintain a directors and officers insurance policy to cover the actions of the board. In addition, it is advisable to obtain a general or professional liability policy for the utility to cover other acts or omissions that might be attributable to the utility generally or its staff.

Attend meetings: How can you be sure that your utility is operating correctly unless you attend meetings and actively participate in the discussions and decisions being made? It is possible that you could be responsible for actions taken by the board, even if you were not present when decisions were made. Make a point to attend all board meetings, and do your part to exercise good judgment in making decisions on behalf of the utility. If you need the advice of experts (attorney, engineer, technical assistance provider), a board meeting is the best time to present this help so that all board members can benefit from their expertise. Ensure that accurate minutes are kept for every board (and committee) meeting. You should review these minutes for accuracy and, if necessary, register in writing any disagreement you might have with their adoption. The minutes are an important legal record of the utility and should be treated as such. Also, require your manager and/or operator and/or bookkeeper to provide written reports on their activities during the preceding month. Review these reports, ask questions, and ensure that you understand the current financial and operational status of your utility.

Know your policies and governing documents: Board members must be aware of both their governance documents and the policies adopted for the actual operation of the utility. The failure to adopt policies where policies are needed, the failure to abide by adopted policies and/or the failure to apply policies consistently can lead to appeals to regulatory authorities or even litigation. Review your policies

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every year and ensure that they stay current with ever-changing rules and regulations.

Avoid conflicts of interest: While utilities are covered by statutory requirements regarding conflicts of interest, it is a good policy to adopt a separate conflict of interest policy for the board. Having and abiding by a reasonable conflict of interest policy assures your customers that you are acting in the public's interest and not for any personal or financial gain.

Advice from experts: Ensure that you are getting the expert advice you need from attorneys, accountants, engineers, regulatory agencies, and technical assistance providers. You are not expected to know everything about the operation and management of your utility, so use these professionals to provide guidance and support where needed. However, do not let these experts make the decisions for you. You must consider their advice and then, based upon your own experience, the collective expertise and experience of the board, and most importantly, a healthy dose of common sense, decide what is best for the utility.

Abide by legal requirements: Not only must you ensure that you comply with primacy agency and EPA regulations, you must also comply with other rules, such as IRS rules (for example, withholding taxes and operation of the utility in compliance with your nonprofit status) and Department of Labor requirements, especially involving employee safety.

Financial management: This can be a board's greatest potential liability. For example, failing to maintain financial controls, wasting system assets, and misrepresenting financial conditions are all ways of neglecting your financial responsibilities as a board member.

Good Board Members: Dos and Don'ts

Good Board Members DO:

1. Recognize that their responsibility is not to directly manage or operate the system, but to ensure that it is being well-managed and -operated.

2. Work through properly adopted administrative procedures.

3. Function as part of a policymaking and control group rather than as part of an administrative board.

4. Understand the mission of the organization and keep their activities directed at fulfilling that mission.

5. Familiarize themselves in a broad and non-technical manner with problems and issues confronting the system.

6. Attend all board meetings or show a valid reason for any absence.

7. Voice opinions frankly and respectfully in board meetings and vote for what seems best for the organization as a whole.

8. Recognize that the organization's manager, if applicable, is responsible for carrying out board policies and directives in accordance with applicable state and federal regulations.

9. Frame policies and plans only after considering the recommendations of pertinent employees and consultants (manager, operator, accountant, lawyer, engineer, etc., as appropriate) together with the reasons for such recommendations.

10. Require regular oral and written reports to keep themselves properly informed on matters of importance to the organization.

11. Give authority which is commensurate with responsibilities.

12. Wherever possible, maintain harmonious relations with other board members when such relations are consistent with their obligations as individual members of the board.

13. Establish written criteria for evaluating employees.

14. Support and protect other board members and employees in the performance of their official duties.

15. Give friendly counsel and advice to employees.

16. Understand their legal and ethical responsibilities as board members.

17. Plan ahead to meet future growth demands and other system needs.

18. Seek to promote a positive image of the system among its customers.

19. Treat all customers fairly and equally when complaints and problems are brought to the board's attention.

20. Attend regular training sessions concerning the duties and responsibilities of their system and their role as a member of the board.

21. Refrain from any activity that would result in a monetary profit, unless such activity is expressly provided for in the system's regulations, bylaws, or policies (such as reimbursement for training).

Good Board Members Don't:

1. Interfere with the day-to-day routine of operating, managing, and administering the system.

2. Refuse to support worthwhile programs, other board members, or employees because of personal conflicts.

3. Make promises and commitments before the questions and issues are fully discussed at board meetings.

4. Form or join a clique to control board actions.

5. Use board membership for political or business advancement.

6. Indulge in petty criticism of the employees.

7. Divulge confidential information.

8. Assume undelegated authority in matters when the board is not in session.

9. Accept gifts from suppliers or contractors.

10. Use their positions to obtain favorable treatment from the system.

11. Ask the manager or employees to violate or ignore any regulatory requirement.

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One of your most important responsibilities as a board member is planning for the financial health of your utility. This involves:

- Preparing and approving an appropriate budget for the year to come;
- Setting rates sufficient to cover your expenses;
- Monitoring financial performance throughout the year; and
- Ensuring that the year-end financial documents are accurate.

Financial resources are central to the operation of any business or enterprise that provides a product or service such as a utility. If you have not worked with financial documents before or don't regularly work with a financial mindset, financial management may become one of your most difficult duties as a board member. Every board member should understand how to budget, how to read financial statements, what funding sources are available, and how to adjust rates. The more members who know what is going on financially in the utility, the better able they are to check each other and to plan for the future. Utilities should run like a business regardless of whether your system is operated by a local government, Tribe, non-profit, or for-profit entity. This means that the full cost of providing service should be shared by the customers.

As a board member of a small water or wastewater system, your aim is to provide safe, high-quality drinking water or waste-disposal systems to your customers while meeting your regulatory responsibilities over time. If your system is **financially sustainable**,

it means that your system provides water or wastewater services to your customers at a rate that consistently generates enough revenue to meet all your expenses, both in the short term and long term. The trick is being financially sustainable while also providing services at an affordable and fair cost.

Budgeting

Planning is an essential function of any board of a water or wastewater utility, and budgets are basically plans using dollar values. As a board, you are responsible for preparing and approving an annual budget. Budgets are a way for you as utility leaders to express your priorities for the system. The budget helps you keep adequate control of the finances and provides adequate funding to the highest-priority areas of the system.

All utilities should prepare an annual operating budget, which coincides with the fiscal year of your system and is simply a one-year forecast of your utility's expected revenues and expenses. Utilities may also wish to prepare a separate capital budget. Capital budgets are budgets specifically for the rehabilitation, replacement, and addition of assets to the water or wastewater system. Capital budgets are often for one year but are based on capital needs identified through asset management and capital improvement plans. These best practices will be discussed in greater detail in Chapter 4.

Budgets provide the following information:

- What is planned;
- What it is expected to cost;

- Source and amount of revenues; and
- The expected financial position of the water or wastewater facility.

Budgeting for Different Services Separately

As you begin the process of preparing your annual budget, you may discover that in the past multiple services—water, wastewater, stormwater, and/or solid waste—were lumped together into a single budget. But each service should be self-sufficient, and it is a best practice to prepare a separate budget for each of your services. Some expenses will clearly be for one service or another. For less obvious expenses, like salaries of staff shared across multiple services, divide them based on the percentage of time employees spend on each service. Your technical assistance provider can help you with this separation process. You may need to separate out the budgets for the various services in order to apply for funding from the U.S. Department of Agriculture (USDA) and other programs.

To budget effectively, you must consider the needs of your system and how to prioritize projected needs given your available revenues. To prepare an annual budget, you should take into consideration:

- Previous expenses from the past two (2) to three (3) fiscal years;
- Any unplanned "emergency" expenses that occurred within the past several years;
- Revenues from customer billings and other sources of income for the past several years;

- Required "reserve" levels necessary for the coming year if you have long-term debt; and
- Desired amount of money in reserves beyond what is needed for debt service coverage.

Part of your job in preparing the annual budget is to anticipate how your revenues and expenses may be changing. Your projection is a guess—none of us can predict the future with perfect accuracy. But by using data, you can have a more educated guess.

Your utility's revenues, for example, are based on how many customers you serve, how much water they consume or wastewater they generate, the rates you charge, and whether your customers pay their bills on time and in full. Have your rates gone up in the past year? Is your population changing? Have big businesses opened or closed? Are economic conditions making it more likely that customers will be behind on bills? How has usage changed over time? Answering questions like these will help you get a more accurate prediction of revenues for the coming year. Be conservative! It is better to generate more revenue than expected and put it into reserves than to be short.

Your utility's expenses also change over time. In general, the costs of goods and services your water or wastewater system purchases go up every year. This concept is known as inflation. Likewise, for most systems, salaries also increase every year. You may assume, then, that all your operating expenses are constantly increasing. But that may not necessarily be the case. Salaries may go down, for example, if your long-term operator retires and is replaced by a less experienced worker. Gas prices go up some years and down others. Also keep in mind that the different expenses may be increasing at different rates. For example, while salaries and health insurance costs generally both increase over time, health care costs may increase faster than salaries.

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A best practice for water systems is to maintain reserve funds—money in the bank. Equipment wears out or breaks, treatment requirements change, and emergencies happen. Reserves can be used to pay for the cost of replacing infrastructure, especially lower cost items such as meters and valves. Reserves can also be used to pay for preliminary engineering reports (PERs) and the local matches that are required to access infrastructure grants and loans. Also lenders will typically require you to keep some money in the bank.

Your annual budget needs to be "balanced." A balanced budget is a budget in which anticipated expenses do not exceed anticipated revenues. If expenses for operations, debt service and transfers to reserves exceed your revenue, it may be time to look at a rate adjustment or to find ways to reduce your expenses.

You should begin the process of forming the annual operating budget well in advance of the start of each new fiscal year. Once the budget is prepared and balanced, the board must formally approve and adopt the budget. Ideally, the governing body should adopt the final annual operating budget no later than 30 days prior to the start of the new fiscal year. This gives your staff permission to spend money over the next year. If spending in any budget category will exceed what you have approved, your staff should get the permission of the board to change the budgeted amounts *before* spending the money.

Budgeting Basics Explained

Technical assistance providers can help you prepare appropriate budgets for your water or wastewater system. In addition, RCAP's *The Basics of Financial Management for Small Community Utilities* is a primer on financial management. *The Basics* guide includes a chapter on how to prepare an annual operating budget including sample tables. The free guide is available in English (Spanish version coming in late 2022) for download at:

https://www.rcap.org/resource/basics-of-financial-management-guidebook/

Setting Rates

Utilities generate revenues from many sources—for example, fees charged for new customers to connect to the system, interest on accounts, penalties levied for late payments, and payments for renting space on storage tanks for cellphone and radio receivers. But most of the revenue for water and wastewater utilities comes from the rates charged to customers for the service.

At the same time that you are approving an annual budget, the board should also approve the rates that will be charged to customers for the coming year. Those rates, combined with the other sources of income, must be sufficient to sustain the utility financially. **Full-cost pricing** means that your rates reflect the true cost of producing and selling water or of treating and disposing of wastewater, including all operating expenses, debt service, capital needs, and contributions to reserve accounts. Your rates don't have to change every year, but you should evaluate them every year as part of your annual budget process.

The board is responsible for establishing both the structure of the rates and the price charged to customers. Water and wastewater rates have two basic elements—a **base rate**, which is a charge per billing period regardless of usage, and a **flow rate**, which is a charge based on the volume of water consumed/wastewater collected. Many rate structures include both. One of your most important responsibilities as a board member is to price the base rate and the flow rate so that you recover enough money to cover the full cost of running your utility for the year.

Utilities also have options for structuring the flow rate, including:

- Single block rates, where customers are charged a constant flow rate (price per gallon or cubic foot), regardless of the amount used

- Increasing block rates, where the flow rate increases as the amount used increases

- Decreasing block rates, where the flow rate declines as the amount used increases

You may choose to have the same rate structure and pricing for all your customers. This is appropriate if you are a small utility or a utility where all the customers are similar to each other (for example, all residential). Or you may choose to divide your customers into different customer classes such as residential, commercial, industrial, institutional, governmental, or bulk purchase customers. If you are a municipality that serves customers outside of your jurisdictional boundary, you may wish to charge these "outside" customers a different rate, if allowed by state or territorial law.

It is important to understand that structuring and pricing rates is a policy decision that has winners and losers. There are several community priorities that can be reflected in your rates such as promoting conservation, ensuring a stable stream of revenue for the utility each month,

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having rates that are easy for customers to understand and easy for staff to administer, and having rates that are affordable for all customers. Achieving one priority can come at the expense of another.

For example, a board that prioritizes a stable stream of revenue may price rates to have a higher base rate and a lower flow rate. That way, the utility is guaranteed a reliable amount of revenue every billing period regardless of how much water is consumed. But a bill with a higher base rate and a lower flow rate may be expensive and difficult for a low-use customer to afford, such as an elderly customer living alone and relying on Social Security.

Consider another example. A utility with many lower income customers may also decide to charge lower prices to residential customers in order to make the rates more affordable. But if a utility charges rates to residents that are *lower* than they should be, it will have to charge rates to other customers that are *higher* than they should be—the businesses will be subsidizing the residential customers.

As a board member, it is your responsibility to make these difficult policy choices and trade-offs. You will want to use appropriate data to make an informed decision. The process of structuring and pricing rates is complicated and involves multiple assumptions about your customers and their usage. If you have not been through the rate-setting process before, you may wish to engage the expertise of a technical assistance provider.

Affordability

Drinking water and wastewater utilities are most efficiently run as if they are businesses. But drinking water and wastewater are also important public services. All utilities, regardless of ownership, should ensure as best as possible that all customers are able to afford service. Some utilities price water or wastewater service to be more affordable for low-use customers. Other utilities offer ways for customers to lower their water or wastewater bills, making them more affordable. You can also consider partnering with local social service agencies to provide financial assistance to customers struggling to pay their bills. The Environmental Protection Agency has produced a compendium of Drinking Water and Wastewater Customer Assistance Programs that describes the benefits, implementation, and examples of customer assistance programs (CAPs) throughout the country:

https://www.epa.gov/waterfinancecenter/compendium-drinking-water-and-wastewater-customer-assistance-programs

The UNC Environmental Finance Center produced a report on the legality of using ratepayer revenue to fund customer assistance programs:

https://efc.sog.unc.edu/resource/navigating-legal-pathways-rate-funded-customer-assistance-programs-guide-water-and/

What if Customers Don't Pay

In addition to setting the rates that are charged to your customers, you are also responsible for setting the policies to ensure that customers pay their bills. The financial sustainability of your utility requires you to have a reliable stream of revenue.

Every billing period, the utility sends bills to your customers with a deadline for payment. Most of your customers will pay these bills on time. But some of your customers will fail to pay their bill on time, and others will only pay part of their bill. As a board, you are responsible for passing a late payment and shutoff policy that explains the consequences of not paying a bill on time or in full. The shutoff policy should also explain what utility staff can do to assist customers who don't pay their bills. The policy should be distributed to all new customers and to all customers if there are changes.

Many utilities will charge a late fee to customers who fail to pay their bill on time and in full. Customers are then given a specific length of time to pay their initial bill plus the late fee (for example, 5 business days). If they pay within that time frame, service remains on. If they fail to pay, service will be shut off at the end of that grace period. Many utilities will then require customers to pay their balances in full plus a penalty and/or reconnection fee to have service restored.

Shutting off service is expensive and time-consuming for utilities, especially since most customers who are shut off typically make payment and restore service within a few days. For this reason, it is always better for both the utility and for the customer to find ways to keep the service on. Make it easy for customers to pay their bills by accepting credit cards and online payments. Offer automatic payment plans for customers with good credit. Send email and text reminders when bills are due.

You may wish to offer payment plans for customers who fall behind on their bills. That way, they can make up what they owe you over time and keep their service on. If a customer has an unusually high bill due to a leak in their service line or premise plumbing, you may wish to forgive some portion of what is owed if they prove they have had the leak repaired.

Whatever policies you develop, it is important that they are applied to all customers consistently and without favoritism—no exceptions! Customers should not be allowed to skip payments simply because they are a favorite business in town, or because they are an employee of the utility, or because they are related to a member of the board. Customers who know there will be consequences for nonpayment are more likely to keep current on their bills.

Shutoffs and Wastewater

If a water customer fails to pay their bill, the consequence can be simple—shut off service. But it can be more difficult to enforce nonpayment on wastewater bills. Typically, wastewater is not a service that can be "shut off." Some utilities that offer both water and wastewater service will shut off water service if either bill is not paid on time. If you are a wastewater utility only, you may wish to enter into an agreement with the water provider to have water service shut off if payment is not made for wastewater. Or you may consider placing a lien against the property for the amount that is owed.

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Monitoring Financial Performance

Once the budget is passed and rates are set, the board then begins the task of monitoring the system's financial performance over the year. Financial oversight allows you to know that everything is proceeding according to plan and that, financially speaking, your utility is on the right track.

Providing effective financial oversight means not only monitoring and adjusting the current operating budget, but it also means understanding common financial statements, and making informed decisions about the future based upon the important information these statements provide. You should receive and review financial reports every month.

There are three major financial statements that all utilities should produce:

- The *balance sheet shows* how much your system is worth at a point in time

- The *income statement* shows how much revenue the system has earned versus the amount of expense it has incurred

- The *cash-flow statement* breaks down all the financial transactions of the system in terms of how they affected cash

Examples of each statement are provided at the end of each section.

Balance Sheet

The **balance sheet** has three components: assets, liabilities, and equity. It is called a "balance sheet" because the numbers on the sheet must be in balance. This means the total assets must equal the total liabilities and equity:

Assets = Liabilities + Equity

Assets are the total economic resources of a system that are expected to provide benefits to the system in the future. Assets are broken down into three categories:

- **Current assets**, including cash, cash equivalents, accounts receivable

- **Fixed assets**, including the land, buildings, furniture, and fixtures that the system owns and uses in day-to-day operations

- **Long-term assets**, including items that cannot be converted to cash within one year of the date of the balance sheet, such as investments with maturity dates more than one year

Liabilities are what your system owes to others. The liabilities section of a balance sheet is divided into two components:

- **Current liabilities**, including accounts payable, what is owed on long-term debt, accrued liabilities to employees, and other short-term notes to be paid

- **Long-term liabilities** include investments and the portion of payments to be made over the next several years that are not included in the current liabilities

Equity is the net value of the system over time. Equity is what would be left if the utility closed its doors, paid off all its outstanding bills, collected everything that it was owed, and sold all its assets for exactly the same prices as they were recorded in the financial statements. The system increases its equity each year it earns a net income—or has more revenue than expenses.

Now that you know the components of the balance sheet, it is time to put this knowledge to use. First, you should look for significant changes from one year to the next on the sheet. It is important to know why changes are taking place so that you will know if corrections need to be made immediately to keep the system in the black. Questions to ask include:

- Why did account receivables rise or drop dramatically?

- Were new customers added, or were large water consumers lost?

- Was there a breakdown in bill collections or an increase in efforts to collect outstanding bills?

Why did the value of fixed assets increase or decrease? Was new equipment purchased and installed? Was equipment sold or otherwise disposed of?

Second, you can calculate two ratios that provide you a picture of the utility's overall financial health. The **liquidity ratio** (also called the "current ratio") measures a system's ability to pay off current liabilities with current assets. The formula is:

$$\frac{Current\ Assets}{Current\ Liabilities}$$

Systems with less than a 1.5 liquidity ratio are considered to be in financial distress.

The **leverage ratio** measures how much the system relies on debt. The formula is:

$$\frac{Equity}{Total\ Assets}$$

A leverage ratio below 0.3 indicates that the system may be in financial distress.

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Example Balance Sheet

ASSETS	2021	2020
Current Assets		
Cash & Cash Equivalents	496,474	253,573
Accounts Receivable	60,026	65,040
Prepaid Expenses	4,982	4,957
Short-Term Investments	2,219	0
Inventory	14,248	15,302
Total Current Assets	$577,949	$338,872
Fixed Assets		
Land	6,950	6,950
Property, Plant & Equipment at Cost	2,915,599	2,915,599
Less Accumulated Depreciation	(1,636,060)	(1,523,462)
Total Inventory	$1,286,489	$1,399,087
Long-Term Assets		
Investments	86,660	186,660
Total Long-Term Assets	$86,660	$186,660
TOTAL ASSETS	**$1,951,098**	**$1,924,619**

LIABILITIES AND NET ASSETS		
Current Liabilities		
Accounts Payable	8,452	7,987
Current Portion of Long-Term Debt	56,123	54,238
Withheld & Accrued Payroll Taxes	3,158	3,479
Accrued Interest	13,335	0
Meter Deposits	43,504	44,602
Other Accruals	1,425	1,335
Total Current Liabilities	$125,997	$111,641
Long-Term Liabilities		
Long-Term Notes Payable	1,297,938	1,354,061
Total Long-Term Liabilities	$1,297,938	$1,354,061
Equity		
Contributed Capital (Membership)	56,415	56,415
Donated Capital (Govt. Grants)	1,720,300	1,720,300
Retained Earnings	(1,249,552)	(1,317,798)
Total Equity	$527,163	$458,917
TOTAL LIABILITIES & NET ASSETS	**$1,951,098**	**$1,924,619**

Income Statement

The balance sheet provides a good snapshot of where the system stands at a particular point in time. But what about over a longer period of time? Are budget goals being met? Is equity growing or shrinking?

The best way to answer these questions is with the **income statement**. Sometimes referred to as the statement of activities, the income statement shows the results of operations over a specific period of time, much like a scoreboard does during a single football game. Just as you clear the scoreboard at the end of the game, the income statement starts over at the end of a set time period, such as at the end of a fiscal year.

The income statement shows how much revenue a water system has earned and how much expense it has incurred during the specified period. Income and expenses are broken down by type to provide a better understanding of how the system generates revenue and how it spends it. At the end of the fiscal year, all revenues and expenses incurred during that year are moved to the equity section of the balance sheet.

Generally, the income statement tracks revenue and expense on a 12-month basis. This period is called the system's **fiscal year**. In theory, the fiscal year can start on any day of the year, but most utilities have a fiscal year that begins on January 1, July 1, or October 1. In some instances, the fiscal years for utilities owned by local governments are set by state or territorial governments.

The heading of the income statement includes the time period covered by the statement. For example, a heading that reads "for the month ending June 30, 2021" means the statement shows revenue and expenses incurred during June 2021 only. The time frame indicated in a statement's heading is important because it lets you know when the revenue listed has been earned and when the expenses have been incurred. Keep in mind that revenue recorded on the income statement may not correspond exactly to deposits made to the system's bank account, nor will expenses tie directly to checks written by the system. That is because most utilities record financial activities on the **accrual basis of accounting**. Under this type of accounting, the system must record revenue when it is earned or when the system is entitled to the money, and it also must record expenses when they are incurred or when the system is legally obligated to pay the debt. It doesn't matter when the system actually collects the money or pays the cash. For example, if you were to prepare and mail bills to your customers on the last day of May, you would record a **receivable** at that time for what customers owe for May usage, even though the money won't actually be received until around the due dates in mid-June. The same is true of expenses. If the system receives a bill on May 31, it is recorded then, even though the bill may not be paid until sometime in June.

There are three basic elements of an income statement: revenue, operating expenses, and net operating income (or loss).

- **Revenue** is income that has been earned by the system. Examples include water or wastewater sales to customers, late charges, and service charges.

- **Operating expenses** are incurred during the system's normal operation. This can include salaries, fringe benefits for employees, utility bills, insurance, treatment chemicals, repairs, and water purchased for resale.

- **Net operating income (or loss)** is determined by subtracting operating expenses from revenue. If the system has more revenue than expenses, it is operating with a net income. If operating expenses are greater, the system is operating with a net loss. This is a very important number

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because you want to make sure your system is charging enough to cover the full cost of providing service.

Comparative income statements provide an idea of how the system is progressing: Are revenues up or down? Do the revenue changes make sense? Why are sales way up over the same period last year? Are there more customers, or did the system implement a rate increase? Is revenue down, if so, why? Are expenses up or down? If so, again, why?

Any changes from one year to the next should make sense to you. Don't be afraid to question employees, such as the operator, bookkeeper, accountant, or the utility's auditor, until the answers make sense and until you receive an explanation you can understand.

Calculating ratios from the income statement is also an effective way to check the overall fiscal health of a system.

The **operating ratio** measures whether a utility has collected enough revenue to cover its day-to-day expenses. The formula is:

$$\frac{Operating\ Revenues}{Operating\ Expenses}$$

A water utility that has an operating ratio of less than 1.0 is considered financially distressed.

The **debt-service coverage ratio** measures a utility's ability to pay its debt. The formula is:

$$\frac{Operating\ Revenues - Operating\ Expenses}{Annual\ Principal\ and\ Interest\ Payments\ on\ Long\text{-}Term\ Debt}$$

When a utility borrows money, lenders typically mandate a minimum debt-service coverage ratio for the loan, and it is always greater than 1.0. Often the required ratio is at least 1.1 to 1.2 or higher. This ensures that the utility will have enough revenue to repay debt even if revenues are less than expected in a given year.

Example Income Statement

For Years Ending Dec. 31, 2021 And Dec. 31, 2020		
REVENUE	**2021**	**2020**
Water Sales	661,363	665,091
Misc. Construction & Meter Conn.	19,293	10,831
Membership Fees Received	1,200	1,305
Total Revenue	$681,856	$677,227
OPERATING EXPENSES		
Salaries & Fringe Benefits	180,381	153,700
Depreciation Expense	112,598	118,338
Service Supplies	61,460	70,555
Electricity & Utilities	45,647	40,634
Insurance	40,786	33,702
Contract Labor	35,545	29,484
System Repair & Maintenance	24,816	19,498
Taxes & Licenses	16,696	17,482
Fuel & Oil	13,408	11,990
Telephone	9,701	7,761
Bad-Debt Expense	6,646	2,663
Legal & Accounting	4,829	5,585
Miscellaneous	4,385	4,294
Postage	4,374	4,659
Office Expenses	3,320	3,699
Continuing Education	2,913	3,603
Uniforms	2,841	3,226
Testing & Analysis	2,662	2,941
Truck Expense	2,094	4,452
Bank Charges	132	90
Total Operating Expenses	$575,234	$538,356

NET OPERATING INCOME (LOSS)	**$106,622**	**$138,871**

OTHER INCOME & EXPENSES		
Interest Income	20,000	12,230
Gain On Sale of Equipment	13,295	0
Interest Expenses	(71,671)	(75,113)
Total Other Income & Expenses	(38,376)	(62,883)

NET INCOME (LOSS)	**$68,246**	**$75,988**

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Cash-Flow Statement

The **cash-flow statement** shows how all a utility's financial transactions during the year increased or decreased the available cash. It also shows how much cash is available at the end of the year after all the transactions are tallied. The cash-flow statement breaks down transactions into three areas—financing, investing and operation:

- **Financing activities** are transactions resulting from actions to attract investors or creditors. Examples include loans for purchases of assets or major improvements to the system.

- **Investing activities** are transactions made to obtain the property, plant and equipment needed to run the organization. They also include transactions associated with the investment of idle cash, such as purchasing stocks or bonds. Another example is purchasing a new building or new equipment.

- **Operating activities** are the required transactions for the system to perform its function of providing safe drinking water to customers. Operating transactions can include employee salaries, office supplies, minor repairs to the system, and the purchase of water from other systems.

Even if a system has more assets than liabilities and shows a net income, it still could be in serious financial distress if cash flow isn't sufficient to meet obligations. A utility that does not have the cash available to pay operating expenses can spiral quickly into financial distress:

1. Without available cash in the bank, bills go unpaid or are paid late. Not only does this damage the system's reputation with the party to be paid, but it also can lead to late fees and interest penalties. These must be added to the system's operating costs.

2. Late or missed payments can damage the water system's credit rating. As a result, the system may be required to pay cash for supplies and services.

3. Without necessary supplies and services, the system must delay or forego necessary maintenance or repair to the system.

4. Without necessary repairs, supplies and services, the quality or quantity of water produced may suffer. The system's reliability can be affected, and service can be disrupted.

5. Eventually, the utility may be forced into making expensive emergency repairs or be cited for operational deficiencies by regulatory agencies—or both.

The cash-flow statement can alert you to a possible scenario like the above example because it shows how the accounts on the balance sheet have changed from one year to the next. There are three areas on the cash-flow statement that are of particular importance in providing a snapshot of your system's fiscal health: accounts receivable, accounts payable and long-term debt.

The first item to check in your cash-flow statement is the line item "(Increase) Decrease in Accounts Receivable." An increase in accounts receivable from one year to the next means that the system was owed more at the end of the current fiscal year than it was owed at the end of the last fiscal year. This could be a warning sign. One possible explanation is simply system growth—more customers means more receivables. However, it also could mean that the system isn't actively pursuing unpaid water/wastewater bills. If customers don't pay what is actually owed, the utility may not have enough money to pay the costs of future service. The problem becomes worse the longer the system allows customers to use its services without

paying for them. The system must continue to cover the costs of services for which it is not getting paid. What if other customers stop paying? That means more costs for the system to cover. Although assets and net income may show that the money is expected to come in, without pursuing delinquent accounts, the cash will not actually be there when it's needed. Bottom line: Keep a handle on delinquent accounts.

The next thing you want to examine in a cash-flow statement is the line item "(Increase) Decrease in accounts payable." Did this line item increase or decrease? Similar to receivables, an increase in payables simply can be the result of a system experiencing significant growth, but it could also be the result of delaying payments to vendors.

The final item to review is "Retirement of long-term debt." Compare your debt-retirement activities from the previous year to the current year. Were you able to reduce the long-term debt, or did your debt actually increase? If debt increased, was it from growth, such as borrowing money to extend lines, upgrade the facility, or purchase equipment? Without a reasonable explanation for increased debt, an increase in this line item from one year to the next is a good indicator that you are not able to keep up with your system's cash-flow requirements.

Finally, look at the bottom line of the cash-flow statement, often listed as "Net increase (decrease) in cash." Is there more or less cash at the end of this year than at the end of the previous year? An increase in receivables, along with an increase in payables and a decrease in cash, could be the result of normal operations. But it also could be worth questioning.

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Example Cash-Flow Statement

For Years Ending Dec. 31, 2021 And Dec. 31, 2020		
CASH FLOWS FROM OPERATING ACTIVITIES	**2021**	**2020**
Net Income (Loss)	$68,246	$75,988

ADJUSTMENTS TO RECONCILE CHANGE IN NET ASSETS TO NET CASH		
Provided By Operating Activities:		
Depreciation	$112,598	$118,338
(Increase) Decrease in Accounts Receivable	5,014	(7,395)
(Increase) Decrease in Prepaid Expenses	(25)	(1,485)
(Increase) Decrease in Interest Receivable	0	(3,053)
(Increase) Decrease in Inventory	1,054	6,938
Increase (Decrease) in Accrued Expenses	90	870
Increase (Decrease) in Payroll-Tax Liabilities	(321)	624
Increase (Decrease) in Accrued Interest	13,355	10,243
Increase (Decrease) in Meter Deposits	(1,098)	0
Increase (Decrease) in Accounts Payable	445	28
Net Cash Used in Operating Activities	$199,358	$201,096

CASH FLOWS FROM INVESTING ACTIVITIES		
Purchase of Property & Equipment	0	(19,857)
Net Cash Used in Investing Activities	$0	($19,857)

CASH FLOWS FROM FINANCING ACTIVITIES		
Retirement of Long-Term Debt	(54,238)	(37,106)
Purchase of Securities	(2,219)	0
Sale of Securities	100,000	0
Net Cash Used in Financing Activities	$43,543	($37,106)
Net Increase in Cash	$242,901	$144,133
Cash Balance, Beginning of Year	253,573	109,440
Cash Balance, End of Year	$496,474	$253,573

Annual Financial Audit

The final step of your financial oversight is ensuring that the year-end financial statements are accurate. An annual financial audit is an examination of a utility's financial statements by an independent party that is qualified to complete audits. The purpose of the audit is to determine if your financial statements are accurate, to assess whether you have followed applicable financial laws and regulations, and to suggest corrections, as necessary.

Many utilities are required by state or territorial law to complete an annual audit. If you have borrowed funds for the utility, your lender may also require you to complete an annual financial audit. Even if this is not required, it is a prudent business practice for all water and wastewater utilities. Potential auditors should have a clear understanding of the system's business, references from other clients in the water or wastewater industry, resumes for personnel working on the audit, and a clean peer review letter. The peer review letter should show that the auditing firm has had its policies and procedures reviewed and that they adhere to industry standards.

The audit should be completed by a neutral third party outside of your utility or government. You begin the auditing process by releasing a request for proposals (RFP) to hire the auditing firm. When detailing the job of auditing your system, ask that the bid for the audit be sent in a separate, sealed envelope from the auditor's qualifications. Rank the auditors first by their qualifications, and then look at their bids. If the firm with the best qualifications is not the low bidder, you may have a chance to negotiate your final fee with that firm.

Many utilities hire an outside expert to compile their annual financial statements. The person who compiles the financial statements should *not* be the same person that audits the financial statements. Ideally, you would have one firm compile the statements and a separate firm audit the statements. At the very least, you should have two different people complete these tasks if you are using the same firm for both services.

After the audit is completed, the auditor will issue an **auditor opinion**. This is the first page of the full audit. An "unqualified opinion" or "clean opinion" is the best your system can receive.

It means the auditor did not find any material misstatements in your system's financial record. The full audit report will include the main financial statements (the balance sheet, the income statement, and the cash-flow statement). It will also include notes to the financial statements.

The notes provide valuable information about the nature of operations and the balances shown in the financial statements. The auditor should present the full audit to the entire board and should be available to explain the numbers and to respond to questions. Remember, the auditor works for you.

Chapter 3:
Infrastructure Funding

Much of the infrastructure necessary for water and wastewater utilities is quite expensive. There are some lower cost capital items such as meters and valves that you may be able to purchase out of the revenues you receive each billing period from your customers. But paying for most infrastructure rehabilitation and replacement projects and new infrastructure installations requires foresight. You as a board member are responsible for ensuring that the infrastructure within your utility is adequate for meeting regulatory requirements as well as the **level of service** your customers expect from you.

One strategy for infrastructure improvements is to build up your reserves ahead of time and then pay cash for the capital items when they need to be replaced. This approach requires careful planning. To save an appropriate amount of money, you must first anticipate when an asset will need to be replaced and how much the replacement will cost. Then, you need to set aside money every year between now and then to ensure that you have enough money in the bank when the time comes. If the asset must be replaced ahead of your anticipated schedule, you may not have enough money saved to pay for its replacement.

Many small utilities instead rely on debt financing to pay for capital improvements. **Debt financing** involves borrowing money at the time the asset is replaced and then paying back the loan, with interest, over time. Utilities have a few options of where to borrow money. Some utilities borrow money through the bond market. Others get loans from traditional lenders such as banks and credit unions.

Federal and state governments also offer subsidized loan and grant programs for critical and urgent capital projects and for treatment upgrades. Eligibility for these programs often depends on the size of your utility and what type of entity owns your system. This chapter provides an overview of a handful of the most commonly used federal programs. Because terms and eligibility change over time, you should consult with the relevant funding agencies before applying for any loan or grant program.

The Universe of Funding Programs

There are dozens of funding programs available from federal, state, and territorial governments that can be used for water and wastewater infrastructure projects, as well as several more options from technical assistance providers and private lenders. This guidebook only highlights a few of the major programs at the federal level. For a more thorough list of infrastructure funding programs available to your utility, please consult the Funding Sources by State or Territory resource maintained by the Environmental Finance Center Network:

https://efcnetwork.org/funding-sources-by-state/

EPA also maintains a database of funding sources for water and wastewater as part of their Water Finance Clearinghouse:

http://www.epa.gov/wfc

USDA

One major funder of infrastructure upgrades for small, rural, and Tribal communities is the U.S. Department of Agriculture (USDA). The Water & Waste Disposal Loan & Grant Program provides funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and storm water drainage to households and businesses in eligible rural areas. Eligible applicants include most state and local governmental entities, private nonprofits, and federally recognized Tribes. Applicants must be rural areas and towns with populations of 10,000 or less, Tribal lands in rural areas, or *Colonias*. Long-term, low-interest loans with payback periods up to 40 years are available. If funds are available, a grant may be combined with a loan if necessary to keep user costs reasonable. Applications are accepted year-round and may be filed electronically using **RD Apply**, which is USDA's online application portal, or through your local USDA office.

Tribes and *Colonias* may also access funds through USDA's Water & Waste Disposal Grants to Alleviate Health Risks on Tribal Lands and *Colonias* program. This program provides low-income communities that are facing significant health risks access to funds to ensure safe, reliable drinking water and waste disposal facilities and services.

Colonias

Colonias are subdivisions located outside incorporated areas along the U.S.-Mexico border. Residents in *Colonias* often face significant health risks due to a large portion of the community lacking access to clean, reliable, affordable drinking water and/or waste disposal systems.

USDA also offers Emergency Community Water Assistance Grants (ECWAG) to help eligible communities prepare for, or recover from, an emergency that threatens the availability of safe, reliable drinking water.

USDA's Water & Waste Disposal Predevelopment Planning Grants (PPG) assists low-income communities with populations under 10,000 with initial planning and development of applications for the USDA Rural Development Water and Waste Disposal direct loan/grant and loan guarantee programs. USDA's Special Evaluation Assistance for Rural Communities and Households (SEARCH) Grants help financially distressed very small (populations of 2,500 or less) rural communities with predevelopment feasibility studies to support applications for funding water or waste disposal projects, preliminary design and engineering analysis on proposed projects, and technical assistance for the development of an application for financial assistance.

There are also loan programs that for-profit entities like mobile home parks and small private utilities can access. USDA's Business & Industry Loan Guarantees can be used for the repair and modernization of business assets including those related to water and wastewater. Utilities borrow money from a lender that participates in the guaranteed loan program for interest rates and terms that are often more favorable than what the utility could get without the loan guarantee.

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EPA

The U.S. Environmental Protection Agency (EPA) is also a major funder of water and wastewater infrastructure projects for utilities of all sizes. The primary programs from EPA are the Drinking Water and Clean Water State Revolving Funds (SRF). The Drinking Water SRF funds infrastructure projects for water utilities, and the Clean Water SRF funds projects for wastewater utilities as well as other projects related to water quality. These programs are partnerships between the federal government and state and territorial governments. EPA disburses funds to all 50 states and Puerto Rico, and then the states and Puerto Rico loan funds to water and wastewater utilities for eligible infrastructure projects. Interest rates range from zero percent to market rate, and terms are typically up to 30 years. To apply, utilities should contact the entity in their state or territory that administers the loan programs.

EPA also provides direct grant funding for water and wastewater utilities in the District of Columbia, the U.S. Virgin Islands, American Samoa, Guam, and the Northern Mariana Islands under the program. The funds are managed by EPA's offices in Region 2 for the Virgin Islands, Region 3 for Washington, DC, and Region 9 for American Samoa, Guam, and the Northern Mariana Islands. Applications to these programs are made through the appropriate EPA regional office.

Tribal utilities may be able to access loans through the state where their Tribal lands are located. In addition, EPA has the Drinking Water Infrastructure Grants Tribal Set-Aside (DWIG-TSA) Program where community water systems and non-profit, non-community water systems that serve a Tribal population are eligible to have projects funded. Grants can be used for planning and construction and must address significant threats to public health.

The Water Infrastructure Finance and Innovation Act of 2014 (WIFIA) established the WIFIA program, a lending program administered by EPA for eligible water and wastewater infrastructure projects. Unlike the SRF program, EPA makes these loans directly to utilities. For utilities serving 25,000 people or less, the minimum project size is $5 million, and WIFIA loans can cover up to 49 percent of total project costs. So, this program is most appropriate for small utilities that are undertaking expensive infrastructure upgrades and are able to meet the 51% project match requirement.

HUD

The U.S. Department of Housing and Urban Development (HUD) offers Community Development Block Grants (CDBG) that can be used for construction, reconstruction, or demolition of water or wastewater treatment facilities. Units of general local government are eligible. This is the only funding available for small community water and wastewater projects that is 100 percent grants. Smaller communities with populations under 50,000 people or that are located in counties with fewer than 200,000 residents are eligible to receive funds through the State CDBG Program. HUD distributes funds annually to 49 states and to Puerto Rico, and those states and territory set priorities for CDBG funds and process applications for projects. Eligible activities include the construction of or improvements to water and wastewater facilities, though it is up to the states to decide which types of projects are priorities in any given year. Projects must principally benefit low- and-moderate-income (LMI) persons. Often, income surveys are required to demonstrate LMI eligibility.

If your community is located in a county with more than 200,000 people, the county receives an annual allotment of funds from HUD. If the county makes those funds available to smaller communities within the county, you would apply to the county directly for water and wastewater projects.

HUD operates two programs under the Indian Community Development Block Grant (ICDBG) umbrella for Tribal communities. Single purpose grants are awarded on a competition basis to develop viable Indian and Alaska Native Communities, including for community facilities such as water and wastewater infrastructure. Imminent Threat Grants are available on a first-come, first-served basis to eliminate or lessen problems which pose an imminent threat to public health or to the safety of Tribal residents.

HUD also has the Community Development Block Grant Insular Areas Program for utilities in American Samoa, Guam, the Northern Mariana Islands, and the U.S. Virgin Islands. Like other HUD programs, the Insular Areas Program funds can be used for construction of public facilities and improvements, such as water and wastewater facilities.

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Economic Development Administration

The U.S. Economic Development Administration (EDA) is a federal agency housed within the U.S. Department of Commerce. EDA's Public Works program helps distressed communities revitalize, expand, and upgrade their physical infrastructure, including water and wastewater infrastructure. This program enables communities to attract new industry, encourage business expansion, diversify local economies, and generate or retain long-term, private-sector jobs. Projects must be consistent with EDA's current set of investment priorities, which can be found on EDA's website. EDA staff provide technical assistance to prospective applicants to assist in application development, so applicants are

strongly encouraged to contact their local EDA representative before submitting an application.

This program is available to units of local government, Tribal nations, and non-profit entities acting in cooperation with officials of a political subdivision in all 50 states, in the District of Columbia, and in the U.S. territories. For-profit entities are not eligible to apply.

Indian Health Service

The Indian Health Service (IHS) Division of Sanitation Facilities Construction (SFC) delivers environmental engineering services and sanitation facilities to Tribal communities and Alaska Native Villages. The SFC Program provides American Indian and Alaska Native homes and communities with essential water supply, sewage disposal, and solid waste disposal facilities. IHS environmental engineers plan, design, and manage most projects. Tribal communities should contact their IHS Area Office to apply for grant funds.

Small Business Administration

If your utility is classified as a for-profit entity, such as a mobile home park, apartment building, or small utility company, you are not eligible for many of the governmental loan and grant programs that are designed specifically for infrastructure improvements. However, you are eligible for several lending programs that target the operations of small businesses in general. The U.S. Small Business Administration (SBA) operates numerous programs to help small businesses in all 50 states and the U.S. territories access capital.

The CDC/504 Loan Program provides long-term, fixed rate financing of up to $5 million for major fixed assets that promote business growth and job creation. 504 loans are available through

Certified Development Companies (CDCs), SBA's community-based partners. Eligible applicants are for-profit businesses with a tangible net worth of less than $15 million and an average net income of less than $5 million after federal income taxes for the two years preceding your application. Loans can be used for multiple purposes including the purchase or construction of long-term machinery and equipment or the improvement or modernization of utilities. Loans are up to 25 years with interest rates pegged to an increment above the current market rate for 5-year and 10-year U.S. Treasury issues.

The 7(a) loan program is the SBA's primary program for providing financial assistance to small businesses. There are multiple types of 7(a) loans, each with its own set of terms and conditions. In general, the maximum length of loans used to finance fixed assets such as water and wastewater infrastructure is limited to the economic life of those assets, up to 25 years.

Funding from Non-Governmental Sources

Several of RCAP's regional partners offer low-interest loans to small utilities for a range of services from planning activities to infrastructure improvements. Contact the regional partner that serves your part of the country for more information. National Rural Water Association also offers low-cost loans for short-term repair costs, small capital projects, or pre-development costs associated with larger projects through its Rural Water Loan Fund. While most banks and credit unions will offer loans to small utilities, certain financial institutions such as CoBank and Live Oak Bank specifically provide funding for small utilities.

Increasing Your Chances of Success

No utility is guaranteed funding out of these infrastructure loan and grant programs. Funds are limited, and competition is often high. But there are steps that you can take to increase the likelihood that your application will be successful.

It is best to build relationships with funders before you need a loan or grant. Your utility should engage with loan and grant program representatives periodically to discuss your needs and to gauge whether their programs could finance your needed capital improvements. These funding program representatives can let you know about eligibility criteria, authorized uses of funds, and the level of environmental review required. Funders can also connect you with other utilities that have undertaken similar projects.

In some states and territories, infrastructure funders, often coupled with technical assistance providers, meet regularly to discuss project needs and to look for opportunities to co-fund projects. If this type of **funding coordination** occurs in your state or territory, find out how to submit an application for consideration or how to attend a meeting to discuss your needs.

Most infrastructure projects will require hiring an external engineer. It is important that this engineer be the most qualified for the type of project you are undertaking. Do not hire engineers simply because they have worked with your utility before or because they have a personal connection to a member of the board. Good engineers will explore all the potential ways to fix your infrastructure issue. Keep an open mind! They may propose solutions you were not thinking of originally that can save you money or be more sustainable. As a board member, you should build relationships with board members at other utilities and get references and

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recommendations for engineers from utilities that have undertaken similar projects.

Infrastructure projects often must submit **preliminary engineering reports** (PERs) that meet funder requirements. Projects often also require environmental review such as **National Environmental Policy Act** (NEPA) compliance. These reports and reviews can be expensive and often must be completed before an application for infrastructure funding can even be considered, let alone approved—they are often referred to as **pre-development** activities. Part of your responsibility as a utility leader is to ensure that you have money in the bank to pay for these reports and reviews or to access applicable loans or grants. Otherwise, your project may be delayed.

When it comes time to apply, most federal programs require utilities to have a **Data Universal Numbering System (DUNS) number** and to be registered with SAM.gov, the federal government's **System for Award Management**. Be sure to obtain these well in advance of applying for funding.

Successful applications are supported by data on utility operations, usage, and finance. As discussed in Chapter 1, it is your responsibility as a board member to ensure that your utility has and enforces a record keeping policy. Data necessary for applications often include:

- Financial records such as budgets, balance sheets, income statements, and cash-flow statements;
- Your available cash reserves;
- Counts of customers in each of your customer classes and usage data;
- Information on wholesale or bulk purchase customers; and
- Demographic information on your community such as median household income (MHI).

Each program has its own set of criteria to determine which applications receive funding and which do not. Lending programs have further **underwriting** criteria to determine interest rates and loan terms. Successful utilities take these criteria into account when preparing their funding applications. Your technical assistance provider can help.

Whether or not you receive funding, it is a best practice to request a "debrief" on your application if one is allowed. The funders will describe how they scored your application, including areas that were strong and areas for improvement. This feedback is very valuable! It will help you produce better applications in years to come. Often, your utility will apply to the same funding programs again and again as future infrastructure needs arise.

Managing Funding

If you are successful in obtaining a loan or grant, your work is just beginning. Approved borrowers must first agree to the terms laid out in a **letter of conditions**, which is a written document that describes the conditions you as a borrower must meet for funds to be advanced and for the loan to be closed. Letters of conditions can be lengthy and detailed, and technical assistance providers can help your utility take the steps necessary to meet the terms and close the loan.

Once funds are received, you must ensure that the funds received are spent on approved activities within the specified time frame of the loan or grant, often called the **project period**. For example, you cannot receive funding for a storage tank and use the funds instead for transmission lines. And you certainly cannot receive funding for the water or wastewater utility and use it for other functions of your organization such as upgrading the town hall or purchasing a fire truck. Funding programs will require you to

account for how grant and loans funds are being spent throughout the project period.

Most loans and grants can only be used for infrastructure-related activities and not to cover the day-to-day costs of operating your utility. When you receive federal loans and grants, it is especially important to ensure that your utility is financially stable and that the revenue you generate from customers is sufficient to cover your daily operations and maintenance expenses. Funding programs will ask you to provide financial statements throughout the course of the project. You should also consult with your funders if you are planning any significant changes to your rates or rate structure during the project period.

Furthermore, as discussed in Chapter 2, most lenders require you to maintain a specified level of debt service coverage—money in the bank above and beyond your loan payments to ensure that you can pay off debt service even if you have an unexpected revenue shortfall. Lenders will require you to document and report on this debt service coverage and will insist that you maintain appropriate levels throughout the term of your loan.

All funding programs will require regular reporting. This may include quarterly updates with your **project officer**, an employee of the funding agency assigned to your project. Quarterly updates are typically in the form of written reports, meetings, or both. Funders also often require annual reports for the length of the

project period. Each funding program has its own set of requirements and templates, so it is a best practice to talk with your project officer about what is expected of you when you are awarded funds.

Taking the time to meet these financial and reporting requirements is very important! Your score on many funding applications depends in part on your past performance in successfully completing and managing federally funded assistance agreements, your history of meeting reporting requirements, and your success in documenting your progress in achieving intended environmental and public health results. In addition, funders talk to one another, so they often know if a particular utility has failed to meet its requirements for any of its loans and grants. As a utility leader, it is your responsibility to ensure that time is budgeted for funding program reporting activities and that staff are assigned to those duties. Have staff report to you on their funding program reporting as part of their project updates so that you can hold them accountable. Receiving loans and grants from federal programs is a privilege, and your ability to continue to access these programs will increase your chances of sustaining utility operations and infrastructure over time. Technical assistance providers are available for every step of the process outlined in this chapter, from developing applications and conducting income surveys to ensuring that required reporting is submitted and that debt reserves are maintained.

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Chapter 4:
Managing Your Utility for the Future

The previous chapters have discussed ways that your utility can be financially sustainable and can access funding to keep infrastructure working for many years to come. There are other strategies that your utility can employ to become more sustainable for the future. This chapter will list these best practices and explain how they can be implemented at your utility. Regulatory requirements around these best practices are also identified.

Become a More Successful and Efficient Service Provider

As a utility leader, you are responsible for ensuring that the utility is managed effectively. This includes multiple aspects of the utility from the quality of your service to the condition of your infrastructure to the development of your employees to your financial health. Effective utility management (EUM) practices are the foundation for building and sustaining the technical, managerial, and financial capacity of drinking water and wastewater systems.

There are ten key management areas that can help rural and small water and wastewater system managers address many ongoing challenges and move toward sustainable management of both operations and infrastructure:

- Product Quality
- Customer Satisfaction
- Employee & Leadership Development
- Operational Optimization
- Financial Viability
- Infrastructure Stability
- Operational Resiliency
- Community Sustainability & Economic Development
- Water Resource Adequacy
- Stakeholder Understanding & Support

These ten areas are interconnected, so making improvements in one area often improves other areas as well. A candid and comprehensive self-assessment is the first step in identifying where your utility can begin to make improvements in the ten management areas. First, you should rate how you are doing in each of the management areas. Then, decide how important each of the areas is to your utility. For each of these calculations, you can use a simple scale of "low-medium-high." Areas with high importance and low achievement are priorities for improvement—see the figures on the next page. This will help you decide where to focus your limited time and resources. This process can help your utility serve customers better, spend money more efficiently, improve internal communications, and have happier employees. This assessment is most successful when it involves your entire utility leadership as well as representatives from management, staff, and possibly even customers. For best results, ask a neutral third party such as your technical assistance provider to facilitate the session.

Key Management Area	Management Area Description	Step 1: Rate Achievement (Low–High)	Step 2: Rank Priority (Low–High)
1. **Water Resource Adequacy ("WA")** (e.g., water quantity)	• My system is able to meet the water or sanitation needs of its customers now and for the reasonable future. • My utility or community has performed a long-term water supply and demand analysis. (Applies to drinking water systems only) • My system understands its relationship to local water availability. (Drinking water utilities should focus on utilization rates relative to any local water stress conditions, wastewater utilities should focus on return flows)	Low	High
2. **Product Quality ("PQ")** (e.g., clean & safe water)	• My system is in compliance with permit requirements and other regulatory or reliability requirements. • My utility meets local community expectations for the potable water and/or treated effluent and process residual that it produces.	Medium	High
3. **Customer Satisfaction ("CS")**	• Customers are satisfied with the services the system provides. • My system has procedures in place to receive and respond to customer feedback in a timely fashion.	High	Medium
4. **Community Sustainability & Economic Development ("CSED")**	• My system is aware of and participating in local and regional community and economic development planning activities. • My system's goals also help to support overall watershed and source water protection, and community economic goals.	Low	High
5. **Employee & Leadership Development ("ELD")**	• Training programs are in place to retain and improve institutional knowledge. • Opportunities exist for employee skills development and career enhancement. • Job descriptions, performance expectations, and codes of conduct are established.	Medium	High
6. **Financial Viability ("FV")**	• The rates that my system charges are adequate to pay our bills, put some funds away for the future, and maintain, repair, and replace our equipment and infrastructure as needed. (O&M, debt servicing, and other costs are covered). • My system discusses rate requirements with our customers, board members, and other key stakeholders.	High	Medium

Rating (Achievement)				
	High		CS FV	
	Medium			PQ ELD
	Low			WA CS/ED
		Low	Medium	High
		Rating (Priority)		

Figures adapted from USDA's and EPA's *Rural and Small Systems Guidebook to Sustainable Utility Management*

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Resources for Effective Utility Management

EPA's Effective Utility Management (EUM) Initiative is based on the Ten Attributes of Effectively Managed Water Sector Utilities. Their resources include a primer on the attributes, a roadmap, case studies, a guidebook for small utilities, and a workshop to help utilities assess their strengths and challenges, and create an action plan for addressing these areas over time:

https://www.epa.gov/sustainable-water-infrastructure/effective-water-utility-management-practices

USDA and EPA created Workshop in a Box: Sustainable Management of Rural and Small Systems Workshops which contains a series of materials and instructions to help utilities assess their operations based on key management areas that align closely with the Ten Attributes:

https://www.rd.usda.gov/programs-services/services/sustainable-management-tools

Prepare for Emergencies

The saying goes that the time to fix the roof is not while it's raining. This saying couldn't apply more to water and wastewater systems. These systems are vital to a community's residents, and so being prepared for an emergency is key to ensuring the continual quality of your service to your customers. As a utility, you should be aware of anything that can disrupt your ability to provide your regular services. That disruption can come from nature or from human interference. You should also know where to get help if you need it.

Emergency Response Requirements

America's Water Infrastructure Act (AWIA) of 2018 mandates that all drinking water systems that serve 3,300 people or more must complete a risk-resilience assessment and an emergency response plan at least once every 5 years. Completing risk-resilience assessments and emergency response plans is also often a requirement to receive USDA funding regardless of how many people a utility serves. For more information on these requirements, including templates, visit EPA's website on Drinking Water and Wastewater Resilience:

https://www.epa.gov/waterresilience

Natural hazards are any naturally occurring events that can damage your utility and prevent you from providing service. These hazards include extreme weather events such as hurricanes, tornadoes, floods, wildfires, high wind events, lightning, and ice storms as well as earthquakes, volcanic eruptions, droughts, and disease pandemics. All utilities face threats from natural hazards. The specific hazard depends largely on your geographic location. For example, utilities in Florida are more likely to face damage from hurricanes than utilities in Montana, but utilities in Montana are more likely to face damage from ice storms than utilities in Florida.

Malevolent acts are actions taken by humans that can disrupt your utility service. These acts include vandalism, intentional or accidental damage of physical infrastructure, accidental or intentional contamination of your source water or treated water, cyberattacks, and other acts of terrorism. While these incidents are thankfully rare, all utilities face these types of threats, regardless of size, ownership, or location.

No matter what you do, the threat posed by natural hazards and malevolent acts will always be present. There is no way, for example, for you to prevent an earthquake from happening! But you can take steps to lessen the impact of an event and to increase the likelihood that you will be able to continue providing service. First, identify which specific threats your utility faces. Then determine how those threats could impede your ability to provide utility service. Finally, take steps called **countermeasures** that mitigate that threat.

Here is an example. Let's say you operate a utility in a dry, windy area with electrical storms. The natural hazards you face are drought, high wind events, and lightning. The high wind is likely to knock out your power from time to time, which would prevent you from treating and distributing safe drinking water. The countermeasure is to have generators available for when the power is out. The lightning is also likely to cause power surges that could damage your pumps and motors. The countermeasure is to install lightning and surge protection devices on all pumps and motors. And the combination of frequent lightning storms, high winds, and dry conditions greatly increases the chances of wildfire that could damage critical utility infrastructure. The countermeasure is to cut away trees from around the treatment plant, storage tank, and distribution lines so that the wildfire is less likely to damage these assets. None of these countermeasures will prevent lightning, wind, or fire, but all three will increase the chance that the utility can continue to operate and should limit the amount of money you have to spend on emergencies.

A growing concern for water and wastewater utilities is **cyberattacks**. Cyberattacks can take many forms. A cyberattack can target a utility directly. For example, hackers could gain access to process control systems such as SCADA (Supervisory Control and Data

Acquisition systems) and change treatment parameters, which could endanger the health of your customers. Hackers could also access the financial information of customers including credit card and bank account information. Another potential danger is **ransomware** attacks, where hackers seize a utility's data and computer systems and won't relinquish control until they are paid a large sum of money. Water and wastewater service could also be disrupted by attacks to outside entities, such as if a cyberattack were to shut down the local power grid. Hackers are also increasingly using a technique called **supply-chain attacks** where malicious code is inserted into commonly-used software programs and updates. It is important to take the threat of cybersecurity seriously and to dedicate money and resources to appropriate countermeasures such as firewalls, updated computer systems, and internal and external intrusion detection systems. Effective cybersecurity often requires the advice of third-party experts.

Countermeasures will limit both the likelihood and impact of emergencies, but it is also important to have a clear plan in place when emergencies do occur. Here are some key questions to answer before an emergency happens:

- Based on the severity of the emergency, who is in charge? The operator, the utility manager, or the board?

- What other entities need to be informed of the emergency? This can include local law enforcement, local emergency management agencies, your primacy agency, and EPA.

- How will you notify customers if there is an emergency and water cannot be used? You should consider both traditional media (radio, TV, newspapers) and social media, as well as posted notices in public areas.

- What alternative supplies of water are available for your customers if you cannot

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supply water? This can include emergency connections with other systems, water trucked in, and bottled water.

- Are there contract operators available to run your utility if your staff are unable to work? Do these contractors have the information they need to operate the system successfully?

One place you can get help in an emergency is through your local Water/Wastewater Agency Response Network (WARN). WARNs are comprised of utilities helping utilities within a state or territory that respond to and recover from emergencies by sharing resources with one another. WARNs are governed by a common mutual aid agreement. The WARN agreement allows utilities to share resources in a more expedited way, compared to other mechanisms that require a formal disaster declaration. The agreement spells out how liability, workers' compensation, insurance, and reimbursement will work. Other benefits include increased emergency preparedness and coordination, and enhanced access to specialized resources. Consider joining your local WARN if you are not already a member.

WARN

EPA maintains a list of active Water/ Wastewater Agency Response Networks (WARNs) by state or territory, as well as other resources related to mutual aid agreements:

https://www.epa.gov/waterutilityresponse/mutual-aid-and-assistance-drinking-water-and-wastewater-utilities

Get the Longest Life from Your Assets

Water and wastewater systems are made up of many capital assets, including wells and other water sources, treatment technology, storage tanks, pumps, valves, pipelines, hydrants, meters, vehicles, and buildings. All these assets will eventually need to be replaced. And unless your system is able to obtain grants, your customers will be paying for the replacement, either through current revenues, debt, or reserve funds.

For smaller water and wastewater utilities, replacing capital assets can be challenging because there are not as many customers to share in the cost. But having fewer customers does not necessarily mean less infrastructure. Small systems may be geographically spread out. Fire flow requirements may necessitate having more infrastructure than would be necessary for domestic water use only. And there is a minimum amount of infrastructure needed to comply with Safe Drinking Water Act and Clean Water Act requirements regardless of the number of people served. As a result, it is important that small communities like yours get the longest useful life out of your assets. Replacing an asset too early means that you have not gotten the maximum value out of your infrastructure investment. Replacing an asset too late often results in increased maintenance costs and risks disrupting service or endangering public health and the environment. You have to find the sweet spot, and asset management can help.

Asset management is a comprehensive, integrated process for maintaining system infrastructure assets and equipment for the most effective, least-cost allocation of resources, in order to *sustain* the water or wastewater system over time. True asset management looks at each piece of equipment in a big-picture, "whole life" way that includes planning, financing,

assessing risks, maintenance, record-keeping and prioritizing replacement. Asset management is a long-view investment that has helped many communities save money over time. By being proactive versus reactive and not waiting until something breaks to replace it, systems are often able to provide more affordable, reliable service with fewer negative impacts for customers.

To do this requires asking and answering five critical "core" questions, identified by the U.S. Environmental Protection Agency:

- What are my assets, and what condition are they in?
- What are my sustainable level-of-service goals?
- What assets are most critical in achieving those goals?
- What are the minimum life-cycle costs of those critical assets?
- What is the best long-term funding strategy?

Ideally, before adjusting rates, utilities are encouraged to go through the process of asset management to identify the infrastructure that will need to be replaced in at least the next five years. But asset management isn't a wish list. The process assumes that you do not have enough money to do all the capital projects you wish, so it helps to identify which projects are most critical to maintain compliance and to maintain your level of service. Not all capital assets are equally important to your system, obviously. The meter at one customer's house failing is not as detrimental as your primary storage tank failing. Those most critical capital replacements will need to be factored into any rate adjustment you make.

If you do not have time to undergo the full asset management process, at the very least you should make a list of your utility's assets (also referred to as an asset inventory), identify any that will need to be replaced in the next

five years, and determine whether you will pay for their replacement with debt, with current revenues, or with reserve funds. You will need this information when you calculate the amount of money your rates need to generate each year.

Some states and territories have begun to mandate asset management for some or all of their water and wastewater systems. In other locations, utilities receive priority for loan and grant applications if they have asset management plans in place. Check with your primacy agency to understand your regulatory responsibilities and any available incentives.

Asset Management Resources

The U.S. Environmental Protection Agency maintains a series of free guidebooks and tools related to asset management, including *Asset Management: A Handbook for Small Public Water Systems*, which is part of their Simple Tools for Effective Performance (STEP) Guide Series and is geared towards small systems. The EPA resources are available at:

https://www.epa.gov/sustainable-water-infrastructure/asset-management-water-and-wastewater-utilities

In addition, the Southwest Environmental Finance Center has partnered with EPA to create a repository of documentation and tools related to Asset Management for water and wastewater systems called the Asset Management Switchboard. The Switchboard is available at:

https://swefcamswitchboard.unm.edu/am/

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Limit Your Water Waste and Get Paid for More Gallons You Produce

Not every gallon that is produced by your water system or delivered to a customer is paid for. Minimizing these unpaid gallons will control costs and boost revenues without needing to raise rates.

Water audits can be invaluable in controlling wasted water, thereby controlling costs. If you know how much water is coming from your treatment facility and if you can determine how much water your customers are using, the difference between the two amounts is non-revenue water. Non-revenue water across the United States can range from around 5 percent to more than 50 percent at individual systems. Non-revenue water consists of two primary components—apparent water losses and real water losses.

Water Audits

The International Water Association (IWA) and American Water Works Association (AWWA) Water Audit Method is the accepted industry standard for measuring non-revenue water. AWWA offers Free Water Audit Software© to all water systems to calculate non-revenue water. This Excel tool is available for download at:

https://www.awwa.org/Resources-Tools/Resource-Topics/Water-Loss-Control

Apparent water losses are water that is consumed but is not accurately measured, accounted for, or paid for. This is due to customer meter inaccuracies, data-handling errors in customer-billing systems, and theft. These losses cost your system revenue and

distort data on customer use. Water audits can also identify and quantify unbilled, authorized consumption (such as for fire suppression).

Some corrections for apparent water losses are relatively inexpensive procedural changes, but those changes can pay off in a big way. Is water taken without the knowledge and authorization of the system (for instance, by street cleaners, construction water trucks, or others)? Do all of your customers have an active account in the billing system? Is meter reading accurate and complete? Has your staff looked for illegal taps, reversed water meters, and other signs of water theft?

Meters that are under-reading are another cause of apparent water loss. In general, as meters get older, they slow down and do not read all the water passing through them. Many water systems wait for meters to stop measuring water at all to replace them but having widespread meters across a system under-reading (even by 10 percent) can impact utility revenues significantly.

Real water losses are physical losses of water from the distribution system, including leakage and storage overflows. These losses inflate production costs and stress water resources—the water is pumped and treated, but never reaches your users, so you receive no revenue for it.

Many drinking water systems respond to real losses only after they have received a report of water erupting from a street or a complaint from a customer about a damp basement or poor pressure. If you use this type of reactive leakage response, your system will most likely have excessive leakage that will never be contained reliably. In fact, many leaks never reach the surface. Controlling leakage effectively relies upon being proactive. Technology can help you identify hidden leaks and manage water system pressure. Automatic meter reading (AMR) and

advanced metering infrastructure (AMI) systems may allow water systems to improve their efficiency and can help identify wasteful usage and leaks to help manage water and revenue losses.

Some states and territories have begun to mandate water audits for some or all of their water systems. Check with your primacy agency to understand your regulatory responsibilities.

> ### Water Loss and Wastewater
>
> Because wastewater bills are often tied to water usage, under-reading meters and theft also negatively impact wastewater revenue. Replacing old and faulty meters can help with the long-term sustainability of both systems.

Lower Your Energy Bills

For most water and wastewater systems, energy is the largest cost that can be controlled while still offering the same level of service. Utilities should determine whether they can achieve any cost savings through **energy management**. There are several steps that you can take to manage your system's energy costs:

- **Reduce real water loss.** As discussed above, real water losses include leakage and storage overflows. Energy is typically necessary to treat and distribute water, so reducing the amount of water that is produced but that never reaches customers lowers energy consumption and therefore lowers energy bills.

- **Install energy-efficient assets**. Energy efficiency involves using less electricity to achieve the same or better level of performance. The assets that use the most energy at most water and wastewater

systems are pumps, motors, treatment technologies, aerators, centrifuges, blowers, mixers, and ultraviolet (UV) systems. By sizing these pieces of equipment properly and installing energy efficient models such as variable speed pumps, you can reduce your energy consumption. Wastewater typically uses more energy than water treatment. Lighting and HVAC systems in treatment plants and other buildings are another group of assets to assess. Often a more energy-efficient asset will cost more to purchase but less to operate over its useful life, so be sure to consider life-cycle costs and not purchase prices alone when acquiring new assets. Inquire whether your electricity provider offers free energy audits and take advantage if they do.

- **Ensure you are on the proper electric rate**. Often, electric providers have multiple rates and classes of customers. You can work with your electric utility representative to ensure that your system is on the most appropriate rate structure possible. Keep in mind that your system likely has several electricity bills. Take this opportunity to also ensure that all of your bills are on the same rate structure and that you are receiving the correct number of electricity bills each month.

- **Fill storage tanks during off-peak hours**. Many electric rates are structured to be higher during peak demand, such as during the business day, and lower during lighter times of demand, such as overnight. If you pay these "time-of-use" rates, you could consider making changes to your operations so that energy-intensive activities take place during the lower cost times of day. For example, you may choose to pump water into your storage tank at night instead of in the middle of the afternoon. This will not reduce your energy consumption at all, but if

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you have time-of-use rates or peak demand charges, it will reduce your energy bill.

- **Reduce energy purchases by generating electricity on-site**. Your utility can produce its own electricity on-site to reduce the need to purchase electricity from electric providers by installing renewable energy generation through solar photovoltaic (PV) panels and/or small-scale wind turbines. Some water systems also install turbines in their water lines, in particular near pressure-release valves, that can spin and generate electricity. Some wastewater systems generate electricity or heat by capturing and utilizing the biogas released by anaerobic digestion. Note that the cost of these capital projects can be high, and governmental and non-profit water systems are likely not eligible for tax incentives used to lower purchase costs. Generating on-site electricity likely makes the most sense for utilities that pay high energy rates.

- **Promote customer water efficiency**. A final way to lower energy costs is for customers to lower their water consumption, which lowers pumping and treatment costs. Water systems can promote conservation through pricing strategies, though water-use restrictions, through programs to reduce outdoor water use, and through programs to incentivize low-flow fixtures and appliances. While promoting conservation may lower energy costs, it also could lower your system's revenue if you charge customers based on the volume of water they consume. You may find the energy savings do not completely offset the loss of revenue.

The RCAP Guide on Energy Audits and More

Sustainable Infrastructure for Small System Public Services: A Planning and Resource Guide

Rather than presenting theories, this guidebook provides information, worksheets, examples, case studies and resources on water conservation, energy efficiency and renewable-energy resources for small systems. This planning and resources guide includes a step-by-step process for system decision makers, staff and community members wanting to operate increasingly efficient water systems. It offers a flexible approach to evaluating sustainable alternatives for system operations. The guide is available at:

https://www.rcap.org/resource/sustainable-infrastructure-for-small-system-public-services-a-planning-and-resource-guide/

Working Together to Increase Efficiencies

As a small utility, you have to provide all of the same services as a larger utility, but you have fewer customers to help share in the cost. Water and wastewater systems can often find efficiencies by working with other utilities through **regionalization**. It is becoming increasingly difficult to sustain small utilities as regulations increase, infrastructure deteriorates, and operating costs increase. It is beneficial to explore whether regional collaboration would be fruitful.

Working together can increase efficiencies by eliminating duplicative services, adding or improving services you can't afford to deliver on your own, and providing services more cost effectively. Regionalization can range from informal partnerships such as mutual aid agreements in case of an emergency or the sharing of heavy equipment, to more formal partnerships such as the formation of a Joint Powers Authority to develop a new water source or a full physical and/or managerial consolidation. Even an arrangement to purchase commonly used materials or chemicals in bulk can save all participating utilities money. The chart below shows the range of regionalization options. Regionalization is a good solution when existing and future water or natural resources need to be protected, your capacity to operate in a business-like manner is limited, funding capacity is limited, compliance is not attainable affordably, source redundancy is lacking, your staff and volunteers are burning out, or if there is an opportunity to create economies of scale.

Types of Regional Collaboration

Increasing Transfer of Responsibility

Informal Cooperation	Contractual Assistance	Shared Governance	Ownership Transfer
Work with other systems, but without contractual obligations	Requires a contract, but contract is under systems' control	Creation of a shared entity by several systems that continue to exist independently (e.g., regional water system)	Takeover by existing or newly created entity
Examples: • Shared equipment • Sharing bulk supply purchases • Mutual aid agreements	Examples: • Contracting operation and management • Outsourcing engineering services • Purchasing water	Examples: • Sharing system management • Sharing leadership • Sharing source water • JPA	Examples: • Acquisition and physical • Acquisition and satellite mgmt • One system transferring ownership to another to become a larger existing system or a new entity

Graphic adapted by RCAP and RCAC from U.S. Environmental Protection Agency resources

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Lessons Learned on Regionalization from Community Leaders

RCAP's report "Resiliency Through Water and Wastewater System Partnerships: 10 Lessons from Community Leaders" looks at community utility partnerships from a rural and tribal perspective. As small communities across the country seek solutions for common economic, operational and compliance challenges, this research highlights the experiences of those who chose water and/or wastewater system partnerships as a solution. Some systems are collaborating to build capacity and become more resilient, enabling them to successfully sustain their systems not only financially, but technically and managerially, for years to come. The report highlights 10 lessons from community leaders who undertook regional collaboration, also called regionalization, projects – the successes they saw, the challenges they overcame, and the difficult questions they faced throughout the process. You can access the report here:

https://www.rcap.org/blog/regionalizationresearch/

Need for Patience and Assistance

Instituting best practices and moving towards becoming a highly efficient and effective utility takes time, resources, and expertise. Every one of the best practices described in this chapter could easily have its own guidebook describing the necessary steps to achieve it! Many utility leaders step into situations where the challenges seem numerous and daunting because systems have been mismanaged in the past. Don't despair! You can improve the efficiency and effectiveness of your utility over time and taking steps towards any of the best practices outlined here will help. Have patience and remain committed to the process. Most of all, don't feel like you have to undertake this work alone. Utilize existing printed and electronic resources and call on technical assistance providers to help.

Notes

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Chapter 5:
Regulatory Requirements

In the United States, we enjoy safe and protected public drinking water supplies and effective and environmentally sound wastewater treatment technologies. All of us receive benefits from these services every day. Every time we drink a glass of water from the tap, we don't risk getting sick or, when we flush the toilet, we do not have to deal with the waste. On a more basic level, these individual and collective benefits are the result of public drinking water and wastewater infrastructure that protects and preserves public and environmental health and undergirds economic vitality in your community.

The number one concern for you as the governing body of your utility is to protect the public's health while maintaining **compliance** with state, territorial, Tribal, and federal regulations. Your certified operator is on the front lines of these protection and compliance efforts, making sure that your treatment facility operates in accordance with state, territorial, Tribal, and federal regulations and that all required tests, reports, public notification, and recordkeeping procedures are followed. As a board member, it is your duty not only to support the operator as they carry out these functions, but to also be knowledgeable of the consequences for failing to do so. Board members of water and wastewater treatment facilities are bound by federal law to follow requirements spelled out in several U.S. Environmental Protection Agency (EPA) regulations.

State, Territorial, or Tribal Regulations

EPA establishes and enforces the standards that drinking water and wastewater systems must meet. In most places, however, the actual day-to-day work of enforcement is delegated to state or territorial entities. Some Tribal nations such as the Navajo Nation also take on this enforcement responsibility. These state, territorial, and Tribal entities are said to have **primacy** because they have the primary enforcement responsibility for the federal regulations. As a board member, you should be familiar with your primacy agency.

The sections below in this chapter summarize the major federal regulations related to drinking water and to wastewater. Individual states, territories, and Tribes are allowed to impose their own regulations on water treatment and wastewater treatment. These regulations must satisfy federal regulations at a minimum but may be even more stringent. Therefore, you should consult your primacy agency to determine if there are other regulations with which you are required to comply that exceed the federal minimums.

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) (42 U.S.C. § 300f) was passed by Congress in 1974 and, as of the writing of this guide in 2021, had been amended in 1986, in 1996, and in 2018 (America's Water Infrastructure Act, or AWIA). It applies to public water systems (PWS) serving 15 or more connections or an average of 25 people or more each day for at least 60 days per year. Both the utility owner(s) and the utility operator are responsible for meeting the requirements of the SDWA. There are three types of PWS:

- **Community water systems** (CWS) supply water to the same population of residents year-round.

- **Non-transient, non-community water systems** (NTNCWS) supply water to at least 25 of the same people at least six months each year, but not at their residences. Examples of NTNCWS include factories, schools or daycares that have their own water supplies.

- **Transient, non-community water systems** (TNCWS) provide water in a place where people do not live, work, or visit continuously, like restaurants, motels, rest stops or campgrounds with their own water supplies.

Water systems use a "multiple-barrier approach" to protect public health. The first barrier is to have a safe, protected water source. The second barrier is treatment of the water source by a certified operator. The third barrier is the proper operation and maintenance of water-storage facilities and distribution systems by licensed operators. The fourth barrier is providing information to consumers on the quality of the water and potential health effects.

The SDWA requires water systems to prove that they are using the multiple-barrier approach effectively by mandating water sampling and testing for the following:

- Inorganic chemicals;
- Microbiological contaminants;
- Organic chemicals;
- Radiological contaminants;

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- Turbidity;
- Unregulated contaminants; and
- Disinfection chemicals and disinfection byproducts.

These chemicals and contaminants are assigned **maximum contaminant levels** (MCLs), which are enforceable standards for the highest level of a contaminant allowed in drinking water. The types of chemicals and contaminants that are regulated, as well as their MCLs, change over time. MCLs are set at the federal level, but states and territories can set levels more stringent than the federal standards. You should consult with your primacy agency to determine the current regulations.

> **Maximum Contaminant Levels**
>
> The National Primary Drinking Water Regulations (NPDWR) are EPA's legally enforceable primary standards and treatment techniques that apply to public water systems. This website includes all of the MCLs associated with these regulations:
>
> https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations

Most water system records are considered public information. Personnel files and information that is confidential due to security concerns are *not* public information. Customers have the right to inspect public water system records, and copies of the records must be provided on demand. Each state, territory, or Tribe has unique "Public Information" laws that dictate what records are deemed public information, so it is advisable for you to be aware of these requirements for your jurisdiction. The following records must be kept in the water treatment facility:

- Copies of laboratory results, including the name of the person who collected the samples;
- Dates and locations of sampling points;
- Records of **contaminant level violations** and specific steps taken to correct the violations;
- Sanitary survey reports; and
- All other water-quality information and/or operator's logs

> **Sanitary Surveys**
>
> A sanitary survey is a review of a public water system to assess their capability to supply safe drinking water. Primacy agencies are responsible for completing sanitary surveys. Sanitary surveys provide an opportunity for the primacy agency to visit the water system and educate the operator about proper monitoring and sampling procedures and to provide technical assistance. Sanitary surveys are a proactive public health measure and an important component of the SDWA public water system supervision program. Technical assistance providers can help you work through any issues identified in your sanitary survey. EPA maintains a website on sanitary surveys:
>
> https://www.epa.gov/dwreginfo/sanitary-surveys

Public notification is required by the SDWA when the water system violates any regulation. There are two classifications of violation. Tier 1 violations include MCL violations, treatment technique violations, and non-compliance with **variance** or **exemption** schedules. Tier 2 violations include noncompliance with monitoring requirements, testing procedures, or variances or exemptions. A Tier 1 violation is more serious

than a Tier 2 violation. In extreme cases, a Tier 1 violation may result in civil suits that could cost your water system millions of dollars and/or require plant and distribution system improvements.

Variances and Exemptions

The Safe Drinking Water Act provides states or EPA the authority to grant variances and exemptions to help public water systems achieve compliance with maximum contaminant levels (MCLs). Variances allow eligible systems to provide drinking water that does not comply with a National Primary Drinking Water Regulation (NPDWR) on the condition that the system installs a certain technology and the quality of the drinking water is still protective of public health. Exemptions allow eligible systems additional time to achieve and maintain regulatory compliance with new NPDWRs, while continuing to provide acceptable levels of public health protection. EPA maintains a website on variances and exemptions:

https://www.epa.gov/dwreginfo/variances-and-exemptions

The SDWA requires the following recordkeeping in support of public information:

- Bacteriological analyses are kept for a minimum of five years.
- Chemical analyses are kept for a minimum of ten years.
- Written reports (such as engineering analyses and sanitary surveys) are kept for a minimum of ten years following completion.
- Variances and exemptions are kept for a minimum of five years following their expiration.

- Actions taken to correct a violation are kept for a minimum of three years after the last action.

In addition to the SDWA, various other federal rules and regulations have been passed to clarify and strengthen drinking water regulations. This includes rules regarding arsenic, inorganic chemicals, synthetic (human-made) organic chemicals, volatile organic chemicals, and lead and copper. There are additional rules for radionuclides, microbial contamination such as *cryptosporidium*, fecal contamination, disinfection byproducts, and total coliform. These rules are also constantly evolving, so it is best to consult with your primacy agency to determine the latest regulations.

There are consequences for utilities that do not maintain compliance with Safe Drinking Water Act regulations and/or with state and territorial standards. National drinking water standards are legally enforceable, which means that both EPA and primacy agencies can take enforcement actions against water systems not meeting safety standards including issuing administrative orders, taking legal action, or issuing fines totaling tens of thousands of dollars a day. In serious cases, utilities violating Safe Drinking Water Act standards may result in a consent decree, which is a legal agreement between the utility and the United States (through EPA and the Department of Justice) creating a list of actions necessary for the utility to return to compliance as well as a timeline. Being out of compliance of Safe Drinking Water Act regulations may prevent a utility from being eligible for state/territorial and federal infrastructure funding programs. And some states and territories have additional penalties for violations. For example, utilities with repeated violations in the state of California may be forced to consolidate with utilities that have better compliance records.

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Clean Water Act

The Clean Water Act (CWA) (33 U.S.C. § 1151), originally called the Federal Water Pollution Control Act, was enacted into law in 1948, and was the first major U.S. law to address water pollution. It was reorganized and expanded in 1972 and amended in 1977. The CWA amendments in 1977 established the basic structure for regulating pollutants discharged into the waters of the United States and included:

- Giving EPA the authority to implement pollution-control programs, such as setting wastewater standards for industry;

- Maintaining existing requirements to set water quality standards for all contaminants in surface waters;

- Making it unlawful for any person to discharge any pollutant from a **point source** into navigable waters, unless a permit was obtained under its provisions;

- Funding the construction of sewage treatment facilities; and

- Recognizing the need for planning to address the critical problems posed by **non-point source** pollution.

The CWA contains several rules and regulations for wastewater treatment plants:

- **National Pollutant Discharge Elimination System** (NPDES) permit program including the Pretreatment Streamlining Rule

- The Biosolids Rule for sludge

- Total Maximum Daily Load (TMDL) and Impaired Waters Rules

- Water quality-based control standards

The administration of the NPDES permit program is shared between the federal government and states/territories. In some states and territories, the state or territory issues NPDES permits for all types of facilities and pollutants. In other states and territories, EPA issues all the permits through their regional offices. And there are states and territories where the state/territory issues some of the permits and EPA issues the rest of the permits. Tribal NPDES permits are generally issued by EPA.

Point Source and Non-Point Source Pollution

Point source pollution comes from a discrete conveyance, such as a pipe or a ditch, through which pollutants are discharged to U.S. waters (like rivers, lakes, or oceans). The Clean Water Act authorizes the National Pollutant Discharge Elimination System (NPDES) permit program to regulate point sources.

Non-point source pollution, however, does not come from this type of specific pipe or conveyance. Instead, non-point source pollution results from land runoff, atmospheric deposition, drainage, or seepage of contaminants. Major nonpoint sources include agricultural, silvicultural, and urban runoff.

Who Issues Your NPDES Permits?

EPA's general website on the NPDES Permit Program can be accessed here:

https://www.epa.gov/npdes

EPA has a map showing what entity has the authority to issue NPDES permits in each state and territory:

https://www.epa.gov/npdes/npdes-program-authorizations

Publicly owned treatment works (POTWs) and other centralized wastewater treatment systems are not intended to handle industrial waste. They are intended to treat conventional household waste and biodegradable commercial/industrial waste. Generally, primary treatment consists of removing solids (cans, paper, plastic, and other items) from wastewater coming into the system, and secondary treatment entails removing organic components from wastewater before returning the cleaned water back into the environment. To ensure that the receiving waters are adequately protected, the National Pollutant Discharge Elimination System (NPDES) requires all entities that discharge into waters to obtain permits, including wastewater treatment systems.

In the past, many industries treated sewer systems as a convenient receptacle for waste of all sorts. Because of this, industrial and nonbiodegradable waste could enter the collection system. This practice led to the formation of toxic gases, explosions, interference, or disruption of the processes used by wastewater treatment systems, or pass-throughs (when a constituent is not removed by primary or secondary treatment and passes through the treatment system, which can cause the POTW to violate its NPDES permit). The Pretreatment Rule (1978) requires industrial and commercial point sources to reduce or eliminate these wastes before discharging their wastewater to any collection system. There are currently 129 different priority pollutants listed in the Pretreatment Rule.

Because much water contamination comes from non-point sources such as agriculture, forestry, development activities and road runoff, the EPA has authorized states to develop **water quality based control standards**. The standards designate for what purpose a body of water is to be used (drinking water, recreation, or fish and wildlife habitat) and the amount of a pollutant that can be assimilated by the water body without impairing its designated use (plus a margin of

safety). If no applicable water quality standards exist, the state establishes **total maximum daily load** (TMDL) criteria for a given contaminant.

40 Code of Federal Regulations 503 contains the Biosolids Rule. Biosolids are treated wastewater sludges that are recycled and applied as fertilizer to improve and maintain productive soils and stimulate plant growth. The Part 503 rule governing the use and disposal of biosolids contains numerical limits for metals in biosolids, pathogen-reduction standards, site restriction, crop-harvesting restrictions and monitoring, recordkeeping, and reporting requirements for land-applied biosolids, as well as similar requirements for biosolids that are surface disposed or incinerated. Standards have been proposed to include requirements in the Part 503 Rule that limit the concentration of dioxin and dioxin-like compounds in biosolids to ensure safe land application. About 50 percent of all biosolids are recycled to land, and all 50 states use land application of biosolids.

As with the Safe Drinking Water Act, there are consequences for utilities that do not maintain compliance with Clean Water Act regulations and/or with state and territorial standards. National drinking water standards are legally enforceable, which means that both EPA and primacy agencies can take enforcement actions against water systems not meeting safety standards including issuing administrative orders, taking legal action, or issuing fines totaling tens of thousands of dollars a day.

> ### Wastewater Regulations Summarized
>
> EPA maintains a webpage with information on wastewater facilities, including a primer on wastewater treatment, the NPDES permitting framework, and secondary treatment standards:
>
> https://www.epa.gov/npdes/municipal-wastewater

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Accrual Basis of Accounting: A means of accounting under which the system records revenue when it is earned (not when it is actually paid) and records expenses when they are incurred (when the system is legally obligated to pay the debt, not when the system actually pays the expense).

Asset Management: A planning process to efficiently inventory, preserve, and replace critical infrastructure.

Assets: The total economic resources of the system that are expected to provide benefits to the system in the future. Assets are listed in an order based on how easily they are converted to cash: cash, cash equivalents, current assets, long-term assets, and property, plant, and equipment.

Auditor Opinion: The results page of an external audit, on which the auditor states whether or not mistakes were found in the system's financial records. An "unqualified opinion" or a "clean opinion" are the best that a system can hope for. They mean no material mistakes were found.

Balance Sheet: Also known as the statement of financial position, this document shows a system's net worth (how much the system is worth at a particular point in time). The balance sheet reflects how total assets = liabilities + equity.

Base Rate: A charge per billing period regardless of usage for water or wastewater.

Cash Flow Statement: This document shows how each financial transaction (financing activities, investing activities, and operating activities) conducted by the system affects its cash.

Community Water System (CWS): A public water system that serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

Compliance: Meeting the laws and regulations established by the U.S. Environmental Protection Agency (EPA), the state, the territory, the tribe, or other applicable governing entities.

Consent Agenda: An agenda that contains items that need to be voted upon but do not need further discussion. Common items on a consent agenda are approval of meeting minutes and acceptance of reports that are attached to the minutes.

Consumer Confidence Report (CCR): An annual report on the quality of water treatment, that is required to be available to consumers by community water systems.

Contaminant Level Violation: A violation of EPA regulations that occurs when a contaminant which has the potential to cause illness is not removed to at least the level described in the regulations.

Countermeasure: Any infrastructure, equipment, systems, or procedures that a utility can use to reduce the risk from natural hazards or malevolent acts.

Current Assets: Items that can be converted to cash within one year of the date of the balance sheet, including cash, cash equivalents, accounts receivable, inventory, short-term investments, and prepaid assets.

Current Liabilities: Maturities on long-term debt, accounts payable, accrued liabilities and other short-term notes to be paid by the system.

Cyberattack: An attempt by hackers to damage or destroy a computer network or system.

Data Universal Numbering System (DUNS) Number : A nine-digit number assigned to organizations and business entities as a means to identify and track them. A DUNS number is required by the federal government for all entities applying for and receiving federal funding.

Debt Financing: When a utility pays for infrastructure improvements by borrowing money from a traditional lender, from a government-subsidized lending program, or from the bond market.

Debt-Service Coverage Ratio: A measure of the system's ability to pay its debt, this ratio (also called the coverage ratio) is calculated by dividing the sum of the net operating income plus depreciation by the total debt service. An adequate debt-service coverage ratio varies from system to system, depending upon lenders' requirements or sometimes state statute.

Energy Management: Reducing the amount of energy, the cost of energy, or the environmental impact of energy necessary to provide utility services while maintaining a consistent or improved level of service.

Equity: The net value of the system over time. Equity increases each year the system earns a net income (has more revenue than expenses), and equity decreases each year the system incurs a net loss (has more expenses than revenue).

Exemption: When a public water system is additional time to achieve and maintain regulatory compliance with new national primary drinking water regulations, while continuing to provide acceptable levels of public health protection. Exemptions do not allow a water system to violate national primary drinking water regulations. Rather, they allow additional time to find a compliance solution (i.e., treatment or a new source).

Financially Sustainable: A system that provides water and/or wastewater services to customers at a rate that consistently generates enough money to cover all system expenses, both in the short- and long-term, including operating expenses and reserves.

Financing Activities: Transactions resulting from activities to attract investors or creditors (for instance, loans to purchase assets or for major system repairs).

Fiscal Year: A 12-month period that is the basis of the system's operations. A fiscal year may be different from a calendar year, and if it is, common spans are July 1 to June 30 or October 1 to September 30 (the latter of which is the federal government's fiscal year).

Fixed Assets: The land, buildings, furniture and fixtures the system owns and uses in its day-to-day operations.

Flow Rate: A charge to customers based on the volume of water consumed or wastewater generated.

Full-Cost Pricing: Calculating and setting rates that reflect the true cost of producing and selling water, or collecting, treating and disposing of wastewater, including operating expenses, debt service, and reserve funds for equipment replacement and future improvements or expansion.

Funding Coordination: When federal, state/territorial/Tribal, and local infrastructure funding programs work together to fund needed projects which can include jointly accepting applications from utilities and/or by jointly deciding on the most efficient way to pay for infrastructure projects.

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Income Statement: Also known as the statement of activities, this document shows the results of operations over a period of time (how much revenue the system has earned versus the amount of expenses the system has incurred).

Indentures: Written agreements between the issuer of a bond and the bondholders, usually specifying the interest rate, maturity date, convertibility, and other terms.

Investing Activities: Transactions resulting from activities to obtain property, facilities, and equipment necessary to run the system, or to invest idle cash (such as purchasing stocks or bonds, new buildings or new equipment).

Letter of Conditions: A written document that describes the conditions which the borrower and/or grantee must meet for funds to be advanced and the loan and/or grant to be closed.

Level of Service: Determining how to operate the water or wastewater utility facilities to meet set customer expectations.

Leverage Ratio: A measure of the system's reliance upon debt, this ratio is calculated by dividing equity by total assets. Systems with a leverage ratio of less than 0.30 are considered to be in financial distress.

Liquidity Ratio: A measure of the system's ability to pay off current liabilities, this ratio is calculated by dividing the system's current assets by its current liabilities. Systems with a liquidity ratio of less than 1.5 are considered to be in financial distress.

Long-Term Assets: Items that cannot be converted to cash within one year of the date of the balance sheet, such as investments with maturity dates greater than one year.

Long-Term Liabilities: Loans expected to be paid back by the system over several years, such as capital-improvement loans. The principal amount to be repaid within one year is recorded in current liabilities as a current maturity; the remainder of the principal is listed as a long-term liability.

Malevolent Acts: Actions that humans can take to disrupt the operations of a water or wastewater utility, such as vandalism, terrorism, or cyberattacks.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the level below which there is no known or expected risk to health as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.

Multi-Factor Authentication: A security technology that requires two or more independent methods of authentication to verify a user's identity for a login.

National Environmental Policy Act (NEPA): Federal law that requires an assessment of the environmental impact of projects.

National Pollutant Discharge Elimination System (NPDES): The regulatory agency document issued by either a federal or state agency that is designed to control all discharges of pollutants from point sources in U.S. waterways. NPDES permits regulate discharges into navigable waters from all point sources of pollution, including industries, municipal treatment plants, large agricultural feed lots, and return irrigation flows.

Natural Hazards: Naturally-occurring events that can disrupt the operations of a water or wastewater utility such as hurricanes, earthquakes, wildfire, high wind events, and severe winter storms.

Net Operating Income/Loss: Calculated by subtracting operating expenses from revenue.

Non-Point Source: Water pollution that results from land runoff, atmospheric deposition, drainage, or seepage of contaminants. Major nonpoint sources include agricultural, silvicultural, and urban runoff.

Non-Transient, Non-Community Water System (NTNC): A public water system that regularly serves at least 25 of the same nonresident persons per day for more than six months per year. An example might be a school, daycare facility, or factory.

Operating Activities: Transactions resulting from activities necessary for the system to perform its function (examples include salaries, office supplies, minor system repairs, purchases of water from other systems, and the like).

Operating Expenses: Expenses incurred from the system's normal operation, including salaries, fringe benefits, utility (electricity, telephone, etc.) bills, insurance, water purchased for resale, etc.

Operating Ratio: A measure of the system's profitability, this ratio is calculated by dividing the operating revenues by the operating expenses. An operating ratio of less than 1.0 is considered to be financially distressed.

Point Source: A discrete conveyance, such as a pipe or a ditch, through which pollutants are discharged to U.S. waters (like rivers, lakes, or oceans). The Clean Water Act authorizes the National Pollutant Discharge Elimination System (NPDES) permit program to regulate point sources.

Pollutant: Generally, any substance introduced into the environment that adversely affects the usefulness of a resource.

Pre-Development: The initial planning and development required for funding applications to governmental loan and grant programs.

Preliminary Engineering Reports (PERs): The information submitted by utilities that is necessary for the lender or grantor to determine the technical, economic, and environmental adequacy of the proposed infrastructure project. Typicallys, PERs must be completed by licensed engineers.

Primacy: The responsibility for ensuring that a law is implemented and the authority to enforce a law and related regulations.

Principal Forgiveness: When a lender reduces the amount of money that must be paid back to something less than the amount borrowed. This works similarly to a utility receiving a grant.

Project Officer: The employee of a governmental loan or grant program that oversees implementation of funds and compliance with loan and grant terms.

Project Period: The length of a loan or grant.

Proxy Voting: Designating another board member to vote in place of an absent member in the same manner the absent member would vote.

Public Notification: A written notification of drinking water violations or other situations that may threaten human health, distributed by broadcast, mail or other means.

Quorum: The minimum number of members of a board that must be present at any of its meetings to make the proceedings of that meeting valid and to make voting possible.

Ransomware: A type of cyberattack that threatens to publish the victim's sensitive data or perpetually block access to the victim's computer files unless a ransom is paid.

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RD Apply: An application intake system that allows you to apply for loans and grants for USDA RUS Programs online.

Receivable: The amount of money owed to the utility.

Regionalization: A spectrum of collaborative activities, ranging from informal to formal, where two or more utilities work together for mutual benefit.

Revenue: Income that has been earned by the system, including water sales, late charges, service charges, and the like.

Supply-Chain Attack: A cyberattack where hackers attempt to gain access to a computer network by compromising third-party software used by that computer network.

System For Award Management (SAM): A federal government database that gathers, stores, validates, and shares information to support federal grants and contracts. Required to receive federal dollars.

Total Maximum Daily Load (TMDL): A calculation of the maximum amount of a pollutant that a body of water can receive and still safely meet water quality standards.

Transient, Non-Community Water System (TNC): A non-community water system that serves 25 nonresident persons per day for more than six months per year, but not the same people every day. An example might be a gas station, highway rest stop, or resort.

Underwriting: The evaluation of the creditworthiness of a potential borrower.

Variance: When a public water system is allowed to provide drinking water that does not comply with a national primary drinking water regulation on the condition that the system installs a certain technology and the quality of the drinking water is still protective of public health. General variances are intended for systems that are not able to comply with a regulation due to their source water quality and there is no feasible alternate source of water. Small system variances are for systems serving 3,300 persons or fewer that cannot afford to comply with a regulation (but they may be allowed on a case-by-case basis for systems serving up to 10,000 persons).

Water Audit: A plan for tracking water from its entry to the distribution system to its exit at the point of use, to determine where system water losses are occurring.
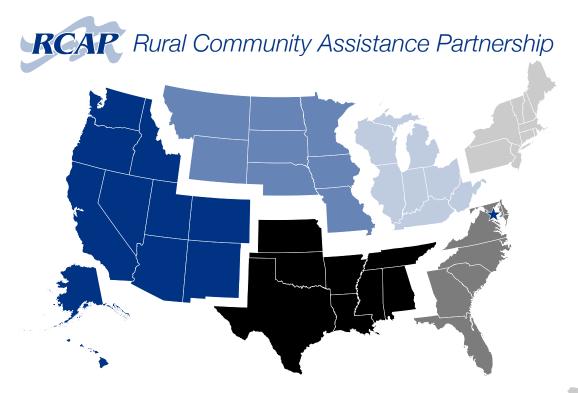
Water Quality Based Control Standards: Standards imposed when technology-based standards are not expected to provide sufficient protection for local water quality, given local water conditions and uses. States and territories classify all state/territorial waters according to specific uses, and then set an ambient water quality standard to protect that use. Once the standard is set, the total maximum daily load (TMDL) of a particular pollutant is set at a level that will not violate the standard. The TMDL is then translated into specific numerical limits in particular permits. States and territories identify the uses, set the water quality standards, and determine how to allocate the TMDL among different users.

Need help with your community's water or wastewater system?

The Rural Community Assistance Partnership (RCAP) is a national network of nonprofit organizations working to ensure that rural and small communities throughout the United States and its territories have access to safe drinking water and sanitary wastewater disposal. The six regional RCAP partners provide a variety of programs to accomplish this goal, such as direct training and technical assistance, leveraging millions of dollars to assist communities develop and improve their water and wastewater systems.

If you are seeking assistance in your community, contact the office for the RCAP region that your state, territory, or tribal nation is in, according to the map below. Work in individual communities is coordinated by these regional offices.

RCAP **Rural Community Assistance Partnership**

Midwest RCAP
Midwest Assistance Program
309 E Summit Drive
Maryville, MO 64468
(660) 562-2575
www.map-inc.org

Western RCAP
Rural Community Assistance
Corporation
3120 Freeboard Drive, Suite 201
West Sacramento, CA 95691
(916) 447-2854
www.rcac.org

Great Lakes RCAP
Great Lakes Community Action
Partnership
P.O. Box 590
219 S. Front St., 2nd Floor
Fremont, OH 43420
(800) 775-9767
www.glcap.org

Southern RCAP
Communities Unlimited
3 East Colt Square Drive
Fayetteville, AR 72703
(479) 443-2700
www.communitiesu.org

**Northeast and
Caribbean RCAP**
RCAP Solutions
191 May Street
Worcester, MA 01602
(800) 488-1969
www.rcapsolutions.org

**Puerto Rico and
U.S. Virgin Islands**
(Caribbean RCAP)

Southeast RCAP
Southeast Rural Community
Assistance Project
P.O. Box 2868
347 Campbell Ave. SW
Roanoke, VA 24016
(866) 928-3731
www.sercap.org

RCAP National Office
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