

Iowa's Drinking Water Capacity Development Program Report to the Governor

STATE FISCAL YEARS 2021-2023
(JULY 1, 2020 THROUGH JUNE 30, 2023)



**ENVIRONMENTAL SERVICES DIVISION
WATER QUALITY BUREAU
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IOWA DEPARTMENT OF NATURAL RESOURCES
LEADING IOWANS IN CARING FOR OUR NATURAL RESOURCES

INTRODUCTION



“Every day, millions of people turn on their faucets, but give little thought to the water that streams out.” - American Water Works Association

Fortunately, in communities across the State of Iowa, thousands of water system operators, superintendents, board and council members, trade associations, engineers, and other industry partners commit to providing safe, reliable, high-quality drinking water to residences, businesses, industries, and institutions of all kinds.

Iowa’s Drinking Water Capacity Development program, operated by the Department of Natural Resources (DNR), is dedicated to helping these water supply personnel continually develop and improve their ability or “capacity” to serve their customers. There are three main elements of water system

capacity, also known as “TMF.”

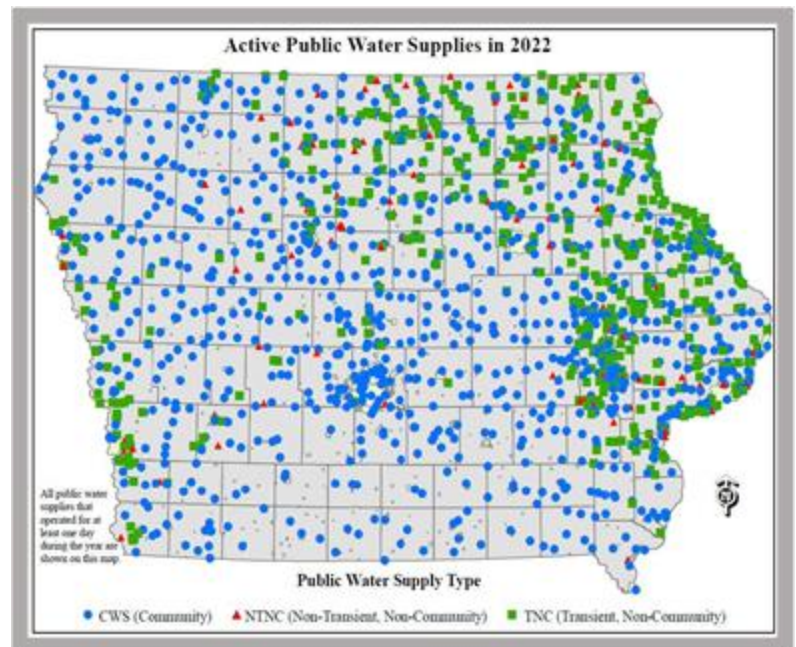
- **Technical:** Adequate amounts of water, well maintained infrastructure, current technology, and qualified and knowledgeable staff to operate the system.
- **Managerial:** An effective organization and governance, accountability, properly certified operators, and good relationships and communications between boards, councils, management and staff.
- **Financial:** Enough revenue to cover current costs and future needs, fiscal controls, and credit worthiness.

“Safe, reliable drinking water is essential to the protection of public health.” - U.S. Environmental Protection Agency

Drinking water quantity and quality is the backbone not only for human health but also for community and economic development. The DNR strives to work in cooperation with the regulated community to gain compliance with state and federal requirements and build stewardship of critical resources.

Community public water systems supply more than million people in Iowa. As shown in the map, there are approximately 1,838 regulated public water supply systems across the state.

Of those, 93% serve fewer than 3,300 people. These small systems face unique challenges in gaining “TMF” capacity. However, with the growing complexity of drinking water regulations, even medium and large systems sometimes need assistance.



Iowa’s Capacity Development program provides training, technical assistance, operator certification, and financing geared to the specific needs of small, medium, and large water systems.

The DNR’s efforts, agency wide, have always been based on collaboration with community and industry stakeholders; the Capacity Development program is no different. An advisory group was instrumental in the preparation of Iowa’s original capacity development strategy in 1999 and 2000; the group was reconvened in 2005 and 2008 as the strategy was updated and revised.

The strategy has provided a framework for identifying the greatest needs, focusing on the most effective activities, and prioritizing limited resources. Without a plan, progress cannot be measured. With the strategy, the efficacy of the

Capacity Development program can be evaluated.

The purpose of this report is to discuss and share with the Governor of Iowa, program users and stakeholders, the EPA, and the public the accomplishments, challenges, and ongoing activities of Iowa's Capacity Development program.

CAPACITY DEVELOPMENT BACKGROUND

“We can celebrate over a century of public drinking water disinfection and treatment - one of the greatest public health achievements of the 20th century.” - U.S. Centers for Disease Control

In 1855, Dr. John Snow demonstrated that an outbreak of cholera in London, England could be traced to a well that was contaminated by bacteria from sewage. When he convinced the local authorities to take the handle off the pump so it couldn't be used, the epidemic stopped.

In 1908, Jersey City, New Jersey became the first U.S. city to disinfect its drinking water. As more and more communities began to establish public utilities to treat drinking water, the incidence of disease dropped dramatically.

For example, in 1900 typhoid fever affected one out of every 1,000 Americans. By 1920 that had been decreased by two-thirds, and today typhoid is almost never seen in the U.S.

Federal regulation of drinking water systems began in 1914 via the United States Public Health Service. Through the decades the standards for drinking water have expanded considerably. In 1974 the passage by Congress of the Safe Drinking Water Act (SDWA) addressed concerns about bacterial contamination and included regulation of a new list of chemicals and substances that affect public health.

The Safe Drinking Water Act (SDWA) amendments of 1996 authorized a Drinking Water State Revolving Fund (DWSRF) loan program to help public water systems finance the infrastructure improvements needed to achieve or maintain compliance with SDWA requirements and to achieve the public health protection objectives of the Act. Also, out of the SDWA came the Public Water System Supervision (PWSS) Program, national drinking water regulations, and source water protection and groundwater protection efforts.

Therefore, the SDWA Amendments of 1996 laid the groundwork of requirements for the Capacity Development program and several of its components. The state programs that resulted from the SDWA requirements focus on making sure that water systems in the U.S. have the capacity to achieve the SDWA's public health protection objectives now and in the future.

Section 1420(c) of the Act directs the Administrator of the U.S. Environmental Protection Agency (EPA) to withhold 20% of a state's Drinking Water State Revolving Fund monies in each fiscal year if the state did not develop, implement, and continue a capacity development program to assist existing Public Water Systems (PWS) in acquiring and maintaining technical, managerial, and financial (TMF) capacity.

“Capacity development is the process through which water systems acquire and maintain adequate technical, managerial, and financial capabilities to enable them to consistently provide safe drinking water.” - U.S. Environmental Protection Agency

The DNR has developed a series of categories and questions to assess whether or not water systems have TMF (technical, managerial, financial) capacity. These questions and their corresponding answers are collected at every Public Water Supply inspection in Iowa. Some of the questions are shown below to illustrate the issues involved in capacity development.



Technical Capacity:

- Is system demand growing, declining, or remaining stable?
- What potential sources of contamination exist that could affect water supplies?
- Will treatment be required for radium, arsenic, fluoride, nitrate/nitrite, pesticides or herbicides, industrial or commercial chemicals?
- Does the system have adequate storage, emergency generation, pumping capacity?
- Is the system being maintained in good condition?

Managerial Capacity:

- Does the staff have the right training and credentials to operate the system?
- Are there clear rules and standards for system modifications, construction, emergency response, cross-connection and backflow prevention?
- Does the system have an organized approach to maintenance, record-keeping, and regulatory compliance?
- Is the governing board transparent and accountable to the community and customers?

Financial Capacity:

- Does the system have an annual budget as well as a long-term plan?
- Are water rates set appropriately to bring in enough revenue for current and future needs?
- Are financial controls in place?
- Does the water system keep all the water revenues or does it cross-subsidize other departments or activities?

How these questions are answered helps determine whether or not systems have the capacity to provide safe, reliable drinking water at a reasonable cost for the foreseeable future. The assessment, as shown in the following chart, can point to weaknesses and problems that the efforts of Iowa’s Capacity Development program can then begin to address.

	Strong Capacity	Moderate Capacity	Weak Capacity
Technical	Water supply and demand are regularly monitored. Long-term supply and demand projections are updated regularly.	Water supply and demand are occasionally evaluated. Projections are several years old.	System is unaware of current water demand or supply levels. System has no projections or they are more than 10 years old.
Technical	No compliance issues for previous three years.	A few violations over previous three years, but no chronic issues.	Many compliance problems over previous three years.
Managerial	Meetings of the governing body are open to customers and staff. Advanced notice of meetings is provided.	The governing body has procedures for open meetings, but does not follow them. Notice of meetings is inadequate.	The governing body does not hold open meetings.
Managerial	Guidelines and funding are in place for all staff at a water system to have regular training at defined time intervals.	Staff attend job-related training they specifically request and training requests are granted sporadically.	Training is generally not requested or granted.
Financial	System has both annual operating and capital budgets. The governing body reviews a budget comparison each month.	System has an annual operating budget. System lacks a capital budget or multi-year capital improvement plan.	System does not have an annual operating budget.
Financial	System has enough funding available to cover the most expensive or vulnerable component of the system.	System has some funding available, but not enough to cover the most expensive or vulnerable component of the system.	System does not have any funding available to respond to an emergency.

CAPACITY DEVELOPMENT GOALS AND ACTIVITIES

“As drinking water regulations become more complex, the goal of the capacity development program is to give water supply operators the tools they need to... provide safe water to the public.” - 2011 Report to the Governor, Iowa DNR

Iowa's Capacity Development program, implemented by the DNR in partnership with other agencies and organizations, is a resource for training, technical assistance, operator certification, and financing.

Training

The DNR develops, facilitates and participates in the training of water system owners and operators across the state. Much of the training is performed by community colleges, technical assistance providers or professional trade organizations, such as the Iowa Rural Water Association, the Iowa Association of Municipal Utilities, Midwest Assistance Program, or the Iowa Section of the American Water Works Association. Many times, DNR is represented on the planning committees for these meetings to provide input on the type of training needed by water system operators. Almost without exception, DNR staff attends these meetings to present on new or updated regulations or other areas of expertise requested by the meeting organizers.

Surface Water Treatment Training. In Iowa, surface water and influenced groundwater sources serve 46% of the population. This means that this water treated for drinking does not come from a deep aquifer or groundwater source but from any body of water above ground, including streams, rivers, lakes, wetlands, reservoirs, and creeks. Surface water treatment is a tricky and unpredictable science that demands extensive training and operational understanding. Therefore, the DNR Capacity Development program utilized some federal funds to develop five modules of extensive Surface Water Treatment (SWT) curriculum. Each module is two days with the first being classroom and small work group oriented; and the second day is held in an actual Surface Water Treatment Plant and consists of hands on, small group exercises that actually utilize live data and plant equipment. This training has proven to be invaluable to the operational capabilities of our surface water communities in this state. This is particularly important due to the loss of our older, more experienced operators to retirement.

Performance Based Training. The DNR also provides a unique training opportunity for operators of surface water treatment plants, called Performance Based Training (PBT). Operators, along with DNR staff, participate in a variety of hands-on workshops in water treatment plants, conduct studies at their own plants, and provide feedback on their results to the group via presentations. The training focuses on optimization of the water treatment processes using existing equipment already available to the operators.

“What I liked most about the PBT course was the networking and consultation between plants, operators, and facilitators. The idea of a common purpose pursued by operators and regulators is excellent. Our success is dependent upon this interaction.” - Participant in the Performance Based Training program

Small System Training. Over the last three years, EPA awarded grants to the Iowa Rural Water Association, Midwest Assistance Program, Iowa American Water Works Association and the Wichita State Environmental Finance Center for Small Water System Training and Technical Assistance. As a condition of each of these grants, the organizations were required to coordinate with the state to provide training that was relevant to its operators and systems. The DNR assisted the grantees with the selection of training topics, curriculum development, location and reservation of training sites, notifying the operators of training opportunities and taking registration, and awarding Continuing Education Units (CEUs). Department staff also attended each training session to answer questions and provide feedback for the training providers. Training sessions were held on a variety of topics, such as capital planning, rate setting, energy efficiency, emergency management, cyber-security, operator workforce development, asset management, water conservation and drought planning, as well as, general introductory topics including disinfection for operators of Iowa's smallest community water systems.

Board and Council Training. Specialized training for water system managers such as board members or city council members is made available through a DNR-funded contract with the Iowa Association of Municipal Utilities. This training is provided at the request of a water system or the DNR; it is sometimes required when managerial weaknesses have become apparent. Training is conducted either in person or virtually with the water system at a convenient time for board/council members and covers the technical, managerial, and financial responsibilities of public water system owners. Typical topics would include liability, communications, the importance of rate review, asset management, emergency and drought planning, operator vs owner responsibilities and facilitation of regionalization or resource sharing over multiple communities.

Operator Certification Program Training. The DNR operator certification program is constantly working on new training opportunities for water system operators that expose them to managerial and financial training. Traditionally, operator certification programs were heavily weighted on technical training but over the last ten years Iowa has recognized the value of an operator who understands all operational and managerial aspects of their system. Iowa has facilitated the insertion of a variety of managerial and financial topics into all the industry secondary education programs and into all the association workshop agendas and training platforms. A few examples of some of these topics, but not limited to, are as follows: rate setting; water loss; capital planning; asset management; board communication; customer service; understanding Federal and State rules and regulations; workforce building; and emergency preparedness.

An example of one of Iowa's successful post high school training programs is the Water and Wastewater Treatment Technology Diploma program developed in conjunction with the Des Moines Area Community College. This program is available to entry-level to already employed operators interested in entering or advancing in the field of water (or wastewater) treatment technology. This program combines classroom education on treatment; utility management which includes rate setting, capital planning and asset management; water analysis, and environmental science with an internship requirement that allows students to gain hands on experience with the topics they have covered in the classroom. Operators participating in this program have had a 100% job placement rate and participants traditionally pay less than 10% of their tuition. The water industry in Iowa views this program as essential for developing a pool of qualified and motivated operators for the future.

The DNR operator certification program also funds training, through the Drinking Water State Revolving Fund, for owners and operators of very small systems such as Home Owner Associations, Mobile Home Parks and other systems who fall under the definition of a Public Water Supply but often use a "nonprofessional operator" to complete all their permit required operational duties. This training is available in person and virtually.

High School Internships. Iowa, through a grass roots effort by our water Industry partners, now has a High School Internship Program. This is an initiative to expose High School students to the professional opportunities available in the Drinking Water and Wastewater Industry through paid internships. The plan is to get them training and education while still in High School so that immediately upon graduation they can become certified and inserted into the workforce. Traditionally only the larger systems have been able to afford interns. Iowa water industry donations combined with federal monies allocated through a grant from the Wichita State University Environmental Finance Center funded 21 small communities and their corresponding High School intern over the last three years.

Technical Assistance

The DNR water supply program considers technical assistance (TA) to be the cornerstone of its program for building water system capacity.

TA Provided by DNR. Just about every aspect of the program includes some form of technical assistance provided by DNR staff:

- Water Supply Engineering staff provide TA to engineers and operators in helping them through the construction permit process to ensure safe and sanitary water supply infrastructure. Over the last three years Iowa's Water Supply Engineering Section Issued 1,902 Construction Permits; 514 approvals for small changes to an existing Construction Permit; and issued 738 approvals of engineering reports,
- project waivers, site surveys, self-contained treatment unit installations, etc.
- Water Supply staff evaluate the capacity of all new systems, systems applying for funding through the Drinking Water State Revolving Fund, and existing systems that DNR field staff consider lacking in capacity. Systems required to complete a self-assessment must comply with TMF requirements to receive construction and operation permits. Assistance with completing TMF requirements is generally provided by DNR's contracted technical assistance provider at no cost to the water systems.
- Water Supply Operations staff develop operating permits to assist water systems in collecting the appropriate



samples to ensure compliance with the Safe Drinking Water Act requirements. Over the last three years Iowa's permitting staff has written, renewed, and / or revised 2,677 Public Water Supply permits.

- In addition to operation permits, the DNR also sends monitoring reminder notices to help ensure that systems are aware of their sampling schedule.
- Other reminders, notice of staff speaking engagements, and articles of interest are included in the Water Supply listserv (electronic newsletter), which is sent out to over 30,000 water system owners, operators, engineers, and other interested parties on a biweekly basis.
- Water supply field staff spend a majority of their time surveying water systems and talking with system owners and operators to ensure that their systems are protected from contamination, have properly certified personnel, and are monitoring to ensure the safety of the water. Department field staff also provide many hours of technical assistance to water systems over the phone and via e-mail.
- During emergencies such as floods, tornadoes, or droughts, DNR staff are often available on site to assist systems with their questions and provide a helping hand. This service was essential during the Derecho event of 2020 and the damage it left behind to Public Water Supplies and infrastructure.

TA Provided by Other Organizations. The DNR also contracts with the Iowa Association of Municipal Utilities for technical assistance using funds from the Drinking Water State Revolving Fund set aside for this purpose. This is especially helpful when systems need on-site technical assistance with items that require recurring visits, such as capital improvement plans, setting rates, developing monitoring plans, setting up financial controls or board training and support. Over the past three years, approximately 197 drinking water supplies have been provided with targeted assistance through this contract.

Area-Wide Optimization. Since 2006, DNR has been an active member of the national Area-Wide Optimization Program (AWOP). This program seeks to maximize public health protection by optimizing water treatment and distribution using existing resources. Staff attend planning meetings with other states approximately three times per year to discuss strategies, learn about new technical topics, and develop ideas for future assistance projects.

The DNR has focused a lot of attention on the optimization of Iowa's 32 surface water treatment plants. Data from each surface water system is analyzed each year to measure progress against adopted optimization goals and discussed with the systems during field surveys.

The primary benefit of AWOP is improved performance of drinking water treatment plants, which increases protection against waterborne disease. Other benefits from AWOP include:

- Systems receive the tools needed to comply with drinking water rules such as the Long-Term 2 Enhanced Surface Water Treatment Rule, Stage 2 Disinfectants/Disinfection Byproducts Rule, and the Groundwater Rule.
- Systems better understand their roles in treatment optimization and public health protection.
- A system operator's ability to apply new technical concepts is enhanced, resulting in sustained improvements in plant operation.
- New communication and networking opportunities for state and water system staff are created.
- The useful life of existing infrastructure is prolonged by optimizing performance, reducing the need to invest resources in new facilities to achieve compliance.

An introductory video about the Iowa AWOP program is available on the [DNR-AWOP website](#).

Operator Certification

All community water systems and some other types of systems, such as schools, daycares, and industries employing at least 25 people, must utilize a certified operator to manage the system, collect samples, and report to the DNR on the operation of the system. To assist with meeting this requirement, the DNR manages a program to educate, certify and track approximately 2,929 drinking water operators who collectively hold any combination of grades of approximately 4,770 water Treatment and water Distribution certifications.

Operator certification staff develop curriculums; work with training entities and stakeholders to ensure adequate exams and training for all types and grades of operators; work to promote water supply operation as a professional career;

keep information for operators and public water systems transparent and available through the web; assist in matching operators with public water systems; and promote, not only the enhancement of an operator's technical skills, but also their managerial and financial knowledge.

The operator certification program and the capacity development program continuously collaborate with our partners in support and promotion of the drinking water industry workforce. DNR has contributed to many successful grass root industry initiatives over the past three years such as "second chance" initiatives that train and certify inmates in the penal system for immediate placement into the workforce once paroled; and veterans initiatives that provide credit toward licensure qualifications for military service, education, and training and the procedures for expediting reciprocal licensure for veterans who are licensed in other states.

The operator is the single most important resource for capacity building. Their responsibilities permeate all things technical, managerial and financial in a system. Therefore, the operator certification program and the capacity development program at the DNR are in constant partnership engaging the entire drinking water program from construction permitting to operational permitting; from operator to environmental lab certification; from water allocation and use permitting to funding resources; from onsite inspection to technical assistance towards the common goal of providing safe drinking water now and in the future.

Source Water Protection

Iowa promotes capacity building through the provision of assistance to systems that wish to proactively protect their water source from potential contamination through a voluntary, non-regulatory program that consists of three main components:

Phase 1 Assessment: The DNR conducts the initial assessment, which details the water system's active wells, delineates the source water protection areas, lists the susceptibility to contamination classification, and provides the known potential contamination sources. As of 2023, DNR has over 95% of our Community Water System Phase 1 Assessments complete.

Phase 2 Plan: Willing systems form a "Source Water Protection Team" (SWP) consisting of not only DNR staff but system staff; community stakeholders and partners; state environmental and industry associations; and other interested community members. This local SWP Team then selects best management practices, and works to develop implementation plans for those practices developing a Source Water Protection Plan based off its Phase 1 Assessment. Their strategic components are listed in a template plan that is used to guide the team through the process to determine how the system will protect its drinking water resource.

Implementation: The Phase 2 is implemented, addressing the specific items that the community and system will use to protect its drinking water resource.

The DNR has developed several resources and tools to aid communities in the development and implementation of their Source Water Protection plans:

- [Source Water Protection Guidebook](#) details seven steps needed for source water protection, where to go for assistance, and what information is available. Provided in the guide are informational web links, examples, lists of potential contacts, and helpful tools to make source water planning as easy as possible.
- [Source Water Protection Workbook](#) contains form-fillable worksheets and checklists designed to help with meeting preparation, work assigned, schedules, and deliverables. Also included are information web links, an introduction to Geographic Information Systems (GIS) resources as a tool to help with contaminant and well inventories, and contact information for submitting a completed SWP Plan.
- [Source Water Tracker](#) contains all Phase 1 Assessments, Source Water Protection Plans (Phase 2 Plans), DNR Sanitary Survey Reports, and Water Operator contact information for all active and inactive public water supply systems.
- [Source Water Mapper](#) is an online version of the Phase 1 Assessments that maps the inventory of public wells, other wells, potential contaminant sources, and capture zones.

These can be found on the DNR's Source Water Protection Website at: <http://www.iowadnr.gov/Environmental-Protection/Water-Quality/Source-Water-Protection>.

Financing

According to EPA's 2021 Drinking Water Infrastructure Needs Survey and Assessment, Iowa water systems face \$10.1 billion (in 2021 dollars) worth of infrastructure needs over the next 20 years. Ensuring that financing resources are available and understandable is a key task in Iowa's capacity development strategy. DNR participates in the Water/Wastewater Infrastructure Financing Coordination (WIFCO) effort with the agencies that fund drinking water improvements. These agencies/programs include:

- 1. State Revolving Fund (SRF).** The Iowa DNR partners with the Iowa Finance Authority to operate the Drinking Water SRF. This revolving loan fund is able to finance all eligible projects with below-market interest rate loans for planning, design, and construction of water supply infrastructure. DNR educates program users through conference presentations, webinars, listserv articles, the IowaSRF.com website, and individual consultations. The Drinking Water SRF projects vary widely based on a system's needs, ranging from new treatment plants to replacement of aging water mains.

Special provisions for loan forgiveness have been available since 2010. DNR has targeted a portion of that loan forgiveness toward disadvantaged communities and water systems with public health violations to make their needed upgrades more affordable. Extended term financing is also offered. Between state fiscal years 2021 and 2023 the following water systems received partial loan forgiveness under these special provisions: cities of Albion, Armstrong, Bagley, Dedham, Early, Fort Atkinson, Jamaica, Lost Nation, Thor, as well as Volga and Woodland Ridge. The total loan forgiveness provided over the last three fiscal years was \$5,727,727.72. The total SRF loan amount provided to Drinking Water Systems over the last three fiscal years for construction was \$162,962,000.00. For more information on Iowa's State Revolving Fund (SRF) program please visit our website at iowasrf.com.

"We selected the State Revolving Fund financing because it provides us with a lower interest rate and borrowing costs as well as a longer repayment cycle compared to other financing options." - City Administrator, North Liberty

- 2. Community Development Block Grants (CDBG).** The Iowa Economic Development Authority (IEDA) operates the CDBG program, using funds from the U.S. Department of Housing and Urban Development. Each year IEDA identifies fundable water system projects that meet criteria of serving low to moderate income people and being shovel-ready. Since these grant funds are limited, projects are usually co-funded with either SRF loans or USDA-Rural Development financing.

DNR Water Supply and SRF staff meet regularly with IEDA officials to coordinate funding and assess project readiness to ensure that the CDBG funds are used in a timely manner for high priority needs.

- 3. USDA-Rural Development (RD).** An annual allocation from the U.S. Department of Agriculture funds water system improvements in Iowa's smallest, neediest communities and rural water districts. USDA-RD uses a combination of grant and loan funds to help make projects more affordable in rural areas.



DNR Water Supply and SRF staff meets regularly with USDA-RD staff to coordinate funding and ensure that state design criteria are met.

MEASURING THE STRATEGY’S EFFECTIVENESS

Through its participation in the Area-Wide Optimization Program (AWOP) and subsequent work on integrating AWOP into the drinking water program, the DNR developed a “status component” to measure improvements in water system capacity. The status component uses selected TMF questions from field survey inspections to assess the capacity of each system. Questions with an answer indicating a capacity deficiency are tallied for each system. The status component was run in 2012 to establish a baseline; subsequent queries can be compared against this baseline to measure improvements or identify weaknesses in water system capacity. The baseline was reset in July 2020 to reflect an updated question pool. The answers to status component questions can also be analyzed to identify specific areas where additional assistance could be provided to help systems to achieve and maintain TMF capacity.

In general, it was determined by comparing DNR field inspectors’ knowledge to the data generated by the status component that systems with a score of seven or more deficiency answers were lacking in capacity. Systems that lack capacity often have drinking water compliance problems for a variety of reasons. The goal is to have the fewest number of systems in the high priority category with the majority of systems in the low priority category.

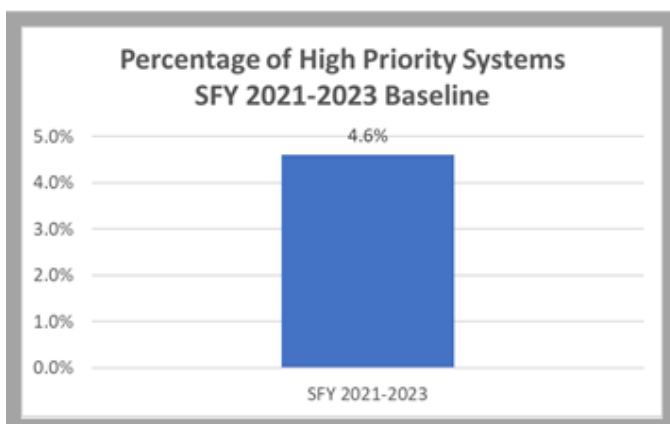
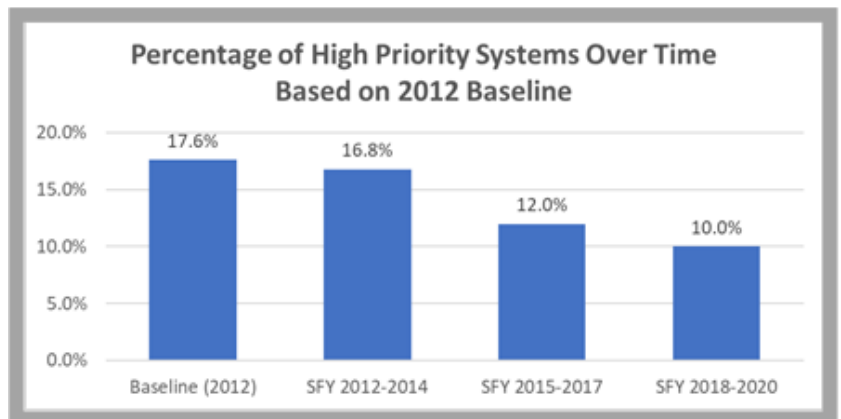
The results of the status component are shown in the State Fiscal Years 2021-2023 Capacity Development Status Component Summary table below. Approximately 4.6% of systems were in the high priority category. The DNR will focus its technical assistance efforts on these systems to improve capacity and assure the provision of safe drinking water to Iowa consumers.

State Fiscal Years 2021-2023 Capacity Development Status Component Summary

2021-2023 Priority Ranking Summary

Priority Category	Deficiency Answers	Number of Systems	
High	Seven or More	69	4.6%
Low	Less than Seven	1,423	95.4%
Total Number of Surveys Analyzed		1,492	100%

This information will be used every three years to review the progress being made toward achieving and maintaining water system capacity. A new Electronic Sanitary Survey (ESS) tool was released into production in July of 2020 for use by DNR field staff during Public Water Supply inspections. The pool of questions was modified at that time, and the baseline for the data comparisons was reset starting with the SFY 2021-2023 data. Using the new baseline of data, the percentage of high priority systems is 4.6%.



Overall, this data continues to show Iowa’s progress in the building the capacity of public drinking water systems. The DNR will continue to evaluate this data and use it to prioritize its assistance efforts toward drinking water systems.

IOWA’S STRATEGY FOR THE FUTURE

Iowa’s strategy, as previously outlined in this report, has provided a framework for identifying our Public Drinking Water Supplies’ greatest needs and challenges, focusing on the most effective activities, and prioritizing limited resources.

In 2018, The America’s Water Infrastructure Act (AWIA), Section 2012, required state drinking water programs to consider and include, as appropriate, asset management into their state capacity development strategies. As Iowa opened its strategy to add this required element, it was decided to take this opportunity to gather stakeholder input, evaluate current strategy implementation practices, and to identify and prioritize future capacity building initiatives.

Therefore, over 2021 and 2022, DNR engaged staff, the public, industry associations and a subcommittee of Iowa’s SDWA Advisory Group called the “Capacity Development Strategic Planning Team,” to update the current strategic plan. Although regulations, new emerging contaminants, technologies, and socio-economic factors have changed over the last twenty years, still relevant today are the basic elements that were identified and addressed by Iowa’s initial strategy as part of the five key strategic elements designed to further advance and enhance the capacity of Iowa’s public water systems. This current strategy adjusts the existing five element goals to address and update outdated implementation barriers, to incorporate new industry stakeholder input, and adds a sixth element that delineates Iowa’s existing and future goals for the promotion of the development and assistance in the implementation of asset management plans. This new strategy can be found on the [Iowa DNR Capacity Development Webpage](#).

Building capacity is a process that is never finished; it is dynamic and ongoing. Therefore, our stakeholder advisory group of industry partners will again be reconvened in 2023 and meet yearly as we look to implement our current strategy. Some, but not limited to, challenges facing Iowa’s Drinking Water Supplies that will be addressed are as follows: small communities with shrinking populations and limited revenue; aging infrastructure that includes lead service line identification and replacement; emerging contaminants such as manganese and PFAs; skilled workforce shortage; extreme weather events from flooding to drought; etc.

One of our top strategic priorities over the next decade will be the promotion of the development and incorporation of future best practices for public water supply asset management planning. Iowa will, as appropriate, encourage the development by public water supplies of asset management plans that include best practices for asset management and assist, including through the provision of technical assistance, public water supplies in training operators or other relevant and appropriate persons in implementing such asset management plans. Iowa’s Capacity Development Program has historically supported this goal even though specific asset management language was not included in the original strategy.

What is asset management? EPA defines asset management as follows:

“Asset management is a process water and wastewater utilities can use to make sure that planned maintenance can be conducted and capital assets (pumps, motors, pipes, etc.) can be repaired, replaced, or upgraded on time and that there is enough money to pay for it.

Asset management is the practice of managing infrastructure capital assets to minimize the total cost of owning and operating these assets while delivering the desired service levels. Many utilities use asset management to pursue and achieve sustainable infrastructure. A high-performing asset management program includes detailed asset inventories, operation and maintenance tasks, and long-range financial planning.

Each utility is responsible for making sure that its system stays in good working order, regardless of the age of its components or the availability of additional funds. Asset management programs with good data-including asset attributes (e.g., age, condition, and criticality), life-cycle costing, proactive operations and maintenance, and capital replacement plans based on cost-benefit analyses-can be the most efficient method of meeting this challenge.”

The department will promote, for the development of asset management best practices, the following “Five (5) Core Question Asset Management Framework”:

1. What is the current state of the utility’s assets?
2. What is the utility’s required “sustainable” level-of-service?
3. Which assets are critical to sustained performance?
4. What is the utility’s best “minimum life-cycle cost” capital improvement plan and operations and maintenance

strategies?

5. What is the utility's best long-term financing strategy?

Iowa has traditionally promoted asset management heavily through our operator training; technical assistance providers; capacity building workshops; and board and council training. Asset management concepts are also indirectly addressed during a Public Water Supply inspection in which the DNR uses an electronic sanitary survey (ESS) process; with engineers and consultants during capital improvement projects; and during the completion of a Public Water Supply Viability Self-Assessment Manual.

DNR supported multiple in-person and virtual trainings throughout the past decade that concentrated on the above "Five (5) Core Question Asset Management Framework", specifically concentrating on the small systems that typically do not have the staff or budget to utilize in the exercise of developing, implementing and maintaining an asset management plan. DNR also engaged contractors to do in-person classes with follow up technical assistance that are geared toward not only the operators, but also city clerks and city administrators.

The main barrier with asset management plan implementation is the follow through. Developing an asset management plan is only the first step. Implementation and maintenance of an asset management plan is ongoing and this is where many systems struggle, citing either insufficient staff for plan implementation or due to lack of buy-in by administrators. Educating Department staff, operators, all city administrators and the general public on the correlation between asset management and system sustainability is key. Asset management concepts are incorporated into board training presentations and new operator trainings. Continued expansion of accessible plan development resources such as templates, software, materials and training with follow up technical assistance needs will be explored in the future through our strategic planning workgroup.

SUMMARY

The DNR is proud of Iowa's Drinking Water Industry's commitment to the enhancement of the capacity, viability and sustainability of our drinking water supplies. This dedication is reflected in the percentage of Iowa systems in compliance with all health-based standards set by the Environmental Protection Agency (EPA) which was 96.2% in 2022, with the percentage of population served by systems compliant with all health-based standards at 98.9%.

Further demonstration of the success of the Iowa Drinking Water Program and its capacity building efforts was reflected during calendar years 2021 and nine months of 2020, during the COVID-19 global pandemic. Throughout both of these years, the percentage of systems in compliance with all health-based standards and the percentage of Iowa's population served by community water systems that meet all health-based standards were the highest in a ten-year period. Furthermore, the percentage of the population served by systems in compliance with the major monitoring and reporting requirements was also the highest in the ten-year history. This is notable due to the challenges that the pandemic posed. Supply, chemical, and operator shortages led to resource sharing that has only strengthened and reinforced emergency management and troubleshooting capacity in Iowa's systems.

We will continue to step up dialogue with our industry partners to produce outcomes that benefit the Iowa Drinking Water Program as well as the technical, financial and managerial growth of Iowa's drinking water systems' capacity.

AVAILABILITY OF THIS REPORT

This report must be made available to the public as required by the amended Safe Drinking Water Act of 1996. It will be posted on the IDNR Water Supply Capacity Development web page [Iowa DNR Capacity Development Webpage](#) and a notice of availability of the report will be sent out via several DNR list serves.

FOR MORE INFORMATION

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