Wisconsin's Capacity Development Program
for Public Drinking Water Systems

Report to the Governor
State Fiscal Year 2018- 2020

Department of Natural Resources
Bureau of Drinking Water and Groundwater
dnr.wi.gov

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EXECUTIVE SUMMARY

The 1996 amendments to the Safe Drinking Water Act emphasize the management of public water systems effectively as a way to prevent contamination of water supplies and ensure the delivery of safe drinking water. Each state is required to have a strategy for helping its public water systems achieve and maintain "capacity," the ability to meet the SDWA's requirements and consistently provide safe drinking water. The strategy for assisting public water systems is called *capacity development*.

The goal of Wisconsin's Capacity Development Program is to help owners and operators of public drinking water systems, particularly small systems, improve their technical abilities, managerial skills, and financial viability to achieve the SDWA's public health protection objectives now and in the future. The Department of Natural Resources, Bureau of Drinking Water and Groundwater, is responsible for the program. As a result of Wisconsin's Capacity Development Strategy, the majority of Wisconsin's public water systems meet all the health-based standards for drinking water quality and consistently provide safe drinking water.

This report is compiled every three years for the Governor, all members of government, and the public, as required by the SDWA. The report covers the period from July 2017-June 2020 (state fiscal years 2018-2020). It will be available to the public on DNR's Capacity Development webpage, http://dnr.wi.gov/topic/DrinkingWater/CapacityDevelopment.html.

Wisconsin's progress toward improving the capacity of public water systems during this period includes the following:

- At the end of both 2018 and 2019, more than 99% of the state's public water systems met all health-based standards for water quality Maximum Contaminant Levels (MCLs).
- Compliance rates for correcting significant deficiencies identified during sanitary surveys have consistently improved.
- The Safe Drinking Water Loan Program has funded 104 projects to improve public water systems over the past three years. A complete list of the communities receiving assistance can be found in Appendix I, at the end of this report.
- Water quality data for the state's public water systems are available to the public on DNR's website, and the information is updated daily.
- The DNR has improved the online tools it provides to public water system owners and operators, to make their recordkeeping and reporting tasks easier.
- The DNR has enhanced and improved its Drinking Water System database to provide quick identification of problems or contaminants and enable a rapid response whenever corrections are needed.
- The DNR has consistently reviewed and tailored DNR-sponsored technical assistance at small public drinking water systems, which has resulted in a continued decline in monitoring and reporting violations over the past decade.

- In January of 2019, Governor Tony Evers declared that 2019 would be the Year of Clean Drinking Water in Wisconsin. This placed an increased focus on the importance of safe drinking water and initiated efforts statewide to address concerns about the quality and safety of drinking water in Wisconsin. The Year of Clean Drinking Water focused attention on three types of contamination in particular: nitrate in groundwater; lead in drinking water; emerging contaminants, especially PFAS. Many efforts began during 2019 to address these issues—more information can be found on these efforts in the DNR's report about the Year of Clean Drinking Water, available on the DNR's website.
- Wisconsin's 2019-21 biennial budget provided two full-time (FTE) researcher positions to focus on PFAS and other emerging contaminants, and $200,000 in FY 2020 for emerging contaminants research.
- The DNR began reviewing and planning for making updates to its Capacity Development Strategy during 2020. The updated Strategy will include a description of the DNR's efforts towards encouraging asset management at public water systems, as is required under America's Water Infrastructure Act (AWIA) of 2018.

During 2019, the DNR made an update to its Drinking Water System (DWS) database that requires that field engineers and specialists enter a capacity determination following each sanitary survey completed, which helps to better track systems that may lack capacity.

WHAT IS CAPACITY DEVELOPMENT?

Capacity development is the process through which public water systems acquire and maintain adequate technical, managerial, and financial capabilities or 'capacity' to enable them to consistently provide safe drinking water. Capacity has three main components:

- **Technical capacity** includes an adequate water source and system infrastructure, along with the technical knowledge and ability to operate and maintain them.
- **Managerial capacity** includes effective organizational structure, ownership accountability, adequate staffing, and communication with the water system's customers and regulators.
- **Financial capacity** includes adequate revenue, credit worthiness, budgeting, and financial planning.

WISCONSIN'S CAPACITY DEVELOPMENT PROGRAM

The SDWA amendments place a strong emphasis on creative and innovative capacity development strategies designed to meet each state's needs. Wisconsin's goal is to enhance, integrate, and improve its existing drinking water programs to ensure that all public water systems maintain adequate capacity and meet the requirements of the SDWA.

Wisconsin submitted its capacity development strategy to the US Environmental Protection Agency (EPA) for approval in 2000, as required. Wisconsin's Program is maintained through funds from the Drinking Water State Revolving Fund (DWSRF) that is authorized under the SDWA.

To meet federal requirements, Wisconsin's Program assists both new and existing public water systems.

- **New public water systems** must demonstrate adequate capacity before beginning to serve water to the public.
    - New systems submit a capacity evaluation to the DNR, with information about the water system design and ownership, water quality in the local area, proposed water use, potential sources of contamination, and the population to be served.
    - DNR approves new water systems after a review indicates that adequate capacity has been achieved. (Some of the state's smallest systems—Transient Noncommunity systems, are exempt from this requirement).
- **Existing public water systems** have their capacity evaluated regularly, and the state assists the systems that need help.
    - The sanitary survey is DNR's primary tool for evaluating water system capacity. A sanitary survey is a detailed, on-site inspection of the water system that is designed to evaluate its capability for providing safe drinking water. Sanitary surveys are conducted at regular intervals.
    - DNR uses a variety of tools to help maintain capacity at public water systems. These include technical assistance, loan and grant assistance, engineering review of construction plans, source water protection, operator certification, continuing education for operators, county contract program, along with others.

The SDWA amendments include initiatives to increase the assistance available to small public drinking water systems. These small systems—including schools, daycares, small businesses, factories, and mobile home parks—often do not have full-time, specialized staff, and providing drinking water is often not their primary business. As a result, they may have more difficulty complying with drinking water regulations. The most common barriers faced by small system owners and operators include:

- lack of technical knowledge about regulatory requirements and how to meet them;
- lack of financial planning and adequate management;
- lack of technological or IT knowledge or experience; and
- inability to finance necessary water system component and well upgrades.

There are many important areas where capacity development is used as a tool for encouraging improvements at public drinking water systems in Wisconsin, including:

- Identifying systems that need technical assistance
- Identifying needs for additional training for water system personnel
- Identifying water systems with noncompliance issues or continued violations
- Follow-up assistance to correct problems
- Identifying water systems in need of a certified operator
- Evaluating water quantity and quality
- Identifying needs for water system infrastructure improvements
- Locating funding for water system improvements
- Financial management and planning
- Identifying opportunities for cooperation between state agencies that will assist water systems

- Encouraging asset management programs as well as public water partnerships between water systems

More detail about Wisconsin's Program, including the state's Capacity Development Strategy document, is available on DNR's website, http://dnr.wi.gov/topic/DrinkingWater/CapacityDevelopment.html. A copy of this *2020 State Capacity Development Program Report to the Governor* can also be found at this website.

WISCONSIN'S PUBLIC WATER SYSTEMS

Wisconsin has more than 11,100 public water systems, the most of any state in the United States. Public water systems are those that provide water for human consumption to at least 15 service connections, or regularly serve at least 25 people. Federal and state drinking water regulations define four types of public water systems:

- **Community** water systems serve water to people where they live.
    - **Municipal Community** (MC) water systems are those owned by cities, villages, towns or sanitary districts. Milwaukee Waterworks is the state's largest municipal water system, serving almost 650,000 people. The smallest municipal systems in Wisconsin, by comparison, serve fewer than 100 people each.
    - **Other than Municipal Community** (OC) water systems operate from privately-owned wells and serve residents for at least six months of the year. These systems include mobile home parks, apartment buildings, condominium complexes, and long-term care facilities.

- **Non-community** water systems serve water to people where they work, attend school, or gather for food or entertainment.
    - **Non-transient Non-community** (NN) water systems regularly serve at least 25 of the same people for six months per year or longer. They include schools, daycare centers, factories, dairies, and other businesses.
    - **Transient Non-community** (TN) water systems serve at least 25 people for 60 days of the year or longer. They include motels, restaurants, taverns, churches, parks, and campgrounds.

Figure 1 and Figure 2 on the following page show the breakdown of the number of and population served by public water systems in Wisconsin. While most of the public water systems are Transient Noncommunity systems, the majority of the state's population is served by Municipal Community systems (Figure 2).

Figure 1. Wisconsin's Public Water Systems

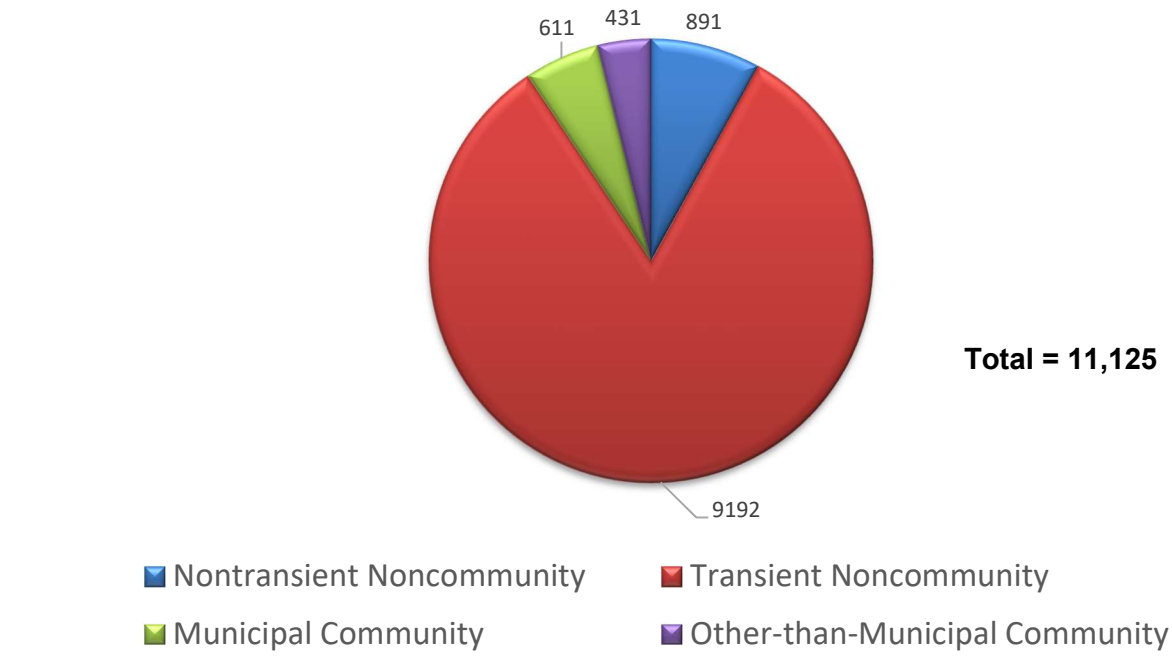
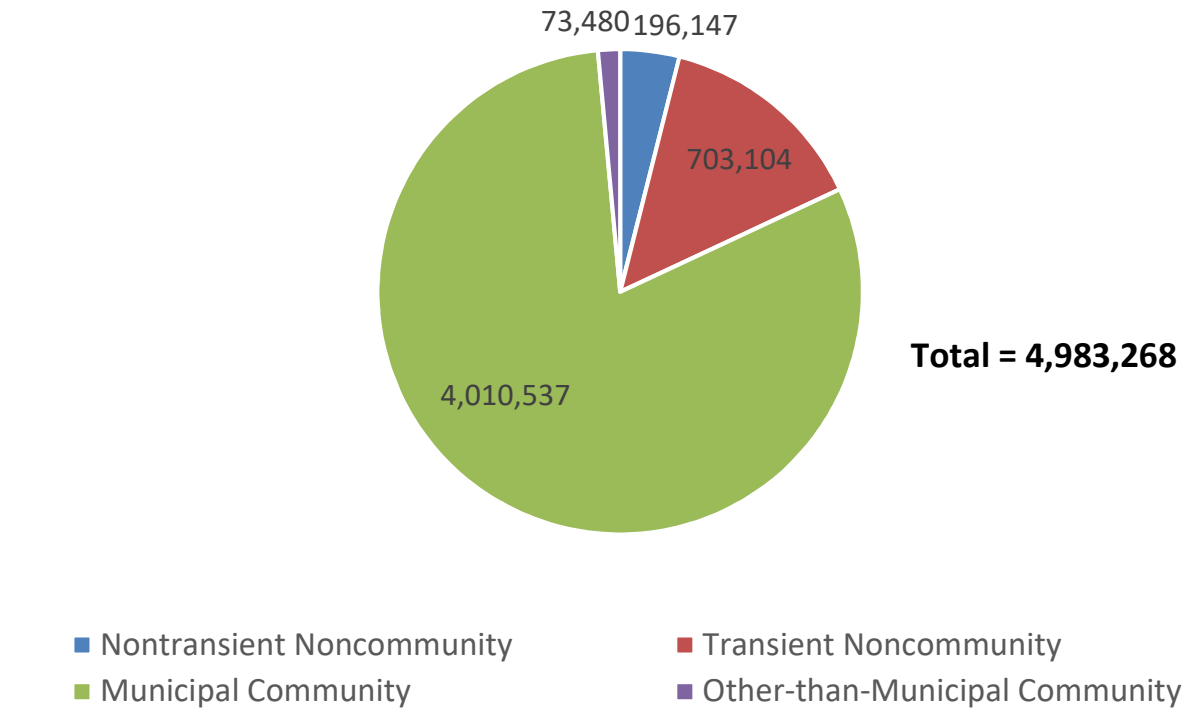


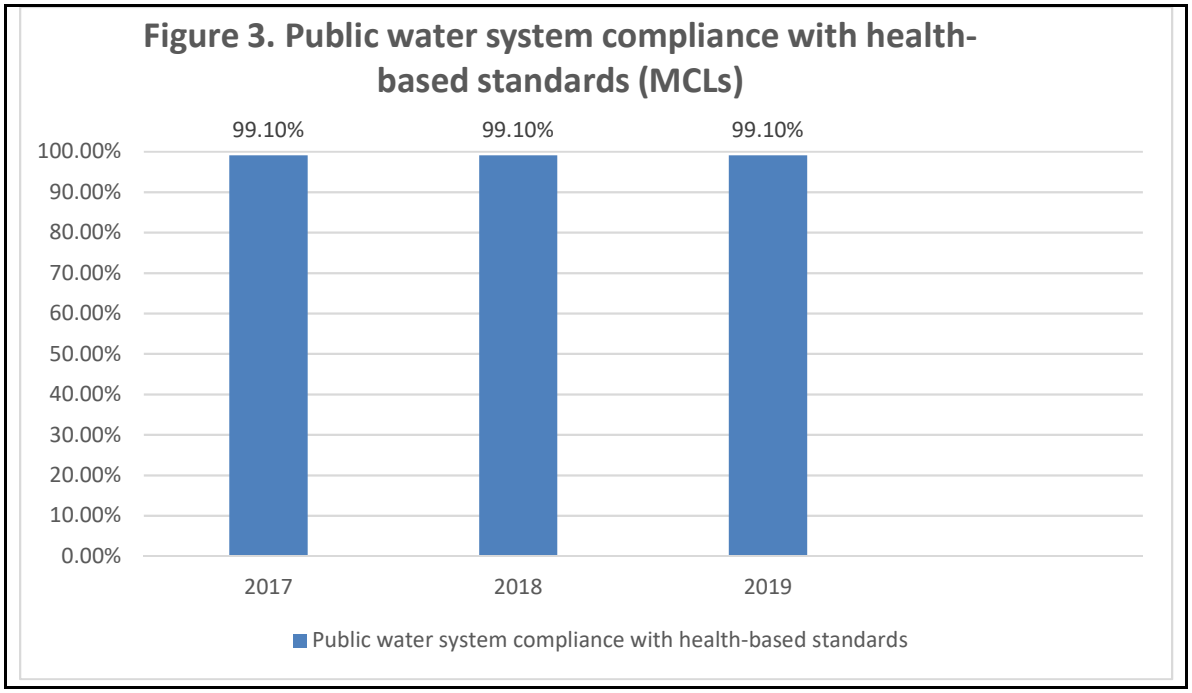
Figure 2. Population served by Wisconsin's public water systems



PROGRESS TOWARD IMPROVING THE TECHNICAL, MANAGERIAL AND FINANCIAL CAPACITY OF PUBLIC WATER SYSTEMS IN WISCONSIN

Improving the capacity of Wisconsin's public water systems is a continual process. The state has made progress by working with new systems to educate owners and operators about drinking water requirements, enhancing the tools used by DNR staff and water system owners and operators, tracking and measuring water system performance, increasing and targeting technical assistance, and promptly working with systems to correct any contaminant problems or violations that may occur. During the past three years, Wisconsin has made progress toward improving capacity in several areas, including:

- **Compliance rates** — Wisconsin's public water systems have an excellent record for consistently providing safe drinking water. In calendar year 2019, 99% of the state's systems provided water that met all health-based quality standards for contaminants (Figure 3). DNR's *2019 Annual Drinking Water Report Wisconsin's Public Water Systems* (http://dnr.wi.gov/files/PDF/pubs/DG/DG0045.pdf) contains additional details about water system performance and compliance. Water quality data for all the state's public water systems are available to the public on the DNR's website (http://prodoasext.dnr.wi.gov/inter1/pws2$.startup).



- **Sanitary surveys** — The sanitary survey is a critical tool for assessing and improving system capacity. Sanitary surveys provide comprehensive and accurate records of public drinking water systems, evaluate the operating conditions and adequacy of the systems, and determine if previous problems or deficiencies have been corrected. These in-depth inspections also give opportunities to offer recommendations and assistance that may help systems meet and maintain capacity. Sanitary surveys help the DNR target water systems that are, or may soon be, experiencing capacity

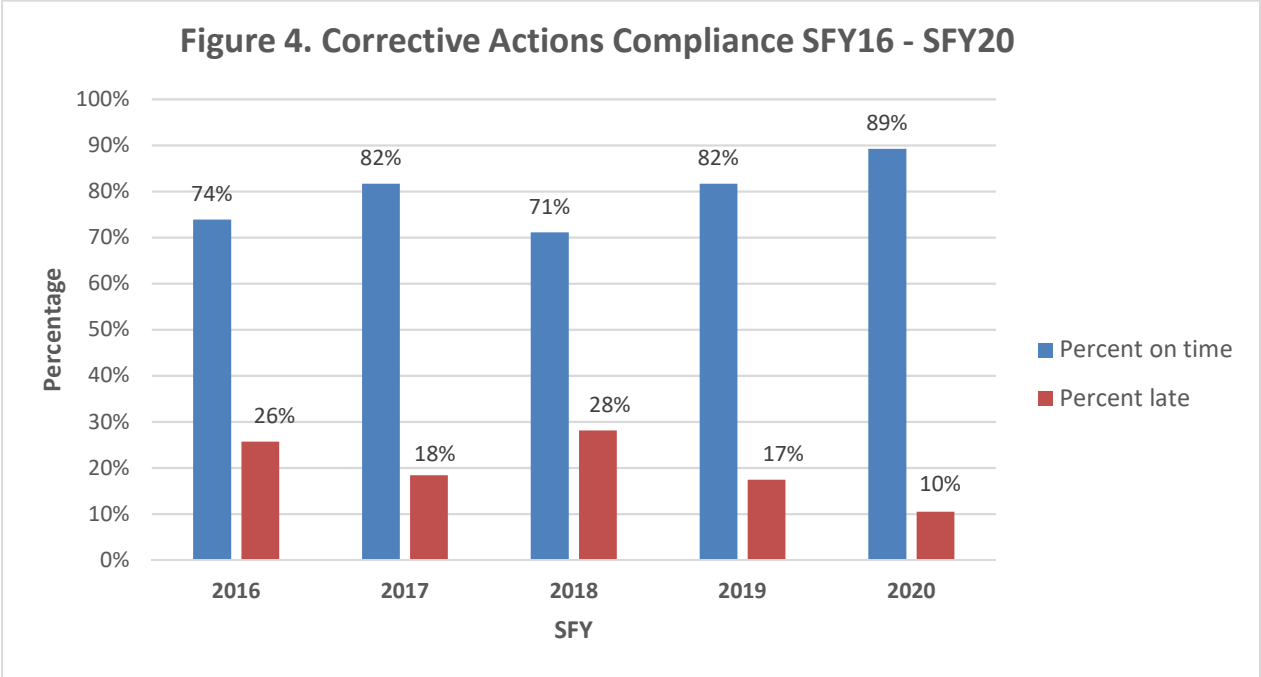
shortcomings. Because public water systems are inspected at regular intervals, the sanitary survey can be used for measuring improvements over time. During the past three years, more than 7,176 sanitary surveys were completed by DNR and contracted county staff (Table 1).

Table 1. Sanitary surveys completed during state fiscal years 2018-2020.

Water system type	State fiscal year		
	2018	2019	2020
Municipal community	228	185	164
Other than municipal community	146	153	112
Non-transient non-community	235	177	148
Transient non-community	1949	1995	1684
Total	**2558**	**2510**	**2108**

Sanitary surveys allow DNR staff to corroborate in-person what is reported by water systems throughout the year, and they also serve as an opportunity to build rapport and communication between field staff and water system owner and operators.

Beginning in 2010, regulatory changes allowed DNR to establish timelines for correcting significant deficiencies identified during sanitary surveys. Significant deficiencies are any defects or malfunctions in a public water system that could cause health risks for people consuming the water. To implement these new requirements, the DNR enhanced its Drinking Water System (DWS) water quality database to track deadlines and automatically measure compliance. Beginning in 2015, the DNR also began tracking formal corrective actions in the DWS. The data show that the percentage of public water systems that completed corrective actions for significant deficiencies by the agreed upon due dates increased steadily over the three years of this reporting period—see Figure 4 below.



Close to 90% of corrective actions were completed on time during the final fiscal year of this reporting period, which demonstrates a high percentage of noncompliant water systems working towards maintaining or regaining capacity. Increased consistency and coordination between DNR field staff, enforcement staff, and central office staff has helped to improve compliance with corrective actions.

- **Plan reviews** — Drinking water regulations require the DNR to review and approve plans and specifications for all new construction and modifications of community water systems and some new non-community systems (for example, schools and systems with pumping capacity of 70 gallons per minute or higher) prior to construction. DNR plan review provides the initial assessment of a water system's ability to meet capacity and supply safe drinking water. During the previous three years, the DNR conducted nearly 3,300 engineering reviews (Table 2).

Type of review	Total Reviews
After-the-Fact Review	54
Chemical Dose/Type Change	25
Elevated Tank Painting	19
Engineering Report	28
Facility Maintenance, Rehabilitation, Replacement	759
New Facilities	199
New Wells (Construction)	111
Water Mains	1893
Wellhead Protection Plans	51
Corrosion Control Treatment Recommendation or Study	140
Total	**3,279**

- **Safe Drinking Water Loan Program** (SDWLP) — Wisconsin cumulatively uses more than 75% of its federal DWSRF allotment to make low-interest loans and principal forgiveness for infrastructure improvements at eligible MC systems (Providing opportunities for principal forgiveness has been required by EPA since SFY 2011). The state executed loans for 104 projects during the past three years (Table 3, below).

Table 3. Summary of SDWLP financial assistance agreements awarded during SFYs 2018-2020

State fiscal year	Number of financial assistance agreements	Total amount of financial assistance agreements
2018	57	$58,564,621
2019	27	$53,751,732
2020	20	$102,150,282
Total	**104**	**$214,466,635**

A complete list of the communities receiving assistance can be found in Appendix I. Since this program began in 1998, the total amount of principal forgiveness and loans provided to Wisconsin communities is approximately **$835 million**.

- In SFY 2017, Wisconsin created the Private Lead Service Line (LSL) Replacement Funding Program. This two-year program provided funding during both SFY17 and SFY18 (in the form of principal forgiveness) to assist disadvantaged municipalities in replacing the private property portion of the lead service line, when it results in a full lead service line replacement (from water main to house meter). Thirty-five municipalities were awarded $13.8 million in funding through the LSL Replacement Funding Program in SFY 2017, and twenty-nine municipalities were allocated $13.1 million for SFY 2018. Twenty-two of the twenty-nine SFY 2018 municipalities were repeat applicants from the SFY 2017 program. More about the LSL Replacement Funding program is available on the DNR's website, http://dnr.wi.gov/Aid/documents/EIF/leadServiceLineFunding.html.
- During this reporting period, the City of Waukesha received SDWLP funds for projects to address a MCL violation for radium.
- During SFY 2019, the Village of Lomira received SDWLP funds to construct a booster station and connect a water main to provide water to the Lithostone Meadows water system to address MCL violations for radium. In SFY 2020, the State of Wisconsin authorized the issuance of revenue bonding to provide additional funds for the SDWLP. The ability to leverage additional assets within the SDWLP has resulted in considerable increase in the amount of funds available for funding SDWLP projects.

The 2019-2021 Biennial Budget included the authority to issue revenue bonds for the SDWLP. These revenue bonds will be issued under the EIF Revenue Bond Program created by the State in 2015. At the time the EIF Revenue Bond Program was created, the State worked extensively with EPA to ensure the proposed EIF Revenue Bond Program addressed federal requirements for both the SDWLP and the Clean Water Fund Program (CWFP). The Program Resolution for the EIF Revenue Bond Program includes provisions for the issuance of SDWLP revenue bonds and the tracking of those proceeds and repayments. Revenue bonds will be issued for the required state match on the annual Capitalization Grant for the SDWLP and will also result in the funding of additional SDWLP projects through the leveraging of assets within the SDWLP, similar to the current structure of the CWFP.

- **Drinking Water System database** — The DWS is DNR's primary tool for recording information and water quality data for all the state's public water systems. The DWS allows DNR to track compliance with regulatory requirements and upcoming deadlines, follow resolution of any violations, and promptly identify water quality and contaminant problems. During the past three years, DNR has enhanced the DWS in several important ways:
  - The system now tracks specific corrective actions and their completion for deficiencies identified during sanitary surveys. This change took place in 2015. Previously, the system did not track the actual corrective actions, it only tracked that deficiencies were corrected.

- During 2019, the DNR added the ability for seasonal TNs to submit their RTCR Seasonal Startups to the DNR online. This allows water systems to report to us electronically which has reduced the amount of mailing, calling, and typographical errors associated with hard copy submittals. It also allows for more expedited sharing of information and updates with our staff.
- Over the past year, discussions regarding enhanced tracking of certified operator subclass information have taken place—these enhancements are expected to take place during the next reporting period and will help the DNR to ensure that all water systems have appropriately certified operators.
- The DNR enhanced the DWS by adding the ability to determine specific public water system (PWS) attributes at any specific date in the past. This helps department staff to better track the status of water systems over time and to understand their needs:
    - Example: PWS 'X'
        - Status was 'New' from 2003/02/26 until 2004/06/22
        - Status was 'Active' from 2004/06/23 until 2012/06/08
        - Status was 'Temporarily Closed' from 2012/06/09 until 2012/09/12
        - Status is 'Active' from 2012/09/13 to present.
- DNR created an online tool in 2013 that water system operators now use to record and submit their monthly operational reports electronically. The tool, called EMOR, also allows a quicker response to any operational issues that may arise. Additional modifications and improvements to this tool have been made in the last three years:
    - During SFY 2019 and 2020, the DNR organized a significant effort to transition the majority Other-than-Municipal Community water systems that employ treatment for primary or secondary contaminants (other than for aesthetic reasons) to using EMOR. This was a statewide effort that included various DNR-sponsored and led trainings. During SFY20, the DNR began planning for a similar transition with the state's Nontransient Noncommunity water systems. Due to the substantially larger number of NN systems, this is expected to be a greater effort and transition.

- **Sanitary surveys and water quality monitoring at TN systems** — The DNR contracts with county health departments around the state to conduct sanitary surveys and monitor water quality at TN systems. This program began in 2004 with 13 counties and has grown significantly since its inception to 54 counties across the state. The county program now conducts sanitary surveys at and provides assistance to 6,936 TN systems. . County health department staff, trained annually by the DNR, visit the water systems, collect all required samples, and ensure that samples are submitted on time. They also help TN system owners understand their monitoring results and address problems identified during sanitary surveys. Since this program started, monitoring and reporting violations at TN systems have declined, as have violations caused by contaminant exceedances.

- **Technical assistance** — The DNR continuously offers technical assistance to public water systems to promote improving capacity. Some examples include:
    - The DNR contracts with the Wisconsin Rural Water Association (WRWA) to provide a technical assistance program for OC and NN systems. These are some of the state's smallest water systems; many do not have full-time drinking water staff and, as a result, they may have more difficulty complying with all the requirements. OC and NN systems that need help can get on-site assistance for dealing with operational problems, water quality monitoring, recordkeeping, or regulatory requirements. In 2013, DNR expanded this program, and now all the state's OC and NN systems also receive regular reminders of their water quality monitoring requirements and upcoming deadlines. In addition, new personnel—new samplers, owners, and operators—receive extra assistance, to help them learn about the requirements and correct sampling procedures. Monitoring and reporting violations have declined at these systems since this effort began, allowing more small systems to avoid incurring violations and allowing DNR field staff to spend more time educating and providing technical assistance at water systems and less time one noncompliance issues.
        - DNR staff provide technical assistance directly, as needed, to help water system owners, managers, and operators understand and comply with all requirements. Individualized technical assistance is a successful method for improving system capacity and helping to maintain (or return to) compliance.
        - WRWA provides over 600 on-site technical assistance visits annually across the state of WI to small public drinking water systems. The drinking water systems are specifically targeted by DNR and WRWA based on a variety of factors, including new certified operator/sampler/system owner; new water system; noncompliance issues and system violations; water quality issues; vulnerable populations (i.e. schools, daycares, nursing homes, etc.); and general recalcitrance or lack of communication with the DNR. WRWA also provides telephone and email monitoring reminders to all of the state's 1,322 OTM and NN water systems.

- **Operator certification** — Federal and state drinking water regulations require that all MC, OC and NN public water systems have certified operators, and the DNR administers Wisconsin's Operator Certification Program. During the past three years, DNR has made several important improvements to Wisconsin's program:
    - Several operator certification exams have been updated to ensure that operators are tested on knowledge of the most current requirements and regulations.
    - DNR, working with its training partners, enhanced the continuing education training for certified operators (continuing education is required for certification renewal). New training classes and curricula, designed to address topics of timely interest, have been added to the operator training programs. Classes were developed and instructed on topics that have recently experienced updated regulations, including the Lead and Copper Rule and lead and copper monitoring and sampling. Additional classes were developed on topics related to common noncompliance issues at Wisconsin's drinking water systems, including RTCR sampling; Level 1 and 2 Assessments; well disinfection; and bacteria sampling and

monitoring. The DNR meets quarterly with its continuing education providers—Moraine Park Technical College and Wisconsin Rural Water Association—to ensure that current training needs of operators around the state are being met.

- DNR utilizes an electronic system for recording operators' continuing education credits. In the past, paper credit slips were distributed after trainings, and operators had to save them until renewal time. Using the new system, credits are awarded right after training classes are completed. This has improved operators' ability to track their progress toward meeting the training requirements.
- DNR hosts a very popular online tool for reviewing operator certification records and credentials on its Operator Certification webpage-- the Operator Certification Lookup —— allows operators (along with the public) to check their certification status, renewal dates, certification subclasses, and continuing education credit history. The Operator Certification Lookup is by far, the most commonly used tool on the Operator Certification webpage with 39,739 views in SFY19, which was an increase of about 4,000 views more than SFY18. The Operator Certification Lookupis available at http://dnr.wi.gov/elcpublic/optcertlookup.aspx?pg=opcert.
- During SFY20, due to the COVID-19 pandemic, the DNR began assessing alternative testing options, since the previous format of large, in-person examinations with 50 to 100+ operators in one testing room at a time became unfeasible and potentially unsafe. The DNR began drafting proposals and contingency plans for a new examination format and is presently discussing alternate options.
- The COVID-19 pandemic also provoked the DNR to work prudently to transition its contracted continuing education classes for small water system and municipal waterworks operators to a virtual format. The virtual format has allowed operators, who are deemed essential workers for numerous reasons, to enroll and participate in continuing education classes from the safety of their own homes.

- **Wellhead protection** — Wellhead protection is a preventive program designed to protect public water supply wells and reduce infrastructure costs and public health risk. The program strives to prevent contaminants from entering public water supply wells by supporting land management in areas that contribute water to the wells. The DNR has delineated wellhead protection areas and identified potential contamination sources for all the public water wells in the state and updates these inventories regularly.

- **Source water assessments** —Source water assessments are available for all public water systems in Wisconsin—they provide basic information about the origin of a system's drinking water and how it may be affected by potential sources of contamination. These assessments are monitored and updated regularly. Assessment results help to educate citizens about protecting sources of public drinking water and facilitate developing and implementing effective strategies for managing potential contamination sources.

- **Monitoring schedules and requirements** —The DNR notifies the state's MC, OC, and NN system owners and samplers about their annual water quality monitoring requirements twice per year. Preliminary notices, sent ahead of time, contain information on requirements for the upcoming year and estimated analysis costs, allowing water system owners to budget for their water quality monitoring. Final monitoring schedules are sent at the beginning of the year. Each packet contains the annual monitoring requirements for the water system, report forms, information on certified analytical laboratories, and analyses offered by the State Laboratory of Hygiene. The State Lab analyzes coliform bacteria samples for most public water systems at no cost, which helps ensure a high rate of compliance with monitoring requirements. Monitoring requirements for the state's public water systems are always available—to system personnel and the public—on DNR's website, http://prodoasext.dnr.wi.gov/inter1/pws2$.startup).

- **Water Infrastructure Improvements for the Nation Act - the Assistance for Small and Disadvantaged Communities Drinking Water Grant (WIIN)—**During SFY20, the DNR developed a grant program for Other-Than-Municipal Community (OTM) and Nontransient Noncommunity (NN) water systems, which qualify as small, disadvantaged and/or underserved drinking water systems. These water systems have experienced a noteworthy level of noncompliance and economic hardship in complying with different state and federal regulations over time. Due to this, the DNR chose to focus on the most disadvantaged water systems that do not have access to the Safe Drinking Water Loan Program (SDWLP) and those with the greatest drinking water health risks, when establishing its WIIN Grant program and funding prioritization. The DNR was appropriated $722,000 in funding under the WIIN Grant to use at these small and disadvantaged systems. DNR staff closely analyzed economic and health-based need when deciding which projects to submit to EPA for final review and approval. Ultimately, the DNR identified 16 water systems that it determined to have the greatest economic and health-based hardships. The DNR specifically chose to direct this funding towards water systems with the goal being increased technical, managerial, and financial capacity at these systems. At the time of drafting this report, the DNR is currently working with the EPA to determine how many of the 16 proposed water system projects will be funded by EPA.

- **Public Water Partnerships**—The DNR encourages both formal and informal water system partnerships around the state of Wisconsin. Beginning in 2018, the DNR began incentivizing documented public water system partnerships through its state Safe Drinking Water Loan Program, by offering five points towards principal forgiveness on loans. The DNR has been an active proponent of water system partnerships at training workshops as well as through its technical assistance providers. Water system partnerships provide an additional tool which can be used to increase the overall TMF capacity of water systems small and large. Whether the partnership involves sharing equipment and tools or staff and other resources, it can be one of the most useful resources for a water system to maintain capacity. Certified operator conferences and continuing education classes serve as apt opportunities for operators to initiate conversations regarding potential partnerships with other water systems.

- **Lead and Copper Rule Implementation—**During this reporting period, the DNR implemented a number of processes and policies to support Lead and Rule implementation in WI, including:
    - Modifying corrosion control treatment optimization determinations for all large public water systems (12), which are those serving greater than 50,000 people;
    - Requiring water quality parameter testing for small and medium systems that have lead service lines and are not currently providing a corrosion inhibitor;
    - Documenting the service line, premise plumbing and non-existence of treatment devices at active municipal monitoring sites.
- **Proactive Capacity Development**—The DNR has seen evidence and results since the implementation of the Capacity Development program that *proactive* capacity development—through technical assistance, operator certification, continuing education and training, primacy guidance and communication with external stakeholders, and asset management—is more effective than reactive capacity development. With this in mind, the DNR continues to use the aforementioned tools and practices to lead proactive capacity development measures throughout Wisconsin.

ENCOURAGING ASSET MANAGEMENT AT PUBLIC WATER SYSTEMS

Under America's Water Infrastructure Act of 2018 (AWIA), several amendments were made to the Safe Drinking Water Act. One of those amendments, under Section 2012 of AWIA, established the following:

> *"States must amend their state capacity development strategies to include a description of how the state will encourage the development of asset management plans that include best practices, training, technical assistance and other activities to help with implementation of those plans. States also must include an update of these activities to encourage asset management practices in the Governor's report."*

To that end, the Wisconsin DNR has taken multiple steps and implemented policies to encourage asset management planning at water systems throughout the state.

Following is a list of actions the DNR has taken to encourage asset management planning—note—this list is not all-inclusive:

- Created and published an asset management webpage for public access, which includes tools, resources, guides, trainings, FAQs, and a broad introduction to the practice and benefits of asset management for drinking water systems. The website also includes an introduction to the topic of asset criticality, taking into account the concepts of *risk* and *consequence of failure.*
- Over the past few years, the DNR has partnered with Wisconsin Rural Water Association, the Environmental Finance Center Network, Great Lakes Community Action Partnership (formerly RCAP), and the Public Service Commission on multiple asset management trainings and classes around the state of WI, with specific emphasis on small drinking water systems

- During SFY19, the DNR began incentivizing Principal Forgiveness (similar to federal grant money) points on Safe Drinking Water Loan Program (SDWLP) applications for municipalities that submitted approved asset management plans (AMPs) to the DNR
    - Municipalities that submit approved asset management plans for the first time receive 10 point towards Principal Forgiveness
    - Municipalities are encouraged to update their asset management plans annually, and those that do so and submit an updated version to the DNR receive 5 points towards Principal Forgiveness in subsequent years
    - In future SDWLP funding years, the department intends to award *overall* project scoring points to applicants who submit approved asset management plans, to increase the weight or influence of submitting an AMP on a municipality's application
- Over the past few years, DNR staff have presented on the topic of asset management at various conferences, which has greatly increased interest and communication in the public sector on developing AMPs
- DNR staff have attended asset management trainings and engaged innumerable meetings, discussions, and other communications regarding asset management
- The department has promoted instruction on the topic of asset management in both its municipal waterworks and small water system operator continuing education courses, which are paid for by federal Set-Aside funding
- Over the past year, the DNR has partnered with Moraine Park Technical College on the development of four online training modules in capacity development—specifically, the modules expand on the topics of utility management, financial planning, and asset management. The training modules are catered towards local governing bodies and local decisionmakers, and they aim to increase the understanding and dialogue between decisionmakers and water operators. Asset management and analysis-based planning are central to each of these training modules. The modules are scheduled to launch in December 2020. The DNR will be incentivizing operators to take the trainings by offering continuing-education credits, and it also plans to provide additional SDWLP incentive for governing boards that have at minimum 50% of their members take the trainings.

The DNR's Bureau of Drinking Water and Groundwater strongly and enthusiastically supports and promotes the practice of asset management at public drinking water systems across Wisconsin, and it continues to proactively identify novel opportunities for the promotion of asset management. Like an asset management plan that requires commitment, enhancement, and regular updating over time, so too does the department commit to improving and updating its strategies to promote and encourage asset management over time.

EFFECTIVENESS OF WISCONSIN'S CAPACITY DEVELOPMENT STRATEGY

Wisconsin's Capacity Development Strategy continues to be effective—this is evidenced in the DNR's Annual Drinking Water Report, and is further exhibited by the information provided in this report. New public water systems demonstrate adequate technical, managerial, and financial capacity before beginning to serve water to the public, and existing systems continue to build and improve their capacity, both with the help of DNR staff and DNR's technical assistance providers Wisconsin's emphasis on enhancing the tools for assessing system capacity, measuring system performance, acting quickly to correct violations and contaminant problems, and assisting systems in need has helped the state's water systems improve capacity over time. During 2019, more than 99 percent of Wisconsin's public water systems provided water that met all health-based standards for regulated contaminants. As a result, the vast majority of Wisconsin's 11,000+ public water systems were able to meet all the health-based standards for drinking water quality and consistently provide safe drinking water. Capacity development is an ongoing process to ensure adequate capacity at all water systems in the state, and the Wisconsin DNR is committed to this goal. Each year the department places special emphasis on public water systems which fail to provide safe drinking water, with an ultimate goal of 100% of the state's water systems providing safe drinking water to the public.

APPENDIX I. Financial assistance awarded to Wisconsin communities through the Safe Drinking Water Loan Program during state fiscal years 2018-2020.

Municipality	Project Total	FAA Total	SFY Funded
Antigo, City of	$300,000	$300,000	2018
Arcadia, City of *	$4,276,622	$3,582,011	2018
Ashland, City of	$300,000	$300,000	2018
Baraboo, City of	$250,000	$250,000	2018
Belleville, Village of	$1,490,842	$1,490,842	2018
Chaseburg, Village of	$1,022,296	$1,022,296	2018
Clintonville, City of	$200,000	$200,000	2018
Cross Plains, Village of *	$4,364,337	$1,646,578	2018
Dorchester, Village of *	$1,177,203	$211,209	2018
Eagle River, City of	$200,000	$200,000	2018
Eau Claire, City of	$300,000	$300,000	2018
Ellsworth, Village of *	$408,852	$376,915	2018
Fall Creek, Village of	$1,074,271	$1,074,271	2018
Fond du Lac, City of	$200,000	$200,000	2018
Green Bay, City of	$300,000	$259,530	2018
Greenwood, City of *	$2,688,338	$1,109,619	2018
Hancock, Village of *	$1,486,542	$437,929	2018
Horicon, City of *	$2,319,513	$698,644	2018
Hudson, City of *	$2,931,120	$1,792,013	2018
Jefferson, City of	$150,000	$150,000	2018
Junction City, Village of *	$1,307,135	$721,347	2018
Ladysmith, City of *	$1,163,491	$484,796	2018
Lake Delton, Village of	$2,003,499	$1,963,499	2018
Little Chute, Village of *	$1,306,472	$1,235,500	2018
Lone Rock, Village of *	$1,284,097	$623,100	2018
Manitowoc, City of	$300,000	$300,000	2018
Markesan, City of	$185,000	$185,000	2018
Marshfield, City of	$200,000	$200,000	2018
Mayville, City of	$5,507,071	$877,098	2018
Menasha, City of	$200,000	$200,000	2018
Milwaukee, City of	$4,001,226	$4,001,226	2018
Milwaukee, City of	$13,328,519	$12,706,234	2018
Mosinee, City of	$150,000	$150,000	2018
New Berlin, City of *	$1,288,645	$774,620	2018
No. Fond du Lac, Village of	$100,000	$100,000	2018
Ontario, Village of	$652,305	$522,305	2018

Municipality	Project Total	FAA Total	SFY Funded
Oshkosh, City of	$300,000	$300,000	2018
Platteville, City of	$200,000	$200,000	2018
Racine, City of	$1,381,863	$1,381,863	2018
Redgranite, Village of	$1,415,871	$893,921	2018
Reeseville, Village of *	$1,439,218	$350,598	2018
Saint Francis, City of	$150,000	$150,000	2018
Schofield, City of	$150,000	$150,000	2018
Sheboygan, City of	$300,000	$300,000	2018
South Milwaukee, City of *	$7,030,090	$6,789,348	2018
Spring Valley, Village of	$1,082,682	$1,082,682	2018
Stratford, Village of *	$1,865,853	$871,776	2018
Thorp, City of	$200,000	$200,000	2018
Tomah, City of *	$888,178	$791,475	2018
Two Rivers, City of *	$2,392,324	$718,181	2018
Two Rivers, City of	$500,000	$500,000	2018
Viroqua, City of	$200,000	$200,000	2018
Waukesha, City of *	$2,554,576	$679,774	2018
Waupaca, City of	$231,097	$200,000	2018
Wausau, City of	$300,000	$300,000	2018
West Allis, City of	$1,925,780	$1,358,421	2018
West Milwaukee, Village of	$500,000	$500,000	2018
SFY 2018 Totals:	**$83,424,928**	**$58,564,621**	
Alma Center, Village of	$1,018,808	$1,018,808	2019
Bloomington, Village of *	$1,590,836	$950,891	2019
Bruce, Village of	$876,781	$649,487	2019
Chetek, City of *	$583,284	$544,833	2019
Cobb, Village of *	$938,940	$409,394	2019
Colby, City of	$807,387	$389,387	2019
Dane, Village of *	$885,250	$689,828	2019
Grantsburg, Village of *	$387,202	$345,180	2019
Highland, Village of *	$869,957	$415,942	2019
Ladysmith, City of	$2,846,382	$1,313,529	2019
Lomira, Village of	$2,206,150	$2,196,150	2019
Lyndon Station, Village of	$855,710	$855,710	2019
Mayville, City of (Amend) *	$92,206	$62,309	2019
Milwaukee, City of	$16,446,947	$16,210,551	2019
Necedah, Village of *	$1,145,025	$302,983	2019
New Berlin, City of	$1,660,834	$1,206,314	2019
Omro, City of	$1,445,796	$1,445,796	2019
Plover, Village of	$3,130,291	$3,130,291	2019

Municipality	Project Total	FAA Total	SFY Funded
Rhinelander, City of	$18,676,282	$5,677,375	2019
Richland Center, City of	$2,536,797	$2,536,797	2019
Rock Springs, Village of *	$1,229,306	$312,311	2019
Somerset, Village of	$1,653,266	$1,141,266	2019
Thorp, City of	$1,028,898	$552,973	2019
Three Lakes SD #1	$1,414,151	$411,530	2019
Tomahawk, City of	$1,329,746	$1,329,746	2019
Two Rivers, City of	$1,978,265	$789,090	2019
Waukesha, City of *	$12,446,498	$8,863,261	2019
SFY 2019 Totals:	**$80,080,995**	**$53,751,732**	
Arlington, Village of	$2,051,577	$923,860	2020
Augusta, City of	$4,074,367	$2,076,859	2020
Barron, City of	$2,022,909	$1,511,909	2020
Bear Creek, Village of	$815,994	$815,994	2020
Clintonville, City of	$2,156,683	$766,234	2020
Crandon, City of	$934,931	$459,789	2020
Eau Claire, City of	$11,477,985	$11,174,785	2020
Edgerton, City of	$234,605	$234,605	2020
Gresham, Village of	$1,639,334	$603,845	2020
Milwaukee, City of	$29,508,645	$28,562,461	2020
Mineral Point, City of	$877,031	$827,631	2020
Mishicot, Vilage of	$1,344,624	$446,648	2020
New Auburn, Village of	$961,880	$605,390	2020
Omro, City of	$3,283,214	$1,118,538	2020
Ridgeway, Village of *	$1,396,794	$875,071	2020
Shelby SD #2	$2,417,811	$1,728,688	2020
Stoddard, Village of	$1,356,938	$837,054	2020
Waukesha, City of *	$4,812,045	$2,717,094	2020
Wausau, City of	$46,396,462	$45,256,287	2020
Woodville, Village of	$1,540,654	$607,540	2020
SFY 2020 Totals:	**$119,304,483**	**$102,150,282**	
** loan amount amended			
Starting with SFY 2016, projects in **Bold** are designated as Federal Equivalency			

APPENDIX II. List of abbreviations.

DNR	Wisconsin Department of Natural Resources
DWS	Drinking Water System database
DWSRF	Drinking Water State Revolving Fund
EPA	US Environmental Protection Agency
MC	Municipal Community water system
NN	Nontransient Noncommunity water system
OC or OTM	Other-Than-Municipal Community water system
SDWA	Safe Drinking Water Act
SDWLP	Safe Drinking Water Loan Program
SFY	State fiscal year
TN	Transient Noncommunity water system