

Wisconsin's Capacity Development Program
for Public Drinking Water Systems

Report to the Governor 2014



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 (SDWA) emphasize managing 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 “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 (DNR) Bureau of Drinking Water and Groundwater is responsible for the program.

Wisconsin’s progress toward improving the capacity of public water systems includes the following:

- More than 95% of the state’s public water systems have met all health-based standards for water quality.
- Compliance rates for correcting significant deficiencies identified during sanitary surveys have consistently improved.
- The Safe Drinking Water Loan Program has funded 93 projects to improve public water systems in 79 Wisconsin communities.
- Water quality data for the state’s public water systems are available to the public on DNR’s web site, 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 record keeping 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.

Wisconsin’s capacity development strategy effectively helps public water systems to achieve and maintain adequate capacity. As a result, most 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 2011-June 2014 (state fiscal years 2012-14). It will be available to the public on DNR’s capacity development web site, <http://dnr.wi.gov/topic/DrinkingWater/CapacityDevelopment.html>.

INTRODUCTION

The 1996 amendments to the Safe Drinking Water Act (SDWA) emphasize encouraging proper management of public water systems, with the goal of preventing contamination of drinking water supplies and ensuring the delivery of safe drinking water. Each state is required to have a strategy for helping its public water systems to acquire and maintain "capacity," the ability to meet the SDWA's requirements and provide safe drinking water. This strategy is called capacity development.

The goal of Wisconsin's Capacity Development Program (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 (DNR), Bureau of Drinking Water and Groundwater is responsible for the Program.

The SDWA also requires the DNR to submit a report to the Governor every three years, describing the effectiveness of the state's strategy and progress made toward improving the technical, managerial, and financial capacity of public water systems in Wisconsin. This document contains DNR's 2014 report to the Governor, covering the period from July 2011-June 2014 (state fiscal years 2012-14). The report is available to the public on DNR's capacity development web site, <http://dnr.wi.gov/topic/DrinkingWater/CapacityDevelopment.html>.

WHAT IS CAPACITY DEVELOPMENT?

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

- **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** demonstrate adequate capacity before beginning to serve water.
 - 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 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, and more.

The SDWA amendments include initiatives to increase the assistance available to small public drinking water systems. These small systems—including schools, factories, and mobile home parks—may not have full-time, specialized staff, and providing drinking water may not be their primary business. As a result, they may have more difficulty complying with the 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 management; and
- lack of access to money or affordable technologies.

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
- Follow-up assistance to correct problems
- Evaluating water quantity and quality
- Identifying needs for water system infrastructure improvements
- Finding funding for water system improvements
- Financial management and planning
- Identifying opportunities for cooperation between state agencies that will assist water systems

More detail about Wisconsin's Program, including the state's capacity development strategy document, is available on DNR's web site, <http://dnr.wi.gov/topic/DrinkingWater/CapacityDevelopment.html>.

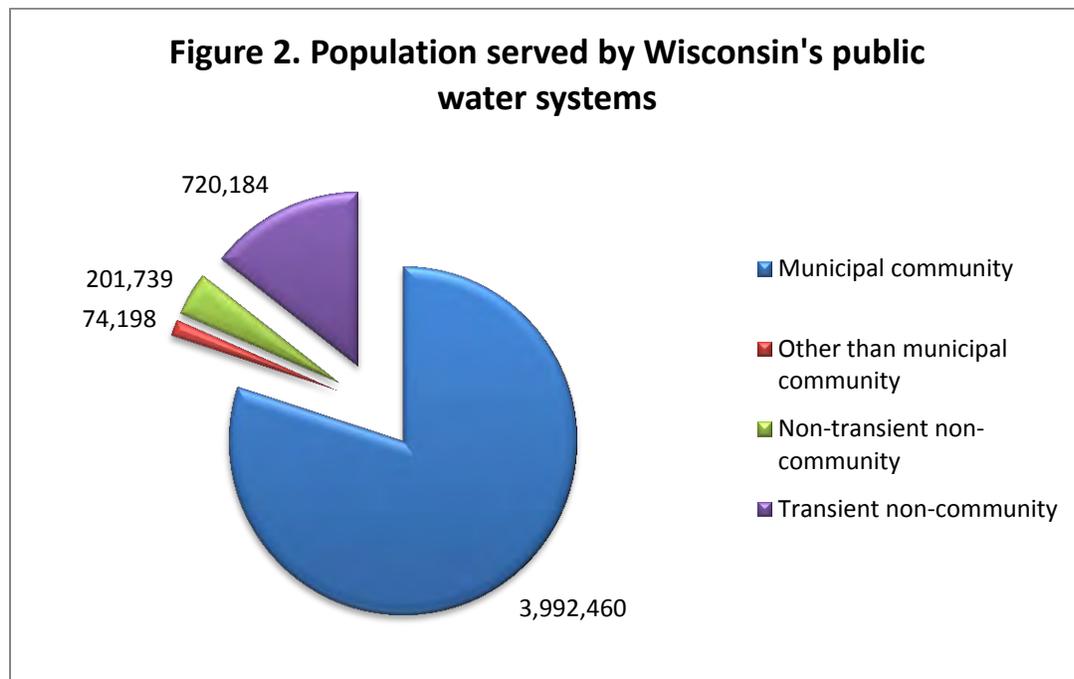
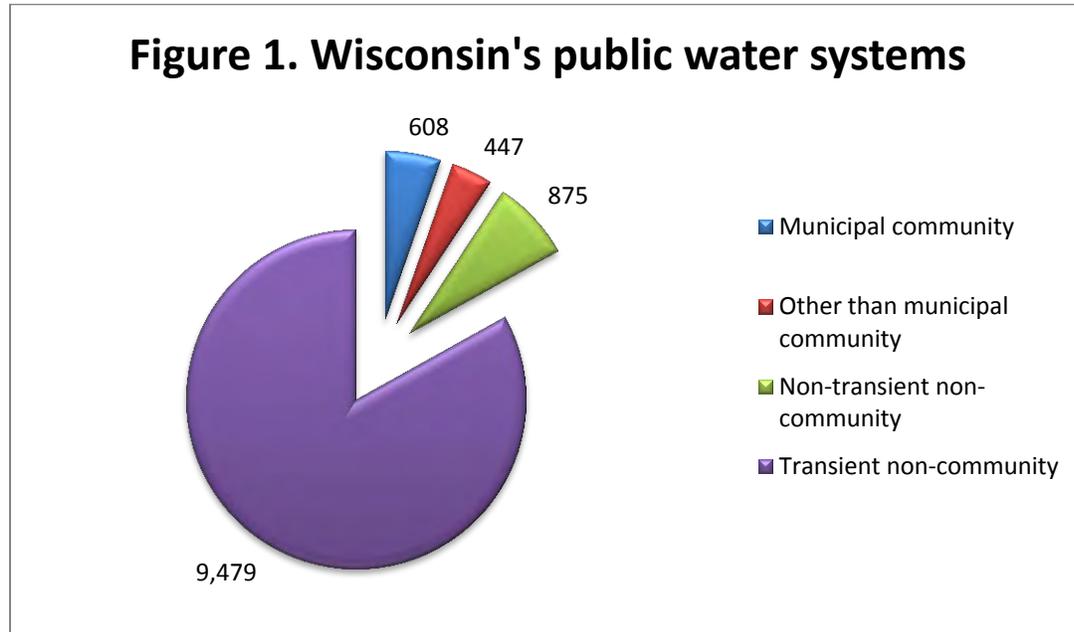
WISCONSIN'S PUBLIC WATER SYSTEMS

Wisconsin has more than 11,400 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, day care 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.

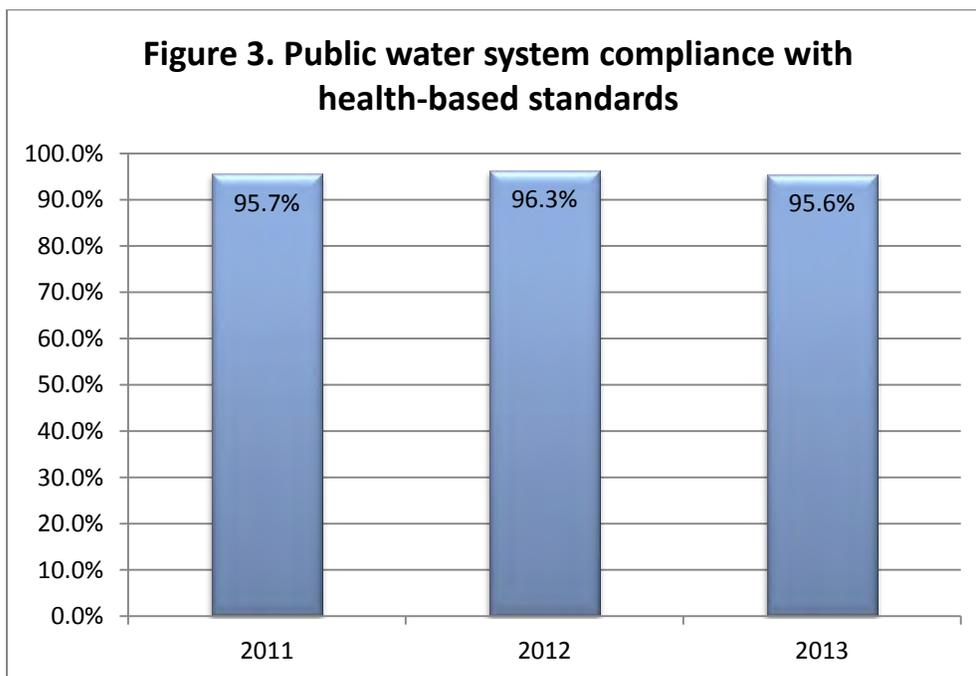
Figure 1 shows the breakdown of public water systems in Wisconsin. Most are Transient Non-community systems. However, most of the state's population is served by Municipal Community systems (Figure 2).



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 an ongoing 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, 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:

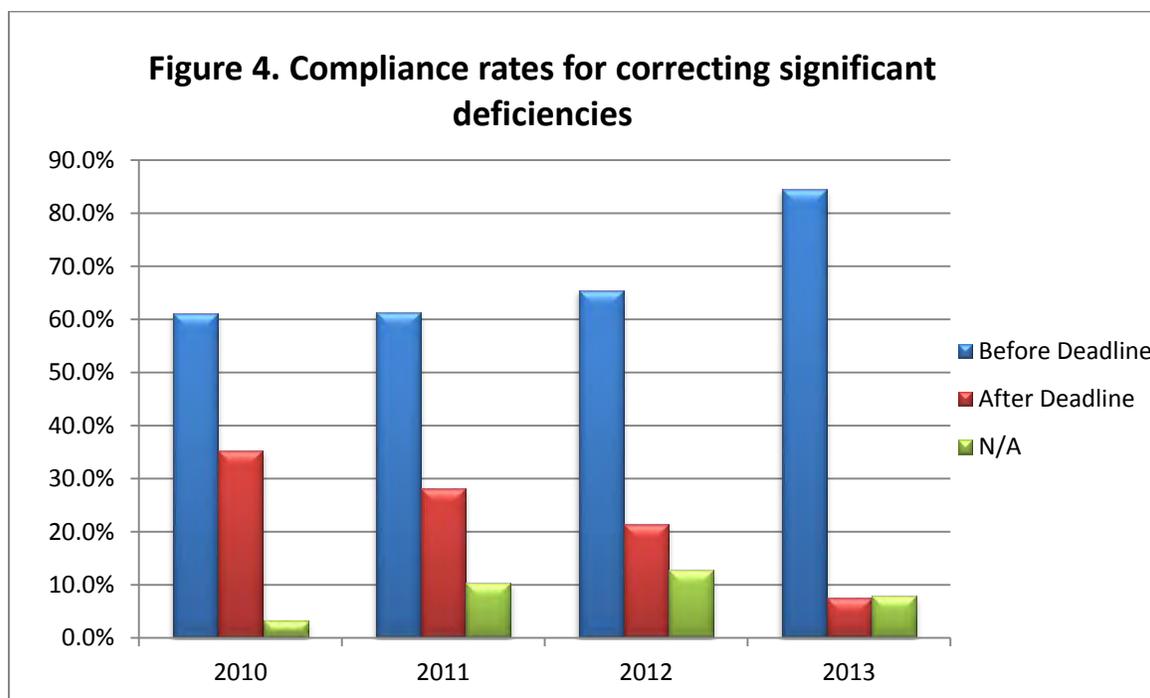
- **Compliance rates** — Wisconsin's public water systems have an excellent record for consistently providing safe drinking water. During this reporting period, more than 95% of the state's systems provided water that met all health-based quality standards (Figure 3). DNR's *2013 Annual Drinking Water Report Wisconsin's Public Water Systems* (<http://dnr.wi.gov/files/PDF/pubs/DG/DG0045.pdf>) contains additional details about water system performance. Water quality data for all the state's public water systems are available to the public on the DNR's web site ([http://prodoasext.dnr.wi.gov/inter1/pws2\\$.startup](http://prodoasext.dnr.wi.gov/inter1/pws2$.startup)).



- **Sanitary surveys** — The sanitary survey is a critical tool for assessing and improving 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 have been corrected. These in-depth inspections also give opportunities to offer recommendations and assistance that may help systems meet and maintain capacity. 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 7,800 sanitary surveys were completed by DNR and contracted county staff (Table 1).

Water system type	State fiscal year		
	2012	2013	2014
Municipal community	207	214	206
Other than municipal community	157	144	159
Non-transient non-community	213	208	173
Transient non-community	2215	1911	2012
Totals	2792	2477	2550

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. Every year since 2010, Wisconsin's public water systems have shown improved ability to correct these deficiencies (Figure 4). The improvements made are a positive example of the DNR working with public water system owners and operators to better achieve capacity.



- 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 more than 2,200 engineering reviews (Table 2).

Type of review	Water system type				Total reviews
	MC	OC	NN	TN	
Engineering Report	105	10	55		170
Facility Maintenance, Rehabilitation, Replacement	159	37			197
New Facilities	183	30	1	1	217
New Wells (Construction)	67	12	142		221
Water Mains	1369	3			1372
Wellhead Protection Plans	36				36

- Safe Drinking Water Loan Program (SDWLP)** — Wisconsin 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 made loans for 93 projects during the past three years (Table 3). (For a complete list of the communities receiving assistance, see Appendix I.) Since this program began in 1998, the total amount of principal forgiveness and loans provided to Wisconsin communities is approximately \$488 million.

State fiscal year	Number of financial assistance agreements	Total amount of financial assistance agreements
2012	31	\$56,627,936
2013	38	\$45,595,904
2014	24	\$32,761,140
Total	93	\$134,984,980

- 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 deadlines for correcting significant deficiencies identified during sanitary surveys.
 - DNR created an online tool that system owners use to prepare their Consumer Confidence Reports (required annually for all community water systems). The CCR Generator is available at <http://dnr.wi.gov/topic/DrinkingWater/CCR.html>.
 - DNR created an online tool 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.
- 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 started in 2004 with 13 counties. It has grown yearly and currently includes 6,692 TN systems in 50 counties. 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 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, record keeping, or regulatory requirements. DNR recently expanded this program, and now all the state's OC and NN systems also get regular reminders of their water quality monitoring requirements and upcoming deadlines. In addition, new personnel get 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.
 - DNR staff provide technical assistance directly as needed, to help water system owners 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.
- **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:
 - Qualifying exams have been updated to ensure that operators are tested on knowledge of the most current requirements.
 - DNR built a database for the qualifying exams, which allows more detailed analysis of exam results and all exam updates.
 - DNR, working with its training partners, enhanced the continuing education training for certified operators (continuing education is required for license renewal). New training classes, designed to address topics of timely interest, have been added to the operator training programs. One example is a course in winter operations, which covers the lessons learned and skills needed as a result of the winter of 2013-14.
 - DNR created an electronic system for recording operators' continuing education credits. (In the past, paper credit slips were handed out after training, 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 created an online tool for operator certification records, which allows operators (along with the public) to check their status, renewal dates, and continuing education credits. The Operator Certification Lookup web site is available at <http://dnr.wi.gov/elcpublic/optcertlookup.aspx?pg=opcrt>.
- **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 requirements for the water system, report forms, links to certified analysis laboratories, and information about 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 web site, [http://prodoasext.dnr.wi.gov/inter1/pws2\\$.startup](http://prodoasext.dnr.wi.gov/inter1/pws2$.startup)).

EFFECTIVENESS OF WISCONSIN'S CAPACITY DEVELOPMENT STRATEGY

Wisconsin's capacity development strategy continues to be effective. 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. 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. As a result, most of Wisconsin's public water systems are able to meet all the health-based standards for drinking water quality and consistently provide safe drinking water.

APPENDIX I. Financial assistance awarded to Wisconsin communities through the Safe Drinking Water Loan Program during state fiscal years 2012-2014.

City, village or sanitary district	State fiscal year	Financial assistance agreement (loan/grant)
Abbotsford	2012	\$701,970
Allouez	2013	\$2,560,962
Alma Center	2013	\$672,073
Barron	2012	\$506,902
Barron	2013	\$139,776
Bayfield	2012	\$670,550
Bayfield	2013	\$292,965
Belgium	2013	\$1,174,954
Blue River	2012	\$147,437
Bluffview Sanitary District	2013	\$694,598
Burlington	2012	\$2,271,418
Cameron	2012	\$245,050
Cameron	2014	\$1,522,192
Colby	2012	\$349,925
Cornell	2012	\$1,826,166
Cottage Grove	2013	\$2,840,252
Cumberland	2013	\$477,028
Dallas	2104	\$852,046
Dane	2013	\$1,634,203
Dorchester	2014	\$364,931
Eastman	2012	\$923,706
Elroy	2012	\$929,156
Fairchild	2013	\$500,000
Fountain City	2104	\$634,236
Friesland	2013	\$471,210
Friesland	2014	\$262,002
Genoa	2012	\$75,010
Grantsburg	2012	\$302,257
Greendale	2013	\$4,510,134
Greendale	2014	\$711,888
Greenleaf	2013	\$470,152
Greenwood	2013	\$1,724,482
Hancock	2014	\$834,481
Hawkins	2013	\$203,783
Highland	2014	\$234,160
Hillsboro	2013	\$992,574
Hobart	2012	\$1,123,268
Horicon	2012	\$1,162,261
Jefferson	2013	\$1,661,054

City, village or sanitary district	State fiscal year	Financial assistance agreement (loan/grant)
Junction City	2013	\$1,102,221
Kendall	2014	\$535,989
Ladysmith	2013	\$4,708,509
Lake Delton	2014	\$4,541,467
Livingston	2013	\$104,175
Luck	2013	\$544,888
Marinette	2012	\$20,720,928
Marshall	2013	\$579,517
Menasha	2012	\$259,230
Menasha	2012	\$683,451
Menasha	2013	\$1,418,312
Merrill	2013	\$2,197,117
Merrillan	2012	\$486,726
Merrillan	2013	\$140,577
Milwaukee	2014	\$7,823,139
Minong	2012	\$498,131
Morrisonville Sanitary District 1	2013	\$1,054,634
Necedah	2012	\$1,347,610
New Auburn	2104	\$373,625
New Holstein	2014	\$716,604
New Lisbon	2012	\$454,501
New Lisbon	2012	\$720,776
Oak Creek	2012	\$5,889,583
Oak Creek	2013	\$2,886,893
Oak Creek	2014	\$5,471,070
Ontario	2012	\$89,773
Park Falls	2013	\$858,691
Pepin	2013	\$561,760
Pittsville	2013	\$1,134,216
Prairie du Chien	2014	\$503,175
Prairie du Sac	2012	\$1,769,682
Randolph	2013	\$995,504
Readstown	2014	\$15,257
Rhineland	2014	\$1,026,552
Saint Nazianz	2013	\$956,170
Seymour	2013	\$1,629,624
Shell Lake	2014	\$751,921
South Wayne	2012	\$152,874
South Wayne	2013	\$133,205
South Wayne	2014	\$272,597
Spencer	2014	\$1,093,568
Stevens Point	2012	\$11,062,597
Stevens Point	2013	\$60,111

City, village or sanitary district	State fiscal year	Financial assistance agreement (loan/grant)
Stratford	2012	\$387,055
Three Lakes Sanitary District 1	2012	\$517,621
Turtle Lake	2014	\$1,319,682
Two Rivers	2104	\$435,826
Viroqua	2104	\$1,991,348
Waukesha	2013	\$1,241,779
Waupaca	2012	\$278,226
Webster	2013	\$829,380
Wiotia Sanitary District	2012	\$74,096
Withee	2014	\$473,384
Wrightstown	2013	\$1,438,421

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	Non-transient non-community water system
OC	Other than municipal community water system
SDWA	Safe Drinking Water Act
SDWLP	Safe Drinking Water Loan Program
SFY	State fiscal year
TN	Transient non-community water system

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