

**NHDES CAPACITY DEVELOPMENT
TRIENNIAL REPORT TO THE GOVERNOR
July 2014 to June 2017**

September 30, 2017



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NEW HAMPSHIRE



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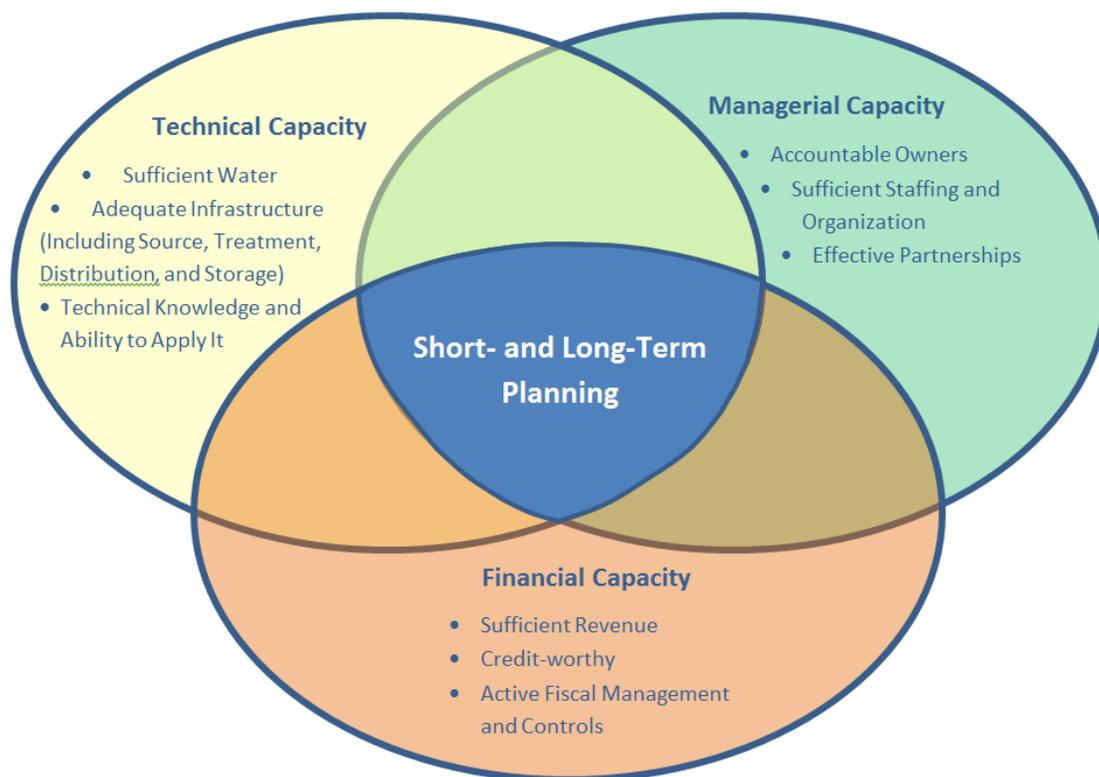
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I. INTRODUCTION

1. BACKGROUND

Under the 1996 Amendments to the Safe Drinking Water Act (SDWA), Section 1420(c), each state must develop, implement, measure and report on their “capacity assurance” efforts to ensure that all new and existing public water systems (PWS) have adequate technical, managerial and financial means to provide clean, safe and reliable drinking water to their customers. States failing to comply with these requirements are subject to withholding up to 20% of their Drinking Water State Revolving Loan Fund (DWSRF) allotment.

Figure 1 – Small Water System Challenges



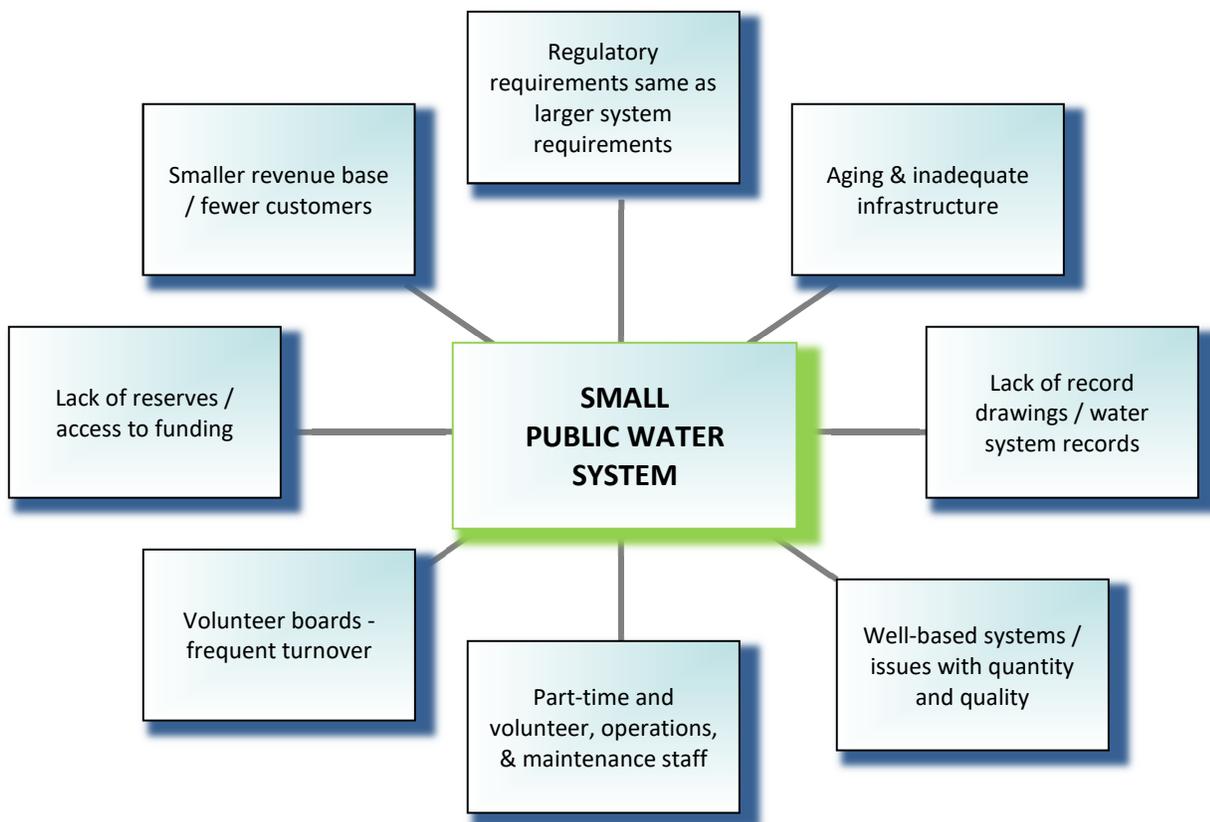
Technical- The physical and operational ability of a water system to meet SDWA requirements, including the adequacy of its source water, physical infrastructure, technical knowledge and capability of operating personnel.

Managerial- The ability of a water system to conduct its affairs in such a manner to achieve and maintain compliance with SDWA requirements, including the system’s institutional and administrative capabilities.

Financial- The water system’s ability to acquire and manage sufficient financial resources to achieve and maintain compliance with SDWA.

This report is structured in accordance with the reporting criteria required by EPA. Section II describes water system compliance issues or capacity development “needs”; Section III describes activities to ensure adequate capacity of **new** public water systems, and Section IV summarizes activities to improve the capacity development of **existing** systems.

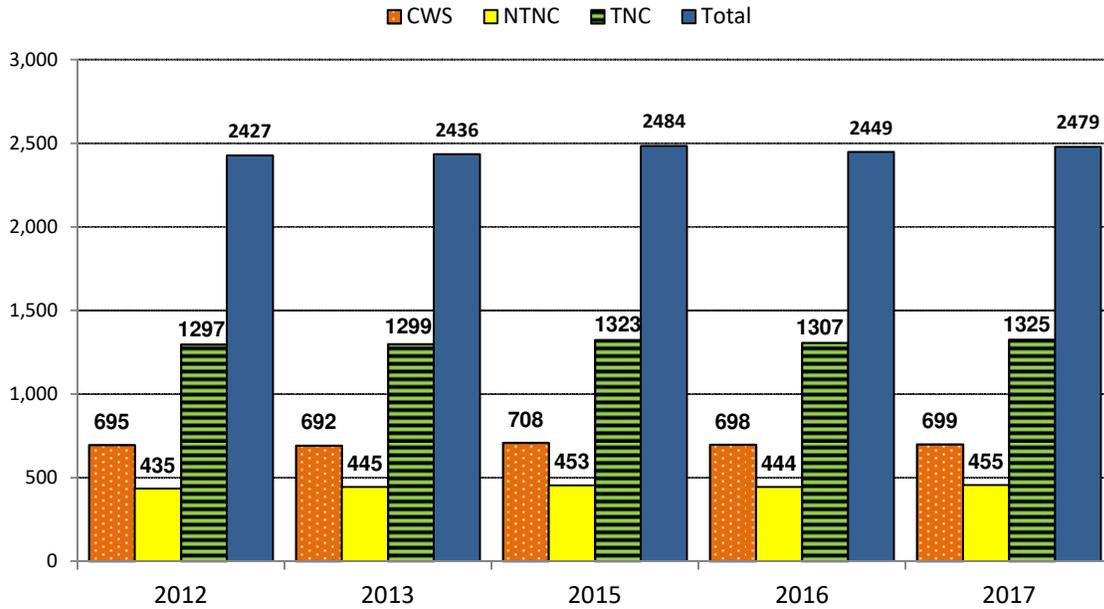
The goal of capacity assurance is to improve the long-term sustainability and rate of compliance of community public water systems (CWS) and non-transient non-community (NTNC) public water systems. New Hampshire’s program is administered through the Department of Environmental Services’ Drinking Water & Groundwater Bureau (DWGB). New Hampshire focuses its capacity development efforts on the very small water systems (<250 service population), because these systems exhibit a multitude of hardships to manage and maintain water system compliance (Figure 1), and incur the highest number of violations both for health-based parameters and for monitoring and reporting requirements.



2. PROFILE OF NEW HAMPSHIRE PUBLIC WATER SYSTEMS

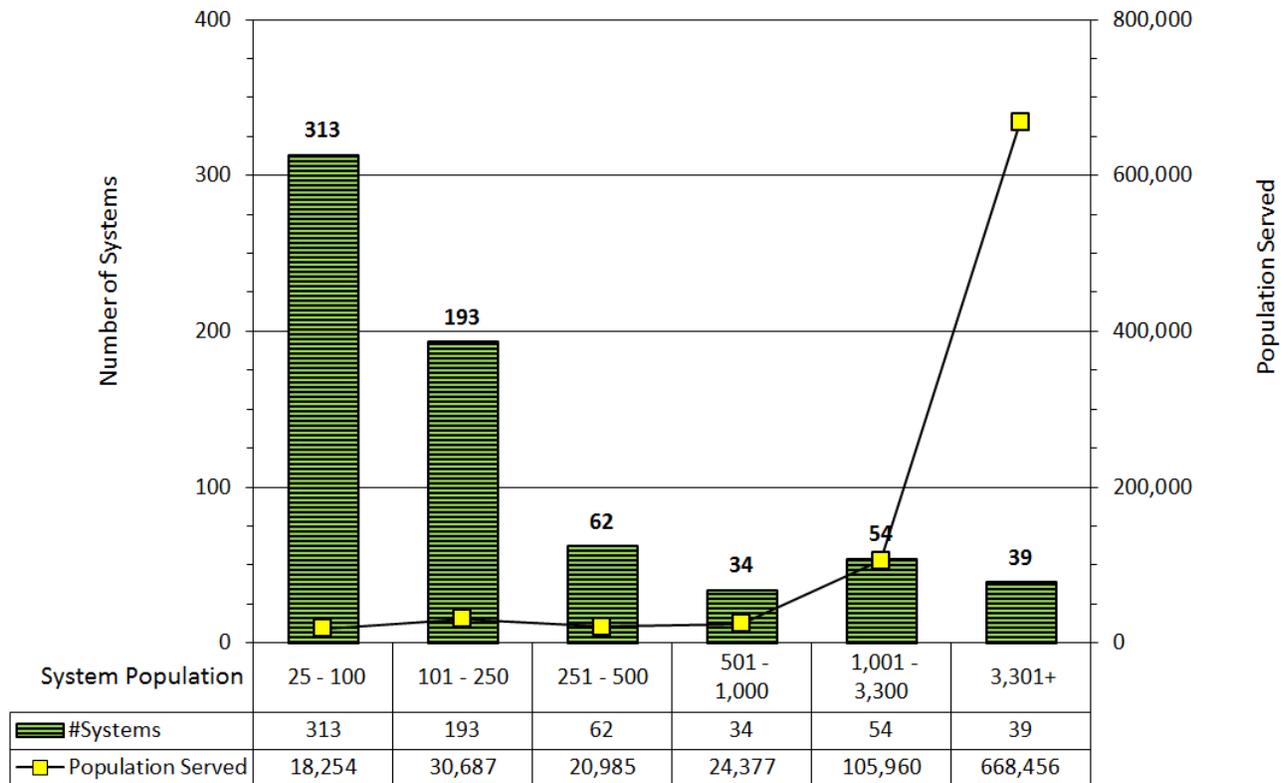
In Calendar year 2017, New Hampshire’s approximately 2,500 public water systems consisted of about half (47%) non-transient systems, serving residential communities, schools and businesses. The remaining 53% serve transient populations such as hotels, restaurants and campgrounds (Figure 2). It is also important to note that only **54%** of the state’s residential population is served **by public water systems**; with the balance **46%** served by **private wells**.

**Figure 2 - Active Public Water Systems in NH
(by previous calendar year)**



Further breakdown of New Hampshire’s public water system inventory shows that **73%** of our residential *community water systems* serve 250 people or less, representing about **6%** of the community water system *populations* served (Figure 3). This bracket has the highest rate of non-compliance, underscoring the need to target capacity assistance efforts to this system size.

**Figure 3 - Community Water Systems
by Population Served in Calendar Year 2016**

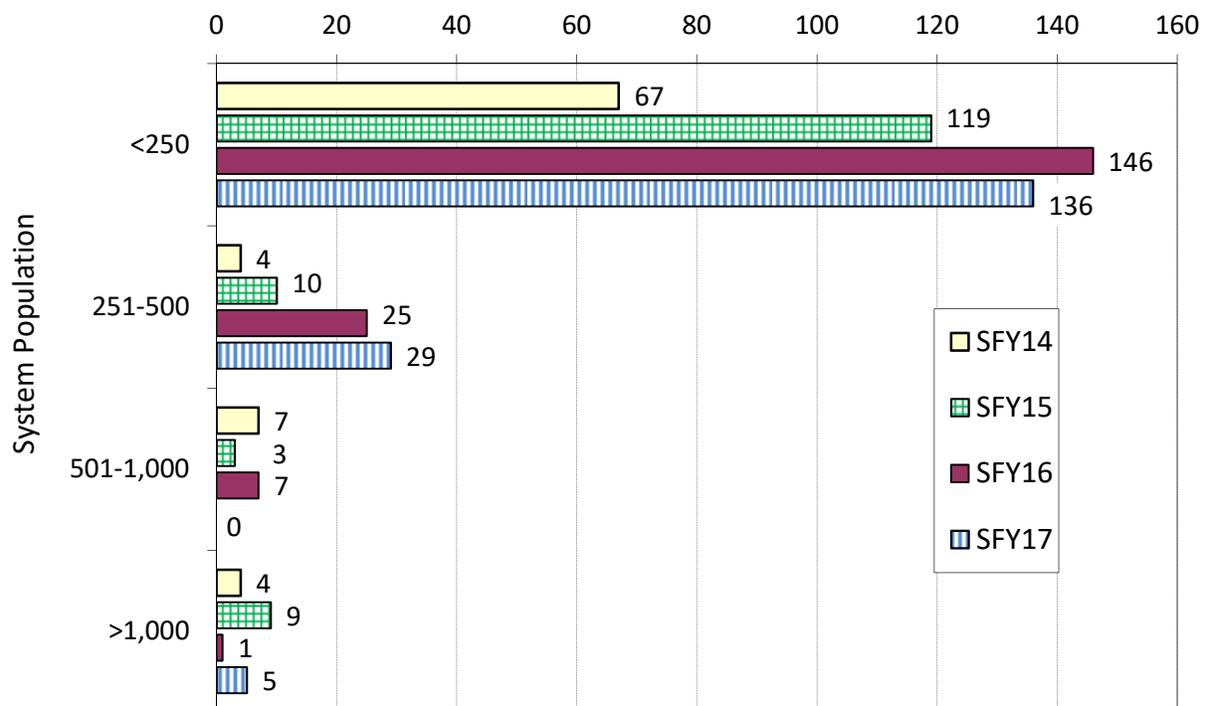


II. STATEWIDE CAPACITY NEEDS IDENTIFIED THIS PERIOD

1. VIOLATIONS FOR MONITORING AND REPORTING

Monitoring and reporting violations include failure to submit samples on time, conduct Revised Total Coliform Rule (RTCR) monitoring and reporting, perform public notice, submit Consumer Confidence Reports, provide Lead Education, and other ‘paper’ violations. As shown in Figure 4, the *number* of violations issued to systems serving up to 250 persons is higher than those issued for all other system sizes – about four times higher – due to the predominance of very small systems in the state. More violations occurred from 2015 to 2017 than in 2014 due to introduction of RTCR violations. Systems with populations of up to 250 experienced the highest rate of violations per system (23%) for the CWS and NTNC systems that are the focus of this report. Outreach and education to these systems is a critical capacity development need due to the staff time required both before and after these violations occur.

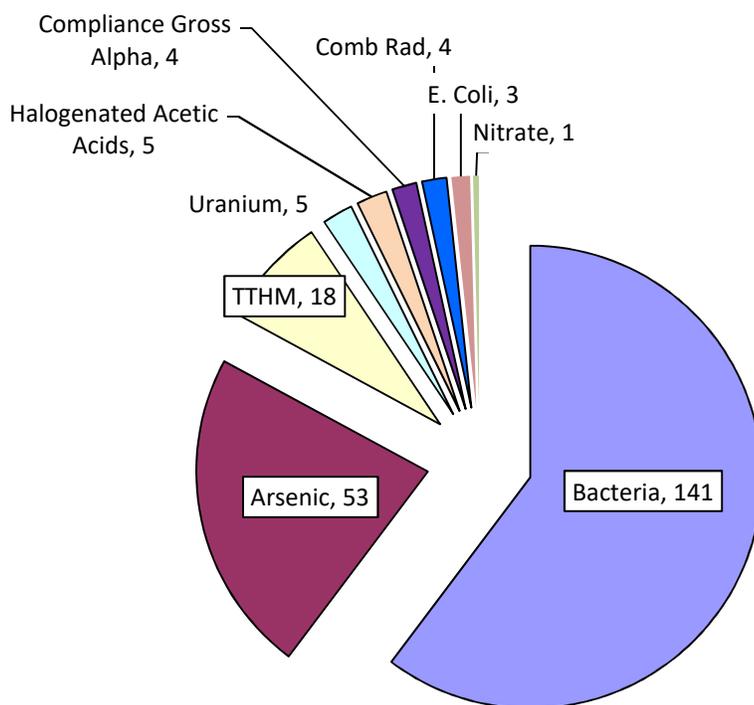
Figure 4 - Monitoring and Reporting (M/R) Violations by System Population
(by State Fiscal Year [July - June])



2. VIOLATIONS FOR WATER QUALITY

Violations are issued for exceedances of health-based, maximum contaminant levels (MCLs) for *E. coli* bacteria, chemical and radionuclides. A breakdown per contaminant for the past state fiscal year (Figure 5) shows that Arsenic (48) should continue to be the focus of outreach and assistance.

Figure 5 - Chemical MCL Violations and Bacteria-based Assessments for All Non-Transient Systems
(CY 2017, Total MCL exceedances = 92)



3. DEFICIENCIES NOTED FROM ONSITE INSPECTIONS AND ASSESSMENTS

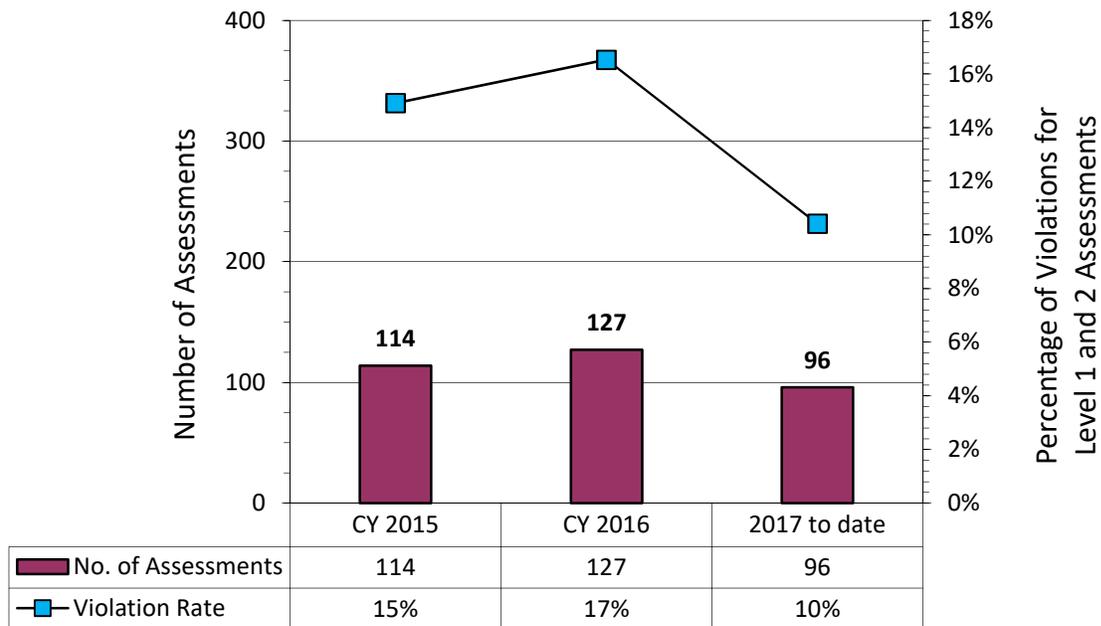
New Hampshire reinforced its sanitary survey outreach and enforcement with implementation of the Groundwater rule in 2009. These efforts have improved system reliability and operations, and have served to better prepare systems for the new RTCR Assessments that New Hampshire adopted in January 2015. The RTCR eliminated bacteria MCLs and resulting violations, replacing MCLs with the requirement to perform system Level 1 (L1) and Level 2 (L2) system self-assessments to identify and rectify the causes of bacterial presence. The number of assessments is significantly higher than the number of MCL violations.

Approximately 120 assessments are triggered each year in CWS and NTNC systems (Figure 6). Typically about $\frac{2}{3}$ are due to Total Coliform presence, and the remaining $\frac{1}{3}$ are triggered due to either late sampling or failure to collect repeat samples. Additional outreach is now being conducted following the first total coliform event to better address the sampling requirements and possibly avoid repeated assessments.

New Hampshire's enforcement process consists in issuance of a state-only Notice of Violation (NOVs) when systems fail to correct a sanitary survey deficiency within the required timeframe, which is generally set at 30 days. If the system still fails to correct the deficiency after receipt of the NOV, the next level of enforcement is a Letter of Deficiency (LOD). Depending on the type of deficiency and how it is cited, the water system may also incur a federal violation and requirement for Public Notice.

The violation rate for assessments dropped since the beginning of CY 2017 (Figure 6), when systems experiencing repeated assessments started receiving additional technical assistance.

Figure 6 - Violation Rates for Level 1 and 2 Assessments
(In non-transient Systems per Calendar Year)



4. IDENTIFICATION AND PRIORITIZATION OF SYSTEMS IN NEED OF ASSISTANCE

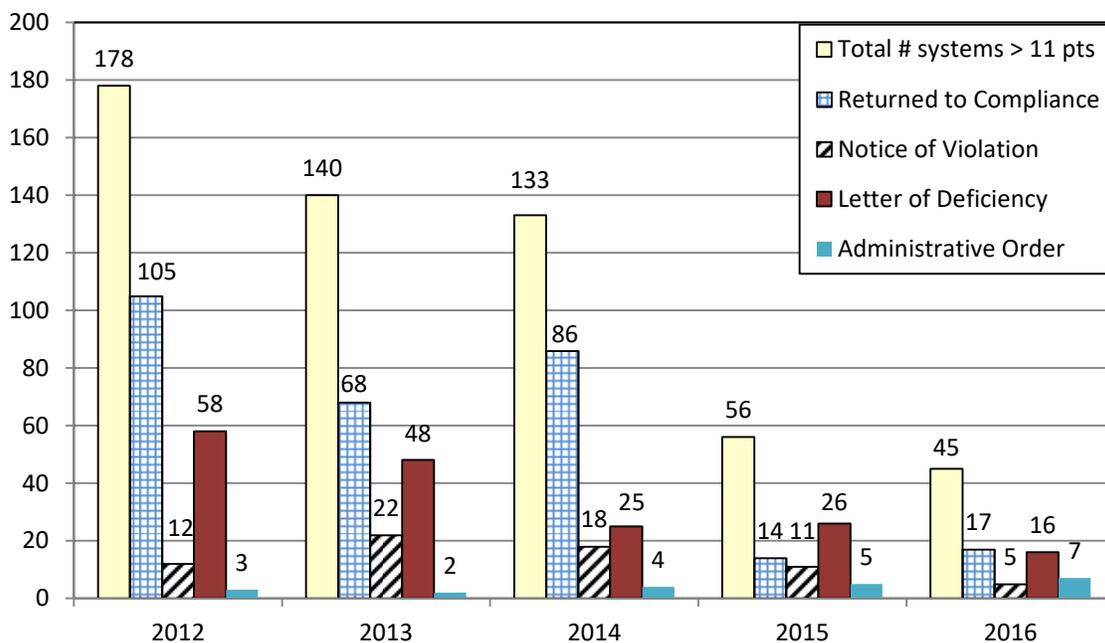
Systems in need of targeted, one-on-one technical assistance through the Capacity Development Program are identified through regular interactions including sanitary surveys, referrals from contract operators, customer complaints, grant and loan application lists, and repeated assessments and violations/enforcement lists. A rolling capacity development “priority list” is maintained wherein each system is assigned a lead “Technical Assistance” contact from the bureau, to identify root causes and solutions with the system representatives and consultants. In SFY17 staff provided *extended one-on-one* capacity development assistance (tracked as “CM” site visits and “CDV” deficiency code) to **34 non-compliant water systems**, nine of which had deficiencies resolved in SFY 2017, and 15 of which remain open. Four of these 15 systems have applied for funding from the Drinking Water State Revolving Loan Fund (DWSRF).

Technical Assistance and parallel enforcement interactions with systems on the priority list (and others) are documented in the water system file. Capacity development efforts often require several months to several years to address the core causes of non-compliance. Assistance efforts typically include site visits and meetings, email and phone interactions, coordination with national and state TA partners, and funding assistance via grants and/or the DWSRF.

5. ENFORCEMENT TARGETING TOOL (ETT) LIST

The federal “Enforcement Tracking Tool” (ETT) is administered by EPA and provides a quarterly scoring of all active public water systems with open SDWA violations with ETT scores of 11 points and higher. Review of the past five years of ETT tracking shows reductions in New Hampshire public water systems that are incurring ETT scores of 11 points or higher. New Hampshire’s enforcement section escalates these systems through each higher enforcement step until compliance is achieved. The number of systems at the different enforcement steps for calendar years 2012 to 2016 is shown as Figure 7. New Hampshire’s policy is to provide targeted technical assistance to systems up to the time when the system is referred to Administrative Order, after which interactions are generally limited to enforcement communications only.

Figure 7 - NH Systems on the Enforcement Tracking Tool (ETT)



III. CAPACITY ASSURANCE FOR NEW SYSTEMS

From their inception, new public water systems must be designed to support adequate technical, financial and managerial resources for their long-term sustainability and reliability.

1. CAPACITY ASSURANCE FOR NEW NON-TRANSIENT SYSTEMS

The capacity assurance program for new, non-transient water systems includes a detailed review of system water sources and infrastructure design in accordance with state regulations. Applicable standards are established in the following Administrative Rules:

- Env-Dw 301 Small Production Wells for Small Community Water Systems.
- Env-Dw 405 Design Standards for Small Community Water Systems.
- Env-Dw 406 Design Standards for Non-community Water Systems.
- Env-Dw 601-603 Capacity Assurance for Proposed and Existing Public Water Systems.

New Hampshire's main control point for capacity assurance is the water system **Business Plan**. As established by Env-Dw 602 Capacity Assurance for Proposed Public Water Systems, the business plan is a tool for the system to document its asset inventory, management, and financial assets, including a proposed water rate. A business plan is also required of some existing systems. As established under Env-Dw 603 Capacity Assurance for existing CWS and NTNC, systems that have several capacity issues are ranked according to assigned points per deficiency, and those that exceed a total of 25 points must submit business plans.

New Hampshire gained 18 Non-Transient systems last year. None of the non-transient public water systems *that were new in the past three years* have been listed on the ETT report with scores of 11 points or higher.

2. CAPACITY ASSURANCE FOR NEW TRANSIENT SYSTEMS

The capacity assurance program for new *transient* systems includes one-on-one outreach to new system owners at the time of system registration, as these are not required to hire a certified water operator. These systems routinely receive additional technical assistance when the new system owners receive violations.

IV. CAPACITY ASSURANCE ACTIVITIES FOR EXISTING PWS

This section describes the different assistance programs administered by the DWGB to improve the managerial, financial and technical capacity of **existing** PWS. Activities include general and targeted outreach, grants and loans, and one-on-one assistance.

1. SOURCE WATER PROTECTION & EMERGENCY PREPAREDNESS ASSISTANCE

DWGB programs include regular outreach activities for source water protection and emergency preparedness assistance to community public water systems, especially municipalities and districts. Highlights for the past fiscal year include:

- Provided presentations on the New Hampshire Public Works Mutual Aid program.
- Provided "No Trespassing" signs to improve security at drinking water facilities.
- Conducted four workshops to train planners in source water protection.
- Trained 32 water supply and municipal personnel to conduct inspection programs to ensure implementation of groundwater protection best management practices at facilities that are considered potential contamination sources.

2. OUTREACH ABOUT LEAD IN DRINKING WATER

In addition to the standard Lead and Copper Rule compliance activities, DWGB staff increased outreach to public water systems, schools, daycares, and other private and public drinking water stakeholders to improve water system piping materials inventories, awareness of lead toxicity and potential exposure through drinking water, and recommendations for water testing. Specific activities completed this past fiscal year included:

- Comprehensive outreach to schools and daycares on lead testing and piping materials inventory

- Municipal system lead piping survey and review of LCR sampling plans
- Liaison with DHHS Healthy Homes and Lead Prevention Programs for expanded community outreach as well as water testing in every home with a child blood level over 10 µg/dL
- Technical presentations at Water Works Professional meetings and DHHS Health Professional Workshops.
- Quarterly reporting to EPA Region 1 on every PWS lead exceedance status and resolution.

Activities planned for the following fiscal year are as follows:

- Continuation of LCR sampling plan reviews with Municipal systems
- Continued liaison with DHHS Healthy Homes and Lead Prevention Programs and water testing in every home with a child blood level over 10 µg/dL
- Continued technical presentations at Water Works Professional meetings and DHHS Health Professional Workshops (Oct 24 and Nov 1, 2017).
- Continued quarterly reporting to EPA Region 1 on every PWS lead exceedance status and resolution.
- Stakeholder group with Plumbing contractors, Municipal water system representatives, DHHS Lead Poisoning Prevention, Home Inspector Association and EPA Region 1 for development of materials for homeowner identification of lead service lines (LSL).

3. GRANTS, LOANS AND ASSET MANAGEMENT

DWGB administers various funding programs to provide financial assistance and incentives for PWS infrastructure improvements and sustainability. Highlights for this reporting period include:

- Award of **\$23,749,080** from the **Drinking Water State Revolving Loan Fund (DWSRF)** for infrastructure project loans in 2016, for systems serving a population of up to 500 (Table 1 on following page).
- Award of **1 Record Drawing grant**, with matching funds totaling \$1,500 to assist a very small community water system in developing or updating its record drawings. This grant program was developed in FY2009 and offers 50% match of eligible costs up to \$1,500 per water system. The grant is available year round.
- Award of **14 Local Source Water Protection grants** for source security and other source protection projects.
- Award of **13 Asset Management grants** totaling \$200,000 to assist communities with the development and/or the implementation of an asset management program. Since 2013 a total sum of approximately \$817,885 in grants were awarded to 47 communities (Figure 9, following page and Table 2 on page 11).
- Increase by 50% of attendance at **Asset Management Awareness Workshops**, for a total of 120 participants from the first workshop in 2016.

Table 1 –DWSRF 2016 Loan Commitments to Systems Serving <500 people

PWS ID	PWS Name	Town	Project Description	Loan Amount	Population	Projected Forgiveness
0112030	Wright Farm Condo Association	Atkinson	Water Pump Station Equipment Upgrade	\$203,400	160	0%
0153030	Barrington Oaks Cooperative	Barrington	Well Reconstruction & New Source	\$275,000	123	15%
0162270	Nordic Village Condo Assn.	Bartlett	Water Tank and Pump House Rehab	\$192,000	315	0%
0612020-01	Pennichuck East Utility-Maple Hills	Derry	Brady Avenue Water Main Replacement	\$570,000	455	10%
1932060	Moongate Farm Condo Assn.	Plaistow	Pump House and Infrastructure Upgrades	\$212,000	120	0%
2003020	Acorn Terrace Cooperative	Rochester	Water Utility Improvement Project	\$880,000	205	20%

Figure 8 – Asset Management Grants Awarded in CY 2017

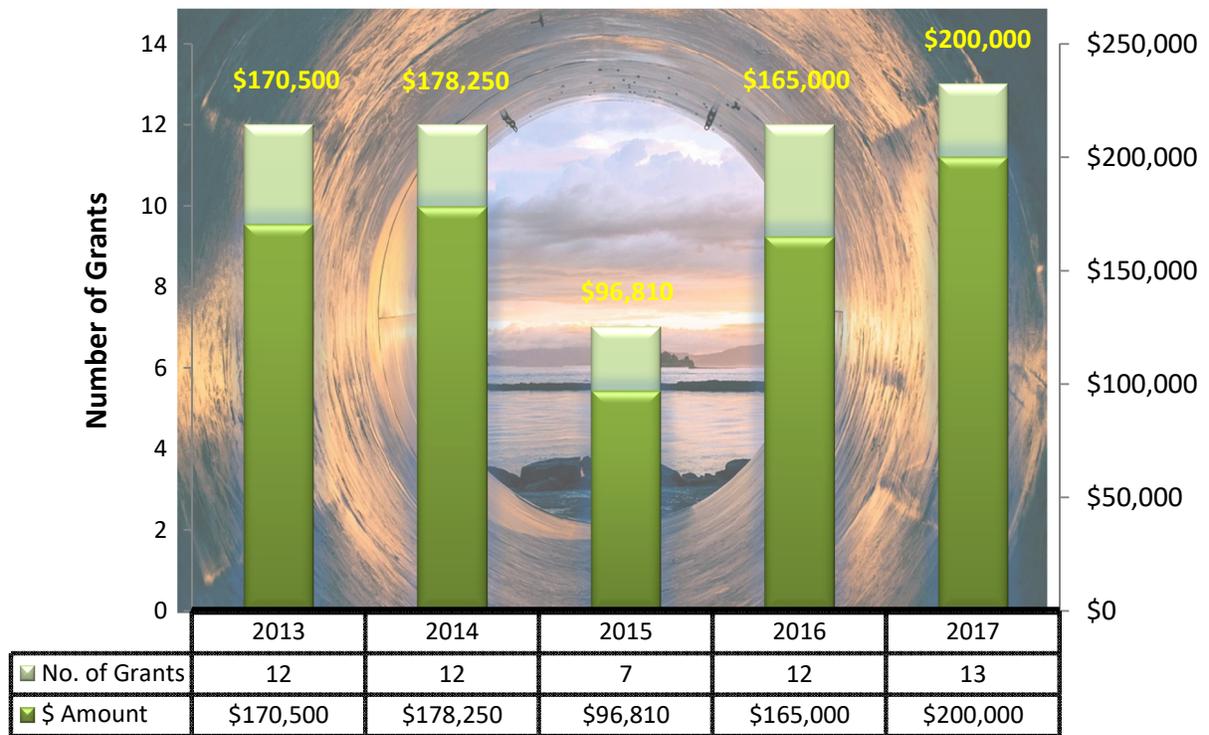


Table 2 – Asset Management Grant Awards 2017

SYSTEMS	TOWN NAME	GRANT AMOUNT
Grants awarded through CY 2016		\$610,560
City of Rochester	ROCHESTER	\$20,000
Newfields Water and Sewer District	NEWFIELDS	\$20,000
Goffstown Village Water Precinct	GOFFSTOWN	\$20,000
Town of New Castle	NEW CASTLE	\$20,000
Town of Marlborough	MARLBOROUGH	\$20,000
Town of Farmington	FARMINGTON	\$20,000
Milford Water Utilities Department	MILFORD	\$20,000
Woodsville Water and Light	WOODSVILLE	\$20,000
Grasmere Village Water Precinct	GOFFSTOWN	\$20,000
Jaffrey Water Works	JAFFREY	\$20,000
Rye Water District	RYE	\$20,000
UNH	DURHAM	\$20,000
Berlin Water Works	BERLIN	\$20,000
City of Rochester	ROCHESTER	\$20,000
Total Amount Awarded:		\$817,885

4. OPERATOR CERTIFICATION TRAINING AND OUTREACH

The New Hampshire Operator Certification program supports numerous outreach and training activities for water system operators, owners and managers. In the past fiscal year, activities included:

- Contracting with the New Hampshire Water Works Association (NHWWA) for two Small Public Water System Operator Grade IA courses (fall and spring), two Basic Math courses, and two Operator Exam Review sessions.
- Contracting with the New England Water Works Association (NEWWA) (an approved IACET training provider) for 20 instructor-led training sessions in New Hampshire specifically targeted for New Hampshire water works operators.
- Coordination with NHWWA to provide six Operator Roundtables throughout the state. These are operator-driven roundtable discussions, which allow industry professionals to relay challenges confronting them and their professions. These forums also allow operators to ask questions of state officials and for the state to discuss anticipated and new regulations.
- Participation on the New England Water Works Operator Certification Committee. This is a regional committee comprised of New England state operator certification officers, EPA representatives and professional water works operators. The committee promotes water works operator certification and initiatives to grow and strengthen the profession.

- Participation in other statewide industry trade shows and training seminars throughout the year with the New Hampshire Water Well Association, New England Water Well Association, Granite State Rural Water Association and other training partners.

Table 3 –Operator Certification Activities

	CY 2013	CY 2014	CY 2015	CY 2016
Active Certifications	1,055	1,011	969	1,035
Exams Administered	146	204	151	197

5. SEASONAL WATER SYSTEMS OPERATIONS AND MAINTENANCE TRAINING

Since 2009, DWGB coordinates annual training workshops for campgrounds and other seasonal system owners and operators, with state TA partner, Granite State Rural Water Association (GSRWA). In SFY2017, New Hampshire sent out reminders to seasonal systems, one month before each system’s startup month, and an additional reminder to systems that still had not submitted the certification about 2-3 weeks before the due date. In this second year of RTCR implementation, less than 10% (58 of 627) of seasonal systems received violations for failure to complete startup procedures.

Training sessions for the past fiscal year were held in Bristol (five attendees), Ossipee (13 attendees), Exeter (six attendees) and Whitefield (six attendees). Training topics included:

- Typical well construction
- New Hampshire geology and naturally occurring drinking water contaminants
- RTCR change to monthly sampling (2015)
- Continued start-up and shut-down procedures and certification (starting 2015)
- Water system operations and maintenance
- Bacteria causes and cures
- Wastewater (dump station) backflow prevention requirements
- State inspections – what to expect

6. LEAK DETECTION SURVEYS

Leak detection and repair play a fundamental role in reducing water loss and energy costs related to the treatment and delivery of drinking water. In CY2016, the professional leak detection firm hired through Drinking Water State Revolving Fund (DWSRF) set-asides completed surveys for 39 community water systems, spanning 976 miles of pipe. Seventy-five leaks were discovered, totaling approximately 804 gallons per minute. This equates to roughly 422 million gallons per year, equivalent to 11,576 people using 100 gallons of water per day for a year.

In CY2017, SRF set-asides are funding leak detection surveys at 42 community water systems, spanning approximately 505 miles of pipe.

7. WATER CONSERVATION OUTREACH

Promoting water conservation through outreach activities helps communicate the importance of reducing water loss and waste as water and energy resources become increasingly limited.

In SFY2017, NHDES staff who are supported by DWSRF set-asides gave presentations or provided outreach at five events to promote water efficiency and support the sustainable use of water. Audiences included municipal leaders, certified operators, elementary school students, state employees and the general public

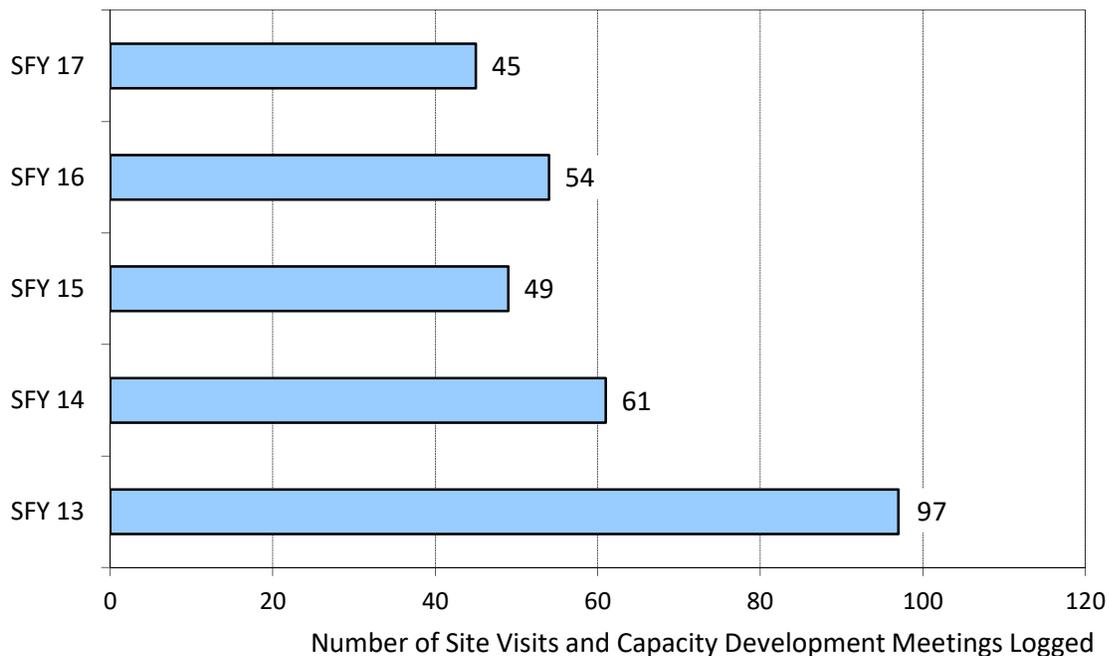
In SFY2016, NHDES promoted the WaterSense Shower Better campaign and distributed 57 high-efficiency showerheads, saving roughly 104,000 gallons of water per year. Seventy-nine high efficiency sink aerators were also distributed.

8. ONE-ON-ONE TECHNICAL ASSISTANCE

DWGB technical staff provides ongoing technical assistance (TA) to small water systems to assist with source capacity issues, bacteria troubleshooting, and financial and managerial planning. TA site visits and meetings attended by DWGB staff for SFY12 to SFY17 are shown in Figure 10. These site visits are *in addition* to standard sanitary surveys, permitting inspections, 20 SRF inspections in SFY2017, and other special investigations performed by DWGB technical staff.

This past fiscal year included 19 site visits with new transient system owners to review a customized binder (with sampling schedule and forms, instructions for using the PWS online portal “OneStop,” and guidance on proper sampling procedures) and discuss their responsibilities as a PWS.

Figure 9 - Technical Assistance Visits & Meetings by DWGB Staff



V. STATEWIDE REVIEW OF IMPLEMENTATION PROGRESS

Review of the capacity program implementation progress consists of biweekly meetings by the lead TA contacts, quarterly measures tracking through the statewide Measures Tracking and Reporting System (MTRS), annual reports to EPA, and a triennial report to the Governor.

VI. IMPROVEMENTS TO CAPACITY DEVELOPMENT STRATEGY

For SFY18, New Hampshire will continue to build and enhance its capacity development strategies for existing systems, including:

- Continued and new matching grants for small systems serving <500 people for development of Record Drawings and performing Tank Inspections.
- Continued requirement for water system Business Plans for asset management planning for systems serving <500 population, that have also received a grant or loan from the Drinking Water State Revolving Loan Fund.
- Continued one-on-one outreach and assistance to non-compliant systems and those lacking general capacity assurance.
- Continued collaboration with local and national TA providers including Granite State Rural Water Association, RCAP Solutions, Environmental Finance Center Network, New England Water Works and NH Water Works Association.
- Continued collaboration with National Centers for Innovation in Small Drinking Water Systems “DeRisk” (U. Colorado) and “WINSSS” (U. Mass) on technical and managerial initiatives.