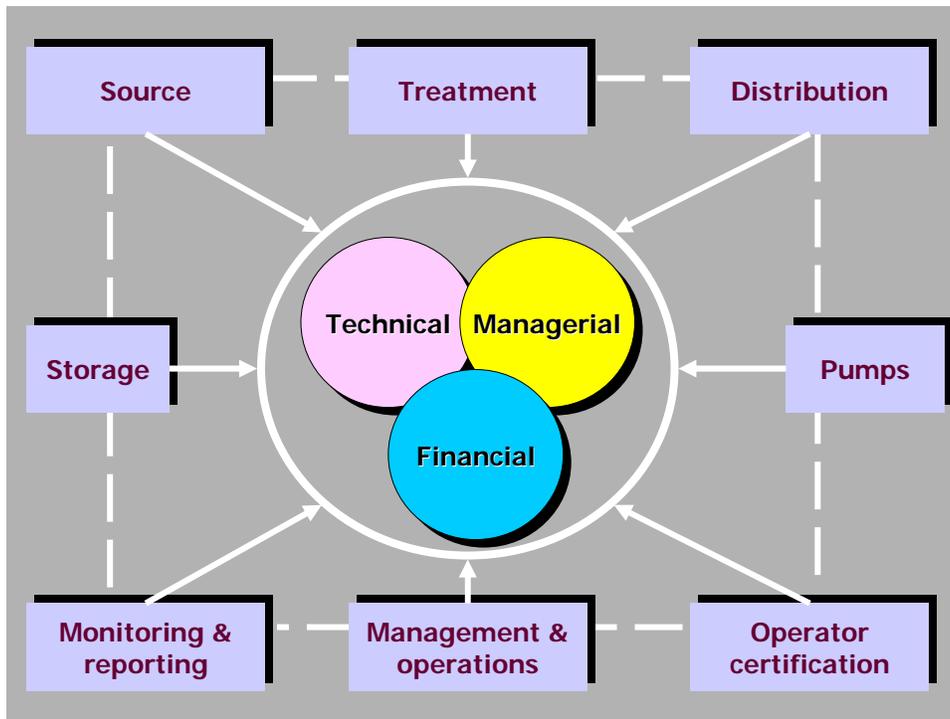


Water Supply Division

## An Assessment of the Capacity Development Program



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September 30, 2008

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## Executive Summary

In the 1996 Amendments to the Federal Safe Drinking Water Act (SDWA), Congress mandated that states develop capacity development strategies to enhance the ability of public water systems to provide safe drinking water. **It should be noted that the term “capacity” in the context of the SDWA does not refer specifically to the ability of a water system to supply an adequate quantity of water to its users. The term actually has a broader meaning and instead refers to the overall technical, financial and managerial capability of a water system to maintain its infrastructure and meet its operating costs.** These strategies are aimed at helping water systems acquire and/or maintain the technical, managerial, and financial abilities needed to properly operate, manage and finance their systems. With the assistance of a stakeholder group of state agencies, public water suppliers, technical assistance providers, local government representatives, and environmental groups, the Vermont Water Supply Division issued its initial Capacity Development Strategy Report on August 28, 2000.

Each state's strategy had to include provisions for new systems, for systems applying for funding within the Drinking Water State Revolving Fund (DWSRF) program, and for existing systems. Vermont's strategy requires all new Non-Transient Non-Community (NTNC) and Community (CWS) systems and those systems applying for DWSRF funding obtain a “capacity” determination. Existing systems not applying for funding are provided other forms of assistance to address capacity issues.

The 1996 SDWA Amendments also require that each state submit an annual report on implementation of its Capacity Development Strategy and document the progress made towards improving the technical, managerial, and financial capabilities of its public water systems. This report satisfies the requirements of the SDWA and assures that Vermont will not be penalized twenty percent of the DWSRF capitalization grant for failure to comply with this requirement.

The SDWA as amended in 1996 brought significant improvements to the national drinking water program. Capacity development is an important component of the Act's focus on mitigating drinking water issues. The capacity development provisions offer a framework within which states and water systems can work together to ensure that systems acquire and maintain the capacity needed to achieve the public health protection objectives of the SDWA.

This report is divided into four sections.

- ❖ Section 1 provides a general overview of the SDWA and the Capacity Development Program.
- ❖ Section 2 describes the capacity development review provisions that apply to new systems, existing systems applying for a DWSRF loan, and other existing systems. The new systems provision requires all new Community Water Systems (CWSs) and all new Non-Transient Non-Community water systems (NTNCs) that begin operation after October 1, 1999 to demonstrate adequate capacity. The DWSRF provision prohibits states from providing financial assistance to public water systems that lack adequate capacity. The existing system provision is intended to provide direct assistance to existing Public Water Systems (PWSs) to help them acquire and maintain the necessary capacity.

Five objectives were identified in the Capacity Development Strategy:

- (1) Identify methods or criteria that the State will use to identify and prioritize the PWSs most in need of improving capacity;
- (2) Identify institutional, regulatory, financial, tax, or legal factors at the federal, State, or local level that encourage or impair capacity development;

- (3) Describe how the state will use the authorities and resources of the SDWA to: assist PWSs in complying with applicable laws and regulations; encourage the development of partnerships among PWSs; assist with the training and certification of water system operators; and establish methods for establishing a baseline and measuring improvements in capacity;
- (4) Identify interested stakeholders; and
- (5) Utilize other available resources in the State of Vermont to assist PWSs with their technical, managerial, and financial capacity.

Additionally, a variety of initiatives were undertaken to address the objectives, and a summary of the status of each initiative is provided.

- ❖ Section 3 describes the state's approach in offering or providing assistance.
- ❖ Section 4 describes progress made in assisting public water systems to improve their technical, managerial, and financial capabilities.

## **Glossary of Terms**

**Agency of Natural Resources** (ANR) is the agency that oversees the Department of Environmental Conservation (DEC), Department of Fish and Wildlife (FWD) and Department of Forests, Parks and Recreation (FPR).

**Department Of Environmental Conservation** (DEC) is the department that administers most of the Agency's regulatory programs plus several voluntary pollution and waste reduction programs. Program areas include: air quality, environmental assistance, public facilities engineering, geology, environmental permits, solid waste, hazardous waste, surface water quality, watershed planning, stormwater management, drinking water supply and wastewater management.

**Water Supply Division** (WSD) is the division within DEC responsible for administering the public drinking water program in the State of Vermont.

**Safe Drinking Water Act** (SDWA) is the federal law passed by the U.S. Congress in 1974 and amended in 1986 and 1996, which authorizes the United States Environmental Protection Agency and the States to oversee public water systems and set standards for drinking water to protect public health.

**United States Environmental Protection Agency** (EPA) is the federal agency responsible for overseeing the state drinking water programs.

**Significant Non-Complier** (SNC) is a public water system that persistently violates drinking water standards specifically defined in EPA policy.

**Public Water System** (PWS) means any system(s) or combination of systems owned or controlled by a person or entity, that provides drinking water through pipes or other constructed conveyances to the public and that has at least fifteen (15) service connections or serves an average of at least twenty five (25) individuals daily for at least sixty (60) days out of the year.

**Public Community Water System** (PCWS) means a public water system which serves at least fifteen (15) service connections used by year-round residents or, regularly serves at least 25 year-round residents. Vermont uses 10 connections which is the threshold for 25 people based on the 2000 federal census data, which show an average of 2.62 persons per household.

**Non-Transient Non-Community water system** (NTNC) is a public water system that that regularly serves at least 25 of the same persons daily for more than six months per year. Examples: schools, factories, office buildings.

**Transient Non-Community water system** (TNC) is a public water system that serves 25 or more different persons for more than 60 days of the year. Examples: restaurants, motels, campgrounds.

## ***1. Introduction***

The objective of the 1996 Safe Drinking Water Act Amendments (Amendments) is to ensure public water systems provide safe drinking water to the public. The Amendments seek to mitigate compliance activities and associated health risks by ensuring that public water systems have the capability to produce safe drinking water now and in the future. To achieve these goals, the Amendments include provisions for several prevention programs – one of which is the capacity development program.

Water system capacity is the ability to plan for, achieve, and maintain compliance with all applicable drinking water standards. There are three components to capacity: technical, managerial, and financial. Technical capacity refers to a water system's ability to operate and maintain its infrastructure. Managerial capacity refers to the expertise of the water system's personnel to administer the system's overall operations. Financial capacity refers to the financial resources and fiscal management that support the cost of operating the water system. Adequate capability in all three areas is necessary for the successful operation of a public water system.

Capacity development is the process through which water systems acquire, maintain, and build upon their technical, managerial, and financial capabilities that enable them to consistently provide safe drinking water to their customers in a reliable and cost-effective manner. Vermont's capacity development program provides a framework for state agencies, local governments, stakeholder groups or organizations, water systems and the public to ensure that drinking water systems acquire and maintain the capacity needed to achieve compliance with applicable State and Federal drinking water regulations.

The purpose of this report is to provide an assessment of the Capacity Development Program in Vermont and the statewide strategy for assisting public water systems. This report highlights the progress made toward improving the capabilities of public water systems in Vermont as a result of the Vermont Water Supply Division Capacity Development Program.

## ***2. Capacity Development Provisions in the Safe Drinking Water Act***

The Amendments to the SDWA included three capacity development provisions, outlined as follows:

- 1) All new community water systems and non-transient non-community water systems that begin operation after October 1, 1999 must first demonstrate that they possess adequate capacity.
- 2) States are prohibited from providing Drinking Water State Revolving Fund assistance to public water systems that lack adequate capacity, unless that assistance is directly related to improving the system's technical, managerial or financial capacity.
- 3) States must develop and implement a strategy to assist existing public water systems in acquiring and maintaining the necessary capacity.

### ***2.1. New Systems Provisions***

Section 1420(a) of the Amendments, the new systems provision, applies to all new CWSs and NTNCs that begin operations after October 1, 1999. Vermont had to demonstrate to the United States Environmental Protection Agency (EPA) that it had the legal authority to ensure that all new CWSs and NTNCs had the technical, managerial, and financial capacity to comply with all applicable State and Federal drinking water regulations. On February 26, 1999, the EPA determined that Vermont met the guidance and statutory requirements under Section 1420(a). On October 1, 1999, Vermont began implementing the new systems provision of the Amendments.

The Department of Environmental Conservation (DEC), Water Supply Division (WSD) is required to submit to the EPA an annual report summarizing its efforts as they relate to the Capacity Program during the previous fiscal year. The WSD is also required to submit on a triennial basis a report to the

Governor. The WSD has now submitted eight annual reports to EPA and three (including this report) to the Governor. These reports document that the WSD continues to perform capacity evaluations of new systems to ensure that no new systems are being created that fail to meet capacity requirements. In recent years, the new systems progress report has been included in the overall program implementation report submittal entitled "Vermont New Water System Capacity Review Annual Report." Since September 2004, the WSD has been the sole governmental unit that exercises its authority to ensure the demonstration of new systems' capacity. Prior to that, capacity reviews for NTNCs were divided between the Department's Wastewater Management Division and WSD. This authority is carried out through WSD's construction and operating permit review process. These permits will not be issued until the permit applicant has demonstrated that the proposed system will have the necessary capacity to comply with state and federal regulations.

## **2.2. *DWSRF Loan Applicants Provision***

Section 1452(a)(3) of the Amendments applies to those public water systems that seek financial assistance from the DWSRF. Under this provision, states are prohibited from providing DWSRF assistance to a public water system that lacks the technical, managerial, and financial capability or that is in significant noncompliance with applicable state and federal drinking water regulations. However, states are allowed to provide DWSRF assistance to such a public water system if the use of the assistance will assure compliance, or if the owner or operator of the system agrees to undertake feasible and appropriate changes to acquire and maintain the system's technical, managerial, and financial capabilities over the long term.

The WSD will make a determination on system capacity based on information available in WSD records, the priority list application, loan application and, most importantly, completion of a capacity evaluation at a meeting between the applicant and the WSD or their technical assistance provider (Vermont Rural Water Association). Some components of the capacity evaluation include discussions related to source capability, monitoring and reporting compliance, water loss, water and energy efficiency, managerial competency, and fiscal responsibility. Discussions regarding financial capacity will also consider current and projected water rates, delinquent water accounts, and financial planning. The presence of an active organization with identified responsible officials and business practices are considerations in managerial capability determinations. If a loan applicant is determined to lack capacity in some areas, generally, an improvement plan will be established and included as a loan condition. The WSD, with VRWA, continues to update the evaluation form as needed to reflect the changing needs of the program. More emphasis is now placed on implementation of the Capacity Improvement Plan with consideration being given to withholding construction funding, including planning loan forgiveness, through the DWSRF until certain capacity milestones are achieved.

## **2.3. *Existing Systems Provision***

Section 1420(c)(2) of the Amendments requires that Vermont develop and implement a capacity development strategy to assist public water systems to acquire and maintain capacity. With the assistance of a stakeholders group formed in 2000 consisting of federal, state, and local government, water districts, fire districts, homeowners associations, mobile home parks, school districts, daycare centers, camps, and consulting engineers, the WSD developed a comprehensive capacity development implementation strategy to assist public water systems. The strategy considered many factors that encourage or impair capacity and worked to develop initiatives to address them. The initial set of initiatives was described in detail in the previous reports so they will only be listed in brief form below. Since the initial 18, there have been a number of newly introduced initiatives; their progress is summarized in Section 3.3 of this report. Section 3.3 outlines notable technical, financial and managerial achievements since the framework of the program was finalized.

The WSD submitted a Capacity Development Program Strategy Report: “Improving the Technical, Managerial and Financial Capabilities of Public Water Systems in Vermont,” in August 2000. In September 2000, EPA determined that the Vermont Capacity Development Strategy met the statutory requirements under Section 1420(c) of the Amendments.

On October 1, 2000, the Division began implementing the existing systems provisions of the Capacity Development Strategy. Since that time, the WSD has submitted annually to EPA "State Of Vermont Capacity Development Program Strategy Implementation" reports. These reports document that the WSD is implementing a fully functioning existing water system plan according to the state-adopted Capacity Development Strategy.

### **3. Assessment of Capacity Development Strategy**

#### **3.1. Vermont Public Water Systems Demographics**

There are 1362 public water systems in Vermont that fall into three different categories.

- *Public Community water systems* regularly serve at least 25 year-round residents or have 10 or more residential connections. There are 444 systems serving an estimated aggregate population of 450,470. About half of these Community systems are privately owned home-owners associations or mobile home parks; approximately 16 are private-for-profit water system that are regulated by the Public Service Department.
- *Non-Transient Non-Community water systems* serve at least 25 of the same persons daily for more than six months per year. Schools, factories, and office buildings meet these criteria. There are 246 systems in this category serving an aggregate population of 42,938. More than half of these systems are small rural schools, the remainder are mostly privately owned businesses.
- *Transient Non-Community water systems* serve more than 25 persons a day for at least 60 days during the year. Restaurants, motels, and campgrounds are examples. Approximately 672 systems are classified as transient non-community water systems. Nearly all of the transient systems are privately owned businesses

Additionally, there are approximately 6 water bottling companies whose sources are in Vermont and are regulated by the Water Supply Division.

Regulatory requirements vary for the different types of systems and the major focus of the Strategy is on CWSs and NTNCs. Factors weighing on strategy development and implementation are system size and ownership type. Economies of scale can vary dramatically for water system operation and maintenance costs, which impact the ability of small volunteer or part-time system operators to maintain compliance with ever increasing and more complex state and federal drinking water requirements. Our Capacity Improvement Program is focused primarily, although not exclusively, on those most in need of assistance; the very small community system and small rural school system. A significant number of these systems would not be able to comply with regulatory requirements and protect public health without the technical and financial assistance provided through this program. This strategy has proved successful and we are now working to focus more on small municipalities and systems on the verge of enforcement action with onsite managerial assistance.

The following table summarizes the number and type of PWSs that fit in various population ranges, clearly showing that a high percentage of water systems in Vermont are very small.

<b>Vermont Public Water Systems Profile</b>			
<i>Population Range</i>	<i>Community</i>	<i>Non-Transient Non-Community</i>	<i>Transient Non-community</i>
25 - 100	144	118	373
101 - 200	92	67	172
201 - 300	39	32	58
301 - 400	25	10	25
401 - 500	23	6	14
501 - 1000	42	10	27
1001 - 3300	47	3	3
3301 >	32	0	0
<b>Total</b>	<b>444</b>	<b>246</b>	<b>672</b>

### **3.2. *Actions Designed to Reach Capacity Development Objectives***

In the Capacity Development Program Existing Strategy Report, the WSD identified and indicated it would undertake the following activities:

- Identify methods or criteria that the State will use to identify and prioritize the water systems most in need of improving capacity;
- Identify institutional, regulatory, financial, tax, or legal factors at the federal, State, or local level that encourage or impair capacity development;
- Describe how the State will use the authorities and resources of the SDWA to:
  - Assist water systems in complying with applicable laws and regulations;
  - Encourage the development of partnerships among water systems;
  - Assist with the training and certification of water system operators;
  - Develop methods for establishing a baseline and measuring improvements in capacity;
- Identify interested stakeholders; and
- Utilize other available resources in the State of Vermont to assist water systems with their technical, managerial, and/or financial capacity.

### **3.3. *Capacity Strategy Components***

Vermont has a long history of providing both financial and technical assistance to water systems. The 1996 Amendments to the SDWA provided an opportunity to use federal and state dollars to improve and expand this program to more nearly meet the need. A series of meetings with owners, operators,

representatives of state and federal organizations, consulting engineering firms and others were held in the spring of 2000 to identify needs, and obtain suggestions for new and revised programs. With public input, the Vermont Existing Public Water System Capacity Strategy was developed, which included a specific set of initiatives to address the three broad categories of technical, financial and managerial capacity. Listed below are the principal program achievements in each capacity category.

Past, Present and Future Capacity Achievements:

(1) Financial Assistance

- (a) Below-Market Interest Rates on Loans for Water System Improvements
- (b) Zero Interest Loans for Planning & Final Design
- (c) Below-Market Interest Rates on Loans for Land Purchase and Conservation Easements for Source Water Protection
- (d) Negative Interest Construction Loans to Low Income Communities with High Water Rates
- (e) Planning and Final Design Loan Forgiveness for Small Municipalities
- (f) Up to \$25,000 Construction Loan Forgiveness for Municipal School System Improvement Projects.

(2) Technical Assistance & Outreach

- (a) Professional Engineer Consultant Assistance
- (b) Legal Assistance with Loan Closings for Private Borrowers
- (c) Vermont Rural Water Association (VRWA) Technical Assistance Program
- (d) Small System Engineering Evaluations and Reports
- (e) Comprehensive Performance Evaluation (CPE) Reports of surface water treatment systems
- (f) Treatment Specialist Assistance
- (g) Newsletter- *Waterline*
- (h) Source Protection Plan Development Assistance
- (i) Water System Security Guidance
- (j) Regulatory Interpretation Assistance
- (k) Operation and Maintenance Manual Preparation Assistance
- (l) Long Range Plan Preparation Assistance
- (m) Budgeting Assistance
- (n) Evaluation of System Technical, Financial, and Managerial Capabilities and Completion of Capacity Improvement Plan
- (o) Sanitary Surveys
- (p) Construction Plan Review and Permit Program
- (q) Water Quality Sampling Compliance Program
- (r) Operator Certification Compliance Program
- (s) Operating Permit Program
- (t) Training Courses For Operators
- (u) On- Site Training for Owners and Operators
- (v) Regulatory Requirements Guidance Documents
- (w) System Specific Water Quality Monitoring Plans

(3) Managerial Assistance

- (a) Board Member Manual- in development
- (b) Facilitation/Mediation Contract
- (c) Direct on-site assistance
- (d) Development of RFPs for Engineering Services
- (e) Asset Management assistance- use of the Check-Up Program for Small Systems (CUPSS)

### 3.4. Accomplishments

Although many of our program's impacts are difficult to measure in quantitative terms, there are certain accomplishments that can be and are presented below. For those initiatives that are difficult to quantify, we consider the positive feedback that we have received from water system representatives indicative of program success. One specific area that can be readily quantified is the improvement in capacity of Vermont's small rural school water systems. Over the past three years, the WSD provided intensive assistance to small rural school water systems to help improve public health protection. Part of this effort included adjusting the DWSRF priority system to enable more schools to rank high enough on the annual priority lists to receive funding. The following information reflects significant program accomplishments for these small water systems. Planning and construction loans summarized below are capitalized primarily with federal funds awarded each year from EPA grants.

- 44 school planning loans have been awarded
- 34 school construction permits issued in the past year
- 27 school construction loans have been awarded in the past year
- 25 additional school construction loans anticipated by 12/2008
- Another 17 schools to be funded by 7/09, bringing compliance with the disinfection requirements to almost 100% for school water systems
- Through the 2007 Priority List, the DWSRF Program has awarded or reserved construction loan funds for 68 schools
- The aggregated loan amount for the 68 schools is \$2,061,819
- The projected loan forgiveness for those schools totals \$1,359,045
- 50 of the 68 schools will have received 100% or nearly 100% loan forgiveness

#### All DWSRF School Loans - Priority Lists 2001 - 2007 (Public and Private Schools )

School	FFY Priority List	Loan Amount	Forgiveness Amount	No. of Schools
Charleston Elementary School	2001	40,000	25,000	
Braintree Elementary School	2001	35,000	25,000	
<b>Subtotal 2001</b>		<b>75,000</b>	<b>50,000</b>	<b>2</b>
Orange Center School	2002	25,000	25,000	
East Haven School	2002	25,000	25,000	
Beeman Elementary School (New Haven)	2002	26,200	25,000	
Tunbridge Central School	2002	25,000	25,000	
Brewster Pierce School (Huntington)	2002	18,605	18,605	
Brewster Pierce School (Huntington)	2002	2,442	2,442	
<b>Subtotal 2002</b>		<b>122,247</b>	<b>121,047</b>	<b>6</b>
Barstow School (Chittenden)	2003	25,000	25,000	
Brookfield Elementary School	2003	17,850	17,850	
Dummerston Town School	2003	62,120	25,000	
Guilford Central School	2003	25,000	25,000	
Isle Lamotte School	2003	26,000	25,000	
Harwood Union HS	2003	150,000	25,000	
<b>Subtotal 2003</b>		<b>305,970</b>	<b>142,850</b>	<b>6</b>
Jamaica Village School	2004	17,000	17,000	
Leicester Central School	2004	26,095	25,000	
Newfane School	2004	20,300	20,300	
Blue Mountain School (Wells River)	2004	48,825	25,000	
Middletown Springs School	2004	50,000	25,000	
Rumney School	2004	25,000	25,000	
<b>Subtotal 2004</b>		<b>187,220</b>	<b>137,300</b>	<b>6</b>

Benson Village School	2005	28,278	25,000	
Townsend Elementary School	2005	14,400	14,400	
Dover Elementary School	2005	17,000	17,000	
Subtotal 2005		59,678	56,400	3
Eden Central School	2006	27,000	25,000	
Albert Bridge School	2006	23,530	23,530	
Albany School District	2006	7,000	7,000	
Westshire Elementary School	2006	34,425	25,000	
Glover Community School	2006	20,000	20,000	
Highgate Center School	2006	25,000	25,000	
Ripton Elementary School	2006	15,258	15,258	
Monkton Central School	2006	50,000	25,000	
Pownal Elementary School	2006	13,928	13,928	
Concord School	2006	23,500	23,500	
Waitsfield Elementary School	2006	50,000	25,000	
Saxtons River School	2006	19,800	19,800	
Subtotal 2006		309,441	248,016	12
Warren Elementary School	2007	48,830	25,000	
Bingham Memorial School (Cornwall)	2007	10,850	10,850	
Orwell Village School	2007	25,970	25,000	
Red Cedar School (Bristol)	2007	7,000	0	
Bridgewater Village School	2007	20,913	20,913	
Grammar School, Inc. (Putney)	2007	121,500	0	
Newton Elementary School	2007	27,800	25,000	
Stockbridge Central School	2007	18,010	18,010	
Wardsboro Elementary School	2007	11,900	11,900	
Waterford Elementary School	2007	81,781	25,000	
Salisbury School	2007	14,824	14,824	
Dorset Elementary School	2007	14,300	14,300	
Sherburne Elementary School	2007	30,600	25,000	
Flood Brook School	2007	15,700	15,700	
Weston Little School	2007	13,975	13,975	
Marlboro Elementary School	2007	18,850	18,850	
Halifax West School	2007	30,250	25,000	
Brookline Elementary School	2007	13,260	13,260	
Deerfield Valley School	2007	100,100	25,000	
Mount Holly School	2007	17,000	17,000	
Waterville Elementary School	2007	11,350	11,350	
Granville Elementary School	2007	7,500	7,500	
Weybridge Elementary School	2007	25,000	25,000	
Holland Elementary	2007	25,000	25,000	
Hancock Village School	2007	25,000	25,000	
Moretown Elementary School	2007	25,000	25,000	
Country Day Care (Dover)	2007	100,000	0	
Brownington Center School	2007	15,000	15,000	
Tinmouth Center School	2007	25,000	25,000	
Lowell Graded School	2007	25,000	25,000	
Windham Elementary School	2007	25,000	25,000	
Peacham Elementary School	2007	25,000	25,000	
Berkshire Elementary School	2007	25,000	25,000	
Subtotal 2007		1,002,263	603,432	33
Total School Loans		2,061,819	1,359,045	68

### **3.4.1. Free Technical Assistance**

The planning and construction loan program for municipalities has been extremely successful in helping small rural schools comply with state and federal requirements. The DWSRF program offers up to \$25,000 in forgiveness for a planning loan to help a municipality through preliminary and final design for water system improvements. Additionally, the DWSRF program added up to another \$25,000 in forgiveness on a construction loan to municipal schools to achieve compliance with new State and Federal Rules.

Vermont Rural Water Association provides free technical, managerial, and operating assistance to water system owners, operators, and governing boards. This includes assistance with loan applications for system improvements, on-site training, assistance with water conservation and leak detection, and unusual operation and maintenance problems. These activities are funded in part by this program.

On-site assistance is offered for completion of operation and maintenance manuals for water systems using fill-in-the-blank type forms developed for typical Vermont systems to simplify the process. The manuals include security procedures and an emergency response plan along with the technical procedures for normal system operations and troubleshooting.

On-site assistance is offered for completion of a long range plan to address repair and replacement of system components, again using fill-in-the-blank type forms developed for Vermont water systems. The standard plan includes estimates of the useful life of system components such as pumps, pipes, tanks, etc., the cost to replace facilities at the end of their useful life, and an estimate of the annual savings required to have adequate funds available at the time of replacement.

Water systems can receive on-site evaluation of technical, financial, and managerial capabilities using a Vermont specific capacity evaluation survey. A capacity improvement plan with target dates to correct identified deficiencies is part of the evaluation.

Free construction phase engineering oversight for school water systems, provided through 2 contracts with engineering firms. These contracts were funded with federal dollars totaling \$150,000.

### **3.4.2. Training and Information Sharing**

Small water systems have a number of readily available sources of information on technical or regulatory issues including Water Supply Division staff, Vermont Rural Water Association staff and a WSD in-house water treatment specialist. In addition, there are a number of outreach programs to continually update operators on new developments and remind them of regulatory requirements.

Our newsletter, *Waterline*, is sent to approximately 3000 owners, operators and other interested parties up to three times a year.

Operator training courses are conducted at several locations in the state, generally at no cost to operators. An EPA operator tuition reimbursement grant has helped subsidize training. Course subjects are determined in part by an advisory committee that includes water system operators.

On-site training is available to operators on any number of topics.

Owners and operators are sent a water quality and monitoring schedule each year that lists the water samples required during the next two years and the sampling dates. These schedules are

also posted on our website. Monitoring requirements vary for each system and are a function of a system's operating category and population.

Owners and operators are notified of new regulatory requirements or advisories applicable to their water systems. All notices are sent by mail, but phone, fax, or email contact may follow for those systems needing special attention.

### **3.4.3. *Financial Assistance***

Many small municipal community water systems and school water systems need improvements to the distribution system, water source, storage, pumping, or treatment facilities. Such systems are eligible for myriad types of assistance.

Most public water systems under 500 in population received a no-cost engineering evaluation that identified needed improvements and the estimated costs of those improvements. Beginning in 2000, the WSD contracted with several engineering firms to complete these evaluations. A total of \$775,000 was allocated for this purpose, which was funded with federal dollars made available from a Drinking Water State Revolving Fund (DWSRF) Set-Aside. The work was extremely successful in assisting small water systems determine their future needs and served as a stepping-stone to the DWSRF loan program, as many of these systems ultimately went on to receive low interest construction loans. In all, 339 small water systems were evaluated through this effort.

There is a zero percent, five-year loan program to finance preliminary and final design engineering. In some cases, up to \$50,000 of the preliminary engineering and final design loan may be forgiven if the construction project is completed and other operational requirements are met. The loan forgiveness will cover most, and possibly all, engineering costs.

Construction loan monies are available through the DWSRF program with a range of loan terms and interest rates. The term and rate are sensitive to system type and income status of the users, with the standard term and rate set at 20 years and 3%. The interest rate and term may be modified if the users are required to pay more than 1.0% of their median household income annually for debt service and operation and maintenance expenses. Loan term ranges between 20 and 30 years and interest rate ranges between 3% and negative 3%. Negative 3% interest is the rough equivalent to a 40% grant.

Municipal school systems are eligible for up to \$25,000 construction loan forgiveness, subject to meeting construction operating requirements. This means that many schools can complete needed improvements to their water systems and more adequately protect the public health of their students at no cost to school or tax-payers.

Municipal water systems are also eligible for a three percent, 20-year loan to purchase land or conservation easements to improve the protection of their water source from contamination.

### **3.5. *Enforcement***

When capacity development assistance is not sufficient to bring a system into compliance, enforcement is sometimes necessary. The WSD has well established programs of inspections, plan reviews, water quality monitoring, certified operator requirements, and operating permit requirements to continually monitor and evaluate a water system's compliance with regulations. Notifications and offers of technical assistance are the first response to a water system that has problems with meeting regulatory requirements. Formal legal enforcement actions are taken against systems that do not take advantage of the available technical, managerial and financial assistance to return to compliance. Monitoring water system compliance is supported with an automated compliance activity tracking system.

#### ***4. Improving the Capabilities of Public Water Systems in Vermont***

The WSD's Capacity Development Program is helping to improve the operations of public water systems throughout the state, thus protecting the public health of all Vermonters. Below is a summary of a number of specific achievements made towards successful implementation of the capacity development program.

The WSD discourages the formation of new public water systems that lack capacity through its construction permit and operating permit programs. Effective July 1, 2008, the Vermont Legislature passed H806, *An Act Relating to Public Water Systems (Act #156)*, which enables consecutive water systems serving less than 500 persons to qualify for an exemption from federal and state drinking water regulations. The Act encourages larger public water systems to take more operational responsibility for those portions of the system that would otherwise be regulated as a separate (but consecutive) water system, such as a water line extension to serve a new residential subdivision. This act has the rare distinction of reducing the regulatory burden on water systems without diminishing public health protection.

In 2008, the WSD awarded a two-year contract to the Vermont Rural Water Association (VRWA) to provide technical assistance to small PWSs throughout Vermont. One full-time technical assistance (TA) provider has served as a resource for the WSD in a non-regulatory role. The TA provider is assigned tasks that include improving capacity of public water systems in coordination with the WSD's capacity development specialist, while assisting with the needs of the DWSRF loan program. The assistance they will continue to provide includes, but is not limited to:

- Locating funding and assisting with funding applications;
- Assisting small PWSs with compliance;
- Identifying, evaluating and troubleshooting PWS problems/violations;
- Educating water operators, municipal officers, elected officials and system owners;
- Providing necessary training (on-site or in a class room);
- Assisting with the development of Emergency Response and Long Range Plans;
- Assisting small PWSs with security and vulnerability assessments;
- Assisting small PWSs in developing a rate structure;
- Evaluating current operating procedures for PWSs;
- Completing Capacity Assessment and Improvement plans with PWSs
- Conducting Capacity Evaluation surveys; and
- Coordinating activities with other TA providers and the Water Supply Division

In 2001, the WSD amended the Operator Certification regulations to ensure that all water system operators are properly certified and have sufficient technical and managerial training and experience to operate their public water systems. The Division continues to sponsor and/or provide training to water system operators at no cost to most operators.

The WSD's Sanitary Survey Program provides for complete and detailed assessments of public water system physical plants, maintenance and operations, and administrative abilities. One of the goals of this ongoing program is to review and evaluate the capabilities of existing facilities to determine if they can assure compliance with current and future drinking water standards and regulations.

The WSD takes enforcement actions against public water systems that persistently fail to comply with state and federal drinking water regulations and lack capacity. Prior to taking enforcement action, the WSD engages in activities designed to assist the troubled system to come into compliance. These activities include engineering support, training, and establishing compliance schedules.

#### ***5. Challenges Remain for Vermont's Public Water Systems***

There are many factors that impair the capacity development of public water systems. The WSD and its partners, including public water systems, will need to be ever vigilant in maintaining the necessary technical, managerial and financial capabilities of public water systems, especially at smaller systems. Sufficient technical assistance, owner and operator training, and financial assistance, particularly for economically distressed communities, must continue to be made available.

### ***5.1. Long-term Challenges***

Many public water systems, particularly small systems, have difficulty in understanding and complying with ever more comprehensive drinking water regulations. The Vermont Water Supply Division has taken the lead in developing and implementing training programs to assist small public water system owners and operators to understand current and future drinking water rules and regulations. In addition, the WSD continues to use the DWSRF to ease the economic impact on public water systems with rule compliance.

With the exception of few dozen privately-owned PWSs regulated by the Public Service Board, public water systems in Vermont are not subject to mandatory user rate review to ensure a rate structure is in place to meet expenses. A public water system that is unable to raise the necessary revenues to support its operating expenses places a risk on its ability to produce safe drinking water. Legislation, regulations, and/or incentives that will encourage public water systems to review their water rates periodically and adjust them as necessary would help address this challenge.

The implementation of some of the Capacity Program initiatives has been delayed, which may, in part, be attributed to overly optimistic expectations. Also, to some extent, program delays can be attributed to State budget issues.

A significant challenge that needs to be overcome is a lack of understanding on the part of some water system owners how critical managerial capacity is to providing safe and reliable drinking water. The WSD may have contributed to this problem over the years by placing more emphasis on the technical aspects of a water system, and less on financial and managerial.

Another challenge the capacity program recently experienced was the reluctance of water systems to avail themselves of free facilitation and mediation services contracted through the WSD. In theory, the idea is great- inject a facilitator into a tenuous situation to help both sides move toward a reasonable conclusion. In reality, of the three water systems that have had an introduction to the facilitator, none have fully embraced the idea yet. So far, one side or the other has felt it unnecessary because there is nothing to negotiate or they can handle it themselves without third party intervention. The WSD still feels this contract is beneficial, we are just waiting for that one success story to hold out as an example for systems to see what can be accomplished with third party assistance.

Quantifying success of the Capacity Program continues to be a difficult task at both the state and federal level. At the outset, an effort was made to measure Program success by drawing comparisons to regulatory compliance to the base year of 2000, when the Program was first established. It was initially thought that we could rely on statistics on federal and state regulatory compliance rates for PWSs over time as a way to measure PWS capacity progress. However, we have since grown concerned that such an approach could be misleading given the range of factors that can affect system compliance statistics, including continuing changes in regulatory requirements, and increased or modified emphasis on certain regulatory requirements.

An area of increasing concern is the shrinking number of trained operators. This is a concern that is raised by other states in the Region as well. The challenge will be to develop recruiting strategies that will encourage more interest in this field.

In time, it is possible that EPA in collaboration with the states will establish a standardized method for assessing Capacity Development Program progress.

## 6. Conclusions

The Capacity Development Program experienced some delays in certain program elements due to State and Department budget issues; however we are generally pleased with the progress to date. There is a great deal of flexibility in program administration and implementation as it relates to the program. This has been instrumental in making the Capacity program work for those systems that need it most. Now that the Program has been in place for nearly 10 years, we believe it is time to conduct a thorough review of the efficacy of the initial set of capacity initiatives, which would include an assessment of their relevance in the near future. We also believe that this is an opportune time to enhance the Program by updating the initiatives to incorporate recent concepts developed by EPA, such as the “Four Pillars of Sustainable Infrastructure” (Better Management, Water Efficiency, Full Cost Pricing, and Watershed Approach) that have been called out as the ‘way forward.’

This report provides an assessment of the capacity development program in Vermont and the statewide strategy for assisting public water systems in need. In addition, this report summarizes the progress made toward improving the technical, managerial, and financial capabilities of public water systems in Vermont as a result of the Division's Capacity Development Program. Overall, the Capacity Development Program, along with other state resources, has helped public water systems in Vermont acquire and/or maintain the technical, managerial, and financial abilities needed to properly operate, manage and finance their systems. The Division will continue to strive to achieve the fundamental goals of the capacity development program, and looks forward to increasing the awareness of stakeholders of public water systems as well as the general public about new challenges and issues related to water system capacity as they arise.

We believe that this Program continues to provide effective public health protection, particularly for the many small, rural water systems in Vermont in a way that places emphasis on a collaborative rather than heavy-handed bureaucratic approach. We are fortunate that thus far federal resources have been available for the majority of this effort.

This report and related environmental information are available electronically via the internet. For information visit us through the Vermont Homepage at <http://www.vermont.gov> or visit VT WSD directly at <http://www.vermontdrinkingwater.org>

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