20 Years of Investment in New Hampshire's Drinking Water Infrastructure

Drinking Water State Revolving Fund 2017 Report

R-WD-17-05

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Drinking Water State Revolving Fund 2017 Report

Prepared by
Drinking Water and Groundwater Bureau

Clark Freise, Assistant Commissioner
Eugene Forbes, Water Division Director
Sarah Pillsbury, Administrator, DWGB

May 2017

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A letter from Sarah Pillsbury

Dear Reader,

Safe, affordable drinking water is critical to our health, economy, and excellent quality of life here in New Hampshire. Having safe drinking water requires ongoing investment in protecting the sources of water, treatment needed to meet health standards, storage tanks, and the pumps and pipes that deliver water and fire protection to our homes and businesses.

The purpose of this report is to highlight the success of New Hampshire's Drinking Water State Revolving Fund (DWSRF), which has provided low interest loans and small grants to municipal and private water systems for 20 years. The report highlights infrastructure projects that are ongoing or that were recently completed with the federal grants received from 2012 to 2016, which, along with state contributions, support the New Hampshire DWSRF. These projects ranged in size from $50,000 to 9,100,000. We are especially proud of having funded many projects at small water systems that have limited resources and access to capital. We are also proud of grant funding available through the DWSRF for important proactive activities that help reduce or determine the need for infrastructure investment, including source water protection, asset management, development of record drawings at small systems and leak detection. Information on these grant programs is also provided.

This report is the second of what will be periodic reporting on the success of the DWSRF. In addition to celebrating progress, it will also highlight the importance of investing in improvements. Although the DWSRF has historically provided eight to ten million low- interest loan dollars annually, the need is estimated at $85,000,000 per year, and access to this much capital through the DWSRF and other means is lacking. Necessary infrastructure improvements can only be achieved through a combination of increased access to capital, increased planning and efficiency, and raising water rates to levels that reflects true costs while remaining affordable. The DWSRF Program has also been an important funding source for projects addressing recent hot topics including PFOA contamination, drought and lead concerns.

Finally, I want to once again thank all the partners working towards delivering safe, affordable drinking water in New Hampshire. Chief among them are the owners and operators of our public water systems that are on the front line every day "making" safe drinking water for New Hampshire families and businesses.

Regards,

Sarah Pillsbury, Administrator
Drinking Water and Groundwater Bureau

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CITY OF FRANKLIN, NEW HAMPSHIRE
Municipal Services Department
"The Three Rivers City"

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Tel: (603) 934-4103
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To: NHDES / DWSRF WATER DIVISION STAFF
From: Brian J. Sullivan, Director, Franklin Municipal Services Department
Re: Letter of Appreciation from the Franklin, NH Public Water System
Date: March 7, 2016

For all those that have considered utilizing funding available through the assistance of the State of New Hampshire, Department of Environmental Services (NHDES), Drinking Water State Revolving Fund (DWSRF), I have to give you a brief overview of the success that the Staff of the City of Franklin, New Hampshire has had with this program and those that manage it.

Anyone not familiar with Franklin should know that we have a small water customer

NHDES Staff support, expertise and guidance is by far the reason we have been able to turn the corner towards providing safe, reliable drinking water to our ratepayers, residents and businesses. **Thank you for all you continue to do for the benefit and safety of our City Water Department and the customers we serve!**

increases and money obtained from the American Recovery and Reinvestment Act, Franklin has invested over $11,000,000 in critical Capital Projects. With the financial, professional guidance and assistance provided by utilizing the program and it's staff, we have replaced two 500,000 gallon water tanks and have totally rehabilitated a third 500,000 gallon tank; replaced over 14,500 linear feet of water mains; constructed a 1,000 gallon per minute water treatment / filtration plant and funded the engineering and construction inspection necessary to undertake most of these projects simultaneously.

The City has also worked with NHDES obtaining Source Water Protection Grants; an Asset Management Grant; an upcoming Leak Detection Survey Grant; the Public Water System, Operator Certification Program and Staff Training on numerous topics.

NHDES Staff support, expertise and guidance is by far the reason we have been able to turn the corner towards providing safe, reliable drinking water to our ratepayers, residents and businesses. **Thank you for all you continue to do for the benefit and safety of our City Water Department and the customers we serve!**

About the Drinking Water State Revolving Fund

The 1996 Amendments to the Safe Drinking Water Act created a Drinking Water State Revolving Fund (DWSRF) to provide assistance in the form of low interest loans to public water systems to finance the cost of drinking water infrastructure. Public water systems eligible for this program include all community public water systems and non-transient non-profit public water systems. In addition, funds are used to promote proactive drinking water measures such as source water protection, operator certification, small system technical assistance/capacity development, and program administration.

After twenty years, the New Hampshire Department of Environmental Services (NHDES) has funded approximately $260 Million for drinking water infrastructure improvement projects. The primary types of projects funded by the DWSRF include replacement of aging water pipes and meters, installation of new wells, pumphouse and treatment system upgrades, interconnections, and construction of storage tanks.

A portion of the DWSRF is used to fund non-construction projects that help improve and protect drinking water. These funding programs include Asset Management Grants, Source Water Protection Grants, Leak Detection Survey Grants and Record Drawing Grants.

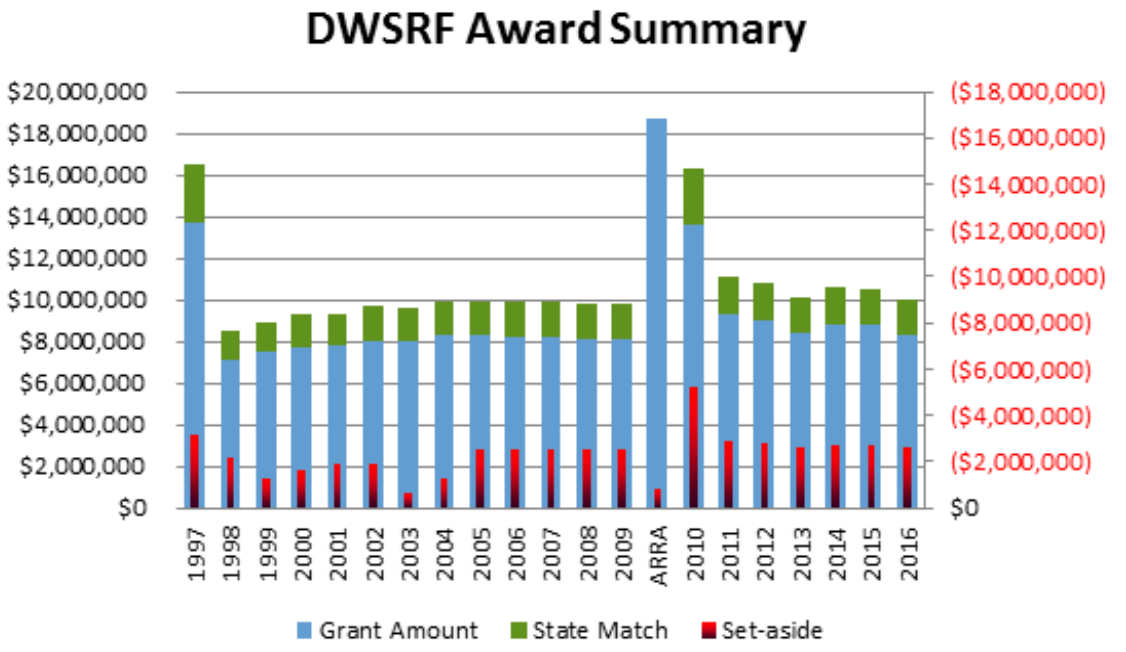
Benefits of the DWSRF

- Below-market interest rates with no closing costs.
- No pre-payment penalty.
- Principal forgiveness is available to eligible water systems to make infrastructure projects more affordable.
- Simple loan process.
- Interest during construction is 1% until project completion. Reimbursement can be requested as costs are incurred.
- Loan repayments begin up to one year after project completion, at the lowest available interest rate.
- Provides access to capital for very small public water systems that would not qualify for loans elsewhere.

DWSRF Performance Measures (1997-2016)

DWSRF Loan Commitments

The DWSRF is funded through a federal capitalization grant that the state applies for and matches by 20%. A portion is used to fund Drinking Water program administration and other grant programs but the majority is loaned out to communities. Since 1997, the DWSRF has provided more than $260 million in funding to over 250 infrastructure improvement projects at New Hampshire's public water systems.



DWSRF Principal Forgiveness

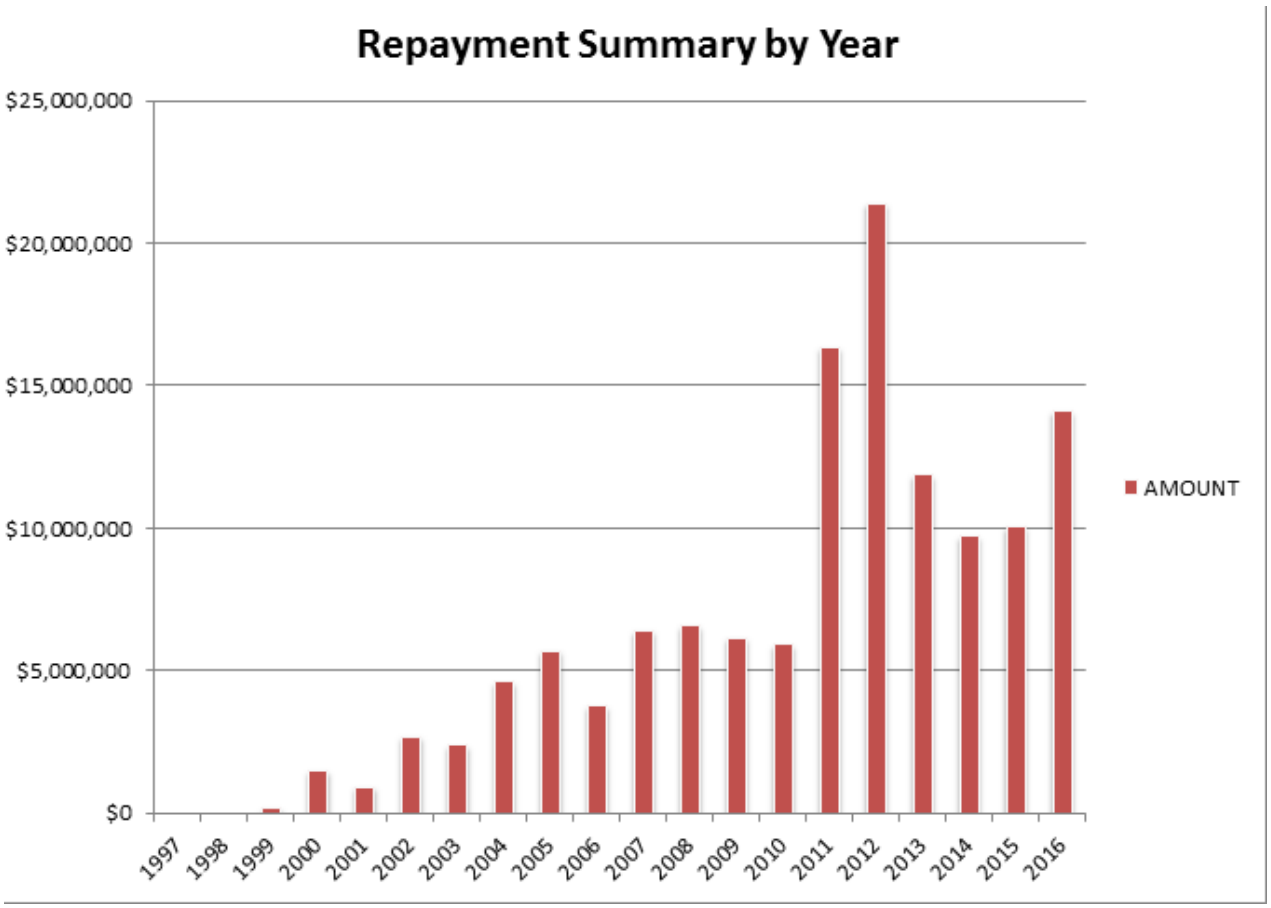
Economically disadvantaged water systems may have a portion of the loan principal forgiven if the water system's water rates exceed a "water rate goal," which is based upon the Median Household Income of the community. Principal forgiveness has ranged from 10% up to 50% in 2009 due to the American Recovery and Reinvestment Act. Over $20,000,000 has been forgiven.

Low Interest Rates

Current rates are at historic lows, making it a great time to borrow funds needed to replace aging infrastructure. Loan term options are 5, 10, 15, 20-year (30-year option for disadvantaged systems only). In 2016, the program saw the lowest rates ever at 1.96% for a 20-year term.

DWSRF Repayment Amounts

New projects are being completed each year and as funds that were loaned are repaid, they are then made available to other communities.



The FLOW of a DWSRF Water Main Replacement Project

The following illustration outlines the steps for a typical water main replacement project funded through the DWSRF program, from start to finish.

A. IDENTIFY

PUBLIC WATER SYSTEM IDENTIFIES THE PROJECT:

From a Master Plan
(or Comprehensive System Facilities Plan or Capital Improvement Program)

From an Asset Management Plan

From an Energy Audit

From a requirement in a Administrative Order

From a system needs assessment

From an emergency

From a project needed to coordinate with a scheduled DOT or local road reconstruction project

B. FUNDING

OBTAIN PROJECT FUNDING

Public Water System submits a DWSRF pre-application (t
DWSRF loan rates are discounted below 11-GO Bond In

Determine system eligibility for principal forgiveness.
NHDES issues project priority list.

Co-funding opportunities explored:
(Rural Development, Community Development Block Grant, Local Share, etc)

Applicant seeks authority to borrow funds (Town Meeting, City Council, Homeowner's Association Annual Meeting). Submit final application.

E. CONSTRUCT

CONSTRUCTION

Preconstruction Meeting/Contract Signing

Contractors become involved & Construction occurs

Construction inspection by third party or in-house by utility

Monthly DWSRF disbursements submitted by public water system

F. COMPLETION

SUBSTANTIAL & FINAL COMPLETION

Final pay requisition

Final project inspection

Final disbursement

Asset Management Plan

G. LOAN RE

SUPPLEMENTAL LOAN AGREEMENT

Loan repayments by water system start one year aft

Loan repayments return to the Drinking Water State

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on (typically end of June each year).
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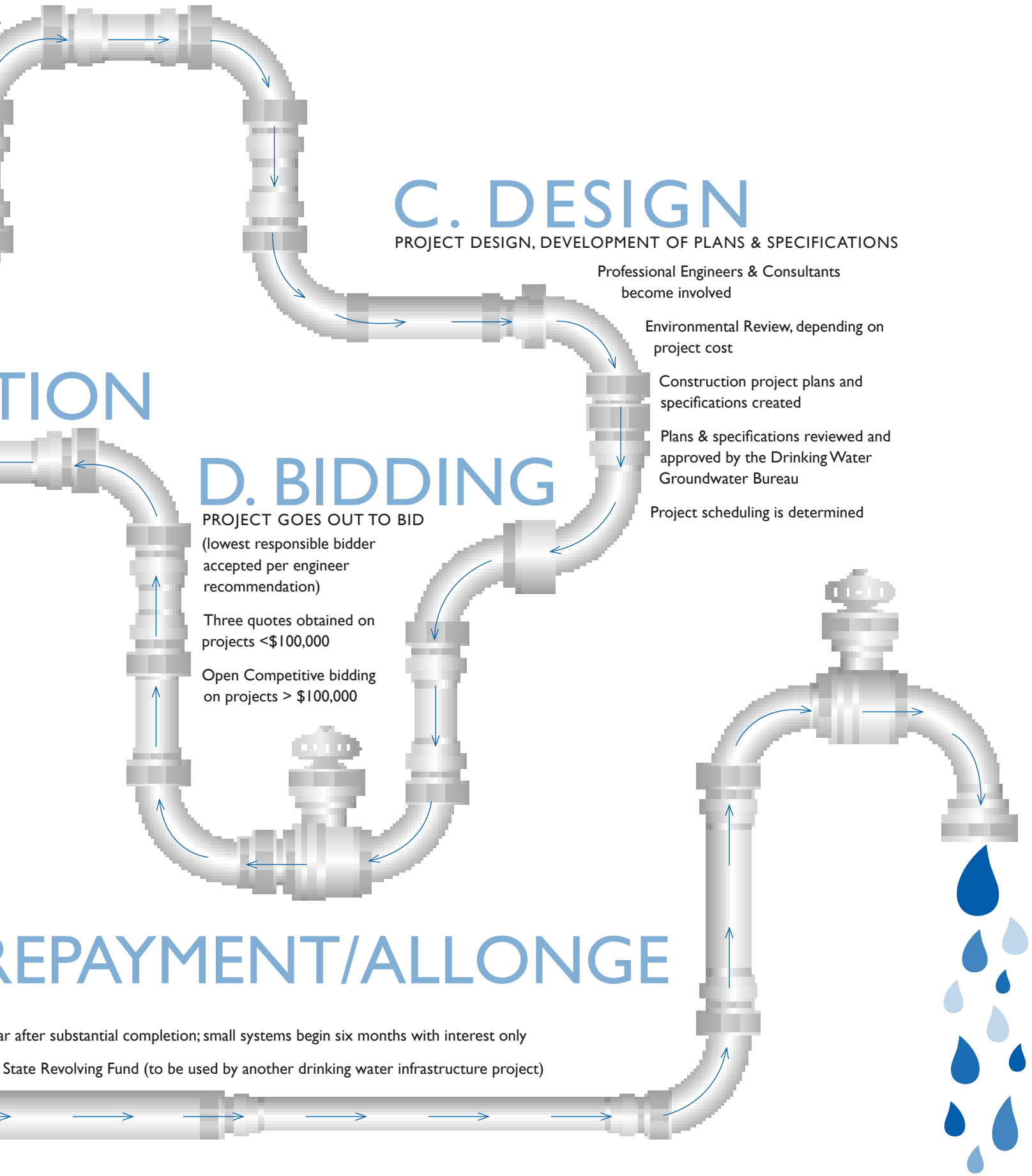


C. DESIGN

PROJECT DESIGN, DEVELOPMENT OF PLANS & SPECIFICATIONS

Professional Engineers & Consultants become involved

Environmental Review, depending on project cost

Construction project plans and specifications created

Plans & specifications reviewed and approved by the Drinking Water Groundwater Bureau

Project scheduling is determined

TION

D. BIDDING

PROJECT GOES OUT TO BID

(lowest responsible bidder accepted per engineer recommendation)

Three quotes obtained on projects <$100,000

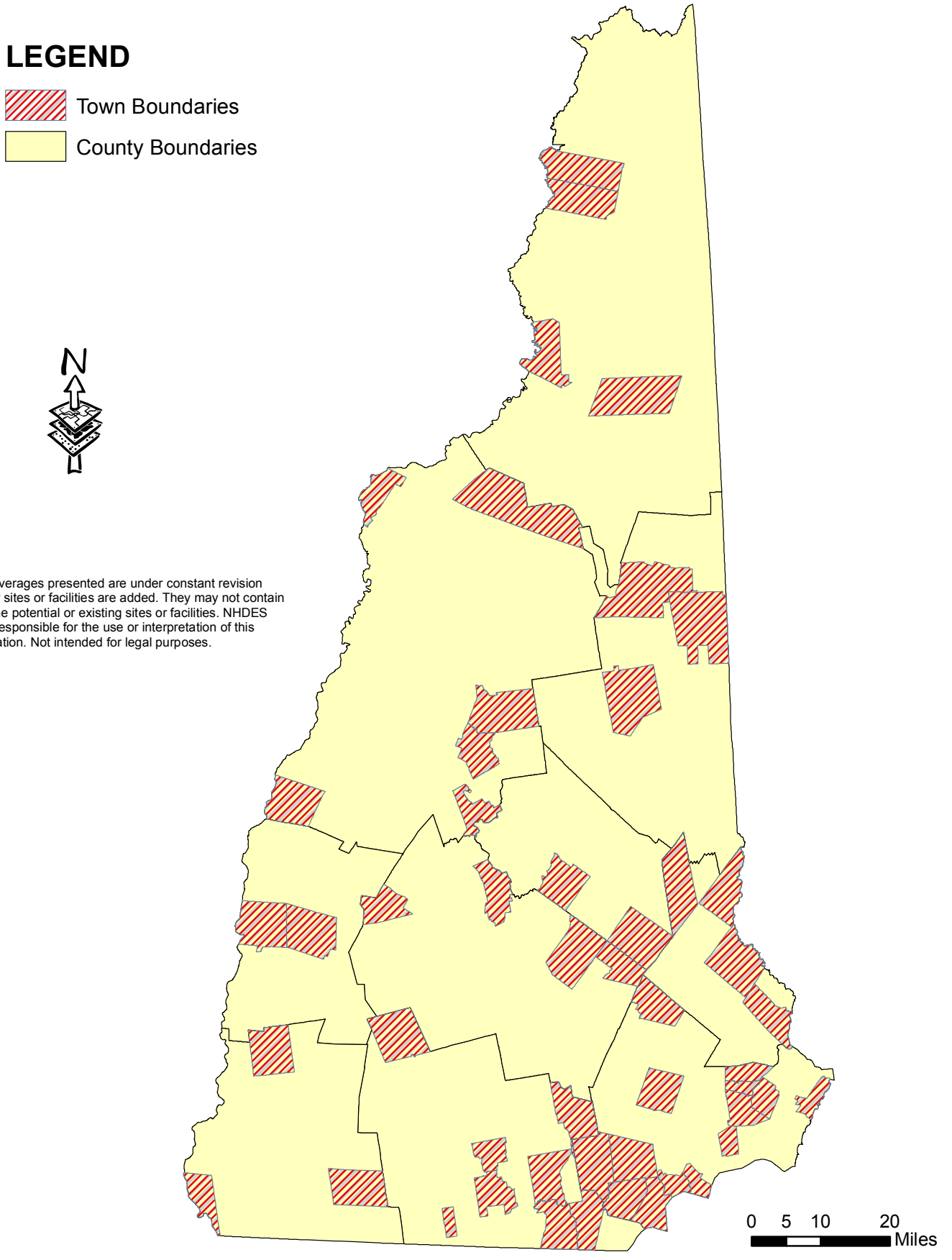
Open Competitive bidding on projects > $100,000

REPAYMENT/ALLONGE

ar after substantial completion; small systems begin six months with interest only

State Revolving Fund (to be used by another drinking water infrastructure project)

Public Water Systems receiving 2012 to 2016 DWSRF Construction Funding



Construction Projects at a Glance 2012-2016

2012			
Water System	**Community Served**	**Description**	**DWSRF Loan Amount**
Well Hill Cooperative, Inc.	Alstead	Water System Improvements	$268,000
Pennichuck East Utility – Locke Lake	Barnstead	Water Line Replacement	$400,000
Berlin Water Works	Berlin	Distribution System Improvements	$2,000,000
Town of Hillsborough	Hillsborough	Water Treatment Plant DBP Project	$904,000
Pennichuck East Utility – Avery Estates	Londonderry	Interconnection with the Town of Hudson	$450,000
Merrimack Village District	Merrimack	Iron and Manganese Treatment Facility	$4,300,000
Town of Monroe	Monroe	Nitrate Treatment System and SCADA Upgrade	$185,000
Edward M Houck Trust – Rolling Acres MHP	Mont Vernon	Water System Improvements	$220,000
Amazon Park	Rochester	Interconnection with the City of Rochester	$261,000
City of Rochester	Rochester	Water Treatment Plant Upgrades	$2,270,000
Rye Water District	Rye	Water Main Improvements	$3,400,000
Northernview Apartments	Stewartstown	Water System Improvements	$195,000
Jewett Hill Homeowners Association	Stratham	Water System Improvements Project	$90,000
TOTAL (13)			**$14,943,000**

2013			
Water System	**Community Served**	**Description**	**DWSRF Loan Amount**
Pennichuck East Utility – Locke Lake	Barnstead	Water Main Replacement Project	$400,000
Town of Belmont	Belmont	Meter Replacement Project	$375,000
Centennial Estates Cooperative, Inc.	Derry	Distribution system, Pump House and Tank Improvements	$258,500
Exeter River Landing	Exeter	Pump House, Treatment, Water Tank Upgrade Project	$383,388
Terrace Condominium Association	Hudson	Interconnection to the Town of Hudson	$250,000
City of Lebanon	Lebanon	CSO #11 Water Main Replacement Project	$200,000

2013			
Midridge Condominium Association	Londonderry	Water System Improvement Project	$50,000
Presidential Pines Cooperative, Inc.	Loudon	Upper Well House Electrical Improvement Project	$50,000
Manchester Water Works	Manchester	Water Main Replacement/ Rehab and Storage Tank Project	$9,000,000
Town of Milford	Milford	Dram Cup Hill Tank Rehab Project	$330,000
Pennichuck Water Works	Nashua	Core System – 2014 Main Replacement Project	$2,640,000
Pennichuck Water Works	Nashua	Timberline Booster Station	$330,000
Copple Crown Village District	New Durham	Booster Station Upgrades	$275,000
Slope 'N Shore Club, Inc.	New London	Water System Improvement Project	$500,000
Town of Newmarket	Newmarket	Great Hill Water Main Replacement Project	$1,055,000
North Conway Water Precinct	North Conway	Crown Ridge Road Water Main Replacement Project	$998,000
Loon Estates Cooperative, Inc.	Northwood	Water System Improvement Project	$50,000
Whip-O-Will Hill Village Cooperative, Inc.	Plymouth	Water System Improvement Project	$160,000
Salt River Condominium Association	Stratham	Water Pumping Station Upgrade Project	$160,000
Pennichuck East Utility – Hardwood	Windham	Pump Station Replacement Project	$572,000
Pennichuck East Utility – W&E	Windham	Water Main Replacement Project	$1,060,000
TOTAL (21)			**$19,096,888**

2014			
Water System	**Community Served**	**Description**	**DWSRF Loan Amount**
Pennichuck East Utility – Locke Lake	Barnstead	Water Main Project	$400,000
Berlin Water Works	Berlin	Water Main Replacement and Transmission Pipeline Project	$2,000,000
Bethlehem Village District	Bethlehem	Water System Improvements	$2,100,000
Beebe River Community Association	Campton	Water System Improvements Project	$50,000
Town of Colebrook	Colebrook	Main Street Improvements Project	$1,650,000

2014			
Conway Village Fire District	Conway	West Main and Main Street Water Main Improvements Project	$640,950
City of Dover	Dover	Water Facilities Improvement Project	$8,500,000
Brandywine Owners Association, Inc.	East Kingston	Water System Improvements Project	$120,000
City of Franklin	Franklin	Water Main Replacement & Cross Street Storage Tank Project	$765,000
Manchester Water Works	Manchester	Meter Interface Unit Installation Project	$1,200,000
Pineland Park	Milton	Pump House Upgrade and Distribution Work	$320,000
Pennichuck Water Works	Nashua	Raw Water Main Transmission Project	$3,500,000
Newfields Water & Sewer District	Newfields	New Water Storage Tank Project	$640,000
Town of Northumber-land	Northumberland	Water Main Improvements Project	$1,989,540
Pittsfield Aqueduct Company	Pittsfield	Catamount Road Water Main Project	$605,000
Braemar Woods Condominium Association	Windham	Water Main Extension Interconnection Project	$210,000
TOTAL (16)			**$24,690,490**

2015			
Water System	**Community Served**	**Description**	**DWSRF Loan Amount**
Wright Farm Condominium Association	Atkinson	Pump House Upgrades	$203,400
Pennichuck East Utility-Locke Lake	Barnstead	Water Main Replacement	$1,650,000
Town of Bristol	Bristol	Meter Upgrade Project	$104,500
City of Dover	Dover	Keating-Birchwood Neighborhood Reconstruction	$550,000
Greenville Water Department	Greenville	Water Treatment Plant Pump Improvements	$145,000
Hinsdale Water	Hinsdale	Meter Upgrade Project	$80,000
Town of Jaffrey	Jaffrey	Water Main Replacement	$2,781,699
Pennichuck Water Works	Nashua	Water Main Replacement	$1,400,000
Newport Water Works	Newport	1st, 2nd, 3rd and 4th Street Water Main Design	$83,500
Moongate Farm Condominium Association	Plaistow	Upgrade & Replace Pumps and Piping	$212,000

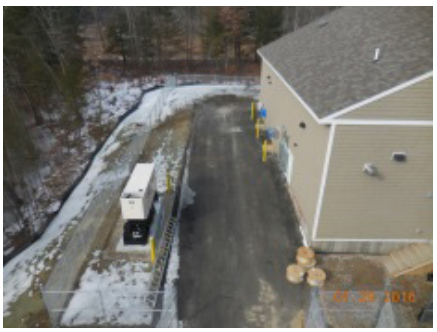
2015			
Town of Raymond	Raymond	Well #1 Replacement & New Well #4 Project	$3,151,000
City of Rochester	Rochester	Raw Water Pump Station Project	$540,000
Town of Salem	Salem	Exit 2 Area Water System Improvements	$1,664,000
White Lake Estates	Tamworth	Water Main Replacement	$292,750
TOTAL (14)			**$12,857,849**

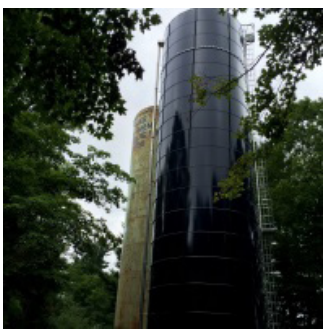
2016			
Water System	Community Served	Description	DWSRF Loan Amount
Nordic Village Condominium Association	Bartlett	Tank and Pump House Rehab	$192,000
City of Claremont	Claremont	Lead Service Line Replacement Project	$500,000
City of Dover	Dover	Water Facilities Improvement Project – Phase II	$9,100,000
Manchester Water Works	Manchester	Water Storage Tank & Cohas Avenue Pump Station Upgrades	$6,150,000
Acorn Terrace Cooperative, Inc.	Rochester	Water Utility Improvement Project	$880,000
PEU/Maple Hills	Derry	Brady Avenue Water Main Replacement	$570,000
PEU/Litchfield	Litchfield	Hillcrest Road Water Main Replacement	$245,000
PEU/Litchfield	Litchfield	Pennichuck Water Works Nashua Core Interconnection	$2,400,000
Barrington Oaks Cooperative, Inc.	Barrington	Well Reconstruction & New Source	$275,000
Hooksett Village Water Precinct	Hooksett	Hooksett Road Water Tank Replacement	$1,848,180
PENDING: As of publication, funds have been offered to the water systems listed below but a loan is not in place.			
Ossipee Mountain Estates	Center Ossipee	New Water Distribution System and Well House Upgrades	$613,251
Samoset at Winnipesaukee Condo Assoc	Gilford	Pump House Access Renovation	$100,000
Bryant Brook Condominium Association	Plaistow	Pump House and Source Water Upgrades	$240,000
Frost Residents Cooperative	Derry	Utilities Improvement Project	$852,760
Jackson Water Precinct	Jackson	Route 16 Water Main Extension	$675,000
City of Lebanon	Lebanon	CSO #1 Phase 2 Water Main	$2,000,000
TOTAL (16)			**$26,641,191**

Spotlight on Construction

System Name	Manchester Water Works, PWS 1471010
Communities Served	Manchester and 6 surrounding communities
Population	133,000
Service Connections	31,000
DWSRF Funded Amount	$9,000,000 (tank project) & $1,200,000 (meters)
Engineer	Tighe & Bond (tank project)
Contractor	Preload LLC (tank project) & TiSales (meters)
Description	The Manchester Water Works (MWW) owns and operates a 20-million-gallon (MG) earthen berm reservoir that serves its Low Service System. The Low Service System Reservoir has served the City of Manchester adequately since its original construction in 1870. However, due to several factors, it was determined that the reservoir has reached its useful service life expectancy and would need to be replaced. This project included the construction of two 6.5 MG wire-wound, prestressed concrete water storage tanks – the largest storage tanks in the state. A second project included the replacement of approximately 12,500 meters with meter interface units (MIU). MWW began changing from automatic reading boxes (ARB) to MIUs approximately 10 years ago. It was anticipated that at the current rate of installation, it would take 7-9 years to complete the change over to MIUs for all of the remaining customers. Thefore, the project replaced approximately 12,500 ARBs with MIUs all at once to save time and money.

System Name	Copple Crown Village District, PWS 1672020
Communities Served	New Durham
Population	100
Service Connections	33
DWSRF Funded Amount	$275,000
Engineer	Fluet Engineering Associates
Contractor	LRW Water Services, Inc.
Description	The original water system infrastructure was installed in the late 1960s and the system had several major areas that were in need of replacement. This project included replacing all three of the below-grade booster pump stations with new construction above grade with two variable-frequency drive (VFD) pumps and backup generator. This project will improve the reliability, capacity and quality of the water system.
	

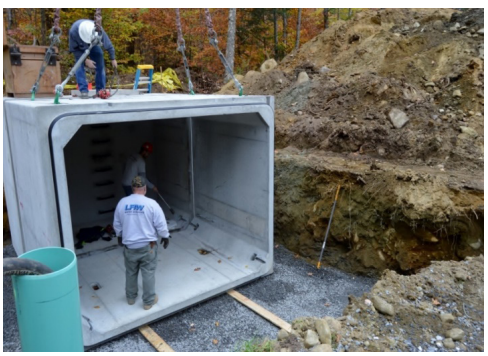
System Name	Merrimack Village District, PWS 1531010
Communities Served	Merrimack
Population	25,000
Service Connections	9,354
DWSRF Funded Amount	$4,300,000
Engineer	Underwood Engineers, Inc.
Contractor	PRB Construction, Inc.
Description	Wells #7 and #8 have been a reliable source of water for the District but have had a long-running issue with iron and manganese exceeding secondary standards, which has limited their use due to water quality complaints. This project included construction of an iron and manganese treatment facility for wells #7 and #8. This project will increase capacity and improve water quality.
	

System Name	Newfields Water & Sewer, PWS 1681010
Communities Served	Newfields
Population	550
Service Connections	220
DWSRF Funded Amount	$640,000
Engineer	Hoyle, Tanner & Associates, Inc.
Contractor	Statewide Aquastore, Inc.
Description	The Newfields Village Water and Sewer District had only one water storage tank. The existing steel water storage tank was installed in 1954 and had reached the end of its useful life. This tank was solely relied on to provide adequate storage capacity to meet the necessary water and fire demands of the district and there had been numerous leaks in the tank over the past several years. This project replaced the aging water storage tank, with a new tank of similar dimensions, on the existing tank site. The new tank will improve water reliability into the future.
	

System Name	Pennichuck East Utility – Hardwood, PWS 2542060
Communities Served	100
Population	40
Service Connections	Windham
DWSRF Funded Amount	$572,000
Engineer	Pennichuck East Utility, Inc.
Contractor	CSSI Contractors
Description	The original pump station underwent expansion and numerous system upgrades beginning in 2000 that included treatment equipment to maintain compliance and to treat for secondary compounds such as hardness, iron and manganese. The existing structure was never designed to accommodate this equipment efficiently. All of the original piping and the storage tank had become corroded, and the electrical systems and the existing treatment equipment had reached the point of replacement. This project replaced the existing, undersized and deteriorated pumping and treatment station and will improve water quality and reliability.
	

System Name	City of Dover, PWS 0651010
Communities Served	Dover
Population	28,000
Service Connections	8,800
DWSRF Funded Amount	Phase I: $8,500,000 & Phase II: $9,100,000
Engineer	Underwood Engineers, Inc.
Contractor	Penta Corporation (Phase I)
Description	Most of Dover's water system facilities were constructed up to 50 years ago and are aging. The City's Water System Facilities Plan identified multi-phased improvements based on age and condition, worker safety, process efficiency, energy efficiency, and code and standards compliance. Phase I includes short-term health and safety upgrades to all facilities, comprehensive building, process and ancillary system upgrades to facilities in the Hoppers Aquifer and Willand Pond Aquifer; and improvements to storage facilities. Phase II includes an interconnection with Somersworth Water, connection of the Willand Pond Wells, long-term treatment for sources in the Pudding Hill Aquifer, Relocation of Isinglass Recharge Facility above flood plain, and Garrison Hill Tank improvements. These projects will improve health and safety of workers and the public, improve water quality, and increase capacity and reliability.

System Name	Town of Jaffrey, PWS 1221010
Communities Served	Jaffrey
Population	3,600
Service Connections	1,500
DWSRF Funded Amount	$2,781,699
Engineer	Tighe & Bond
Contractor	Haluch Water Contracting, Inc.
Description	The Mountain Road, Main Street, Sawtelle Road and Cross Street projects were identified at the top of the prioritized list for replacement for the Town. The approximately 14,200 feet of water main proposed for replacement was installed between 1899 and 1918, and the mains were undersized for the areas that they serve. This project included installation of 12-inch ductile iron water main, and included hydrants, valves, service connections, pavement repair, and surface restoration. The project also included installation of a pressure-reducing valve at the Prospect Booster Pump Station in order to provide a means to feed the low pressure service area from the high pressure service area in the event of an emergency in the low pressure service zone. Flushing stations for improving water quality on Mountain Road were also installed and the water main crossing the Contoocook River Bridge was abandoned. This project will improve capacity and reliability.
	

System Name	Well Hill Cooperative, Inc., PWS 0053010
Communities Served	Alstead
Population	43
Service Connections	17
DWSRF Funded Amount	$268,000
Engineer	Provan & Lorber, Lewis Engineering
Contractor	Lexington Excavating, Cushing & Sons, and Lakes Region Water Services Co.
Description	This 1970s manufactured home community suffered frequent leaks and "no water" episodes, due to old, shallow poly distribution lines. The system was gravity fed only with no pump house or water treatment, despite very high levels of manganese (up to 1 mg/L) and iron (up to 3 mg/L), presenting significant aesthetic issues and health risks to small infants. The DWSRF loan was used as 50/50 match to obtain a Community Development Block Grant, doubling their resources to allow full reconstruction of the system. New two- to three-inch PVC water mains and 25 new service lines were installed to allow full occupancy of the park and improve system financial sustainability. A new 10,000-gallon pre-cast concrete tank was installed along with a new pumphouse, VFD booster pumps and modern controls. A new well source was developed with better yield and water quality to replace the high iron-manganese source. Residents now enjoy improved water pressure and lower operational costs by avoiding frequent leaks and well pump repairs. A key partner from project concept to completion was the water system operator, Mr. Daniel Crosby, of EAI Analytical Labs in Swanzey, NH.
	
	

System Name	Whip-O-Will Hill Village Cooperative, Inc., PWS 1943010
Communities Served	Plymouth
Population	165
Service Connections	66
DWSRF Funded Amount	$160,000
Engineer	Holden Engineering and Horizons Engineering
Contractor	LRW Water Services Co., Inc.
Description	The water supply wells for the system exhibited low yield, and high iron and manganese. One source also had trace arsenic levels. Water supply became an emergency at the end of 2015 when one well failed completely due to iron bacteria fouling. DWSRF funding was already committed for construction of a new pumphouse and greensand filtration system along with additional atmospheric storage. Therefore, the community obtained emergency funding from the US Department of Agriculture Rural Development (USDA RD) to install a replacement well source. The new infrastructure is now operating successfully to meet water quality and storage needs, however, additional supply is still warranted to meet mid and long-term water needs. Additional funding has been requested from USDA RD to secure additional supply.

System Name	Town of Colebrook, PWS 0481010
Communities Served	Colebrook
Population	2,239
Service Connections	570
DWSRF Funded Amount	$1,650,000
Engineer	CMA Engineers, Inc.
Contractor	J.P. Sicard, Inc.
Description	The Colebrook water system is currently believed to be one of the leakiest in the state. The original water system infrastructure was installed on Main Street at or around 1880. This infrastructure has outlived its useful service life. It is suspected that a significant portion of water losses from Colebrook's system is along Main Street—US Route 3. This project is a jointly-funded project with Clean Water SRF and USDA RD Water and Environmental Program funds and is a complete rebuild of the water system along Main Street. An estimated 2,700 feet of new water main will be constructed. The project is a "complete street" project and will include water main replacement, sewer main replacement, drainage upgrades and new pavement and sidewalks. The improvements from this project will save water and electricity, and provide overall system reliability.
	

System Name	City of Franklin, PWS 0851010
Communities Served	Franklin
Population	8,700
Service Connections	2,400
DWSRF Funded Amount	$765,000
Engineer	Tata & Howard, Inc. and L.C. Engineering, LLC
Contractor	Marcel A. Payeur, Inc. and R.D. Edmunds and Sons, Inc.
Description	This loan included two different projects: Cross Street Storage Tank Rehabilitation and Route 3 Water Main Relocation. The Cross Street storage tank that was built in 1964 and had advanced corrosion, which formed a leak in 2014. The project included cleaning, repair and painting of the tank. The water main project consisted of a jointly-funded NHDOT project upgrading Route 3 and the Industrial Drive intersection. That project required relocating portions of the existing 12-inch water main located in this area. Approximately 1,500 feet of water main was replaced. Both projects will improve reliability and water quality throughout the system.

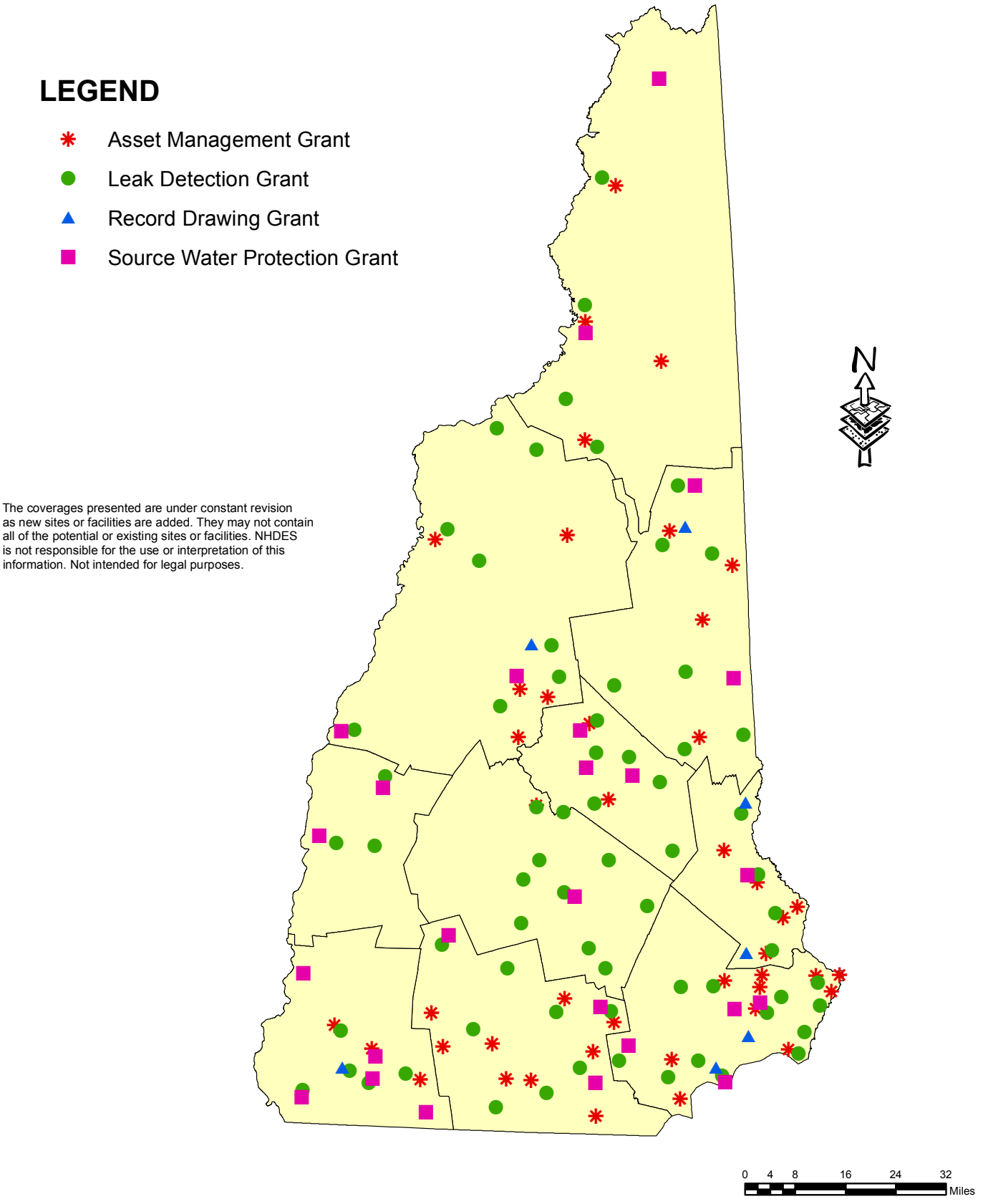
System Name	Centennial Estates Cooperative, Inc., PWS 0613060
Communities Served	Derry
Population	157
Service Connections	53
DWSRF Funded Amount	$258,500
Engineer	Nobis Engineering, Inc., Concord, NH
Contractor	Distribution Upgrades: Lexington Excavation, LLC , Bedford, NH Pump House: Hampstead Area Water Service Company, Atkinson, NH
Description	The water system had comprised of a single well, no storage or booster pumping capabilities, and small-diameter distribution lines passing under the units. The age of the distribution infrastructure was beyond its useful life, as demonstrated by continuous leakage documented by metered water usage and frequent breaks. The lack of a back up well, storage and booster pumps had contributed to water outages and low pressures. This project was jointly-funded with the Community Development Block Grant program and included complete replacement of the distribution system and service connections, atmospheric storage, and booster pumping. This project improves reliability and water system operations.
	 

System Name	Terrace Condominium Association, PWS 1202020
Communities Served	Hudson
Population	63
Service Connections	25
DWSRF Funded Amount	$250,000
Engineer	Lewis Engineering, Litchfield, NH
Contractor	Water Main: CSSI, Inc., Bedford, NH; Building Retrofits: Bill Trombly Plumbing and Heating, Manchester, NH
Description	The existing drinking water system obtained its water from two bedrock wells. The original water system infrastructure was installed in the late 1970s and several major areas were in need of repair and replacement. Sanitary surveys by NHDES cited significant deficiencies. This project included construction of approximately 350 linear feet of new 12" cement-lined DIP water main to include a master water meter vault, two fire hydrants, approximately 850 linear feet of 6" water main, new service lines to six buildings and finally, an interconnection to the Town of Hudson water system. Connecting this small residential community to the municipal water system ensures a long-term, reliable source of supply for the residents.
	

System Name	White Lake Estates Homeowners Association, PWS 2312030
Communities Served	Tamworth
Population	250
Service Connections	100
DWSRF Funded Amount	$292,750
Engineer	White Mountain Survey & Engineering, Inc., Ossipee, NH
Contractor	Rotten Rock Hardscaping and Tree Service, Inc., Jackson, NH
Description	White Lake Estates is small community public water system in Tamworth, NH that serves 100 single-family residences and supplies water to approximately 250 people. The distribution system was installed 47 years ago and was in need of upgrades. The Association replaced 4,230 feet of the 47-year-old PVC distribution system that had become a source of many leaks. The project also included the strategic installation of isolation valves in this new section of water lines. This project reduces the potential loss of water and the danger of contamination while improving system reliability.

"The fiduciary duties of operating a water system is a huge undertaking and with the help of NHDES and RCAP and our system operator F.X. Lyons, we believe we are fulfilling our obligations to the association members." –Rene E. Juneau, President of White Lake Estates

Public Water Systems receiving 2012 to 2016 DWSRF Grant Funding



Asset Management Grants

Proper asset management (AM) allows a Public Water System to plan responsibly and make informed decisions to proactively manage aging infrastructure assets on a continual basis, ensuring the long-term sustainability of the entire system.

Since 2012, NHDES has supported the Asset Management Grant Program to assist community water systems serving 200 people or more in conducting AM initiatives for drinking water infrastructure. The maximum grant amount is $20,000 and requires a 100% match. NHDES has assisted over 48 communities and invested $817,000 in this initiative.

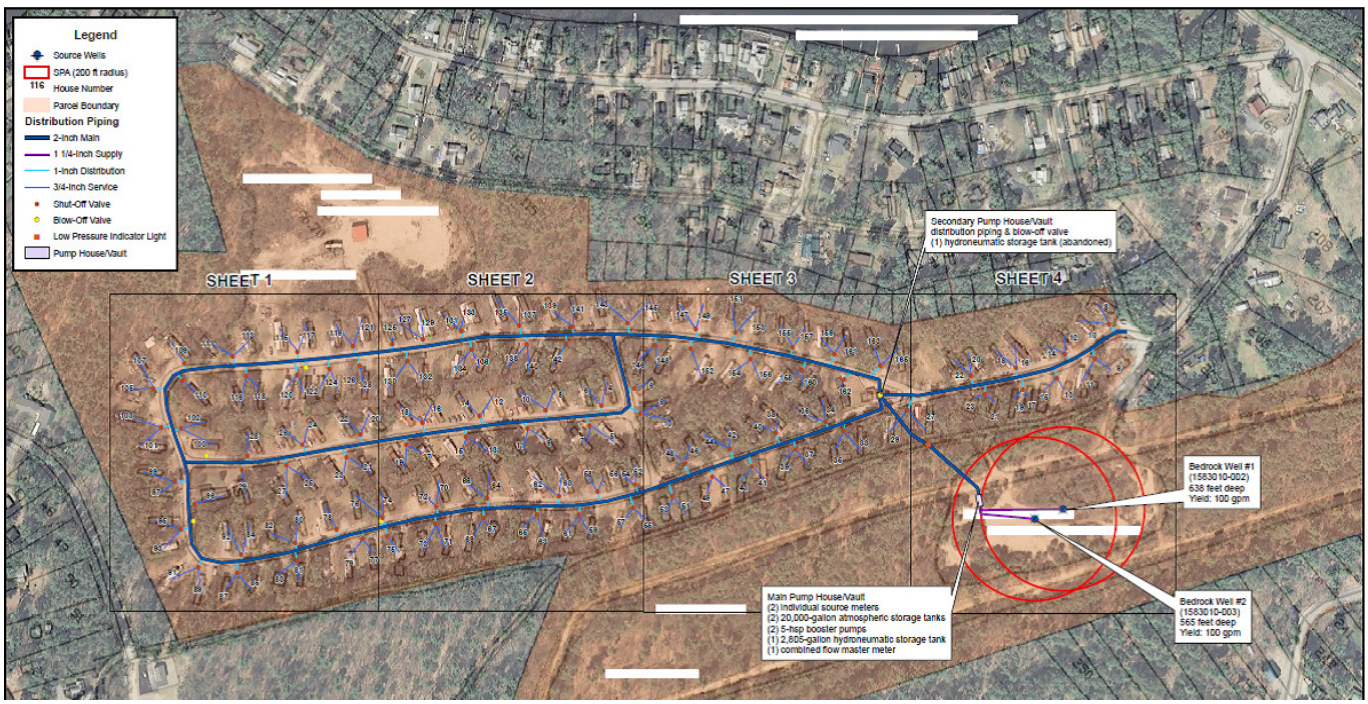
Asset Management Grant Program			
System	Population	Town	Amount
Ashland Water & Sewer	1,500	Ashland	$15,000
Lower Bartlett Water Precinct	3,570	Bartlett	$15,000
Town of Belmont	1,612	Belmont	$15,000
Berlin Water Works	9,500	Berlin	$35,000
Town of Bristol	3,400	Bristol	$15,000
Carroll Water Works	875	Carroll	$15,000
Town of Colebrook	2,321	Colebrook	$12,500
Conway Village Fire District	2,665	Conway	$15,000
North Conway Water Precinct	5,127	Conway	$15,000
Town of Derry	15,145	Derry	$15,000
City of Dover	20,000	Dover	$15,000
**UNH/Durham Water System	16,000	Durham	$15,000
Epping Water & Sewer	1,240	Epping	$15,000
Town of Exeter	11,000	Exeter	$15,000
Town of Farmington	3,000	Farmington	$20,000
City of Franklin	7,000	Franklin	$15,000
Goffstown Village Water Precinct	3,000	Goffstown	$20,000
Crotched Mt. Rehab Center	750	Greenfield	$8,000
Hancock Water Works	413	Hancock	$15,000

Asset Management Grant Program			
Woodsville Water and Light	2,000	Haverhill	$20,000
Town of Hanover	8,500	Honover	$9,135
Jaffrey Water Works	3,612	Jaffrey	$20,000
City of Keene	25,000	Keene	$15,000
Town of Lincoln	2,750	Lincoln	$15,000
Village District of Eidelweiss	1,140	Madison	$15,000
Manchester Water Works	133,000	Manchester	$15,000
Town of Marlborough	750	Marlborough	$20,000
Town of Meredith	2,800	Meredith	$15,000
Merrimack Village District	25,000	Merrimack	$15,000
Milford Water Utilities Department	9,500	Milford	$20,000
Pennichuck Water Works	87,682	Nashua	$15,000
Newfields Water and Sewer District	550	Newfields	$20,000
Newmarket Water Works	5,000	Newmarket	$15,000
Groveton Water System	2,650	Northumberland	$15,000
Peterborough Water Works	4,062	Peterborough	$15,000
Plymouth Village Water & Sewer	6,300	Plymouth	$15,000
City of Portsmouth	33,000	Portsmouth	$15,000
City of Rochester	25,000	Rochester	$20,000
Rollinsford Water & Sewer	1,688	Rollinsford	$13,250
Rye Water District	4,100	Rye	$20,000
Town of Salem	18,000	Salem	$15,000
Seabrook Water System	14,000	Seabrook	$35,000
Wilton Water Works	1,700	Wilton	$15,000
Town of Wolfeboro	5,750	Wolfeboro	$15,000

Record Drawings Grants

The Record Drawings Grant program assists small community water systems in preparing or updating record drawings in order to provide a long-term record of the location of critical system infrastructure, especially underground facilities. The grant is available to community water systems serving 500 people or less, and can be applied toward record drawings developed any time after April 1, 2009. The maximum grant amount is $1,500 and requires a 50% match. From 2012-2016, NHDES has funded 11 record drawing projects for a total of $15,765. Since its inception in 2010, the grant program has awarded $25,131.

Record Drawings Grant Program		
Water System/Entity	**Town**	**Amount**
Eastfield Crossing	Swanzey	$1,500
Forest Edge Water Company	North Conway	$1,500
Six Flags MHP	Campton	$750
Crawford Pond Association	Bartlett	$1,500
Brandywine Owners Association	East Kingston	$1,000
Whispering Brook	Bartlett	$1,500
Goodrich Property Owners Association	Bartlett	$1,500
Pineland Park	Milton	$1,500
Evergreen Terrace	Lee	$675
Darby Field Commons	Lee	$640
Greenfield Hill Estates	Plaistow	$1,500
Bryant Brook	Plaistow	$700
Riversbend	Bartlett	$1,500



Source Water Protection Grants

Bio-retention basin to capture stormwater runoff in Laconia.

Local Source Water Protection Grants provide funds to develop and implement programs to protect existing sources of public drinking water. The grants are available to water suppliers, municipalities, regional planning agencies, non-profit organizations, educational institutions, conservation districts and state agencies. Applicants can receive up to $20,000 for projects to protect drinking water sources including watershed planning, delineation of protection areas, assessment of threats to water supply sources, implementation, source security and conservation.

Protection projects funded through this program have included: delineation of wellhead protection areas, inventories of potential contamination sources, development of local protection ordinances, groundwater reclassification, drinking water education, transaction costs for land conservation projects, and security measures to control access to sources.

From 2013 through 2016, Local Source Water Protection Grants were made available for a total of $597,358, awarded for Source Water Protection efforts. Since inception in 1997, the grant program has awarded $3,053,997.

Source Water Protection Grants Awarded 2013 through 2016		
Water System/Entity	**Town**	**Amount**
Town of Northumberland	Northumberland	$6,300
Town of Exeter	Exeter	$30,252
Rockingham Planning Commission	Exeter	$9,500
Green Mountain Conservation Group	Effingham	$19,387
Lake Winnipesaukee Watershed Association	Meredith	$36,770
City of Concord	Concord	$20,000
Strafford Regional Planning Commission	Rochester	$55,899
Lower Bartlett Water Precinct	Intervale	$8,908
Pennichuck Water Works	Merrimack	$40,000
Manchester Water Works	Manchester	$62,500
Town of Merrimack	Merrimack	$19,800
Emerald Lake Village District	Hillsborough	$16,949
Gunstock Acres Village Water District	Gilford	$720
Town of Marlborough	Marlborough	$18,000
Town of Brentwood	Brentwood	$16,946
Southeast Land Trust of NH	Exeter	$19,950
Upper Valley Lake Sunapee Regional Planning Commission	Lebanon	$17,575
Laconia Conservation Commission	Laconia	$15,000
City of Lebanon	Lebanon	$20,840
Granite State Rural Water Association	Walpole	$20,000
Winchester Water Department	Winchester	$2,900

Source Water Protection Grants Awarded 2013 through 2016		
Pittsburg Water Department	Pittsburg	$14,250
Town of Plaistow	Plaistow	$19,996
Wagon Wheel Tenants Cooperative	Londonderry	$8,000
Jackson Water Precinct	Jackson	$19,800
Village District of Eastman	Grantham	$18,570
Claremont Department of Public Works	Claremont	$5,297
Troy Water & Sewer Department	Troy	$2,529
Monadnock Tenants Co-op	Rindge	$4,640
NH Lakes Association	Concord	$18,606
Lakes Region Planning Commission	Meredith	$12,475
Plymouth Village Water & Sewer District	Plymouth	$15,000

Some examples of the projects funded to protect source waters include:

Strafford Regional Planning Commission (SRPC) used grant funds in cooperation with the City of Rochester to revise the City's dated Aquifer Protection Overlay District. Through collaboration with many individuals and boards in city government, SRPC developed a new ordinance, which Rochester ultimately adopted that better protects aquifers and wellhead protection areas from contamination and degradation.

Plymouth Village Water and Sewer District used funds to commission a study to determine the sources of sodium and chloride in their wellhead protection areas (WHPAs). They developed a mitigation plan to reduce sodium and chloride loading in the WHPAs and ultimately lower the amounts in their water.

Green Mountain Conservation Group used grant funds to educate residents and businesses about best practices to protect the Ossipee aquifer.

Monadnock Tenants Co-op removed two conventional above ground home heating oil tanks that were within 300 feet of their wellheads. They replaced them with Roth style double-walled tanks with leak alarms, which minimize the risk of groundwater contamination.

Many water systems used funds to install security measures such as fences around their wellheads and reservoirs.

Green Mountain Conservation Group teaches groundwater education in schools.

Leak Detection Survey Grants

The Leak Detection Survey Grant Program provides community water systems an opportunity to receive an acoustic leak detection survey to identify and locate leaks for repair across the water distribution system. Community water systems apply for a leak detection survey. NHDES then issues a request for proposals from professional leak detection consultants and selects a consultant through a scoring process. The consultant schedules the surveys with the systems and uses various types of acoustical equipment to listen for leaks at contact points such as hydrants and valves, as well as directly over water lines.

Between 2013 and 2016, a total of $353,640 was provided to survey 2,940 miles of water main across 83 community water systems (some systems received surveys multiple years). Over the thousands of miles of pipe surveyed, 311 leaks were identified with a combined loss rate of 4,100 gallons per minute (gpm) or 5.9 million gallons per day (MGD). To put that into perspective, this loss is enough water to satisfy the average consumption of at least 59,000 people per day. The largest leak discovered was flowing at over 700 gpm. Considering a fire hydrant is required to flow at a minimum of 250 gpm, this was a major leak. It had not gone unnoticed by the system but had been difficult to locate. Since inception in 2010, the grant program has awarded $464,515.

Leak Detection Survey Grants

Water System/Entity	Town	Amount
LAKESIDE AT WINNIPESAUKEE	ALTON	$400
PEU/LOCKE LAKE	BARNSTEAD	$3,000
LOWER BARTLETT WATER PRECINCT	BARTLETT	$800
NORDIC VILLAGE	BARTLETT	$400
VILLAGGIO BIANCO	BARTLETT	$800
ABENAKI WATER/LAKELAND	BELMONT	$4,250
BELMONT WATER DEPARTMENT	BELMONT	$2,050
GLENCLIFF HOME	BENTON	$1,250
BETHLEHEM VILLAGE DISTRICT	BETHLEHEM	$1,500
PENACOOK BOSCAWEN WATER PRECINCT	BOSCAWEN	$2,000
ABENAKI WATER/WHITE ROCK WATER	BOW	$3,050
SIX FLAGS MHP	CAMPTON	$400
TRIPPLEWOOD RESORT CONDOMINIUMS	CAMPTON	$800
ROSEBROOK WATER	CARROLL	$5,400
CLAREMONT WATER DEPARTMENT	CLAREMONT	$1,000
COLEBROOK WATER WORKS	COLEBROOK	$2,300
CONCORD WATER DEPARTMENT	CONCORD	$17,700
CONWAY VILLAGE FIRE DISTRICT	CONWAY	$1,100
DOVER WATER DEPARTMENT	DOVER	$18,750
JOHNSON CREEK	DURHAM	$800
UNH/DURHAM WATER SYSTEM	DURHAM	$2,700

Leak Detection Survey Grants		
EPPING WATER AND SEWER DEPARTMENT	EPPING	$600
EPSOM VILLAGE WATER DISTRICT	EPSOM	$1,100
EXETER RIVER LANDING	EXETER	$1,000
PICKPOCKET WOODS	EXETER	$800
FRANKLIN WATER WORKS	FRANKLIN	$1,700
GUNSTOCK ACRES VILLAGE WATER DISTRICT	GILFORD	$5,450
GOFFSTOWN VILLAGE PRECINCT	GOFFSTOWN	$5,200
HILLSBOROUGH COUNTY COMPLEX	GOFFSTOWN	$800
ORCHARD HIGHLANDS	GOFFSTOWN	$1,600
VILLAGE DISTRICT OF EASTMAN	GRANTHAM	$4,000
CROTCHED MOUNTAIN REHABILITATION CENTER	GREENFIELD	$800
GREENVILLE WATER DEPARTMENT	GREENVILLE	$800
GLENWOOD NORTH	HAMPSTEAD	$400
AQUARION WATER COMPANY OF NH	HAMPTON	$31,640
NORTH HAVERHILL WATER AND LIGHT DISTRICT	HAVERHILL	$1,200
STONE GATE ACRES	HEBRON	$1,250
EMERALD LAKE VILLAGE DISTRICT	HILLSBOROUGH	$1,600
TOWN LINE VILLAGE	HOLDERNESS	$1,400
CENTRAL HOOKSETT WATER PRECINCT	HOOKSETT	$6,100
ELM BROOK VILLAGE	HOPKINTON	$1,000
HOPKINTON VILLAGE WATER PRECINCT	HOPKINTON	$1,250
EAGLE BROOK	JACKSON	$1,250
JAFFREY WATER WORKS	JAFFREY	$4,200
KEENE WATER DEPARTMENT	KEENE	$6,400
LACONIA WATER WORKS	LACONIA	$4,500
LEBANON WATER DEPARTMENT	LEBANON	$8,700
LITTLETON WATER AND LIGHT DEPARTMENT	LITTLETON	$5,250
CENTURY VILLAGE CONDOS	LONDONDERRY	$800
PRESIDENTIAL PINES/UPPER	LOUDON	$1,250
MANCHESTER WATER WORKS	MANCHESTER	$93,500
EASTBLUFF HIGHLANDS CONDOS	MEREDITH	$1,250
MEREDITH WATER DEPARTMENT	MEREDITH	$2,200
MERRIMACK VILLAGE DISTRICT	MERRIMACK	$13,100
MILFORD WATER UTILITIES DEPARTMENT	MILFORD	$3,750
MILTON WATER DISTRICT	MILTON	$800
PARADISE SHORES	MOULTONBOROUGH	$1,500
NEWPORT WATER WORKS	NEWPORT	$2,250
GROVETON WATER SYSTEM	NORTHUMBERLAND	$2,200
OSSIPEE WATER DEPARTMENT	OSSIPEE	$1,250
BRYANT BROOK	PLAISTOW	$800
PEASE TRADE PORT	PORTSMOUTH	$3,000
LEISURE VILLAGE	RAYMOND	$800
RAYMOND WATER DEPARTMENT	RAYMOND	$6,950

Leak Detection Survey Grants		
ACORN TERRACE	ROCHESTER	$400
HANSONVILLE ESTATES	ROCHESTER	$800
RYE WATER DISTRICT	RYE	$16,300
SEABROOK WATER DEPARTMENT	SEABROOK	$6,200
PENINSULA AT WINDING BROOK	STRATHAM	$800
NORTH SWANZEY WATER AND FIRE PRECINCT	SWANZEY	$800
COUNTRY MEADOWS	TILTON	$800
TROY WATER WORKS	TROY	$1,000
MICHAWANIC VILLAGE CONDOMINIUMS	WAKEFIELD	$1,400
SANBORNVILLE WATER DEPARTMENT	WAKEFIELD	$1,500
COLLINS LANDING	WEARE	$800
KUNCANOWET HILLS MOBILE HOME PARK	WEARE	$800
SOUTH WEARE WATER	WEARE	$1,250
PILLSBURY LAKE DISTRICT/FRANKLIN PIERCE	WEBSTER	$1,800
WHITEFIELD WATER	WHITEFIELD	$1,100
WINCHESTER WATER DEPARTMENT	WINCHESTER	$3,400
PEU/GOLDEN BROOK	WINDHAM	$400
WOLFEBORO WATER AND SEWER DEPARTMENT	WOLFEBORO	$8,250

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Drinking Water and Groundwater Bureau Mission

There are four key functions of the NHDES Drinking Water and Groundwater Bureau:

1. Administering the federal Safe Drinking Water Act (SDWA) and state statutes to ensure that safe drinking water is reliably being provided at approximately 2,400 public water systems throughout the state – including administering the DWSRF program.
2. Protecting groundwater and other drinking water sources by permitting and regulating large groundwater withdrawals and discharges to groundwater, working with municipalities and water systems to implement local groundwater and drinking water protection programs, coordinating the efforts of other NHDES programs to protect drinking water sources, and implementing the State's Water Well Program by supporting the Water Well Board, which licenses well drillers and pump installers.
3. Promoting conservation and ensuring accurate water use reporting.
4. Evaluating and certifying laboratories that test water.

This report is available online at www.des.nh.gov/organization/divisions/water/dwgb/index.htm.
For more information, contact us at:

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Drinking Water and Groundwater Bureau
29 Hazen Drive, PO Box 95
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des.nh.gov

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Protect Our Health from Source to Tap • Drinking Water State Revolving Fund