

# WORKING TOGETHER FOR SAFE DRINKING WATER

DRINKING WATER CONSTRUCTION PROJECT REPORT

# 2015



Maine Center for Disease  
Control and Prevention

An Office of the  
Department of Health and Human Services

Paul R. LePage, Governor

Mary C. Mayhew, Commissioner



## Introduction



Dear Reader:

The Drinking Water State Revolving Fund (DWSRF) continues to play an essential role in the ongoing improvements of public water system infrastructure in Maine. In 2015, the DWSRF dedicated more than \$19 million in loans and grants for construction projects at 17 public water systems serving 41 different communities in Maine. Excluding 2009, which had the additional funding from the American Recovery and Reinvestment Act (ARRA), 2015 has the largest annual capital investment in public water system infrastructure in the history of Maine's DWSRF. The continued growth of the DWSRF funding highlights not only the success of the DWSRF but also the continued demand for affordable financing for public water system improvements.

Maine is fortunate to have an abundance of clean, fresh water in its lakes, ponds, rivers and wells. However, the infrastructure necessary to deliver this water to consumers is in continual need of upkeep and replacement. The continued vitality of the DWSRF will ensure the protection of public health now and for many years in the future.

This annual report highlights the importance and value of the DWSRF to public water systems in Maine. The ability of municipal public water systems to provide an adequate supply of safe drinking water at a reasonable cost is essential to a strong economy.

The success of the DWSRF stems from an array of individuals and organizations. The funding support of Congress and the Maine Legislature make this affordable financing program possible. The staff at the Department of Health and Human Services Drinking Water Program (DWP) and the Maine Municipal Bond Bank (MMBB) continue to perform exceptionally in their responsibilities. Public water systems, consultants and contractors all contribute to the overall success. We are grateful for the efforts of all who make this work possible.

I hope you find this report informative and enjoyable.

Yours for safe drinking water,

A handwritten signature in black ink that reads "Roger L. Crouse". The signature is written in a cursive, flowing style.

Roger L. Crouse, P.E.

Director, Maine CDC Drinking Water Program

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# About the DWSRF

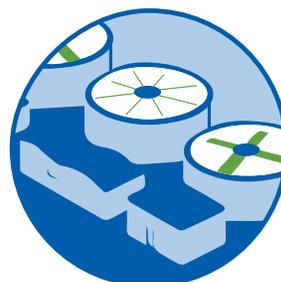
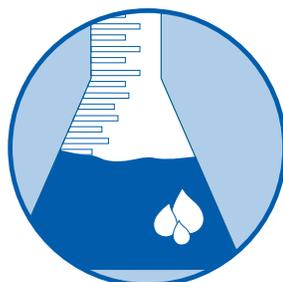
The 1996 Amendments to the Safe Drinking Water Act (SDWA) included allocations for the DWSRF. The DWSRF program is a state-operated program to provide loans and other financial assistance for drinking water improvement projects. The SDWA requires that states provide 20 percent matching funds to federal dollars. This means that every one dollar invested by the State of Maine secures five federal dollars. For 2015, Maine invested \$1,757,400 to access \$8,787,000 in federal funding for Maine drinking water improvement projects.

The DWSRF provides funding to public water systems throughout Maine to improve or replace water system pipes, treatment plants, storage tanks and sources of water, to ensure safe drinking water and provide essential public health protection. Funding for drinking water infrastructure improvement projects are available as low-interest loans. Disadvantaged Community Water Systems may receive further assistance through principal forgiveness.

A portion of the DWSRF is used to fund non-construction projects that help improve and protect drinking water quality in Maine. These funding programs include Wellhead Protection Grants, Source Water Protection Grants, Capacity Development Grants, Very Small System Compliance Loans, System Consolidation Grants, and Land Acquisition Loans. These programs are designed to provide source water protection, technical assistance, system planning assistance and land acquisition.

The Maine Department of Health and Human Services (DHHS) and the Maine Municipal Bond Bank (MMBB) administer the DWSRF. The Drinking Water Program is the Lead Administrator and is responsible for project management and technical support, as well as overseeing activities. The MMBB is the Financial Administrator and oversees the loan application process and tracks money to and from the fund.

Since 1997, the DWSRF has provided over \$231 million to public water systems through low interest loans and grants.

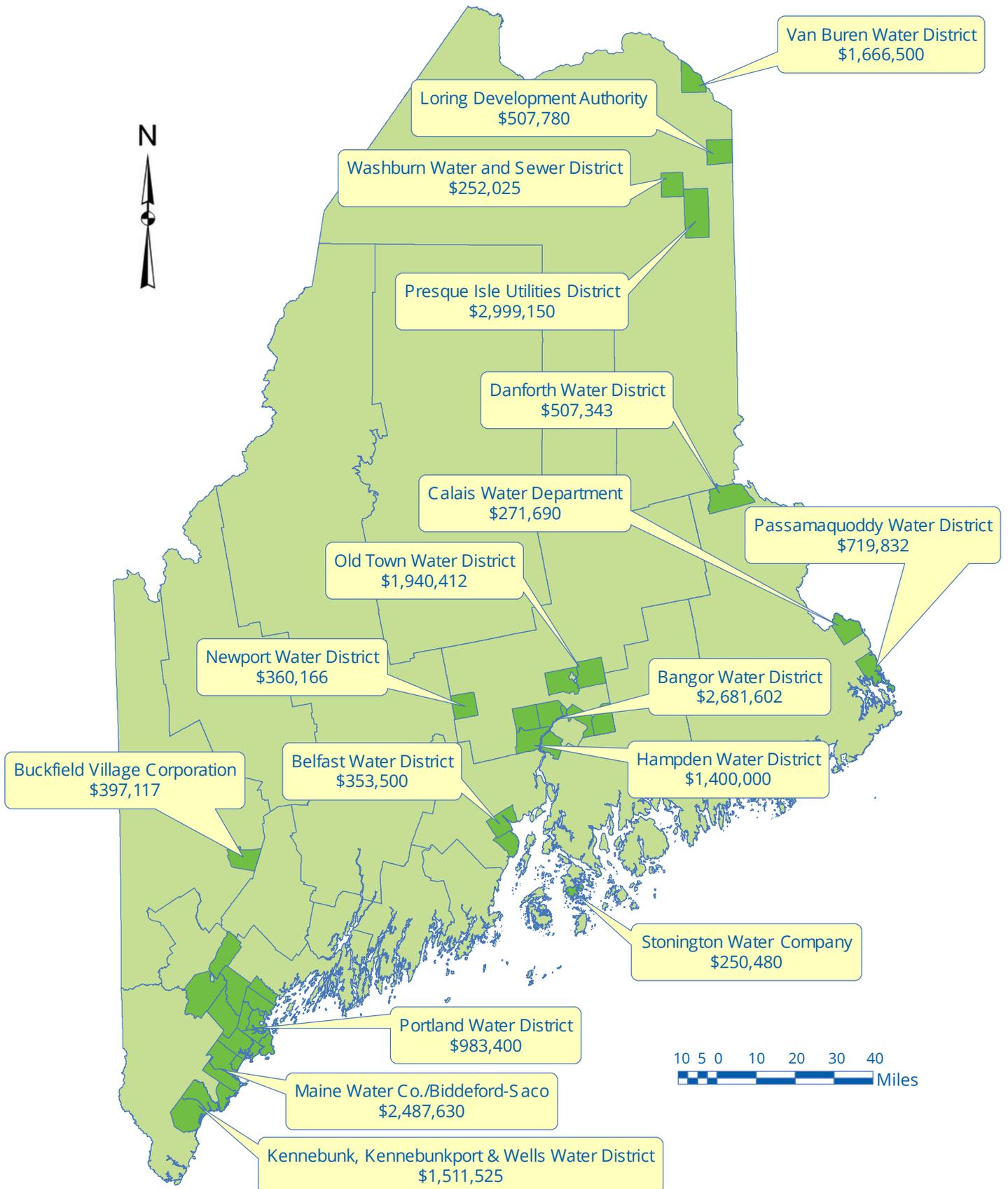




# Construction Projects At A Glance

WATER SYSTEM	TOWNS SERVED	SHORT DESCRIPTION	2015 DWSRF FUNDED AMOUNT
Bangor Water District	Bangor, Clifton, Eddington, Hampden, Hermon, Orrington, Veazie	Pump Station Upgrade	\$2,681,602
Belfast Water District	Belfast, Northport	Water Main Replacement	\$353,500
Buckfield Village Corporation	Buckfield	Storage Tank Painting	\$397,117
Calais Water Department	Calais	Water Main Replacement	\$271,690
Danforth Water District	Danforth	Water Main Replacement and Well Rehabilitation	\$507,343
Hampden Water District	Hampden	Water Main Replacement	\$1,400,000
Kennebunk, Kennebunkport and Wells Water District	Kennebunk, Kennebunkport, Wells	Water Main Replacement and AMR Meter Replacement	\$1,511,525
Loring Development Authority	Limestone	Treatment Plant Upgrade	\$507,780
Maine Water Company- Biddeford/Saco Division	Biddeford, Saco, Old Orchard Beach, Scarborough	Storage Tank Replacement	\$2,487,630
Newport Water District	Newport	Storage Tank Painting	\$360,166
Old Town Water District	Old Town, Milford	Water Main Replacement	\$1,940,412
Passamaquoddy Water District	Eastport, Perry	Treatment Plant Instrumentation Upgrade and AMR Meter Replacement	\$719,832
Portland Water District	Cape Elizabeth, Cumberland, Falmouth, Gorham, Portland, Raymond, Scarborough, South Portland, Standish, Westbrook, Windham	Water Main Replacement	\$983,400
Presque Isle Utilities District	Presque Isle	Treatment Plant Upgrade and River Crossing	\$2,999,150
Stonington Water Company	Stonington	Water Main Replacement	\$250,480
Van Buren Water District	Van Buren	Storage Tank Replacement	\$1,666,500
Washburn Water & Sewer District	Washburn	New Auxiliary Well and Well Rehabilitation	\$252,025

# Public Water Systems Receiving 2015 DWSRF Construction Funding





# Public Water Systems Non-Construction Funding

## Capacity Development Grants

PUBLIC WATER SYSTEM	TOWNS SERVED	GRANT AMOUNT
Yarmouth Water District	Yarmouth, North Yarmouth	\$10,000
Sugarloaf Water Association	Carrabassett Valley	\$10,000
Limestone Water & Sewer District	Limestone	\$10,000
York Water District	York	\$15,000
Kittery Water District	Kittery	\$15,000
Anson & Madison Water District	Anson, Madison	\$5,000
Andover Water District	Andover	\$2,500
Brunswick/Topsham Water District	Brunswick, Topsham	\$15,000*
Boothbay Region Water District	Boothbay	\$15,000*
Wiscasset Water District	Wiscasset, Woolwich	\$15,000*
Bath Water District	Bath, Brunswick, West Bath, Wiscasset, Woolwich	\$15,000*
Great Salt Bay Sanitary District	Damarisoccta, Newcastle	\$15,000*
Bowdoinham Water District	Bowdoinham	\$15,000*
Richmond Utilities District	Richmond	\$15,000*
South Berwick Water District	South Berwick	\$10,000
Berwick Water Department	Berwick	\$15,000
Kennebunk, Kennebunkport & Wells Water District	Kennebunk, Kennebunkport, Wells	\$10,000
Sanford Water District	Sanford	\$10,000
Maine Water Company –Biddeford/Saco Division	Biddeford, Saco	\$10,000
Lubec Water District	Lubec	\$5,625
Lincoln Water District	Lincoln	\$5,000
Kennebec Water District	Fairfield, Oakland, Vassalboro, Waterville	\$15,000

\* Part of a shared Capacity Development Grant among seven water systems. Total grant amount of \$15,000 shared among these seven water systems.

## Wellhead Protection Grants

PUBLIC WATER SYSTEM	TOWNS SERVED	GRANT AMOUNT
South Berwick Water District	South Berwick	\$3,000
Quantabacook Water Department	Harrington	\$5,000
Greater Augusta Utility District	Augusta, Chelsea, Manchester, Vassalboro, Winthrop	\$5,000
New Gloucester Water District	New Gloucester	\$5,000
RSU 12 Whitefield Elementary School	Whitefield	\$5,000
Sunrise Hill Estates	Berwick	\$5,000
Springbrook Mobile Home Park	Wales	\$5,000
Homestead Estates Mobile Home Park	Glenburn	\$5,000
Rangeley Water District	Dallas Plt, Rangeley, Rangeley Plt, Sandy River Plt	\$5,000
Willow Brook Mobile Home Park	Levant	\$5,000
Hingham Heights Mobile Home Park	Glenburn	\$5,000
Limestone Water and Sewer District	Limestone	\$5,000
Grandeur Mobile Home Estates	Carmel	\$5,000
Calais Water Department	Calais	\$5,000
Scroggins Mobile Home Park	Corinth	\$5,000
South Slope Estates	Carmel	\$5,000

## Source Water Protection Grants

PUBLIC WATER SYSTEM	TOWNS SERVED	GRANT AMOUNT
Boothbay Region Water District	Boothbay	\$10,000
Great Salt Bay Sanitary District	Damarisoccta, Newcastle	\$4,000
York Water District	York	\$10,000

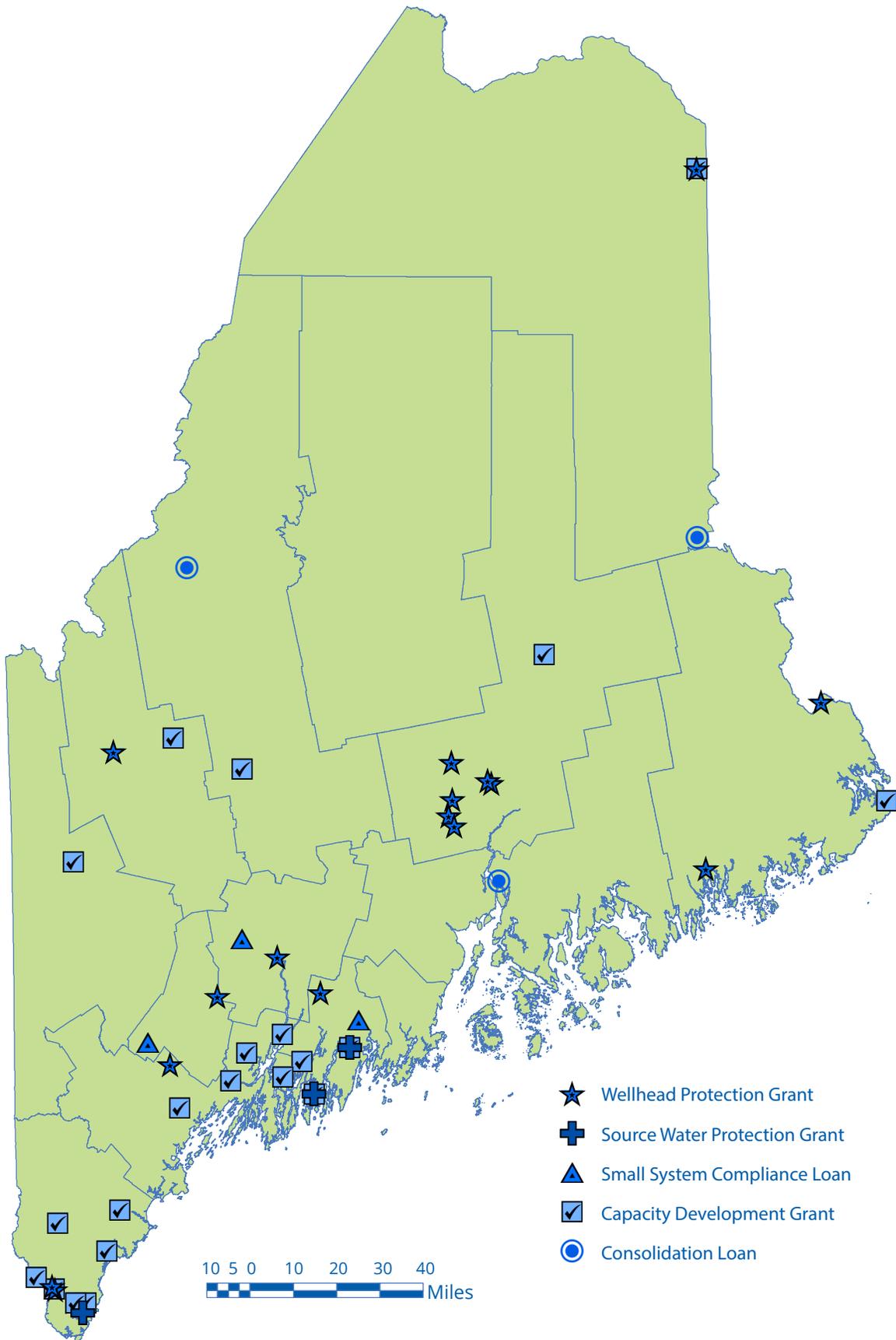
## Very Small System Compliance Loans

PUBLIC WATER SYSTEM	TOWNS SERVED	COMPLIANCE ISSUE	GRANT AMOUNT
Readfield Commons Water Association, Readfield	Readfield	Radon & Copper	\$25,300
Poland Place Condominium Association, Poland	Poland	Radon, Uranium, Gross Alpha	\$50,000

## System Consolidation Grants

PUBLIC WATER SYSTEM	TOWNS SERVED	PUBLIC WATER SYSTEM CONNECTING TO:	REASON FOR CONSOLIDATION	GRANT AMOUNT
Cedar Ridge Outfitters	Jackman	ME0090730 Jackman Utility District	Chronic bacterial contamination	\$33,853
Bucksport Area Child Care	Bucksport	ME0090280 Maine Water Company-Bucksport Div.	TCE Contamination of source	\$4,684
PW Plummer	Buxton	ME0092457 Living Waters Christian School	Insufficient volume capacity	\$21,755

# Public Water Systems Receiving 2015 DWSRF Non-Construction Funding



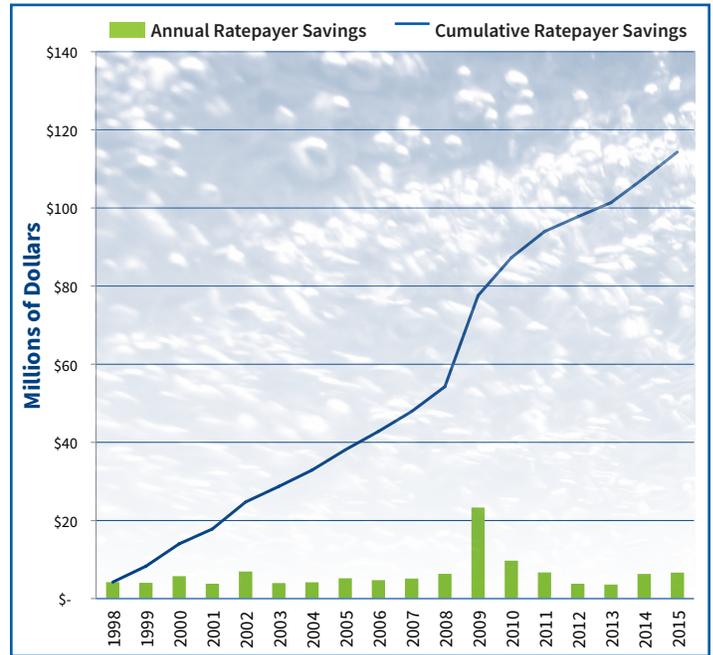
# The Drinking Water State Revolving Fund: Big Savings for Water Systems and Water Ratepayers

A combination of principal forgiveness and very attractive financing allowed Maine's public water systems to complete 28 percent more infrastructure work when compared to funding from traditional tax exempt municipal bonds in 2015.

A \$1 million project funded by the 2016 DWSRF Program provides water ratepayers with a minimum of \$50,000 in principal forgiveness. In addition, the savings in interest expense over the life of the DWSRF loan is \$230,000. The expected DWSRF interest rate for a 20-year loan is 1 percent, almost 200 basis points lower than the current tax-exempt municipal rate of 2.95 percent.

The DWSRF program has been operating since 1998. The combined value of interest reduction and principal forgiveness provided to Maine public water systems from funding with the DWSRF and the American Reinvestment & Recovery Act (ARRA) since 1998 equals more than \$107 million.

Very attractive financing from low interest rates, combined with competitive bidding prices from contractors, makes it an opportune time for water systems to complete water infrastructure projects.



## Needs Survey

The 2015 Drinking Water Infrastructure Needs Survey and Assessment (DWINSA) was conducted in 2015. Every four years the U.S. Environmental Protection Agency conducts a national Infrastructure Needs Surveys. This is the fifth survey by USEPA.



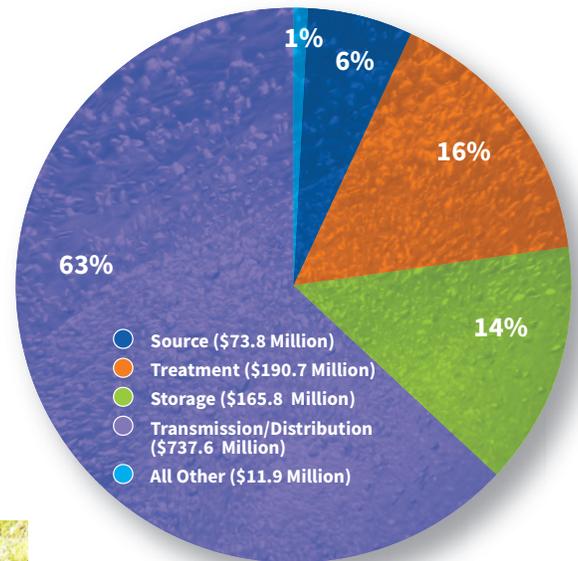
This effort is conducted nationally, to determine the total amount of funds needed by all public water systems for infrastructure improvements. Data from the Needs Survey is used to substantiate Maine receiving a share of the annual federal appropriation for the DWSRF. The Needs Survey addresses total capital investment needs that may be financed with DWSRF funds over the next 20 years.

Twenty-three Community Public Water Systems were asked to participate in this effort. All 23 systems participated.

Results from the previous survey stated estimated total drinking water infrastructure needs for Maine, over the next 20 years, to be \$1,180 million dollars (or approximately \$59 million dollars annually).

A significant portion of this investment in the previous 10 years was used to meet new treatment requirements, leaving a gap in replacement of storage and distribution upgrades.

Results from the 2015 Needs Survey will not be available until early 2017 when U.S. EPA provides a report to Congress.



### DWSRF Program Accomplishments:

- Invested more than \$231 million in public water systems across the State of Maine since 1997
- More than 367 projects at 115 locations
- The State of Maine has invested \$38 million in State funds to secure more than \$193 million in federal funds

## The Role of the DWSRF in Future Drinking Water Infrastructure

The DWSRF will continue to play a critical role in the future through funding assistance in providing safe drinking water for Maine's citizens. Repayments from past DWSRF loans are currently returning about \$10 million per year to provide loans for new projects. With the "revolving" nature of the DWSRF program, that amount will continue to grow as the DWSRF loan pool continues to grow. In 2016, new DWSRF federal allocations combined with State match funds and repayment funds will allow more than \$20 million for new drinking water infrastructure projects. The maintenance and improvement of Maine's infrastructure is vital to our economy, health, safety, security and to the environment.

Project applications for funding from the 2016 DWSRF Program resulted in a total of 39 DWSRF applications representing more than \$38 million of drinking water infrastructure improvements. Available DWSRF project funds are approximately \$20 million.



## From Source to Tap the DWSRF Helps Water Systems Deliver Safe Water

The Drinking Water Program has adopted a "core message" that revolves around the notion that water systems should always work to identify, reduce and eliminate risks and vulnerabilities to ensure that their customers are always receiving safe water. The DWSRF plays an integral part in carrying out the core message, as it enables public water systems to make improvements to their water system in each of these four fundamental areas. As a result, investments made by public water systems through the DWSRF are investments in their continued ability to provide safe drinking water.



### Protect Your Source

Arguably the most important part of any public water system is their drinking water source. A high quality, well protected source can provide cost-effective and safe drinking water. The DWSRF provides funding not only for the construction and development of new and back-up drinking water sources, but also for the purchase of land integral to protecting a drinking water source from contamination.



### Inspect Your Pipes and Tanks

Storage tanks and a network of piping (also known as a distribution system) are an integral part of a public water system's ability to provide safe, clean water to consumers. If not regularly inspected and properly maintained, contaminants can enter the drinking water through the pipes and tanks or could result in an inability to maintain the pressure needed to deliver water to each tap. The number of funding requests to the DWSRF for storage tank and water main rehabilitation or replacement projects is growing. This trend is expected to continue, as public water systems continue efforts with maintaining aging water storage infrastructure.



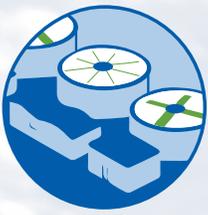
### Take Your Samples

Drinking water sampling is not only a requirement of all public water systems, but it also provides assurance that the water is safe to drink. The DWSRF provides funding for water system grants, technical assistance providers and operator training to assist water systems in developing and implementing plans for sample collection, data management and reporting.



### Maintain Your Treatment

Treatment systems are an important part of delivering safe drinking water for many public water systems throughout the State. The DWSRF enables public water systems, large and small, to invest in the proper treatment to remove, reduce, or inactivate contaminants from their drinking water system.



# Notable Treatment Projects In Recent Years

## 2009: St. Francis Water District

**FUNDING FROM DWSRF:** \$ 298,500

**CURRENT PWS SUPERINTENDENT:** Louise Martin, Malvia Ouelette

**PROJECT DESIGN ENGINEERS:** Woodard & Curran

St Francis Water District is the most northwesterly municipal water system in the State of Maine. The District was developed in the early 1980s to provide potable water to the municipality. The initial water treatment system included an intake from Petite Brook, a raw water pumping station to a treatment plant that consisted of a slow sand filter and chlorination. The system had many challenges including operations, compliance with Surface Water Treatment Rules and deterioration of the physical structure of the treatment plant over the years. The trustees of the St Francis Water District undertook the task of finding and developing a new groundwater source in 2006. The new well and treatment plant were became active in October of 2010.



## 2009: Maine Water Company-Camden/Rockland Division

**DWSRF FUNDING:** \$ 3,621,868

**CURRENT SUPERINTENDENT:** Rick Knowlton

**PROJECT DESIGN ENGINEERS:** Wright-Pierce

The Mirror Lake membrane filtration project was completed in August, 2010. The treatment process addition added filtration to a previously unfiltered surface water system in order to meet the requirements of the Surface Water Treatment Rule. Additionally, by adding organics removal and reducing chlorine dose, the filtration equipment also aided the utility in meeting the Stage 2 Disinfection By-product Rule.

This was the first utility scale application of membrane filters in Maine. In comparison to traditional filtration processes, the six million gallon per-day membrane facility was completed in approximately half the space requirement and 60 percent of the capital cost.

Funding from the DWSRF program offered significant savings to the capital support costs of the project, reducing the rate impact to customers. Customers have seen improved water quality, with finished water turbidity decreased from an average of 0.5 ntu prior to filtration to 0.05 ntu post membrane filtration. Filtration also allows a lower and more consistent chlorine dose throughout the year, reducing historic chlorine related complaints.



“The facility has completed five years of operation, with almost flawless performance. Maine Water Company is proud of the facility and the project team that made it happen, including the staff at the Maine Drinking Water Program.”

• **Rick Knowlton, Vice President, Maine Water Company**



## 2013: Kennebunk, Kennebunkport and Wells Water District

In 2007, the District began utilizing groundwater to supplement its surface water supply, Branch Brook, which had been its sole source of water since 1895. This new groundwater source worked out very well, providing a consistent high quality water supply at a much lower chemical cost. Based on this early success, the District proceeded in 2009 to begin developing its Kennebunk River Well supply.

Part of developing the Kennebunk River Well supply included construction of the Kimball Lane treatment facility, which provides disinfection, corrosion control/pH adjustment and fluoridation for the groundwater pumped from the Kennebunk River Well.

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“Given the flashy nature of Branch Brook, our chemical costs to treat this supply averaged \$237 per million gallons (MG) in 2015. By comparison, the Kimball Lane chemical treatment costs averaged only \$27 per MG. Unlike our Branch Brook facility, the groundwater operations can be run largely unattended and therefore require less staff time and attention. This new groundwater facility, with an estimated safe yield of nearly 300 MG per year, accounted for over 30 percent of our total water production in 2015. It has helped us to significantly save chemical costs by being able to cut back on surface water production.”

• **Norm Labbe, Scott Minor and Bill Snyder, Kennebunk, Kennebunkport and Wells Water District**

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## 2014: Passamaquoddy Water District

**FUNDING FROM DWSRF:** \$831,429

**CURRENT PWS SUPERINTENDENT:** Anne Bellefleur (business manager), Mark McCluskey (Primary Designated Operator)

**PROJECT DESIGN ENGINEERS:** AE Hodsdon Engineers

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“The 2013 DWP SRF Plant Upgrade project for the Passamaquoddy Water Districts revitalized the treatment plant’s processes and reduced operating costs. The installation of new media in the filters at the plant improved runtimes and greatly improved the ability to maintain good water quality. The new process has also allowed for easier running of the plant to waste while fine tuning new experimental treatment chemicals. Energy efficiency was greatly enhanced with new lighting, two new main line vertical turbine pumps and a new high efficiency boiler. These energy savings have helped keep operating costs in line, which has helped to keep customer rates from rising. New instrumentation and the new automatically alternating mainline pumps have greatly improved production reliability and ease of operation. A new larger fuel tank for the generator extended auxiliary power run times between fill ups during emergency power outages. Lastly, a new standpipe mixer has allowed for increased winter storage capacity and for reduced chlorine demand in the distribution system.”

• **Mark Deden, AE Hodson Engineers**

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# Construction Projects



## Newport Water District

**TOWNS SERVED:** Newport

**2015 DWSRF FUNDED AMOUNT:** \$ 360,166

**ENGINEER:** Dirigo Engineering

**CONTRACTOR:** Marcel Payeur Inc

This project rehabilitated the 62-year-old, 500,000 gallon Libby Hill welded steel drinking water storage standpipe. The rehabilitation work was done to improve the life and longevity of the storage tank. The project included upgrades to the exterior and interior coating system, as well as installation of an active tank mixer in order to enhance water quality. The project also included safety improvements with the installation of a platform and railing on top of the tank.



## Van Buren Water District

**TOWNS SERVED:** Van Buren

**2015 DWSRF FUNDED AMOUNT:** \$ 1,666,500

**ENGINEER:** Dirigo Engineering

**CONTRACTOR:** Preload

This project includes the replacement of two steel water storage tanks in disrepair, with new precast pre-stressed concrete tanks. A 60-year life cycle cost analysis completed in 2012 resulted in a recommendation to replace the existing steel tanks. The new tanks will improve service delivery and reliability to customers. The project also includes the installation of an active tank mixer in each tank to enhance water quality and comply with the Stage 2 Disinfection Byproducts Rule.



## Buckfield Village Corporation

**TOWNS SERVED:** Buckfield

**2015 DWSRF FUNDED AMOUNT:** \$ 397,117

**ENGINEER:** Dirigo Engineering

**CONTRACTOR:** Marcel Payeur Inc

In 2015, Buckfield Village Corporation rehabilitated their 54-year-old, 300,000 gallon Loring Hill drinking water storage standpipe to maintain service and longevity of the storage tank. The project included an upgrade to the exterior and interior coating system as well as installation of an active tank mixer in order to enhance water quality and comply with the Stage 2 Disinfection By-products Rule.

## Washburn Water & Sewer District

**TOWNS SERVED:** Washburn

**2015 DWSRF FUNDED AMOUNT:** \$ 252,025

**ENGINEER:** Olver Associates

**CONTRACTOR:** TBD

This project will install a new auxiliary well and rehabilitate the existing well installed in 1979. Capacity reduction from the existing well has been observed. Having only one well source has limited the ability to perform maintenance and rehabilitation of the existing well. An additional source will improve the water system's reliability to serve customers.

# Portland Water District

**TOWNS SERVED:** Cape Elizabeth, Cumberland, Falmouth, Gorham, Portland, Raymond, Scarborough, South Portland, Standish, Westbrook, Windham

**2015 DWSRF FUNDED AMOUNT:** \$ 983,400

**ENGINEER:** Portland Water District

**CONTRACTOR:** Gorham Sand & Gravel

Portland Water District replaced 1,300 feet of nearly 75-year-old, 8-inch, cast-iron water main on the Gray Road in Falmouth from 700 feet north of Mountain Road and extending northerly. The project is expected to improve service reliability and water quality in the area.

A second project, not yet started, will replace approximately 2,800 feet of 12-inch, unlined, cast-iron water main installed circa 1900 with new 12-inch, PVC main. The project includes replacing existing connections to side streets, service lines and hydrants on Broadway Street between Elm Street and Anthoine Street in South Portland. This project is being undertaken to improve water quality, service reliability and fire flows in the area.



“With the newly installed main our customers can now expect uninterrupted service and upgraded water quality as the old main was in poor condition. We expect improved fire flows with the newly installed main as the old main had flow restrictions resulting in deficient fire flows compared to the newly installed mains.”

• **Tim McMullin, Project Engineer,  
Portland Water District**



# Bangor Water District

**TOWNS SERVED:** Bangor, Clifton, Eddington, Hampden, Hermon, Orrington, Veazie

**2015 DWSRF FUNDED AMOUNT:** \$ 2,681,602

**ENGINEER:** Black & Veatch

**CONTRACTOR:** T. Buck Construction

This project will rehabilitate the Johnston Pump Station, constructed in 1958, which delivers water from Floods Pond, Bangor Water Districts’s sole source of supply. The project includes new intake screens, new pumps and interior piping, new electrical system and improvements to the existing clear well. The project should result in energy savings from more energy efficient pumps and installation of variable frequency drives.

# Stonington Water Company

**TOWNS SERVED:** Stonington

**2015 DWSRF FUNDED AMOUNT:** \$ 250,480

**ENGINEER:** Olver Associates

**CONTRACTOR:** Ranger Construction

Stonington Water Company’s 2015 DWSRF project aims to replace approximately 500 feet of galvanized and cast-iron piping with ductile iron water main. The existing shallow main requires bleeders to keep the main from freezing. The project includes replacing existing service lines and involves ledge removal to permit proper burial to an appropriate depth to prevent freezing.

# Maine Water Company- Biddeford/Saco Division

**TOWNS SERVED:** Biddeford, Saco,  
Old Orchard Beach, Scarborough

**2015 DWSRF FUNDED AMOUNT:** \$ 2,487,630

**ENGINEER:** Wright-Pierce

**CONTRACTOR:** DN Tanks

This project was identified as a high priority project in the 2013 Comprehensive Water System Facility Plan for Maine Water Company's Biddeford/Saco Division. This project replaced an existing 100+ year-old 7.5-million gallon finished water reservoir with a new 3-million gallon concrete tank. The existing reservoir was a hypalon floating cover that had required frequent monitoring and numerous maintenance expenses.



# Loring Development Authority

**TOWNS SERVED:** Limestone

**2015 DWSRF FUNDED AMOUNT:** \$ 507,780

**ENGINEER:** Woodard & Curran

**CONTRACTOR:** Apex

This first-of-its-kind project in the State of Maine will upgrade an existing underground storage tank into a treatment vessel for Total Trihalomethanes (TTHM) removal. The addition of mixing, surface aeration and mechanical ventilation is predicted to reduce the levels of TTHM's in the distribution system by 78 percent and bring the water utility into compliance with the Stage 2 Disinfectants and Disinfection By-product Rule. Other elements of the project include an upgrade of the mixers in the treatment facility's sedimentation basin, to optimize, and the installation of a PAX mixer in one of the system's elevated storage tanks, to reduce the incidence of stagnant water.



# Hampden Water District

**TOWNS SERVED:** Hampden

**2015 DWSRF FUNDED AMOUNT:** \$ 1,400,000

**ENGINEER:** Woodard & Curran

**CONTRACTOR:** Gardner Construction

Hampden's 2015 DWSRF project replaced 1,400 feet of unlined, 6-inch, cast-iron pipe on Coldbrook Road from Main Road North northerly to Laskey Lane. The project also replaced approximately 4,700 feet of 8-inch, unlined, cast-iron pipe with new cement-lined, ductile iron pipe on Main Road North from 1,000 feet east of Coldbrook Road easterly to the Old County Road. The project also included replacing existing connections to side streets, service lines and hydrants. The Main Road North project replaced aging and undersized pipe ahead of a full-depth road reconstruction project by Maine DOT.



## Belfast Water District

**TOWNS SERVED:** Belfast, Northport

**2015 DWSRF FUNDED AMOUNT:** \$ 353,500

**ENGINEER:** Dirigo Engineering

**CONTRACTOR:** Ranger Construction

Belfast Water District's project replaced an old, undersized, 6-inch, asbestos cement water main on Pierce Street with 750 feet of new 12-inch water main. This project also included the engineering design for an additional 2,000 feet of water main replacement on Front Street to be completed in 2016 in conjunction with a city project to upgrade sanitary sewers, storm drains and road reconstruction. Additional project funding of \$1.9 million from the U.S. Economic Development Administration has been secured for the city work. The completed water upgrade will improve flow to the industrial area, put a new water main in a heavy traffic region, and is in support of the city's efforts to upgrade the infrastructure and roadways in the area.

## Calais Water Department

**TOWNS SERVED:** Calais

**2015 DWSRF FUNDED AMOUNT:** \$ 271,690

**ENGINEER:** Olver Associates

**CONTRACTOR:** Donovan Construction

Calais Water Department's 2015 DWSRF project aims to replace 560 feet of 1-inch copper pipe sleeved within a failed 2-inch galvanized water main. The antiquated dead end water main is the source of numerous water quality, inadequate supply and low pressure complaints. The new main will be an 8-inch pipe and will be looped, eliminating two dead ends. The proposed water improvements will also be completed in conjunction with other city sanitary sewer and drainage improvements funded from another source.

## Danforth Water District

**TOWNS SERVED:** Danforth

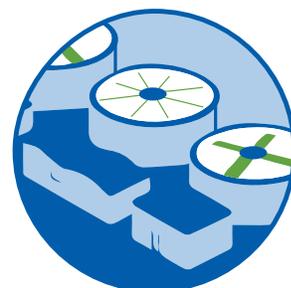
**2015 DWSRF FUNDED AMOUNT:** \$ 507,343

**ENGINEER:** Dirigo Engineering

**CONTRACTOR:** Sargent Corp., T. Buck Construction

Danforth Water District had two DWSRF projects in 2015. The first project was the replacement of approximately 2,000 feet of 100-year-old, unlined, cast-iron pipe with leaded joints on Maple Street and the installation of 2 mainline valves on Springfield Road. The Maple Street water main was a dead end water main with unlined, cast-iron pipe with leaded joints. This main pipe had leaks and breaks over the years and had exceeded its useful life. The new mainline valves will allow the District to shut off the Reservoir and hydrants along Springfield Road without shutting down the entire system.

The second project, still ongoing, consists of well rehabilitation including pumps, upgrading controls, a new SCADA system and new variable frequency drives on well pumps. The wells are over 20 years old and show signs of decline capacity. The improvements will improve efficiency, reliability and modernize the antiquated controls and monitoring systems.



## Old Town Water District

**TOWNS SERVED:** Old Town, Milford

**2015 DWSRF FUNDED AMOUNT:** \$ 1,940,412

**ENGINEER:** CES, Sewell Co.

**CONTRACTOR:** Sargent Corp., R.F. Jordan

Old Town Water District completed two main replacement projects in 2015. The first project replaced approximately 3,200 feet of 6-inch, unlined, cast-iron water main installed in the 1930s. This section of water main had experienced numerous water main breaks and joint leaks over the past 10 years. This water main replacement is expected to improve water quality by eliminating a dead end. This project is a continuation of the District's effort to replace aging small diameter pipe in the oldest part of the water system. Pipes on High Street date from the late 1800s.

The second project replaced approximately 6,600 feet of 6-inch, unlined, cast-iron water main installed in 1934 along State Road 178 in Bradley. This section of water main had experienced four water main breaks over the last 12 months, and over 30 repairs over the last 10 years. This project eliminated a dead end main with a planned river crossing. The improvements were completed in conjunction with a Maine Department of Transportation road reconstruction project.



## Kennebunk, Kennebunkport and Wells Water District

**TOWNS SERVED:** Kennebunk, Kennebunkport, Wells

**2015 DWSRF FUNDED AMOUNT:** \$ 1,511,525

**ENGINEER:** In House

**CONTRACTOR:** In House

KKW's first of three projects using 2015 DWSRF funds aims to replace approximately 3,000 obsolete water meters with new lead free meters, incorporating the Automated Meter Reading (AMR) radio read technology. The project is Phase 1 of a 6-year program to replace all non-compliant water meters. The AMR technology will assist the District for identification of customer leaks, theft of service detection, and enhance operational efficiencies.

KKW's second project replaces approximately 330 feet of obsolete 10-inch cast-iron pipe with new 20-inch poly-wrapped ductile iron pipe on US Route 2 at the Wells - Ogunquit town line. The pipe renewal project will be done in conjunction with the MDOT's replacement of Donnell's Bridge that spans over the Ogunquit River on US Route 1. The existing main is estimated to be over 100 years old and is the primary distribution main serving the Town of Ogunquit.

The last project will replace approximately 6,200 feet of obsolete, 10-inch cast-iron main with new 12-inch HDPE pipe on Mile Stretch Road in the Biddeford Pool area of the City of Biddeford. The existing pipe is in poor condition, prone to leaks, and exhibits moderate internal pipe corrosion reducing the effectiveness of disinfection and generates aesthetic water quality issues such as color, taste and odor.



“The new 20-inch ductile iron main will allow for great flows to the District’s Ogunquit customers and the ability to enhance our emergency system interconnection with the York Water District. Customers have benefited from improved system reliability as the new 20-inch ductile iron pipe replaced a circa 1921 unlined 10-inch cast-iron pipe which had failed on several occasions.”

• **Scott Minor, Assistant Superintendent, Kennebunk, Kennebunkport and Wells Water District**



# Presque Isle Utilities District

**TOWNS SERVED:** Presque Isle

**2015 DWSRF FUNDED AMOUNT:** \$ 2,999,150

**ENGINEER:** Woodard & Curran

**CONTRACTOR:** Pelletier & Sons, T. Buck Construction

Presque Isle Utilities District is using 2015 DWSRF funding to provide an additional pipeline crossing the Aroostook River to the Reach Road Water Treatment and Pumping Facility. The 'redundancy' element of this river crossing is important as the sole source of supply for all District customers is a well field on the north side of the Aroostook River and the entire distribution system on the south side of the river. An essential goal of this project is to increase system security and eliminate a critical weakness in the water system.

The District's second project will upgrade the Reach Road pump station with pre-treatment to comply with the requirement of the Stage 2 Disinfection Byproducts Rule and the Long Term 2 Enhanced Surface Water Treatment Rule.



This project will help insure that public water in Presque Isle stays safe, even though subject to variations in source water quality.

This project would have required bank financing without the SRF fund. The cost would have increased quite a bit when considering a \$3,000,000 price tag due to increase interest charges.

Aroostook County has benefitted more than all counties in Maine but 1. We are able to use this money to great advantage in an area suffering from a generally weak economy and low median household incomes.

• **Frank S. Kearney Sr., Superintendent, Presque isle Water District**

# Passamaquoddy Water District

**TOWNS SERVED:** Eastport, Perry

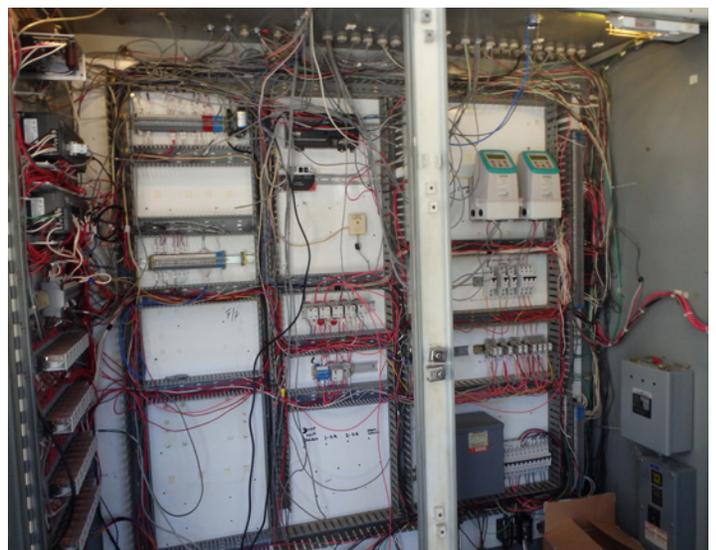
**2015 DWSRF FUNDED AMOUNT:** \$ 719,832

**ENGINEER:** A.E. Hodsdon Engineers

**CONTRACTOR:** Harlan Pease & Ricker Electric,  
Ron Wood Plumbing

Passamaquoddy Water District had two improvement projects in 2015. The first one replaced the existing treatment plant's Programmable Logic Controller (PLC), which had been in service for 23 years. A new main control panel will now provide automated operation of the treatment process. The replacement of the main control panel provides a more reliable operation of the plant and allows the integration of new control features.

This second project, still ongoing, is the purchase and installation of 735 new, low-lead water meters with Automated Meter Reading (AMT) radio read technology. The meter project is being undertaken to meet compliance with the "Reduction of Lead in Drinking Water Act." All new meters are low lead water meters and will reduce any lead related health risks to customers.





## Projects From Prior Years Completed in 2015

WATER SYSTEM	TOWNS SERVED	SHORT DESCRIPTION	ENGINEER	CONTRACTOR	DWSRF LOAN AMOUNT
Bangor Water District	Brewer, Clifton, Eddington, Holden, Orrington	Water Main Replacement	Bangor Water District	CPM Bridge	\$379,100
Portland Water District	Cape Elizabeth, Cumberland, Falmouth, Gorham, Portland, Raymond, Scarborough, South Portland, Standish, Westbrook, Windham	Water Main Replacement	Portland Water District	D&C Construction Company	\$336,123
Southwest Harbor Water Department	Southwest Harbor	Water Main Replacement	Olver Associates	R.F. Jordan	\$1,418,182
Van Buren Water District	Van Buren	Engineering Design for Replacement of Two Water Storage Tanks	Dirigo Engineering	n/a	\$94,500
Gardiner Water District	Gardiner, Randolph, Farmingdale	Water Storage Tank Replacement	Wright-Pierce	Preload, Inc.	\$1,700,000
Dixfield Water District	Dixfield	Water Main Replacement	AE Hodsdon Engineers	C. H. Stevenson, Inc	\$827,271
Passamaquoddy Water District	Eastport, Perry	Water Main Replacement	AE Hodsdon Engineers	Fundy Contractors & T. Buck Construction	\$1,663,810
Boothbay Harbor Region Water District	Boothbay, Boothbay Harbor, East Boothbay	Eliminate Dead Ends with Pipe Loops	Wright-Pierce	N.A. Reny Construction	\$675,750
Presque Isle Water District	Presque Isle	Upgrade State Street Pump Station	Woodard-Curran	Apex	\$126,921
Alfred Water District	Alfred	Water Main Replacement	Dirigo Engineering	Gorham Sand and Gravel	\$102,642
Maine Water Company-Biddeford/Saco Division	Biddeford, Saco, Old Orchard Beach, Scarborough	Pump Station Upgrades	Woodard-Curran	T. Buck Construction	\$843,005
Bethel Water District	Bethel	Meter Replacements	AE Hodsdon Engineers	New England Backflow	\$317,295
Guildford-Sangerville Water District	Guilford, Sangerville	Water Main Replacement	Dirigo Engineering	Manter Construction & Haley Construction	\$599,940
Rangeley Water District	Rangeley, Dallas PLT, Rangeley PLT, Sandy River PLT	Water Main Replacement	AE Hodsdon Engineers	M&H Construction, Inc	\$424,570
MSAD 61- Songo Locks Elementary	Naples	Treatment Plant Upgrades	Snowden Consulting Engineers	Goodwin Well and Water	\$135,834

# Drinking Water State Revolving Fund Performance Measures: 1998-2015

Figure 1. Percentage of Project Applications Funded

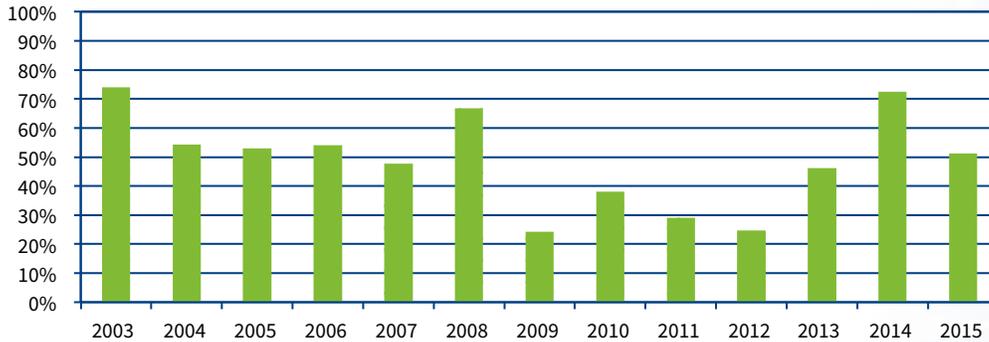


Figure 1. Public water system requests to fund projects continue to exceed available money through the DWSRF, highlighting the ongoing and continued need for water systems to make improvements to their infrastructure.

Figure 2. DWSRF Loan Forgiveness

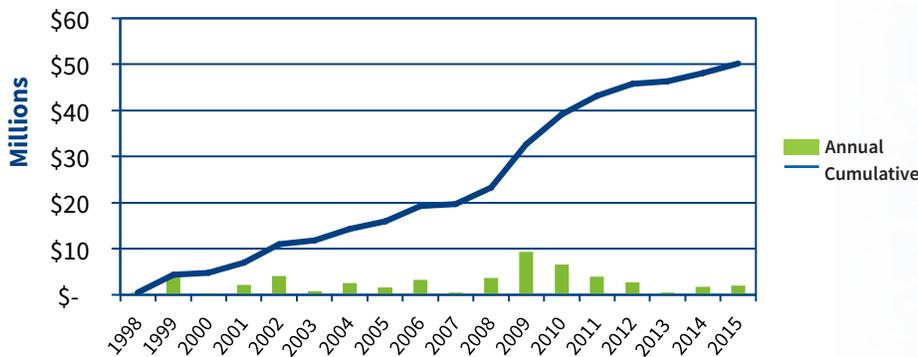


Figure 2. Economically disadvantaged water systems may have a portion of the loan principal forgiven if the water system's existing water rates exceed a "water rate goal" which is based upon the Median Household Income of the community. In 2009, because of the requirements of American Recovery and Reinvestment Act, each project received at least 30 percent "principal forgiveness."

Figure 3. DWSRF Loan Commitments

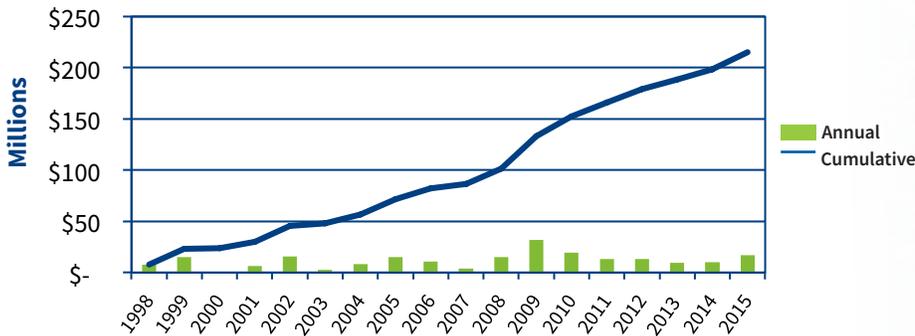


Figure 3. Since 1998, the DWSRF has provided more than \$231 million in funding to over 367 infrastructure improvement projects at Maine's public water systems.

Figure 4. DWSRF Repayment Amounts

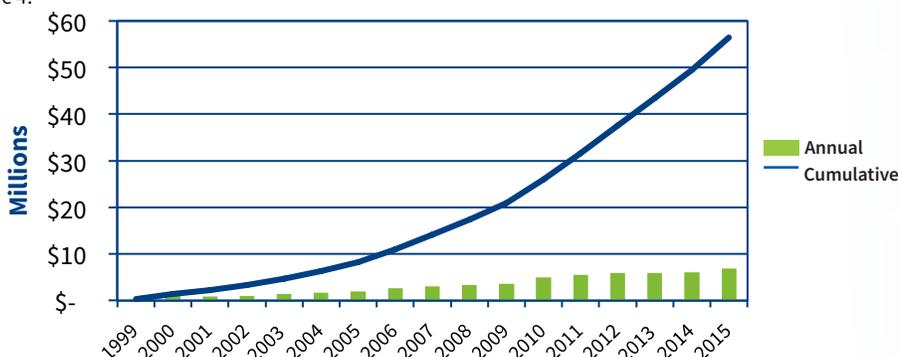


Figure 4. The DWSRF's annual repayment stream is currently almost \$7 million per year and will continue to increase each year.



## System Consolidation Grants

Water System Consolidation Grants provide partial funding to water systems for the purpose of consolidation with another water system. The public water system applying for consolidation must have a technical, managerial or financial capacity issue that will be addressed by the consolidation with the more viable public water system. The more viable, receiving public water system must not have technical,

managerial or financial capacity issues, and the consolidation cannot result in system capacity issues. The Consolidation Grant funds up to 50 percent of the cost of the water system consolidation for For-Profit facilities and up to 75 percent of the cost of the water system consolidation for not-for-profit facilities, up to a maximum of a \$100,000 reimbursement.

PWS (RECEIVING FUNDS)	TOWN	PUBLIC WATER SYSTEM CONNECTING TO:	REASON FOR CONSOLIDATION	GRANT AMOUNT
Cedar Ridge Outfitters	Jackman	Jackman Utility District	Chronic bacterial contamination	\$33,853
Bucksport Area Child Care	Bucksport	Maine Water Company-Bucksport Division	TCE Contamination of source	\$4,684
PW Plummer	Buxton	Living Waters Christian School	Insufficient volume/ capacity	\$21,755



## Source Water Protection Grants

The Source Water Protection Grant Program awards grants to community and non-profit non-community public water systems for projects that will help to protect their surface water source from contamination. Specifically, grants are awarded for projects that clearly reduce the likelihood of contamination occurring in the Source Water Protection area by existing or future activities. Grants are awarded up to \$5,000

per project, with a few \$10,000 grant awards available, depending on the scope of the project. Projects that demonstrate a significant commitment to ongoing source water protection are considered for a higher grant award amount of up to \$10,000.

PUBLIC WATER SYSTEM	PROJECT DESCRIPTION	GRANT AMOUNT
Boothbay Region Water District	Provide "Lakeskaping" consultations and grants for property owners within the Adams Pond and Knickerbocker Lake watersheds to remediate non-point source pollution sites on their property.	\$10,000
Great Salt Bay Sanitary District	Install security cameras at pump house location overlooking the surface water intake area.	\$4,000
York Water District	Continuation of a multi-year management trail reconstruction project in the Chase's Pond Watershed.	\$10,000

# Capacity Development Grants

Capacity Development Grants provide assistance to public water systems for the preparation of documents that will assist them in the maintenance or enhancement of water quality, by identifying possible improvements in systems' technical, financial and managerial

operations (capacity development). Water systems can receive grants for 50 percent of the document cost, up to a maximum grant amount of \$15,000.



PUBLIC WATER SYSTEM	PROPOSED USE OF GRANT FUNDS	GRANT AMOUNT
Yarmouth Water District	Integrated GIS system	\$10,000
Sugarloaf Water Association	Brackett Brook Redevelopment Feasibility Study	\$10,000
Limestone Water & Sewer District	Water System Storage Feasibility Study	\$10,000
York Water District	Water Supply Interconnection Study	\$15,000
Kittery Water District	Water Supply Interconnection Study	\$15,000
Anson & Madison Water District	SOPs for Work Flow Process Between ArcGIS and Billing Software	\$5,000
Andover Water District	SOP Development	\$2,500
Brunswick/Topsham Water District	Regional Water System Consolidation Study	\$15,000*
Boothbay Region Water District	Regional Water System Consolidation Study	\$15,000*
Wiscasset Water District	Regional Water System Consolidation Study	\$15,000*
Bath Water District	Regional Water System Consolidation Study	\$15,000*
Great Salt Bay Sanitary District	Regional Water System Consolidation Study	\$15,000*
Bowdoinham Water District	Regional Water System Consolidation Study	\$15,000*
Richmond Utilities District	Regional Water System Consolidation Study	\$15,000*
South Berwick Water District	Regional Water System Consolidation Study	\$15,000
Berwick Water Department	Regional Water System Consolidation Study	\$15,000
Kennebunk, Kennebunkport & Wells Water District	Hydraulic modeling analysis as part of Southern Maine Regional Water Council	\$10,000
Sanford Water District	Hydraulic modeling analysis as part of Southern Maine Regional Water Council	\$10,000
Maine Water Company –Biddeford/Saco Division	Hydraulic modeling analysis as part of Southern Maine Regional Water Council	\$10,000
Lubec Water District	Comprehensive System Facilities Plan	\$5,625
Lincoln Water District	Asset Management Program	\$5,000

\* Part of a shared Capacity Development Grant among seven water systems. Total grant amount of \$15,000 is shared among these seven water systems.

# Wellhead Protection Grants

The Wellhead Protection Grant Program awards grants to community and non-profit, non-community public water systems for projects that will help to protect their groundwater source from contamination. Specifically, grants are awarded for projects that clearly reduce the likelihood of contamination occurring in the Source Water Protection area by existing or future activities. Grants are awarded up to \$5,000 per project, with a few \$10,000 grant awards available, depending on the scope of the project. Projects that demonstrate a significant commitment to ongoing source water protection are considered for a higher grant award amount of up to \$10,000. Examples of projects

eligible for Wellhead Protection Grants include but are not limited to: assistance in the replacement of oil storage tanks in the source protection area, subsidizing the removal of septic systems from the source protection area, establishing or enabling a source monitoring program, removing hazardous chemicals from the source protection area, developing or implementing drinking water education programs, establishing local protective ordinances or legal agreements in the source protection area, and many other types of projects that aim to reduce contamination of the wellhead protection area.

PUBLIC WATER SYSTEM	PROJECT DESCRIPTION	GRANT AMOUNT
South Berwick Water District	Convert an oil fired heating system to a propane heating system within District's wellhead protection area.	\$3,000
Quantabacook Water Dept.	Develop a wellhead protection plan.	\$5,000
Greater Augusta Utility District	Install fencing and a video surveillance system at the location of the District's Riverside wells.	\$5,000
New Gloucester Water District	Secure the well site, pump house, clear well and generation facilities within a lockable fence. Assess potential threats to the quality of its source of supply and work with neighboring land owners and the Town of New Gloucester to implement source protection measures.	\$5,000
RSU 12 Whitefield Elementary School	Implement a comprehensive wellhead protection program by placing a concrete covered well tile over the wellhead and creating a plan of action to engage potentially harmful neighboring land uses.	\$5,000
Sunrise Hill Estates	Convert the heating systems of five mobile homes within the park from oil to propane.	\$5,000
Springbrook Mobile Home Park	Repair and upgrade the current structure that is protecting the spring source.	\$5,000
Homestead Estates Mobile Home Park	Convert existing oil fired heating systems to propane fired systems within the mobile home park.	\$5,000
Rangeley Water District	Install chain link fence surrounding Rangeley Water District pump station, wells and property in the immediate vicinity.	\$5,000
Willow Brook Mobile Home Park	Convert existing mobile home park heating systems from kerosene fired to propane fired.	\$5,000
Hingham Heights Mobile Home Park	Convert existing oil fired heating systems to propane fired systems within the mobile home park.	\$5,000
Limestone Water and Sewer District	Purchase a trailer that will contain generator and make it portable.	\$5,000
Grandeur Mobile Home Estates	Convert existing oil fired heating systems to propane fired heating systems within the mobile home park's wellhead protection area.	\$5,000
Calais Water Department	Provide adequate secondary containment for chemicals at the water treatment plant as well as improve the existing and inadequate fencing around the city's two production wells.	\$5,000
Scroggins Mobile Home Park	Convert existing oil fired heating systems to propane fired heating systems within the mobile home park's wellhead protection area.	\$5,000
South Slope Estates	Convert existing oil fired heating systems to propane fired heating systems within the mobile home park's wellhead protection area.	\$5,000

# Very Small System Compliance Loans



The Very Small System Compliance Loan Program was established in 2010. This program is directed at very small systems including all community systems (except those regulated by the Public Utilities Commission) with a population of 100 or less, and all not-for-profit, non-transient, non-community water systems. Examples include mobile home parks, apartment buildings, nursing homes, and schools.

eligible projects include, but are not limited to, treatment systems to resolve compliance issues with Lead, Copper, Radon, Arsenic, or Antimony levels.

This loan program provides 100 percent principal forgiveness (up to \$50,000) for water treatment improvements required to achieve compliance with a current or future Safe Drinking Water Act requirement, excluding the Total Coliform Rule. Examples of

As of December 31, 2015, 24 public water systems have received funding to resolve compliance issues. Total project expenses of \$424,512 have improved water quality to 2,942 users for an average cost per user of \$144. Eight water treatment systems were installed for removal of arsenic, thirteen for radon/uranium removal, and three for corrosion control to address lead and copper compliance.

PUBLIC WATER SYSTEM	TOWN SERVED	COMPLIANCE ISSUE	GRANT AMOUNT
Readfield Commons Water Association	Readfield	Radon & Copper	\$25,300
Poland Place Condominium Association	Poland	Radon, Uranium, Gross Alpha	\$50,000

# Land Acquisition Loans

The Land Acquisition Loan Program provides low interest loans to community and non-profit non-community public water systems for the purchase or legal control of land in drinking water source protection areas. Land acquisition is a key component of safe and secure drinking water and the protection of public health. Shoreline and direct watershed land use and development have a major impact on the quality of water available to a water system, and control of those land uses is an extremely cost-effective way of managing future water treatment cost.

source water protection and water system management. In Source Water Protection: Best Management Practices and Other Measures for Protecting Drinking Water Supplies, EPA notes that “the best way to control activities within sensitive areas is to purchase land and/or development rights to that land.”

The 1996 Amendments to the federal Safe Drinking Water Act stress the importance of preventing drinking water contamination through

Although there were no Land Acquisitions Loans made to water systems in 2015, the Drinking Water Program continues to make funding available through the loan program in the event that a water system is presented with the opportunity to purchase land integral to their source water protection.



Paul R. LePage, Governor

Department of Health and Human Services

Maine People Living Safe, Healthy and Productive Lives

Mary C. Mayhew, Commissioner

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