

SAFE

**Working Together for Safe
Drinking Water**



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

**Drinking Water Construction
Project Report**

2012

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 2012, the DWSRF dedicated nearly \$12 million in loans and grants for construction projects at 13 public water systems serving 36 different communities in Maine. Additionally, grants totaling more than \$280,000 were provided to

34 public water systems for engineering studies, source water protection projects and other non-construction projects.

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. Since 1997, over \$190 million was invested by Maine public water systems through the DWSRF. The continued vitality of the DWSRF will ensure the protection of public health now and for many years in the future.

I am grateful for the dedication of the men and women at the Maine CDC Drinking Water Program and the Maine Municipal Bond Bank who make this program so successful. We are also grateful for the support of public water systems and other organizations who work with us to ensure safe drinking water in Maine.

Yours for safe drinking water,

Roger L. Crouse, P.E.

Director, Maine CDC Drinking Water Program

“Without these programs, there would be less drinking water system growth and the program wouldn't be there to protect the public from failing systems prone to contamination.”

**Larry Langille, Project Manager,
Hughes Brothers, Inc. Construction**

“All the funding from the SRF program has been used to improve the quality of the drinking water and to improve the fire protection for the City of Eastport and the Pleasant Point Reservation. It has been a necessary source of funding for the district to accomplish the necessary improvements that otherwise could not be accomplished. As the Superintendent, I have honestly appreciated this source of funding to be able to serve the residents of these two communities in this much needed area and to have the financial means keeping our water system in compliance.”

**Nancy Seeley, Superintendent,
Passamaquoddy Water District**

“Increasing any aspect of the reliability of a water system will pay dividends when a crisis occurs.”

Trevor Hunt, Superintendent, Bath Water District



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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, in order to access federal dollars, which means that every one dollar invested by the State of Maine secures five federal dollars. For 2012, Maine will need to invest \$1,795,000 to access \$8,975,000 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 for safe drinking water and essential public health protection. Funding for drinking water infrastructure improvement projects are available as low interest loans. Economically disadvantaged communities may receive further assistance through principal forgiveness (grants).

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, Source Water Protection, Capacity Development, and System Consolidation grants; and Very Small System Compliance, and Land Acquisition Loans. These programs are designed to provide source water protection, technical assistance, system planning assistance, and land acquisition.

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

Since 1997, the DWSRF has provided over \$190 million to public water systems through low interest loans and grants. Since 1997, Maine has provided \$26.5 million in State Match, to access \$153.2 million in federal grants.

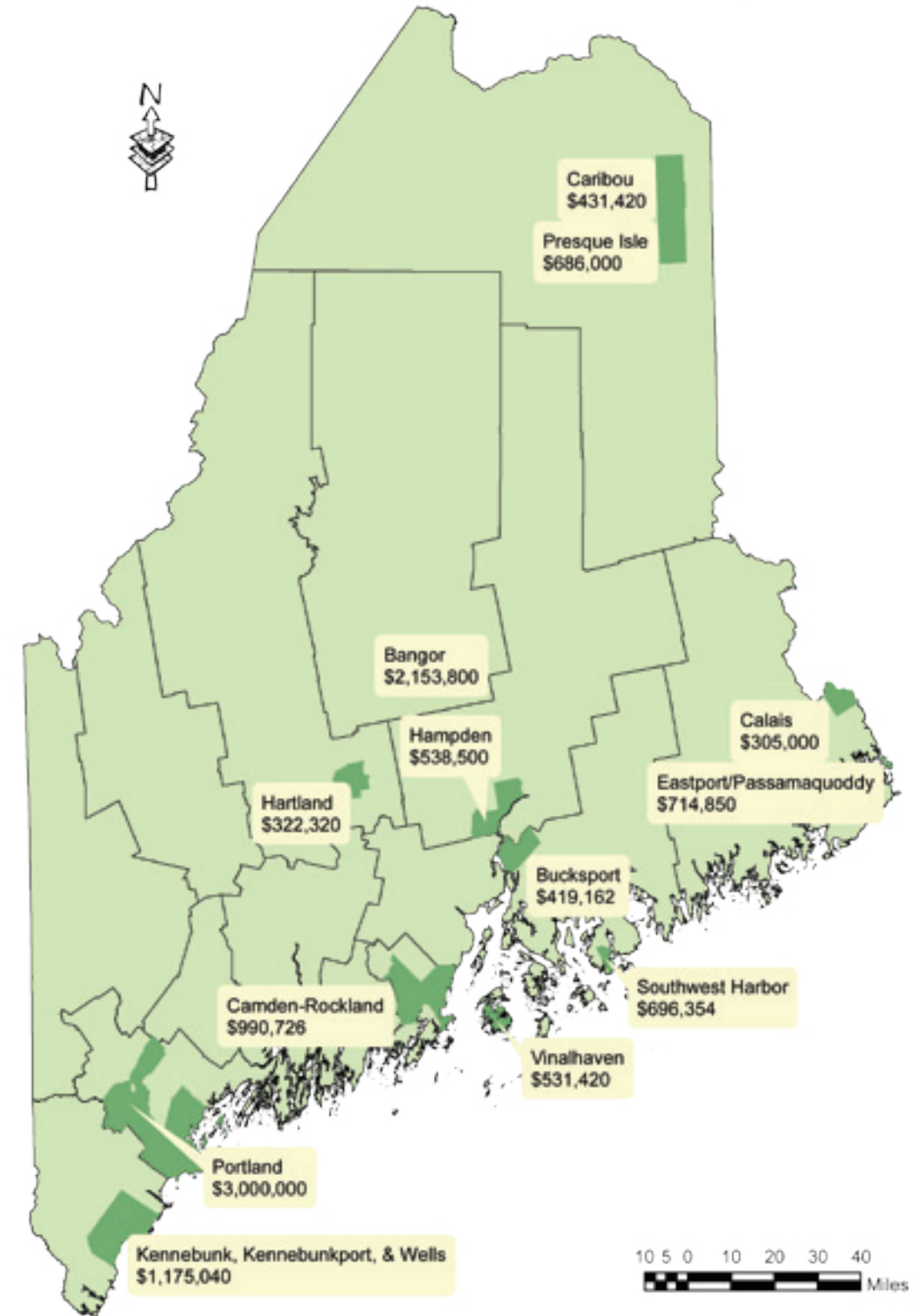
**As of this writing, the State Match for the 2012 DWSRF has not been accessed, and therefore the federal grant has not been available.*



2012 Construction Projects at a Glance

WATER SYSTEM	TOWNS SERVED	DESCRIPTION	LOAN AMOUNT FROM 2012 DWSRF
Bangor Water District	Bangor, Clifton, Eddington, Hampden, Hermon, Orrington, Veazie	Construction of Ultraviolet Disinfection Treatment System	\$2,153,800
Portland Water District	Cape Elizabeth, Cumberland, Falmouth, Gorham, Portland, Raymond, Scarborough, South Portland, Standish, Westbrook, Windham	Construction of Ultraviolet Disinfection Treatment System	\$3,000,000
Passamaquoddy Water District	Eastport, Perry	Water Main Replacement	\$714,850
Maine Water Company-Bucksport Division	Bucksport	Water Main Replacement	\$419,162
Maine Water Company-Hartland Division	Hartland	Construction of Sand/Salt Storage Facility to Remove Significant Source of Chloride and Sodium Contamination	\$322,320
Caribou Utilities District	Caribou	Water Main Replacement	\$431,420
Southwest Harbor Water Department	Southwest Harbor	Replace Water Storage Tank	\$696,354
Presque Isle Water District	Presque Isle	Water Main Replacement	\$686,000
Hampden Water District	Hampden	Water Main Replacement	\$538,500
Calais Water Department	Calais	Water Main Replacement	\$305,000
Vinalhaven Water District	Vinalhaven	Water Main Replacement	\$531,420
Maine Water Company-Camden & Rockland Division	Camden, Owls Head, Rockland, Rockport, Thomaston, Warren	Replace Water Storage Tank	\$990,726
Kennebunk, Kennebunkport, and Wells Water District	Kennebunk, Kennebunkport, Wells	Water Main Replacement	\$1,175,040

Public Water Systems receiving 2012 DWSRF Construction Funding



2012 DWSRF Non-Construction Projects

CAPACITY DEVELOPMENT GRANTS		
PUBLIC WATER SYSTEM	TOWNS SERVED	GRANT AMOUNT
Alfred Water District	Alfred	\$5,000
Castine Water Department	Castine	\$15,000
Corinna Water District	Corinna	\$2,000
Eagle Lake Water & Sewer District	Eagle Lake	\$5,000
Kennebunk, Kennebunkport, Wells Water District	Kennebunk, Kennebunkport, Wells	\$5,000
Livermore Falls Water District	Livermore	\$15,000
Newport Water District	Newport	\$15,000
Norridgewock Water District	Norridgewock	\$5,000
North Berwick Water District	North Berwick	\$8,400
Sanford Water District	Sanford	\$15,000

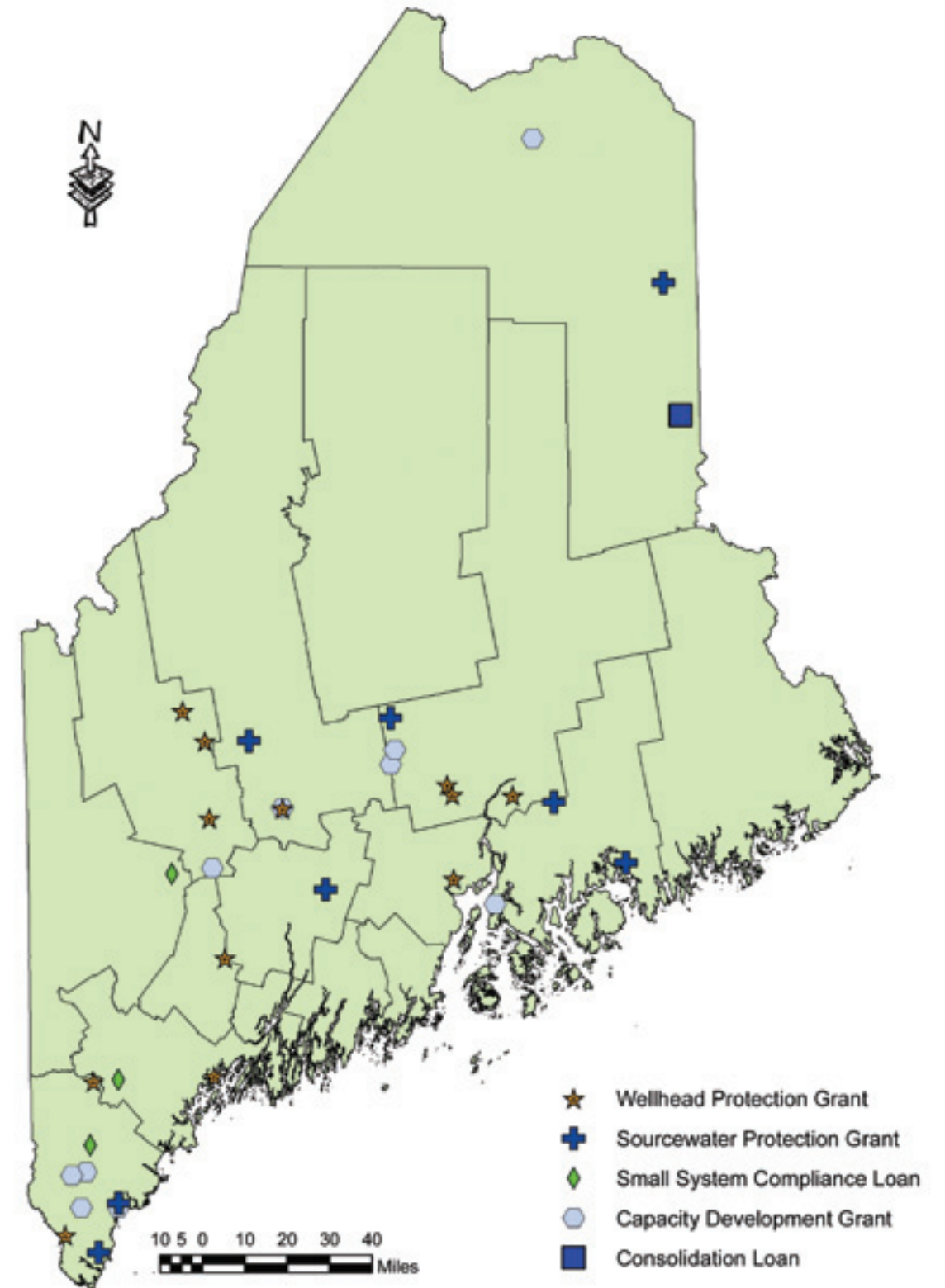
WELLHEAD PROTECTION GRANTS		
PUBLIC WATER SYSTEM	TOWNS SERVED	GRANT AMOUNT
Belfast Water District	Belfast, Northport	\$5,000
South Slope Mobile Home Estates	Carmel	\$5,000
Grandeur Mobile Home Estates	Carmel	\$5,000
Norridgewock Water District	Norridgewock	\$5,000
Kingfield Water District	Kingfield	\$5,000
Pine Cone Mobile Home Park	Holden	\$3,500
Sugarloaf Water Association	Carrabassett Valley	\$5,000
Christian Fellowship/Renewal	Limington	\$1,000
Duck-A-Way on Casco Bay	Freeport	\$5,000
South Berwick Water District	South Berwick	\$10,000
Springbrook Mobile Home Park	Leeds	\$5,000
Farmington Village Corp	Farmington	\$8,500

SOURCE WATER PROTECTION GRANTS		
PUBLIC WATER SYSTEM	TOWNS SERVED	GRANT AMOUNT
York Water District	York	\$10,000
Long Pond Water District	Sorrento	\$2,000
Mars Hill & Blaine Water Company	Mars Hill	\$5,000
Kennebunk, Kennebunkport & Wells Water District	Kennebunk, Kennebunkport, Wells	\$10,000
Dexter Utility District	Dexter	\$5,000
Anson & Madison Water District	Anson, Madison	\$5,000
Kennebec Water District	Fairfield, Oakland, Vassalboro, Waterville	\$10,000
Bangor Water District	Bangor, Clifton, Eddington, Hampden, Hermon, Orrington, Veazie	\$5,000

VERY SMALL SYSTEM COMPLIANCE LOANS			
PUBLIC WATER SYSTEM	TOWNS SERVED	COMPLIANCE ISSUE	GRANT AMOUNT
Northeastern Estates	Standish	Radon	\$9,440
Waterboro Elementary School	Waterboro	Arsenic and Lead	\$50,000
Canton Point Park	Canton	Gross Alpha	\$48,420

SYSTEM CONSOLIDATION GRANTS				
PUBLIC WATER SYSTEM	TOWNS SERVED	PUBLIC WATER SYSTEM CONNECTING TO:	REASON FOR CONSOLIDATION	GRANT AMOUNT
Katahdin Trust Company	Houlton	Houlton Water Company	Chlorine disinfection issues	\$15,422

Public Water Systems receiving 2012 DWSRF Construction Funding



The Need for Drinking Water Infrastructure Improvements

In December 2012, the Maine Section of the American Society of Civil Engineers (ASCE) released its second Report Card for Maine's Infrastructure, assigning rankings to the state's 14 infrastructure areas. This report card provides an update to determine the progress or decline in each infrastructure area since 2008. As with the national report cards produced by ASCE, the purpose of this state report card is to raise public awareness of the importance of a modern and well maintained infrastructure.

The ranking for Municipal Drinking improved from a C to a C+. An overview in the report provides the following statements, "An estimated two-thirds of Maine residents are served by 151 public community drinking water systems. Approximately \$1 billion in water infrastructure projects is needed over the next 20 years. Federal and state funding for the last 10 years was approximately \$22 million [per year]. While there has been improved funding for treatment, storage, filtration and security issues, the funding gap is significant, specifically in regard to aging distribution systems."

The DWSRF plays a critical role in funding needed improvements for many of Maine's public water systems. By providing low interest loans and grants, the DWSRF enables public water systems to complete infrastructure projects that will eliminate immediate and potential threats to public health. Disadvantaged community water systems may receive principal

forgiveness (grant) of 20, 45 or 75 percent of the DWSRF loan based on water rates as a percentage of median household income. Since the creation of the DWSRF in 1997, over \$190 million has been invested in public water systems across Maine. Without the DWSRF Program funds, water systems would need to seek more expensive borrowing alternatives or delay much needed infrastructure projects essential to protecting public health.

Each year, the public water system requests to fund projects exceed available money through the DWSRF. Requests typically exceed the available funding by a factor of 2 or 3 times, highlighting the ongoing and continued need for water systems to make improvements to their infrastructure.

The maintenance and improvement of Maine's infrastructure is vital to our economy, and to the health, safety, and well-being of our citizens. Our infrastructure must not be taken for granted, instead, it requires ongoing maintenance, continued planning, and adequate funding. In particular, storage, treatment, and distribution facilities require maintenance, replacement, and upgrades to meet current and future drinking water standards. The greatest need may lie out of sight in underground water distribution lines, many of which are more than 100 years old.

A copy of the full Maine ASCE Infrastructure Report can be found at: <http://www.maineasce.org/2012ReportCard.htm>

Future of the DWSRF

If past performance can be used as an indicator of future DWSRF success, the future looks outstanding. Since 1997, more than \$190 million has been invested into approximately 280 projects benefiting more than 110 municipalities in Maine. Many of the DWSRF loans have addressed significant public health risks. Consequently, Maine's drinking water has never been safer.

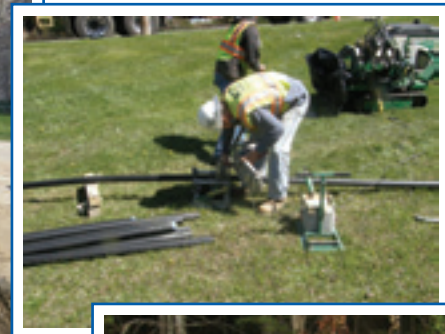
Currently, the DWSRF's total outstanding loan portfolio exceeds \$94 million, with an annual repayment stream at almost \$6 million per year. The loan portfolio and repayment stream will continue to increase.

The State Match necessary to access the 2012 and 2013 federal grants was approved by voters in November 2012. The anticipated funding source for 2014 and beyond stems from a portion of the Maine's wholesale liquor contract. This stable funding source will provide greater certainty to the annual funding in the future.

Because of the continued fiscal challenges at the national level, Congress will be looking for ways to reduce spending. Local and national organizations must be vigilant in communicating the benefits of the DWSRF to Congressional representatives and their staff.

As a Maine business who specializes in working with not only Public utilities, but private manufacturing as well, we understand the challenges we face when trying to do business in an economy with a shrinking manufacturing sector. Programs like the DWSRF program help us to provide good paying jobs, with benefits, to dozens of Maine families. We were able to keep our employees busy and at the same time we gained a local customer who we look forward to doing business with in the future.

Ron Fluet, President, Results Engineering Inc.



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.

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 Compliance Order
- From a system needs assessment
- From an emergency
- From a project needed to coordinate with a scheduled DOT or local road reconstruction project

FUNDING

Public Water System submits a DWSRF Construction Loan Fund application (typically end of September each year).

DWSRF loan rates are approximately 2% below current Maine Municipal Bond Bank rates

Determine system eligibility for Principal Forgiveness: 20%, 45%, or 75%

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

Maine Public Utilities Commission (PUC) Approvals: Issuance of debt, new water rates (if needed)

Bond Counsel

DESIGN

PROJECT DESIGN, DEVELOPMENT OF PLANS & SPECIFICATIONS

Professional Engineers & Consultants become involved

NEPA-like or State Environmental Review, depending on project cost

Technical, Financial, and Managerial Capacity review by DWP staff

Disadvantaged Business Enterprise opportunities determined by potential contractors

Davis-Bacon Wage rates determined

BIDDING

(lowest responsible bidder accepted per engineer recommendation)

Three quotes obtained on projects <\$200,000

Open Competitive bidding on projects > \$200,000

Construction project plans and specifications created

Plans & specifications reviewed and approved by the Drinking Water Program

Project Scheduling is determined

CONSTRUCTION

CONSTRUCTION

Preconstruction Meeting/Contract Signing

Contractors become involved & Construction occurs

Construction inspection by third party or in-house by utility

Monthly DWSRF inspection and pay requisition meetings with DWP staff, public water system

COMPLETION

SUBSTANTIAL COMPLETION

Final pay requisition

Final project inspection

Loan payments by water system start one year after substantial completion

FINAL LOAN

FINAL LOAN IN PLACE

Loan repayments return to the Drinking Water State Revolving Fund (to be used by another drinking water infrastructure project)

SAFE



2012 DWSRF Construction Projects

Bangor Water District

Towns Served: Bangor, Clifton, Eddington, Hampden, Hermon, Orrington, Veazie

2012 DWSRF Funded Amount: \$2,153,800

Engineer: Black and Veatch

Contractor: T. Buck Construction

This project provides additional funding to complete the construction of an ultraviolet (UV) disinfection facility to comply with requirements of the Long Term 2 Enhanced Surface Water Treatment Rule to protect against Cryptosporidium, a chlorine-resistant microbiological pathogen. The design of this upgrade was funded in a previous DWSRF project. Specific improvements include a new building, UV disinfection equipment, site work, and new piping.



“The UV System Upgrade project is being implemented to comply with future regulations and the support of the DWSRF Program has allowed the Bangor Water District to continue to meet their mission ‘to protect public health by providing the highest quality water for domestic use and fire protection while emphasizing customer service, innovation, and cost control.’”

David VanHoven, Project Engineer, Black and Veatch

Passamaquoddy Water District

Towns Served: Eastport, Perry

DWSRF Funded Amount: \$714,850

Engineer: A.E. Hodsdon

Contractors: T. Buck Construction

Passamaquoddy Water District undertook a project to replace approximately 2,500 feet of shallow 1890's leaded joint cast iron water mains, services and hydrants on Shackford, Chapel, and Capen Streets in Eastport. Another 350 feet of old cast iron water main was also replaced on Boynton Street. The replacement water pipes will improve water quality delivered to approximately 43 homes in Eastport. Roughly 91% of the 8 mile long water distribution system in Eastport has been replaced since 1984.

“Without the DWSRF Program we would continue to ‘band aid’ the broken lines as they broke. Because we qualify for 75% forgiveness and 0% financing on the balance, this is within our financial abilities. The city of Eastport has no industry that uses large amounts of water. The biggest part of the burden is placed on the residential user for all work being done by the district. Without the DWSRF Program this work could not be done without an unrealistic rate increase.”

Our customers benefited with cleaner water, more volume, better fire protection where failing hydrants were replaced and in the case of Capen Ave., we relocated the water lines to the street rather than their back yards and under their porches. An indirect benefit would be all three streets had been repaved improving the surface of these streets.”

Nancy Seeley, Superintendent, Passamaquoddy Water District

Calais Water Department

Towns Served: Calais

DWSRF Funded Amount: \$305,000

Engineer: Olver Associates, Inc.

Contractors: TBD

This project will replace old, undersized, and deteriorated water mains on Clark and School Streets. The existing mains produced maintenance problems and proved costly for the District to repair. Replacing these mains and services will greatly improve the reliability and safety of the distribution system. This project will occur in parallel with stormwater and sewer main improvements on the same streets.

Presque Isle Water District

Towns Served: Presque Isle

DWSRF Funded Amount: \$686,000

Engineer: Woodard & Curran

Contractors: T. Buck Construction

In preparation of a street improvement project by the Maine Department of Transportation, the Water District will replace 1,900 feet on South Main Street. This project is the highest priority on the list of water main replacement projects in the District's Capital Improvement Plan.



Vinalhaven Water District

Towns Served: Vinalhaven

DWSRF Funded Amount: \$531,420

Engineer: TBD

Contractors: TBD

This project includes the replacement of approximately 900 feet of 120+ year-old unlined cast iron pipes and galvanized services along Sea Street. The water main replacement will improve water quality and reliability as the continued maintenance, and repairs to the current mains and services cause depressurization and an interruption in service to customers.

Kennebunk, Kennebunkport, and Wells Water District

Towns Served: Kennebunk, Kennebunkport, Wells

DWSRF Funded Amount: \$1,175,040

Engineer: In-House

Contractors: In-House

Kennebunk, Kennebunkport, and Wells Water District replaced 7,150 feet of obsolete 8-inch and 10-inch diameter water mains on Fortune's Rock Road in Biddeford Pool. These mains were approximately 100 years old and serve the densely populated coastal area of Biddeford Pool. The project improved aesthetic water quality and reliability of the distribution system serving this area. The project was completed in concurrence with a major road reconstruction project with the City of Biddeford.

Hampden Water District

Towns Served: Hampden
DWSRF Funded Amount: \$538,500
Engineer: Woodard & Curran
Contractors: Hughes Brothers, Inc.

This project involved replacing 1-1/2-inch and 2-inch dead end lines with about 3,000 feet of 8-inch ductile iron pipe to provide an interconnected loop in the neighborhood including Canoe Club, VFW Road, and Cottage Street. Two dead-end lines on Canoe Club Road and Rowell Road were tied into the new line on Cottage Street. The pipe loop in this neighborhood reduces potential water quality problems and substantially improves the flow for fire protection. Additionally, the new piping allows for better isolation in the event of smaller water outages in both this neighborhood and along the Route 1A trunk line in the center of town.



It would be a great disappointment to see cuts to this program as it seems vital to ensuring drinking water systems stay updated and continue to expand with the highest quality possible.

Larry Langille, Project Manager, Hughes Brothers, Inc. Construction

Maine Water Company-Bucksport Division

Towns Served: Bucksport
DWSRF Funded Amount: \$419,162
Engineer: Woodard & Curran
Contractors: DN Tank

The Bucksport Division of the Maine Water Company utilized 2012 DWSRF funding to replace the MacDonald Street Standpipe in Bucksport, a 317,000 gallon riveted steel finished water storage tank built in 1927. The new tank, a 600,000-gallon, wire-wound prestressed concrete tank, was erected on the same site. A new valve and controls building was also part of the project. The last tank inspection report, in June 2009, cited significant interior metal loss and corrosion areas and recommended the installation of a cathodic protection system to protect the tank from further metal loss. Due to the age of the tank, the estimated cost of over \$200,000 to recoat this tank and install a cathodic protection system, and the desire for a more appropriately sized volume of storage, the decision was made to replace the old tank.



Portland Water District

Towns Served: Cape Elizabeth, Cumberland, Falmouth, Gorham, Portland, Raymond, Scarborough, South Portland, Standish, Westbrook, Windham
DWSRF Funded Amount: \$3,000,000
Engineer: CDM Smith
Contractors: D & C Construction

This project provides additional funding to complete the construction of an ultraviolet (UV) disinfection facility to meet the requirements of the Long Term 2 Enhanced Surface Water Treatment Rule and provide additional protection from disease-causing microorganisms. Funding of \$1,000,000 was included in the 2011 IUP for the preliminary and final design of the UV water treatment facility. The total estimated project cost is \$12,999,900

Caribou Utilities District

Towns Served: Caribou
DWSRF Funded Amount: \$431,420
Engineer: In-House
Contractors: Trombley Construction

Caribou completed a project to replace 1,700 feet of old, undersized, 6-inch cast iron pipe with 12-inch ductile iron pipe. The project's purpose was to improve water quality and system reliability and was performed in conjunction with a street improvement project by the City of Caribou and the Maine Department of Transportation.

Maine Water Company-Camden & Rockland Division

Towns Served: Camden, Owls Head, Rockland, Rockport, Thomaston, Warren
DWSRF Funded Amount: \$990,726
Engineer: TBD
Contractors: TBD

The Camden & Rockland Division of the Maine Water Company will replace the aging Mountain Street Standpipe in Camden. The standpipe is a 577,000-gallon, riveted steel-finished water storage tank built in 1902. The standpipe will be replaced with a 750,000-gallon, welded-steel storage tank on the same site.

Maine Water Company-Hartland Division

Towns Served: Hartland
DWSRF Funded Amount: \$322,320
Engineer: CES, Inc.
Contractors: David P. Trask and Son, Inc.

This project consisted of constructing a sand/salt storage facility to remove a significant source of chloride and sodium contamination from the Hartland public water source. The utility will have a long term lease with the Town of Hartland to operate and maintain the facility. The purpose of this project is to relocate the sand and salt to an engineered facility so that the leaching of these contaminants into the groundwater aquifer can be minimized or eliminated.

Previous studies had shown that the uncovered municipal salt pile was leaching into the aquifer that is the source for the Maine Water Company - Hartland Division water system.



This project helped keep my employees working and me in business. It seems to me without the DWSRF program, a lot of small towns would not be able to financially complete important projects such as sand/salt storage buildings that deeply impact the environment and our drinking water.

David Trask, Owner, David P. Trask and Son, Inc. Construction

Southwest Harbor Water Department

Towns Served: Southwest Harbor

DWSRF Funded Amount: \$696,354

Engineer: Olver Associates Inc.

Contractors: Sargent Corporation

Southwest Harbor Water Department replaced their existing welded steel water storage tank that was in poor condition. The new 350,000-gallon, wire-wound pre-stressed concrete tank was built on the same site. The new tank is expected to impose significantly lower maintenance costs. A new control building and minor site work was also part of this project.



The new tank has allowed us to improve the quality and safely store more water for our customers while also improving the fire protection. Without the low interest loan and partial principal forgiveness of the DWSRF program this project would not have been financially possible for the residents of Southwest Harbor.

David Corrigan, Director of Public Works,
Town of Southwest Harbor

Mexico Water District

Towns Served: Mexico

DWSRF Funded Amount: \$260,000

Engineer: A.E. Hodsdon

Contractors: Pratt & Sons Construction

This project was part of a larger plan in Mexico to completely upgrade the infrastructure and roadway on South Main Street, Alder Lane and Osgood Avenue. In conjunction with the other utility work and street improvements, the Mexico Water District's project replaced approximately 4,800 feet of galvanized and cast iron water mains that were 100+ years old. Some of these existing water mains were shallow, which required many customers to run water in the winter to prevent freeze ups.



Island Falls Water Department

Towns Served: Island Falls

DWSRF Funded Amount: \$1,447,450

Engineer: A.E. Hodsdon

Contractors: Lou Silver, Inc.

This project involved the replacement of 6,800 feet of 100-year-old cast iron, unlined, lead-joint distribution mains. The project also included new house service connections and fire hydrants. Island Falls also used 2010 DWSRF funds to refinance a 1994 Rural Development issued loan used to replace an existing surface water source with a new well, pump station, and reservoir, for compliance with the Safe Drinking Water Act.



Passamaquoddy Water District

Towns Served: Eastport, Perry

DWSRF Funded Amount: \$709,896

Engineer: A.E. Hodsdon

Contractors: Fundy Contractors, Inc.

This project replaced approximately 2,500 feet of distribution main, hydrants, and house services on Broadway, Third, and Boynton Streets, as well as a section along Middle Street. The existing water mains were old and tuberculated, which resulted in reduced service pressure. The replacement mains provide better pressure, water quality, and improve the ability of the water system to control distribution system chlorine residuals. About half of the work was completed in 2012.



PROJECTS from Prior Years Completed in 2012

Town of Bar Harbor- Water Division

Towns Served: Bar Harbor

DWSRF Funded Amount: \$2,679,150

Engineer: Woodard & Curran

Contractors: T. Buck Construction

The Town of Bar Harbor completed a project to upgrade their treatment plant, (replacing chemical storage and feed facilities and adding an ultraviolet (UV) disinfection system), to protect against Cryptosporidium, a chlorine-resistant microbiological pathogen, and comply with the requirements of the Long Term 2 Enhanced Surface Water Treatment Rule. The ground water storage tank was also modified to create a contact chamber, and ammonia treatment was added to create chloramines and reduce the concentration of disinfection byproducts.



This type of project is vital to the economy of rural Maine.

Paul Knox, Fundy Contractors, Inc.

Rangely Water District

Towns Served: Dallas Plt, Rangely Plt, Rangely, Sandy River Plt

DWSRF Funded Amount: \$735,630

Engineer: A.E. Hodsdon

Contractors: E.L. Vining, Inc

The project replaced more than 4,500 feet of aging water mains and eliminated the need for running water to act as “bleeders” during the winter months, to prevent freezing from shallow water mains. The project also created loops that improved water quality by eliminating dead ends within the water system. In addition, Rangely was able to add two additional loops to Lake House Road to Marble Station and Sunset Road to Caddy Drive to improve water quality.



The project replaced old mains that were plugged with tubercles to the point where if one hydrant was flowing and you opened the next one on the line, the first hydrant would stop flowing. The new mains greatly increase flow and water quality in the system.

Mark McCluskey, Project Manager with AE Hodsdon Engineers

Lewiston Water Division/ Auburn Water District

Towns Served: Lewiston, Auburn, Poland

DWSRF Funded Amount: \$1,000,000

Engineer: Wright Pierce

Contractors: Penta Corp.

Lewiston Water Division and Auburn Water District completed their project to design and construct a shared chloramination (chlorine and ammonia) water disinfection system for Auburn and Lewiston. This project allows both utilities to significantly reduce the amount of chlorine contact time and enhance water quality by way of reducing the level of disinfection byproducts.



Milo Water District

Towns Served: Milo

DWSRF Funded Amount: \$763,000

Engineer: Dirigo Engineering

Contractors: Apex Construction, Inc.

This project initially began as a groundwater exploration project with the goal of replacing the surface water with groundwater wells. When a suitable groundwater source could not be found, improvements to the treatment plant became the focus. Specifically, the plant was modified by adding a chlorine contact chamber to assure adequate disinfection would occur. After this tank, a new ammonia feed system converts the disinfectant to chloramines, which reduces the formation of disinfection byproducts. To improve performance of the treatment facility, the District replaced the slow sand media and gravel in one of the beds and added a layer of granular activated carbon to help in the removal of disinfection byproducts. As a result of these improvements, the disinfection byproduct levels have been reduced by over 90%, bringing the water system into compliance with the Disinfectants-Disinfection Byproduct Rule.

Presque Isle Water District

Towns Served: Presque Isle

DWSRF Funded Amount: \$560,000

Engineer: Wright Pierce

Contractors: Penta Corp.

The Presque Isle Water District completed a project to design and install an ultraviolet (UV) water disinfection system to improve drinking water quality for Presque Isle. The new treatment system provides additional protection from disease-causing microorganisms and disinfection byproducts, contaminants that can form during drinking water treatment.



Canton Water District

Towns Served: Canton

DWSRF Funded Amount: \$106,125

Engineer: Wright-Pierce

Contractors: T. Buck Construction, Ike Goodwin Well Drilling

We would not have been able to fund this project without the DWSRF...not even a little bit.

Debi Hutchins, Designated Operator, Canton Water District

This project was designed to improve performance of Canton Water District's slow sand treatment filtration facility and to reduce disinfection byproducts in the distribution system. To improve performance of the treatment facility, the District replaced the slow sand media and gravel in one of the beds and added a layer of granular activated carbon to help remove of disinfection byproducts. Secondly, the underdrain cleaning system was replaced, by adding a manually-operated surface wash system to clean the media easier. To help further reduce disinfection byproduct levels, the system drilled a bedrock well that blends with the surface water source. Through these plant upgrades, the District intends to improve overall water quality and maintain a more sustainable system.

Strong Water District

Towns Served: Strong

DWSRF Funded Amount: \$100,000

Engineer: A.E. Hodsdon

Contractors: E.L. Vining & Son, Inc.

Strong Water District replaced approximately 3,020 feet of distribution mains, hydrants, and house services on Church Hill Road and Lambert Hill Road. This project also included funding from the Community Development Block Grant, resulting in a total estimated project budget of \$500,000. The water main improvements will replace aging pipes that are capacity bottlenecks and subject to frequent water main breaks. This work eliminated many small leaks.



I believe that it has enhanced consumer confidence. Water consumers, in general, appreciate investments that positively impact water quality/quantity. The customers particularly affected by this project had waited a long time.

Chris Hardy, Superintendent, Strong Water District

Bangor Water District

Towns Served: Orrington, Hermon, Hampden, Bangor, Eddington, Clifton, Veazie

DWSRF Funded Amount: \$346,137

Engineer: Wright-Pierce

Contractors: Results Engineering, Inc.

The ability for technicians to address potential failures or needed updates is much easier than before. It is not necessary to travel to a remote site to see what is happening; one can simply access the equipment remotely and make adjustments as needed.

Robert Burke, Bangor Water District

This project replaced the antiquated supervisory control and data acquisition (SCADA) system that the Bangor Water District had been using since 1985. The new system will facilitate more automation, such as pump station operation and tank level control. The new SCADA system also allows for remote access by managers using secure laptops.



Solon Water District

Towns Served: Solon

DWSRF Funded Amount: \$97,055

Engineer: A.E. Hodsdon

Contractors: A.E. Hodsdon, Pine State Drilling, Express Electrical

This project involved the development of a redundant well. Previously, the District's supply came from a single well dating back to 1968. The new redundant well is located in the vicinity of the other well, and both are tied in to a common wellhouse. The utility now maintains drinking water source redundancy. Along with the new well, this project included the installation of a high efficiency pump with Variable Frequency Drive (VFD). The new pump/motor/VFD combination is more efficient than the old infrastructure, resulting in significant electricity savings.

The project gave the District redundancy with a backup well. The new pump is operated on a VFD and the District is saving about \$200 per month when using the new pump.

Al Hodsdon, Engineer, A.E. Hodsdon



Pittsfield Water District

Towns Served: Pittsfield

DWSRF Funded Amount: \$508,500

Engineer: Olver Associates, Inc.

Contractors: Haley Construction, Inc.

This project involved replacing a broken cast iron water main that ran along Waverly Street under the Sebasticook River, with new high density polyethylene (HDPE) pipe. Approximately 600 feet of directional drilling was needed to cross under the river. Due to difficult site conditions, the project lasted longer than expected and was completed in 2012. The contractor, Haley Construction, was extremely flexible and agreed to several changes in scope that facilitated successful completion of the project.



Bath Water District

Towns Served: Brunswick, Woolwich, West Bath, Wiscasset, Bath

DWSRF Funded Amount: \$440,000

Engineer: Wright-Pierce

Contractors: Nitram Excavation

Bath Water District made improvements to their raw water intake and pumping capabilities at the treatment facility located at Nequasset Lake, the drinking water source for Bath. The project improves the reliability of the water system, and adds a physical connection between the two existing intake pipes, to allow two wet wells and associated pumps to be used.



Customers have an increased reliability and consistency of the water system. Future maintenance or emergency repairs can now be conducted without costly down time, overtime or high cost priority repair work.

Trevor Hunt, Superintendent, Bath Water District

2012 DWSRF Non-Construction Projects

Source Water Protection Grants

The Source Water Protection Grant Program provides grants to community and non-profit non-community public water systems for projects that will help protect their surface water sources 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.

SOURCE WATER PROTECTION GRANTS			
PWS NAME	TOWNS SERVED	PROJECT DESCRIPTION	GRANT AMOUNT
York Water District	York	Complete re-route of an existing management trail in the Chase's Pond Watershed off Mountain Road in York	\$10,000
Kennebunk, Kennebunkport & Wells Water District	Kennebunk, Kennebunkport, Wells	Inventory, prioritize, and develop a program to replace or protect home heating oil tanks that are not double-walled or equipped with secondary containment within the Branch Brook Aquifer Protection District	\$10,000
Bangor Water District	Bangor, Clifton, Eddington, Hampden, Hermon, Orrington, Veazie	Replace the existing access road gate and support structure at the Route 9 location	\$5,000
Long Pond Water District	Sorrento	Erect a security gate and install signage for the intake access road, which provides the only vehicular access to the pond	\$2,000
Dexter Utility District	Dexter	Hire a source water protection specialist to provide technical assistance for a potential development within the source water protection area	\$5,000
Anson & Madison Water District	Anson, Madison	Hire a source water protection specialist to bring drinking water related lessons to two local schools	\$5,000
Kennebec Water District	Fairfield, Oakland, Vassalboro, Waterville	Hire a consultant to manage a tree-planting partnership in the China Lake Watershed between the Water District and the Manomet Center for Conservation Sciences	\$10,000
Mars Hill & Blaine Water Company	Mars Hill	Develop an educational activity booklet designed to educate the public and students of all ages about their Town's drinking water supply	\$5,000

Capacity Development Grants

Capacity Development Grants provide financial assistance to public water systems for the preparation of reports or other documents that will improve the water system's financial and/

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

CAPACITY DEVELOPMENT GRANTS		
WATER SYSTEM	PROPOSED USE OF GRANT FUNDS	GRANT AMOUNT
Alfred Water District	Asset Management Plan	\$5,000
Castine Water Department	Subsurface investigation for a new well	\$15,000
Corinna Water District	GPS locating & GIS mapping	\$2,000
Eagle Lake Water & Sewer District	Storage tank repair/replacement alternatives report	\$5,000
Kennebunk, Kennebunkport, Wells Water Dst.	Riverbank infiltration study	\$5,000
Livermore Falls Water District	Treatment performance study for algae removal	\$15,000
Newport Water District	GIS system mapping, hydraulic modeling & Master Plan	\$15,000
Norridgewock Water District	Master Plan	\$5,000
North Berwick Water District	Total system evaluation	\$8,400
Sanford Water District	Master Plan with asset management & risk-based capital prioritization	\$15,000

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.

SYSTEM CONSOLIDATION GRANTS				
PWS (receiving funds)	TOWN	PUBLIC WATER SYSTEM CONNECTING TO:	REASON FOR CONSOLIDATION	GRANT AMOUNT
Katahdin Trust Company	Houlton	Houlton Water Company	Chlorine disinfection issues	\$15,422

Very Small System Compliance Loans

The Very Small System Compliance Loan Program was established in 2010 for very small systems. 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 are eligible. Examples include mobile home parks, apartment buildings, nursing homes, and schools. 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 eligible projects include, but are not limited to, treatment systems to resolve compliance issues with Lead, Copper, Radon, Arsenic, or Antimony levels.

As of December 31, 2012, 14 public water systems have received funding and resolved compliance issues. Total project expenses of \$320,916 have improved water quality to 2,085 users, for an average cost of \$154 per user.

VERY SMALL SYSTEM COMPLIANCE LOANS			
SYSTEM NAME	# OF PEOPLE SERVED BY WATER SYSTEM	ESTIMATED COST	COMPLIANCE ISSUE
Canton Point Park	73	\$48,420	Gross alpha
Waterboro Elementary School	465	\$50,000	Arsenic and Lead
Northeastern Estates	40	\$9,440	Radon

Wellhead Protection Grants

The Wellhead Protection Grant Program provides grants to community and non-profit, non-community public water systems to help 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.

WELLHEAD PROTECTION GRANTS			
PWS NAME	TOWNS SERVED	PROJECT DESCRIPTION	GRANT AMOUNT
Belfast Water District	Belfast, Northport	Replace single-walled oil storage tanks located within 1,000 feet of the well with double-walled tanks.	\$5,000
South Slope Mobile Home Estates	Carmel	Replace single-walled oil storage tanks located within 1,000 feet of the well with double-walled tanks.	\$5,000
Grandeur Mobile Home Estates	Carmel	Replace single-walled oil storage tanks located within 1,000 feet of the well with double-walled tanks.	\$5,000
Norridgewock Water District	Norridgewock	Install fencing around the new auxiliary well	\$5,000
Kingfield Water District	Kingfield	Install shoreland stabilization on approximately 300 feet of shoreline on the West Branch of the Carrabassett River	\$5,000
Pine Cone Mobile Home Park	Holden	Replace single-walled oil storage tanks located within 1,000 feet of the well with double-walled tanks.	\$3,500
Sugarloaf Water Association	Carrabassett Valley	Provide video surveillance for two wellheads, replace one failed camera, obtain a dedicated computer for recording surveillance video, and provide security signage	\$5,000
Christian Fellowship/Renewal	Limington	Install a concrete wellhead enclosure	\$1,000
Duck-A-Way on Casco Bay	Freeport	Replace single-walled oil storage tanks located within 1,000 feet of the well with double-walled tanks.	\$5,000
South Berwick Water District	South Berwick	Remove a Right of Way currently located through the well field at Agamenticus Pump Station.	\$10,000
Springbrook Mobile Home Park	Leeds	Replace single-walled oil storage tanks located within 1,000 feet of the well with double-walled tanks.	\$5,000
Farmington Village Corp	Farmington	Make updates to the 2004 Town of Farmington Wellhead Protection Ordinance to allow the Town to incorporate reference legislation and changes enacted since the current Ordinance was adopted.	\$8,500

The Land Acquisition Loan Program

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.

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

contamination through 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."

Although there were no Land Acquisition Loans made to water systems in 2012, 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.



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