

2018
ANNUAL REPORT
Massachusetts Clean Water Trust

Office of the State Treasurer
Executive Office of Administration and Finance
Massachusetts Department of Environmental Protection

In the U.S. alone, an estimated 76% of the population depends on nearly 15,000 water resource recovery facilities and a vast network of hidden infrastructure for wastewater services. An additional 56 million people are expected to connect to these centralized systems by 2032.

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LET'S GET IN TOUCH

Massachusetts Clean Water Trust
1 Center Plaza, Suite 430
Boston, MA 02108

Susan Perez, Executive Director
(617) 367-9333, 816
sperez@tre.state.ma.us

Nathaniel Keenan, Deputy Director
(617) 367-9333, 508
nkeenan@tre.state.ma.us

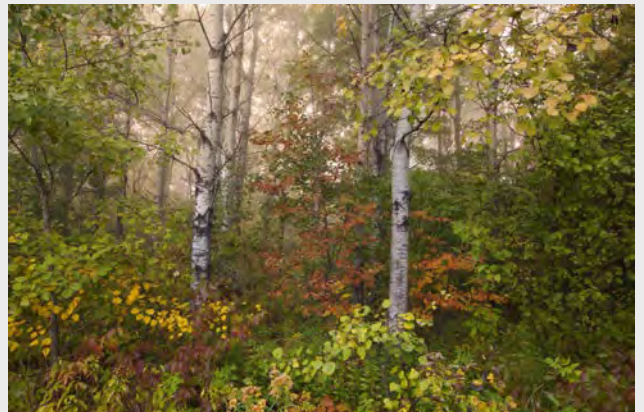
My Tran, Trust Treasurer
(617) 367-9333, 813
mtran@tre.state.ma.us

Massachusetts Department of Environmental Protection
Division of Municipal Services
1 Winter Street, 5th Floor
Boston, MA 02108

Steven McCurdy, Director
(617) 292-5779
steven.mccurdy@state.ma.us

Our Website Provides
Additional Helpful
Information:

mass.gov/orgs/massachusetts-clean-water-trust-mcwt



Message from the Chair

The Massachusetts Clean Water Trust (the Trust) is pleased to submit our Clean Water and Drinking Water State Revolving Fund (SRF) Annual Report for State Fiscal Year (SFY) 2018.

The Trust's SRF loan program is a collaborative effort between the State Treasurer's Office, the Executive Office for Administration and Finance, the Massachusetts Department of Environmental Protection (MassDEP) and borrower communities across the Commonwealth. To date, approximately \$2.4 billion in federal grants and state matching funds have supported nearly \$7 billion in clean water and drinking water planning and construction projects through a leveraged financing program.

Local leaders rely on easy access to below-market rate financing to maintain and improve water infrastructure. The Trust continues to do our part by providing subsidized loans backed by a AAA credit.

In SFY 2018, the Trust provided cities and towns approximately \$232.6 million in commitments for low interest rate loans, including \$7.6 million in principal forgiveness to 17 projects, which will support an estimated 1,395 construction and engineering jobs. The financing will help improve waterway quality and promote public health through projects such as combined sewer overflow removal, wastewater and drinking water treatment plant upgrades, sewer system construction, septic system repairs, treated water storage and transmission improvements.

Additionally, the Trust is in the process of soliciting projects for two new programs. An Incentivized Lead Service Line Replacement program was created to reduce the cost of full lead service line replacement for communities and homeowners, and an Asset Management Planning (AMP) Grant program was created to assist communities with completing or updating AMPs for wastewater, drinking water and stormwater systems. These new programs result from our deep commitment to supporting the Commonwealth's water infrastructure and the health of our residents.

I would like to take this opportunity to thank the staff of the Environmental Protection Agency Region 1 for their efforts during SFY 2018. I also would like to congratulate the staff of the Trust and MassDEP for a job well done.

Finally, I would like to thank the cities and towns in Massachusetts. Without the dedication of all involved, our program would not be a success. I look forward to continuing this critical work together.

Sincerely,



Deborah B. Goldberg
Chair
Massachusetts Clean Water Trust
www.mass.gov/treasury

Introduction

The Massachusetts Clean Water Trust (the Trust), in partnership with the Massachusetts Department of Environmental Protection (MassDEP), provides cities, towns and other eligible borrowers within the Commonwealth of Massachusetts (the Commonwealth) with below market rate loans for water infrastructure projects. MassDEP manages project development and approval while the Trust manages the funds disbursed to communities. Each year, MassDEP prepares the Intended Use Plan (IUP) of projects as required by the Environmental Protection Agency (EPA). Since its inception in 1989, it is estimated that 97% of Massachusetts residents have benefited from these essential projects.

The IUPs establish the Commonwealth's project priorities for the upcoming year. This is accomplished through two programs – the Clean Water State Revolving Fund (CWSRF) and the Drinking Water State Revolving Fund (DWSRF). The EPA requires reporting on both programs through the CWSRF Annual Report and the DWSRF Biennial Report. These reports have been combined into this report, which covers the state fiscal year (SFY) ending June 30, 2018.

The Trust receives funding from the EPA in the form of an annual grant, supplemented by state matching funds and the repayment of loans from borrowers. These funds are then loaned to cities, towns and other eligible borrowers at a subsidized 2% interest rate for 20 years, 2.4% interest rate for 21-30 years, or 0% interest for projects that remediate specific environmental concerns – such as nutrient enrichment reduction projects. To increase lending capacity, the Trust issues special obligation bonds that receive a AAA rating from all three major rating agencies. The Trust's lending and bond issuance programs are structured to ensure adequate cash flows for funding its loans and repaying its bonds to maturity. The Trust's bonds are secured by a combination of pledged sources, which include loan repayments, contract assistance from the Commonwealth and interest earnings on debt service reserve funds.

About this Report. This report is separated into three sections. The first section covers the financial reporting for both the CWSRF and DWSRF programs, which covers loans made and financial assistance provided throughout the state fiscal year. The second section is the SRF Financial Summary, which explains how the Trust finances the projects reported on in the previous sections. The third section is Program Specific Reporting, which discusses EPA grant requirements that the Trust and MassDEP are required to follow. In addition, program highlights have been placed throughout the report to provide context and insight on the operations of the SRF programs. To comply with 40 CFR § 35.3570(a)(4), each section will label reported information by the specific SRF program.





FINANCIAL REPORT

Clean Water and Drinking Water Annual Summary

Massachusetts continues to finance projects that focus on the development and rehabilitation of wastewater and drinking water infrastructure with the aim of promoting sustainability, energy efficiency and green infrastructure. The CWSRF and DWSRF programs provide additional subsidies to designated low-income Affordability Communities. The Trust and MassDEP perform outreach activities to help borrowers realize opportunities to implement energy efficiencies and alternative energy projects. These activities are balanced with the promotion of cost-effective projects that maximize the protection of public health.

In SFY 2018, the Trust continued to expand its programs by providing binding commitments for 40 clean water projects totaling \$98.7 million and 20 drinking water projects totaling \$133.9 million. The total dollar amount for the CWSRF includes the Community Septic Management Program (CSMP). The CSMP provides low interest financing to Massachusetts cities and towns to assist homeowners in the repair of failed septic systems.

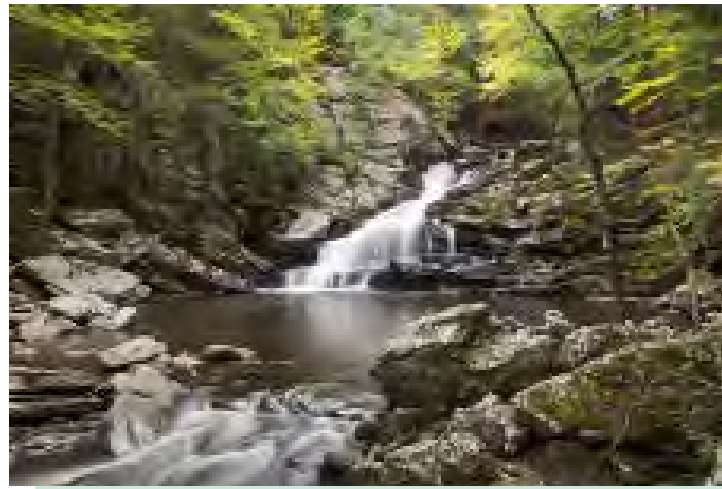
Binding Commitments

A binding commitment for a project is defined as a legal obligation by the Commonwealth to a borrower that defines the terms and timing for assistance through the SRF program. Please see Appendix B for a complete list of SFY 2018 binding commitments.

BINDING COMMITMENTS BY PROGRAM AND SFY

Dollar amount in millions

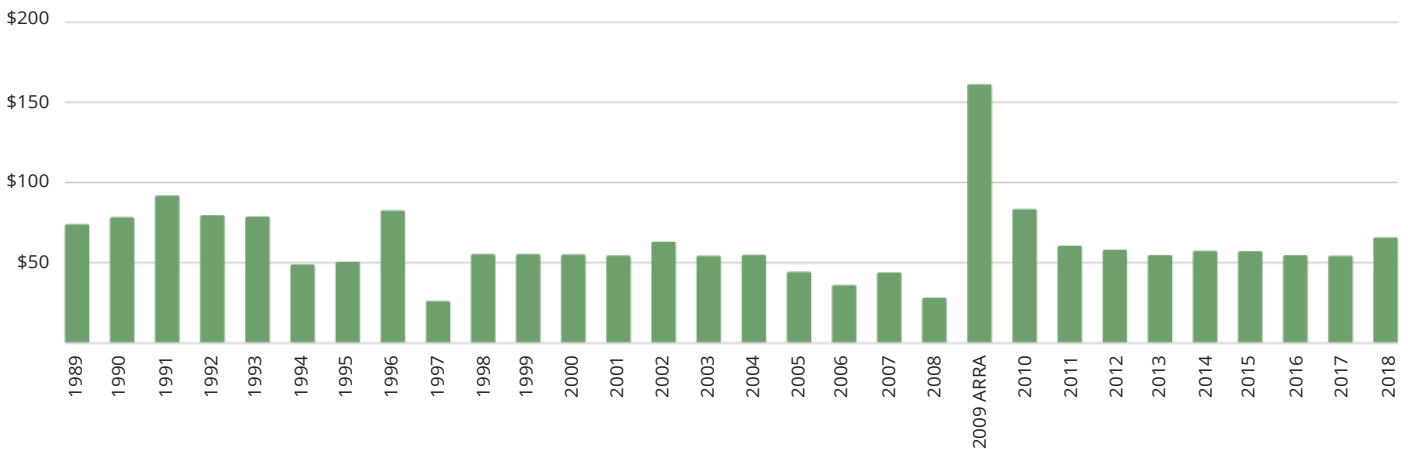
SFY	CWSRF		DWSRF	
	Amount	Loans	Amount	Loans
2018	\$98.7	40	\$133.9	20
2017	\$234.7	33	\$115.6	16



Grant Awards

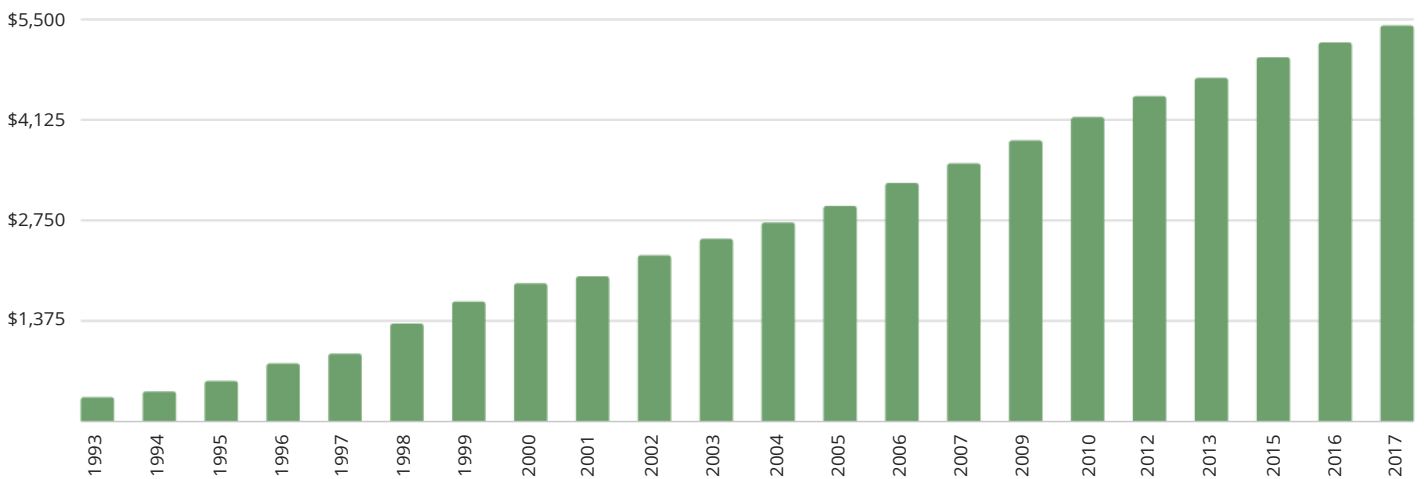
CWSRF GRANT AMOUNT BY YEAR

Dollar amount in millions



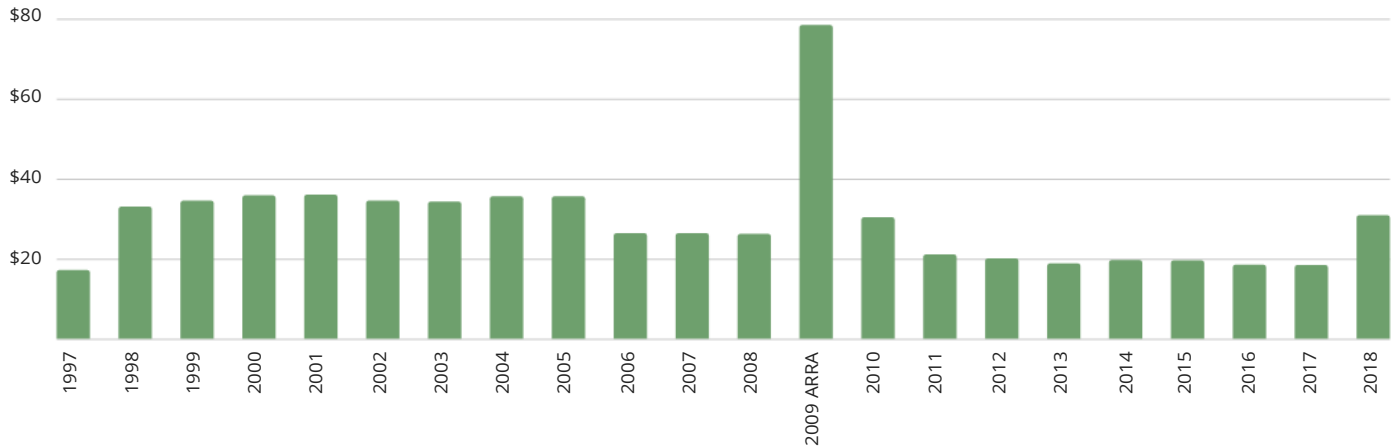
CWSRF CUMULATIVE LOANS BY YEAR

Dollar amount in millions



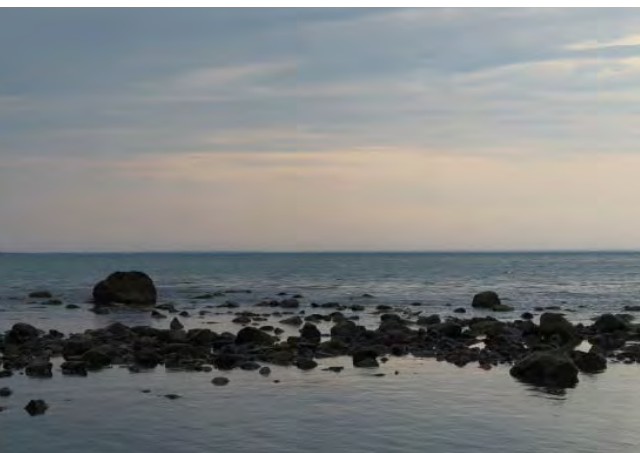
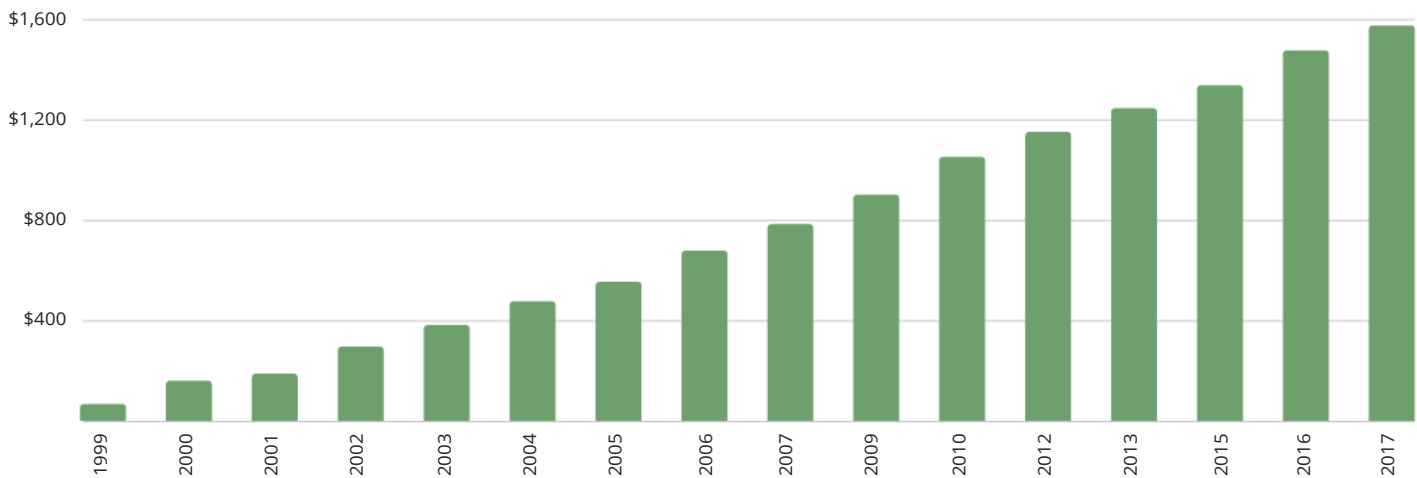
DWSRF GRANT AMOUNT BY YEAR

Dollar amount in millions



DWSRF CUMULATIVE LOANS BY YEAR

Dollar amount in millions



Disbursements

During SFY 2018, the Trust disbursed the following amounts for projects to borrowers through program project funds and interim loans.

AMOUNT DISBURSED AND NUMBER OF PROJECTS BY PROGRAM AND SFY

Dollar amount in millions

SFY	CWSRF		DWSRF	
	Amount	Loans	Amount	Loans
2018	\$154.2	100	\$55.3	36
2017	\$223.4	128	\$90.5	54

Interim Loans

Through the Trust’s interim loan program, funds are available to eligible projects on the IUPs throughout the year to provide construction financing, like a bond anticipation note. Borrowers can enter a short-term loan that enables projects to proceed prior to a Trust bond sale. The Trust can operate this program by extending the use of funds that have revolved back from loan repayments along with its state and federal grants (“SRF Program Funds”) as a source of capital. To make Trust financing even more appealing to borrowers, the Board of Trustees removed the interim loan interest rate and any associated fees in 2016. This change to the program makes interim loans from the Trust the least expensive way for local communities to access capital during construction.

INTERIM LOAN INFORMATION BY PROGRAM AND SFY

Dollar amount in millions

SFY	CWSRF				DWSRF			
	Number of Projects	Amount Drawn in SFY	Total Loan Amounts	Average Interest	Number of Projects	Amount Drawn in SFY	Total Loan Amounts	Average Interest
2018	66	\$126.1	\$373.0	0.016%	21	\$47.4	\$167.9	0.004%
2017	74	\$186.6	\$418.5	0.062%	23	\$51.2	\$95.9	0.04%



HIGHLIGHTED PROJECT

**Nantucket
Shimmo & PLUS Parcels Sewer Extension
\$15,689,515**

The Massachusetts Estuaries Project (MEP) was created to help identify current nitrogen loads to southeastern Massachusetts estuaries and evaluate local control solutions for reducing the nitrogen loading. The data from this analysis is utilized by MassDEP to establish the total maximum daily loads (TMDLs) for the area. In 2006, MEP reported that septic system reduction could greatly reduce nutrient enrichment and degradation of the Nantucket Harbor Watershed and increase the water quality.

A 2014 MassDEP-approved comprehensive wastewater management plan (CWMP) update identified the Nantucket Harbor Shimmo and Nantucket planning and land use services (PLUS) needs areas (these areas are either within or directly abutting the Town’s sewer district that were left out of the sewer district and includes 4 infill areas) as the highest rated needs areas. Both needs areas are within the Nantucket Harbor Watershed and contribute nutrient load to the Harbor via septic systems. The CWMP recommended that the Town collect, treat and discharge the wastewater from these two adjacent needs areas at the Town’s Surfside Wastewater Treatment Facility (WWTF).

Connecting these needs areas with the Surfside WWTF requires a hybrid approach of gravity sewers and low-pressure sewers to connect approximately 360 properties. For areas served by gravity sewers approximately 13,000 feet of sewer, two pump stations, and an additional 5,000 feet of force sewer mains will be installed. For areas served by low pressure sewers, 32,000 feet of sewer will be installed, and each property will be required to install an individual pump unit. The low-pressure approach was required due to the area topography. It is estimated that this project will be completed by October 2018.

Additional Subsidy

Massachusetts provided 10% of the Federal Fiscal Year 2017 grant as additional subsidy in compliance with EPA grant requirements.

AVAILABLE FUNDS FOR ADDITIONAL SUBSIDY BY PROGRAM AND SFY

Dollar amount in millions

SFY	CWSRF	DWSRF
	Dollar Amount	Dollar Amount
2018	\$4.5	\$3.1
2017	\$4.5	\$3.1

This additional subsidy is dedicated to communities that would not otherwise be able to afford projects. Massachusetts chose to apply these funds to communities that were deemed Affordability Communities based upon requirements outlined in the Water Resources Reform and Development Act (WRRDA) of 2014, an amendment to the Clean Water Act. Even though the DWSRF does not have to comply with the Clean Water Act, the Trust used the same methodology for both programs. Using the methodology outlined in WRRDA, which was approved by EPA Region 1, the Trust's formula considers the per capita income, population trend from 2000-2010 and the employment rate for each community to develop an adjusted per capita income. Each community is then ranked against the state average and communities below the state average are sorted into three tiers. Tier 3 is less than 60% of the state average, tier 2 is 60%-79.99% and tier 1 is 80%-99.99%. Tier 3 communities receive a share and a half of subsidy, tier 2 receives one share and tier 1 receives a half share. The Trust's formula provides the subsidy to communities that are most in need and provides all communities below the state average with an additional incentive to use the Trust.

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NUMBER OF ELIGIBLE COMMUNITIES BY AFFORDABILITY TIER AND SFY

Tier	SFY	
	2017	2018
1	74	74
2	93	95
3	61	69
Not Eligible	123	113

PERCENTAGE OF PRINCIPAL REDUCTION BY AFFORDABILITY TIER AND SFY

Tier	CWSRF		DWSRF	
	2017	2018	2017	2018
1	1.54%	—	1.65%	—
2	3.09%	9.37%	3.30%	3.11%
3	4.63%	14.05%	4.94%	4.67%

As of June 30, 2018, none of the additional subsidy from the 2017 grant has been disbursed. The funds should be disbursed within the next few months as the projects begin construction. The process for determining the allocation of this additional subsidy to eligible projects begins on June 30th to coincide with the final date for all contracts to be awarded. Of the additional subsidy funds from the 2016 grant, all but \$254,224 of the \$7.6 million have been expended. The loans for Chicopee (CWP-16-25) with a principal forgiveness amount of \$167,282 and Lowell (CWP-16-15) with a principal forgiveness amount of \$86,939 have yet to be drawn by the respective borrowers.

FEDERAL GRANT PROJECTS RECEIVING ADDITIONAL SUBSIDY

CWSRF				
Borrower	Tier	Loan Number	Eligible Project Cost	Principal Forgiveness
Gardner	3	CWP-17-23	\$6,822,078	\$958,805
Gardner	3	CWP-17-23-A	618,100	86,870
Gloucester	2	CWP-17-24	4,656,100	436,259
New Bedford	3	CWP-17-16	7,165,068	1,007,010
New Bedford	3	CWP-17-16-A	962,900	135,330
New Bedford	3	CWP-17-17	1,614,846	226,957
Revere	3	CWP-17-26	911,073	128,046
Revere	3	CWP-17-27	2,282,047	320,729
West Springfield	2	CWP-17-30	11,746,450	1,100,598
West Springfield	2	CWP-17-30-A	1,075,769	100,796
Total			\$37,854,431	\$4,501,400

DWSRF				
Borrower	Tier	Loan Number	Eligible Project Cost	Principal Forgiveness
Brockton	3	DWP-17-10	\$1,329,778	\$62,110
Fall River	3	DWP-17-08	3,074,306	143,593
Fall River	3	DWP-17-12	3,499,887	163,471
New Bedford	3	DWP-17-03	10,200,000	476,416
New Bedford	3	DWP-17-06	5,360,049	250,354
New Bedford	3	DWP-17-07	13,734,899	641,523
Revere	3	DWP-17-14	3,120,000	145,727
Wareham Fire District	3	DWP-17-09	14,000,000	653,904
Webster	2	DWP-17-04	10,000,000	311,383
West Springfield	2	DWP-17-13	6,914,958	215,319
Total			\$71,233,877	\$3,063,800

STATE REVOLVING FUND

Annual Financial Summary

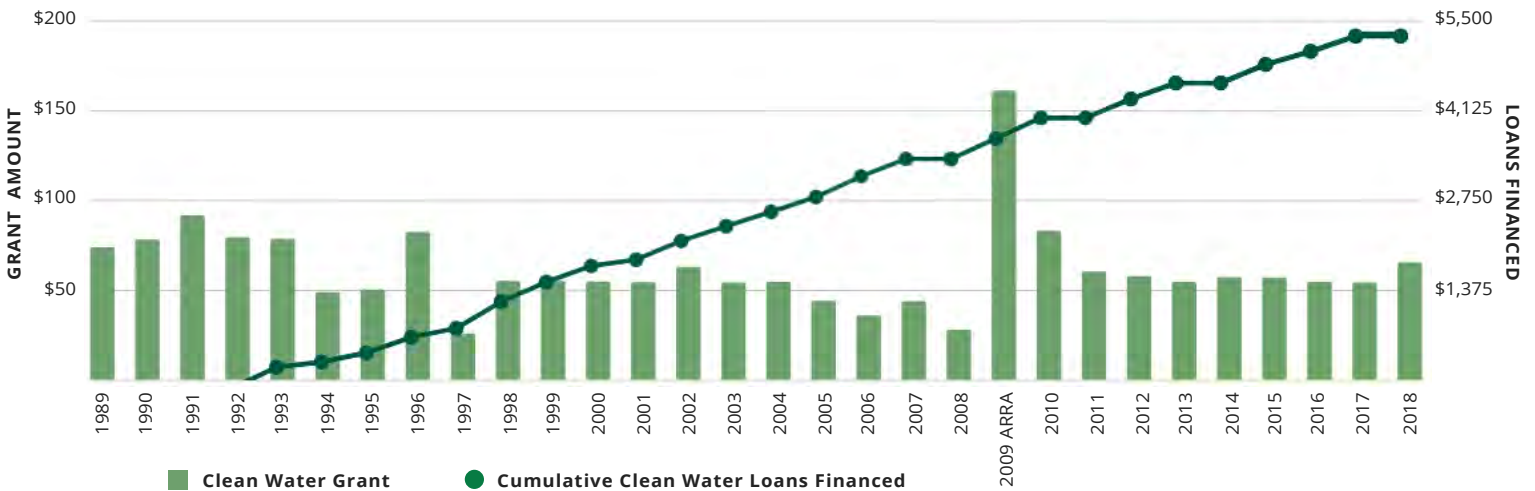
The following discussion provides additional details on the financial management activities of the SRF loan program.

Leveraged Financing Model

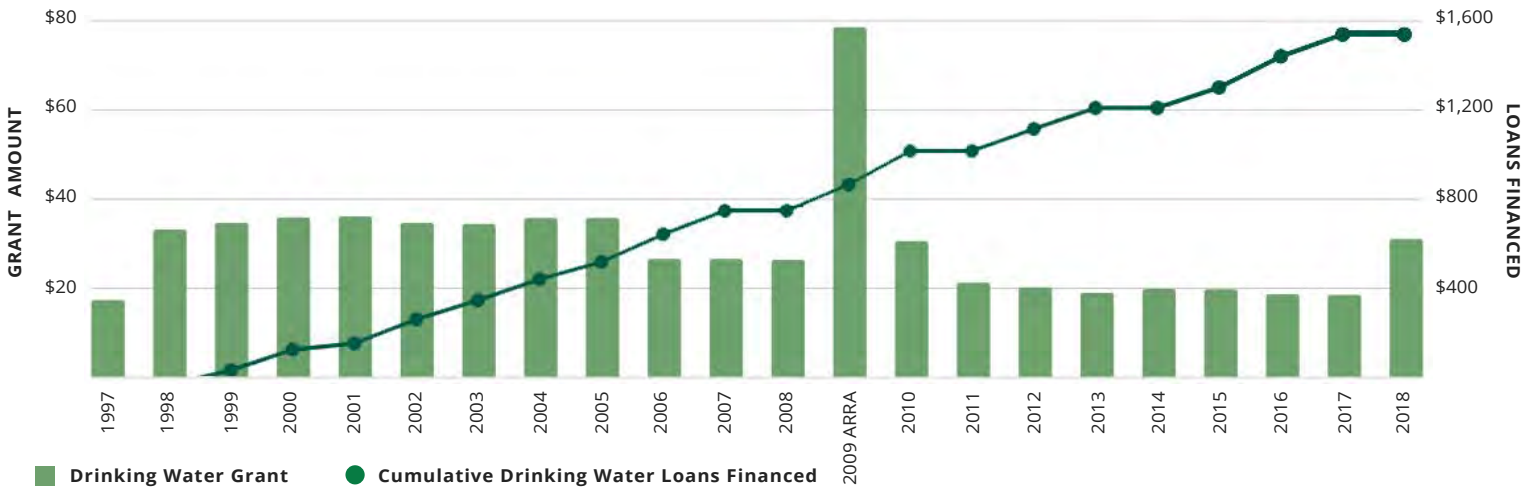
The SRF loan program receives funding from the EPA in the form of an annual grant, supplemented by state matching grants and the repayment of funds from borrowers. The Trust’s SRF loan program utilizes a “leveraged” financing model, under which SRF Program Funds are used as a source of security for revenue bonds (“SRF Bonds”) issued by the Trust. Proceeds from the SRF Bonds are used to fund loans to local cities, towns and other eligible borrowers for project costs.

The leveraged structure of the Trust’s program permits the Commonwealth to substantially increase the amount available to fund eligible project costs. Each federal grant and associated state matching grant dollar contributed to the program results in at least three dollars of project cost financing while assuring the perpetual nature of the revolving fund. The following charts demonstrate the lending ability of the Trust by comparing state and federal grants received, throughout the life of the program to total loans provided.

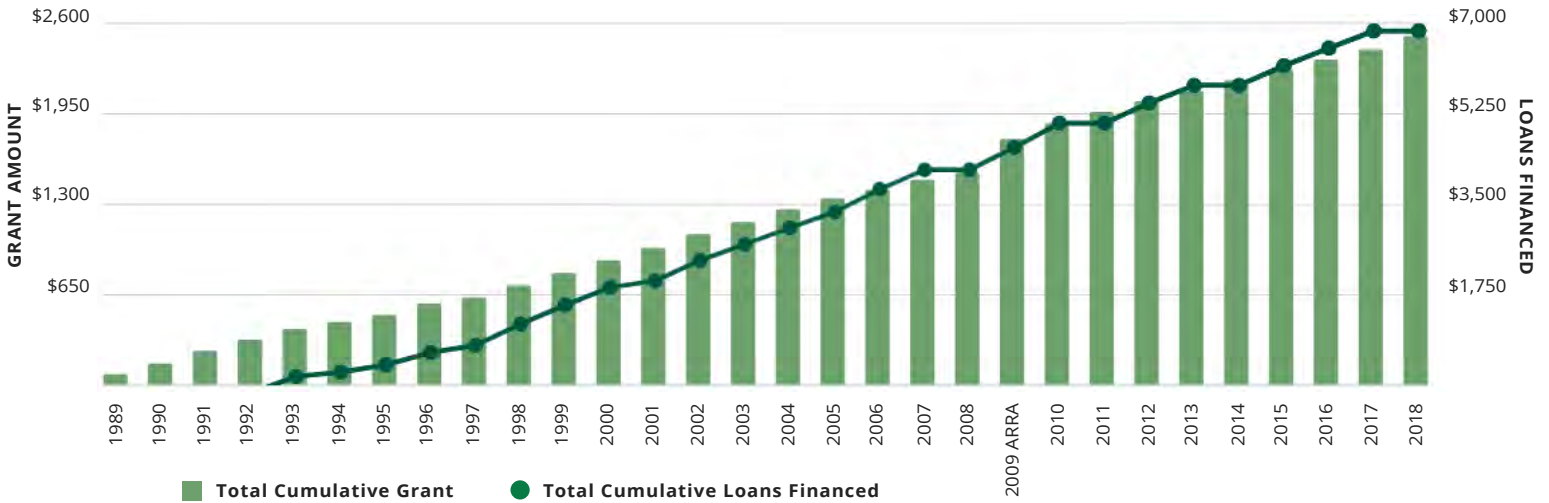
CWSRF GRANT AMOUNT COMPARED TO CUMULATIVE LOAN AMOUNTS BY SFY
Dollar amount in millions



DWSRF GRANT AMOUNT COMPARED TO CUMULATIVE LOAN AMOUNTS BY SFY
Dollar amount in millions



CUMULATIVE LOAN COMPARED TO CUMULATIVE GRANTS COMBINED
Dollar amount in millions

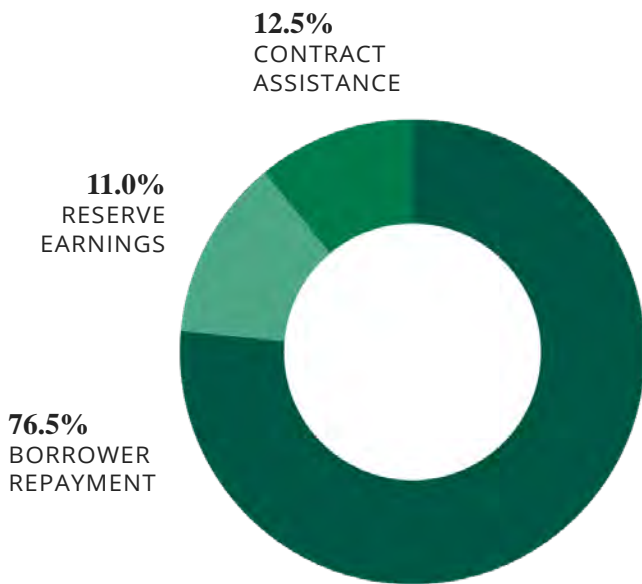


The Trust's lending and bond issuance programs are structured to ensure adequate cash flows for funding its loans and repaying bonds to maturity. Depending on the type of projects being financed, the terms of the loans to borrowers, and the subsidy levels to which the borrowers are entitled, the Trust applies its SRF Program Funds to fund either direct loans to borrowers or invest in reserve funds, which are then pledged as a source of payment and security for the SRF Bonds.

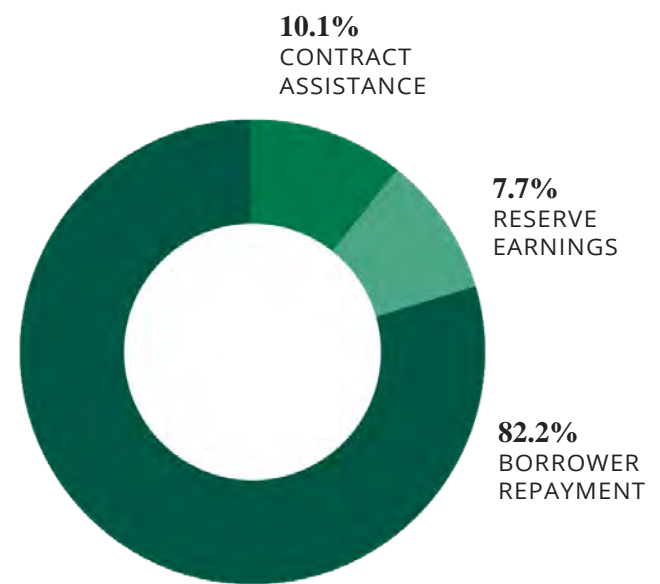
SRF Bonds: Sources of Repayment

The sources of repayment for the Trust's SRF Bonds are made from the following sources: (1) loan repayments from borrowers; (2) earnings on the federal grants and state matching grants pledged as security to the SRF Bonds, including applicable interest earnings on reserve funds and interest payments on direct loans pledged to secure such bonds; and (3) subsidy payments provided by the Commonwealth, known as contract assistance.

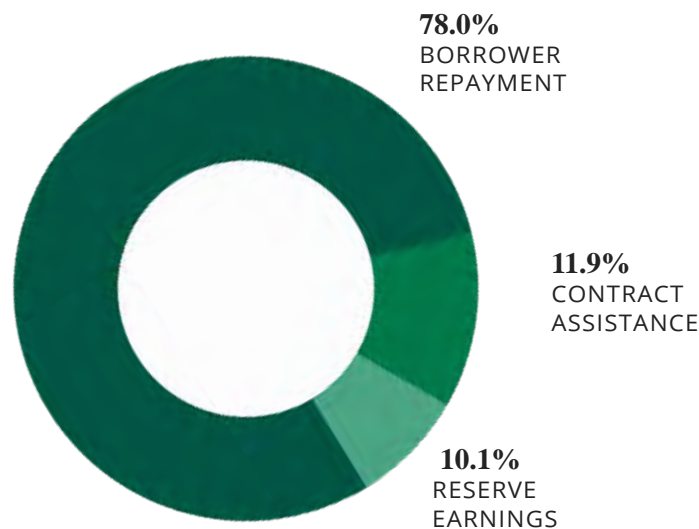
**SOURCES OF REVENUE FOR
CWSRF SFY 2018**



**SOURCES OF REVENUE FOR
DWSRF SFY 2018**



**TOTAL SOURCES OF REVENUE
FOR SFY 2018**



PLEGGED DIRECT LOANS

The Trust uses its program equity to fund certain loans to borrowers rather than bond proceeds. These direct loans are pledged as additional security to SRF Bonds. As the direct loans are repaid, the interest payments on those loans are applied to debt service on the bonds, thus providing a subsidy to the loans funded with bond proceeds. The principal payments of the pledged direct loans are pledged as further security for the related series of SRF Bonds in the case of default on loans funded with bond proceeds. Since 2012, the Trust has used the Pledged Direct Loan approach. As of June 30, 2018, the Trust has \$448.8 million in pledged direct loans.

COMMONWEALTH CONTRACT ASSISTANCE PAYMENTS

The Commonwealth makes assistance payments for borrowers by paying a portion of debt service on the related series of the Trust's SRF Bonds. This reduces the borrower's loan repayment obligation. The contract assistance pays the difference between the market rate of the bonds and the subsidized interest rate on the loans. The obligation of the Commonwealth to make such payments to the Trust is a general obligation of the Commonwealth, for which its full faith and credit are pledged. Contract assistance is appropriated annually in the Commonwealth's operating budget.

- **CWSRF.** To date, the Trust has received \$1.0 billion in clean water contract assistance with a future commitment of \$197.2 million, for a total commitment by the Commonwealth of \$1.2 billion. Commonwealth contract assistance accounted for approximately 12.5% of SFY 2018 debt service, totaling \$35.7 million in assistance applied.

- **DWSRF.** To date, the Trust has received \$156.5 million in drinking water contract assistance with a future commitment of \$56.7 million, for a total commitment by the Commonwealth of \$213.2 million. Commonwealth contract assistance accounted for approximately 10.1% of SFY 2018 debt service, totaling \$9.9 million in assistance applied.

DEALLOCATION OF FUNDS

For all bond series issued prior to Series 16, on each date that the Trust makes principal payments for a series of SRF Bonds, or borrowers pay down the principal amount of the related pledged loans, the amount of pledged assets is reduced proportionately. The amounts released are transferred either to the Pool Program Reserve Fund and then to the Deficiency Fund or directly to the Deficiency Fund.

These released funds are available to cure shortfalls in any bond series. If not needed to cure a shortfall, the released funds are transferred to the Program Equity Fund which assures the perpetual nature of the revolving fund.

Beginning with Series 18, SRF Bonds have been governed by the Master Trust Agreement (MTA). The MTA simplifies the flow and deallocation of funds. The MTA deallocates funds using the same method as prior bond series, but when funds are released they flow directly to the Program Equity Fund. The Program Equity Fund is then available to cure shortfalls in all bond series governed by the MTA and prior bond series. Once it has been determined that there are no shortfalls, the funds are then available to be disbursed to new loans, thus assuring the perpetual nature of the revolving fund.

BORROWER REPAYMENTS

Each borrower is obligated to repay the principal amount of its loan at a subsidized interest rate of 2% or less. Those with extended term financing, greater than 20 years, receive a subsidized interest rate that is higher than 2%. Series 20 which closed in April of 2017, had a subsidized interest rate of 2.4% for extended term financing loans.

- **CWSRF.** In SFY 2018, borrower principal and interest loan repayments accounted for approximately 76.5% of debt service, totaling \$217.8 million.

- **DWSRF.** In SFY 2018, borrower principal and interest loan repayments accounted for approximately 82.2% of debt service, totaling \$80.9 million.

The Trust has always pledged assets as additional security on its bonds. Since 2012, the Trust has pledged certain direct loans funded with SRF Program Funds as additional security for its series of revenue bonds, rather than utilizing a traditional reserve fund. The interest payments the Trust receives from the pledged assets is used to pay a portion of debt service, while the principal payments received are available as additional security and recycled back to SRF program funds after debt service obligations have been met.

- **CWSRF.** As of June 30, 2018, the Trust has \$316.6 million of pledged direct loans outstanding.

- **DWSRF.** As of June 30, 2018, the Trust has \$132.2 million of pledged direct loans outstanding.

Reserve Fund

In the past, the Trust has applied a portion of its SRF Program Funds to establish reserve funds to secure a series of its SRF Bonds. Those investment earnings are then applied to pay a portion of the debt service on the related SRF Bonds, thereby supplementing the loan repayment obligation of the borrowers of the leveraged loans funded by such SRF Bonds. Pledged assets are initially held at this level as security for all SRF Bonds at an amount between 33% and 50% of the outstanding principal. As of June 30, 2018, the Trust held the amounts listed above in program specific debt service reserve funds invested in guaranteed investment contracts (GIC), and US Treasury and Agency obligations.

SUMMARY OF DEBT SERVICE RESERVE FUND BALANCE

Dollar amount in millions

	CWSRF	DWSRF	Total
GIC Investments	\$336.2	\$87.7	\$423.9
US Treasury Investments	\$223.9	\$39.8	\$263.7
Total	\$560.1	\$127.5	\$687.6

Interest Earnings

Earnings on these investments are applied to pay a portion of the debt service on the related series of SRF Bonds. In SFY 2018, reserve fund earnings applied to current debt service payments are listed in the table below. As bonds are repaid, reserve funds are released and returned to their respective equity fund. The amount released from program specific equity funds and made available for new loans in SFY 2018 are listed below.

DEBT SERVICE RESERVE FUND INTEREST EARNINGS

Dollar amount in millions

SFY	CWSRF		DWSRF	
	Percent of Debt Service	Total Amount	Percent of Debt Service	Total Amount
2018	11.0%	\$31.1	7.7%	\$7.6
2017	11.7%	\$34.0	8.6%	\$8.2

DEBT SERVICE RESERVE FUNDS RELEASED TO PROGRAM EQUITY FUNDS

Dollar amount in millions

SFY	CWSRF	DWSRF
2018	\$72.5	\$28.7
2017	\$77.4	\$26.2



HIGHLIGHTED PROJECT
Eastham
Town-Wide Water System
\$9,364,870

The Town of Eastham, in its 2014 annual meeting, approved the establishment of a municipal water system for one third of the town. This would replace the small community public water systems and individual private wells that were previously in use. Sampling of the water in the Town had indicated impaired water quality. To meet the standards of the Safe Drinking Water Act, a municipal system had to be created.

A second vote in 2015 expanded the project to be town-wide. Starting in 2015, the first phase of water system development included the construction of two well fields, a 750,000-gallon storage tank, and 45 miles of water distribution piping. The Trust provided \$39.3 million in funding for this phase.



Phase 2, which the Trust has committed \$13.3 million between the 2016 and 2017 IUPs, will be used to construct the remainder of the distribution system so every property in the Town can connect to the water system. This included the installation of new well field equipment and approximately 19 miles of distribution system piping. Phase 2 expands upon Phase 1 by installing laterals to the transmission mains which will provide service to the remaining two-thirds of the Town's properties (approximately 4,600 parcels).

In total, the Trust has provided or committed over \$52 million for the establishment of Eastham's municipal water system.

	No. of Loans	Combined Amount
Phase 1	3	\$39,363,982
Phase 2	2	\$13,364,870
Total	5	\$52,728,852



PROGRAM SPECIFIC REPORTING

Clean Water State Revolving Fund (CWSRF)

The following discussion provides additional details that are specific to the CWSRF program and its related activities.

Administrative Expenses

For SFY 2018, \$2.9 million of annual CWSRF grant administration funds were spent by MassDEP. This consisted of \$1.6 million in federal funds and \$1.3 million in state matching funds. These costs were associated with construction management of the CWSRF program. An additional \$2.3 million was spent from the Trust's Administrative Fund to supplement MassDEP administrative costs for both the CWSRF and DWSRF programs.

Assistance Program for Lead and Copper in School Drinking Water

In SFY 2017, the Trust funded \$1.36 million of the Assistance Program for Lead and Copper in School Drinking Water. This is in addition to the \$1.39 million of funds provided for the program in SFY 2016. The program was approved by the Board of Trustees for \$2.75 million. It provides hands-on technical assistance and no-cost lab analysis to schools for collecting one round of samples at all fixtures that are used for drinking, food preparation, and medical care. Schools were also given the information necessary to take remedial actions to address elevated lead and copper levels, and to establish and implement ongoing sampling programs.

Of the approved \$2.75 million, approximately \$600,000 in unspent funds has been made available to continue the assistance program during the 2017-2018 academic year in schools that have not participated to date. As a result, sampling help was offered to more schools in 2018 and approximately 200 schools were expected to be tested. The second phase of the program is scheduled to end in December 2018.

Green Project Reserve (GPR)

Under the FFY 2016 Omnibus Appropriations Bill, Congress required that at least 10% of the CWSRF grant be used to fund “green infrastructure, water or energy efficiency improvements, or other environmentally innovative activities.” For SFY 2018, this required that \$4.5 million be allocated towards GPR projects. MassDEP identified and highlighted three projects that meet EPA guidelines for GPR. Most of these projects were not entirely green; therefore, MassDEP had to determine the exact value of the GPR portions. The total value of these projects was approximately \$69.2 million with GPR components being valued at \$5.8 million. MassDEP expects these projects to meet the minimum for GPR projects.

Community Septic Management Program

The Community Septic Management Program (CSMP) provides loans to Massachusetts communities for assisting homeowners in the repair of failed septic systems. With the CSMP, the Trust makes low-interest rate loans to communities who, in turn, loan the funds directly to homeowners for up to 20 years. Loans to homeowners are secured through a betterment on the property. This program allows municipalities to provide access to capital for home septic repair at a subsidized interest rate.

Prior to SFY 2014, this program was funded through a onetime appropriation by the State Legislature. Those funds have been fully expended, and the program has now been rolled into the CWSRF program as a non-point source project. During SFY 2018, five loans were made to Massachusetts communities totaling \$1.95 million.

Since the program’s inception, nearly 8,000 septic systems have been repaired or replaced in 145 communities throughout Massachusetts.

Transfer of Funds to the Drinking Water State Revolving Fund

Section 302 of the 1996 Safe Drinking Water Act Amendments allows states the flexibility to move some funds between CWSRF and DWSRF programs to better address specific state priorities. The EPA allows an equivalent of up to 33% of the DWSRF grant to be transferred between the SRF programs.

The CWSRF IUP capacity frequently allows Massachusetts to finance all the clean water projects that request financing in a given year. However, one third to one half of the proposed projects go unfunded each year for the DWSRF IUP. Transferring a limited amount of funds from the CWSRF to the DWSRF this year and in the future will allow for modest increases in the capacity of the DWSRF and reduce this imbalance in the ability to provide financing.

The level of federal grant funding of the Massachusetts DWSRF is insufficient to meet the need for project financing. Massachusetts transferred funds from the CWSRF to the DWSRF program in the amount of \$5.0 million (33% of the \$15.3 million 2017 DWSRF Grant). To date the Trust has transferred \$26.2 million to supplement the DWSRF grant.

Drinking Water State Revolving Fund (DWSRF)

The following discussion provides additional details that are specific to the DWSRF program and its related activities.

Small Systems

The total DWSRF funds available for the 2017 IUP was \$125.1 million. 15% of that amount is \$18.7 million. As reported in the DWSRF National Information Management System (NIMS), the Trust committed to \$13.9 million in small system financing. There was an insufficient number of applications for small system projects to achieve the 15% requirement. MassDEP elevated all the small system projects to the IUP to come as close to 15% as possible.

The DWSRF program uses significant outreach efforts for small system projects throughout the Commonwealth. The 2% Small Systems Technical Assistance set-aside is used to emphasize the SRF as a low-cost source of financing. Even with these efforts to reach and recruit small system communities, the Trust is concerned about an insufficient number of applications to meet the 15% requirement.

Drinking Water Set-Asides

MassDEP continues to use set-aside funds as outlined in the annual IUP. The following sections describe the basic programs and accomplishments.

4% — ADMINISTRATION

MassDEP uses 4.9 fulltime equivalent (FTE) staff members to administer the DWSRF program. These FTEs utilize 4% set-aside funding to accomplish the following tasks: developing program selection criteria, application ranking and rating, project development, construction inspections, invoice payment, data management and administrative support functions.

2% — SMALL SYSTEM TECHNICAL ASSISTANCE

• **Municipal Services Support.** MassDEP uses two FTE staff members to support Municipal Services. These FTEs provide training and technical assistance (compliance and operational issues) to small systems throughout Massachusetts. During the past year, MassDEP also worked with outside training and technical assistance providers. The Massachusetts Rural Water Association, New England Water Works Association,

and EPA’s Environmental Finance Center also provided training to public water suppliers.

• **Contract Services.** MassDEP funded work under an Interagency Service Agreement (ISA) (no cost extension) with the University of Massachusetts – Amherst (UMass). The ISA required UMass to provide technical assistance, training and outreach on a variety of topics including (but not limited to): very small system operator training, opening and closing a seasonal system, Total Coliform Rule (TCR) compliance, manganese removal, annual statistical reporting and regulatory updates, pump and motor maintenance, rate setting, board training, public relations, disinfection, sampling and exam review. The ISA also included funding from the 15% set-aside.

10% — STATE PROGRAM MANAGEMENT

MassDEP used approximately 10 FTE staff members to administer the DWSRF program. These FTEs utilize 10% set-aside funding for public water system support, including the following programs: sanitary survey, source and wellhead protection, emergency response, capacity development, operator certification, consumer confidence report assistance, adoption and implementation of new regulations, evaluation and maintenance of existing federal rules, planning, outreach, MassDEP and data management, engineering and construction supervision, compliance supervision and other DWSRF program activities. Some highlights of the programs in SFY 2018 include:

• **Sanitary Survey Program.** MassDEP Drinking Water staff is responsible for evaluating the technical, financial and managerial capability of community, non-transient non-community and transient non-community public water systems. During the last year the Drinking Water staff has completed 444 evaluations on existing systems.

SANITARY SURVEYS COMPLETED BY MASSDEP IN SFY 2018

Type of Public Water System	Surveys Completed
Community Systems	178
Non-Transient Non-Community Systems	81
Transient Non-Community System	185
Total	444

- **Operator Certification.** MassDEP has a very active operator certification program. The program activities have been integrated into daily staff activities. Program activities range from chairing the Board of Certification of Drinking Water Operators to providing general and specialized assistance for drinking water operators at all levels.

- **Wellhead Protection Program.** Technical assistance was provided to water supply systems for wellhead protection compliance, the development of protection plans, and determining monitoring waiver eligibility.

- **Capacity Development.** During the course of conducting sanitary surveys on public water systems, MassDEP staff identified 1,886 technical, financial, or managerial deficiencies and provided corrective action assistance to ensure compliance. MassDEP’s capacity development strategy focuses on improving the technical, financial, and managerial operations of both new and existing public managerial operations.

15% — LOCAL ASSISTANCE

MassDEP used 15 FTEs from the 15% local assistance set-aside to support the public water system supervision programs. These programs include sanitary surveys, adoption and implementation of new regulations, registration of new systems, evaluation and maintenance of existing federal rules, planning, outreach, data management, engineering and construction supervision. Some highlights of the programs in 2018 include:

- **Source Protection Support.** The registration of 11 new public water systems, along with continuing the implementation and monitoring of the chemical monitoring waiver program has provided the incentive for source protection as well as promoting preparedness and sustainability. Source protection technical assistance was provided during the 444 sanitary surveys that were completed throughout the year.

MASSDEP REGISTRATION OF NEW SMALL PUBLIC WATER SYSTEMS IN SFY 2018

Type of Public Water System	No. of Systems
Community Systems	3
Non-Transient Non-Community Systems	1
Transient Non-Community System	7
Total	11

- **Contract Services.** MassDEP has contracted to fund Information Technology (IT) staff to assist with data management support for public water systems and the implementation of the Safe Drinking Water Act programs. Key activities include reporting, program evaluation as well as database maintenance and improvement. MassDEP signed an ISA (no cost extension) with UMass for the same services listed under the 2% Set-Aside: Small System Technical Assistance.



HIGHLIGHTED PROJECT
New Bedford
Lead Service Line Replacement Program
\$10,555,700

The Lead Service Line Replacement Program – Phase I project is the first phase of an aggressive, multi-year program to replace all remaining Lead Service Lines (LSLs) in the City of New Bedford. According to the New Bedford Department of Public Infrastructure, there are approximately 3,000 LSLs connecting water mains to property water lines and 1,800 privately owned LSLs running to homes in New Bedford.

The first phase of this program will replace about 1,000 to 1,500 LSLs in a two-year period throughout the City’s water distribution system. The adverse health effects of lead exposure in children and adults are well documented, and no safe blood level threshold in children has been established. Lead exposure causes neurological and cognitive impairments in children and fetuses, and can cause high blood pressure and kidney problems in adults.

The City is committed to protecting public health and continuing to provide safe drinking water to all its residents. This aggressive LSL replacement program demonstrates that commitment to maintain continued compliance with the EPA’s Lead and Copper Rule.

Program Certifications

Extended Term Financing

The Trust continues to offer extended term financing up to 30 years to its borrowers. Extended term financing is available for CWSRF and DWSRF projects that can demonstrate the project's useful life is at least as long as the term of the loan. By offering extended term financing, the Trust provides an equivalent interest rate subsidy for a 30-year loan, as it does for a 20-year loan, based off current market conditions near the time of the loan closing. The interest rate for extended term financing is anticipated to be 2.4%.

American Iron and Steel

MassDEP has incorporated the American Iron and Steel (AIS) requirements into its Loan Application and Plans and Specifications Preparation Package. The necessary language has also been added in the Project Regulatory Agreement and the Financing Agreement for loans. All projects during the reporting period were subject to the AIS requirements because all projects had plans and specifications submitted, or contracts finalized after the AIS effective date of January 17, 2014.

Federal Funding Accountability and Transparency Act

In compliance with the Federal Funding Accountability and Transparency Act (FFATA), the Trust reports recipient or subrecipient awards for any amount equaling \$25,000 or greater in the FFATA Subaward Reporting System (FSRS) at www.fsr.gov. The loans used by the Trust for FFATA Reporting can be found in Appendix B of this report.

Davis Bacon

The amendments to the Clean Water Act, as part of WRRDA, apply the Davis-Bacon Act requirements to all treatment works projects going forward. The Davis-Bacon requirements do not apply to nonpoint source or decentralized wastewater treatment projects. MassDEP ensures that the required Davis Bacon language is included in contracts and conducts field verifications of project compliance with the wage rate requirements.

Disadvantaged Business Enterprise (DBE) Certifications

During 2016 and the first half of 2017, MassDEP and the Trust, completed a DBE review and submitted the results to EPA for approval. On July 27, 2017, EPA Region 1 approved new DBE goals of 4.2% for minority-owned business enterprises (MBE) and 4.5% for women-owned business enterprises (WBE). Projects receiving SRF financing must meet those goals. Proponents unable to meet the targets may seek a waiver for the requirement, if it can be demonstrated that a 'good faith effort' was undertaken to achieve those goals.

Compliance with Federal Cross-Cutters

The loan contract requires that loan recipients comply with applicable federal crosscutting authorities. The state is required to comply with applicable federal crosscutting authorities by the assistance and operating agreements it signs with the EPA and by applicable federal regulations.

Compliance with Grant Conditions

By signing the CWSRF and DWSRF capitalization grants, the Trust agreed to do three things: abide by all conditions of the grant, follow the statutory authorities in the Clean Water Act Title VI and Safe Drinking Water Act Section 1452, and implement regulations in 40 CFR Parts 31 and 35.

HIGHLIGHTED PROJECT

Uxbridge WWTF BNR and Infrastructure Upgrade \$42,800,00

The Town of Uxbridge operates a wastewater treatment facility (WWTF) which was constructed in 1979. The only upgrade to the facility was the installation of a lime tower in 2007. Because treatment effluent is discharged to the Blackstone River and the receiving water is the Narragansett Bay, the facility is governed by EPA's National Pollutant Discharge Elimination System (NPDES) permit.

The Town was issued a new NPDES permit in 2013. The Town would not be able to meet the conditions of the permit with its existing infrastructure, which led to an EPA consent order in June 2014. Negotiations by the Town with MassDEP and EPA gave the Town until 2020 to come into full compliance with the permit. The Town is currently implementing the recommended plan presented in the Comprehensive Wastewater Management Plan.

These improvements include:

- Renovating, replacing and repairing physical building structures
- Replacing heating, ventilation and air conditioning (HVAC), electrical components and generators which have reached or surpassed useful life
- Upgrading the septage receiving building and mechanical equipment to be more efficient
- Installing a larger capacity tank
- Replacing the existing chlorination system with an ultraviolet (UV) disinfection system
- Replacing mechanical equipment in the sludge holding tank and sludge pumping station
- Replacing mechanical equipment in the existing gravity thickener and constructing a new gravity thickener to provide redundancy in sludge processing
- Replacing mechanical equipment in existing primary clarifiers
- Implementing a supervisory control and data acquisition (SCADA) system
- Replacing the West River Pump Station which is no longer structurally sound



Appendix A

Clean Water and Drinking Water Financial Tables

CWSRF FINANCIAL TABLES BY SFY

ANNUAL GRANT AWARDS				
	2018		2017	
Federal CWSRF Grant	\$45,014,000		\$45,363,000	
State Matching Funds	9,002,800		9,072,600	
Total Federal & State Grant Awards	\$54,016,800		\$54,435,600	

ANNUAL BIDDING COMMITMENTS				
	2018		2017	
Binding Loan Commitments Issued	\$98,660,833	40	\$234,705,206	33

ANNUAL DISBURSEMENTS				
	2018		2017	
Clean Water Interim Loans	\$126,061,909	66	\$186,932,960	74
Pool Program Project Loans	28,088,656	34	36,787,125	54
Total Disbursements	\$154,150,565	100	\$223,420,085	128

FINANCIAL RESULTS FROM PROGRAM INCEPTION				
	2018		2017	
Federal CWSRF Grant	\$1,510,987,761		\$1,465,973,761	
State Matching Funds	275,586,092		266,583,292	
Total Federal & State Grant Awards	\$1,786,573,853		\$1,732,557,053	

	2018		2017	
Total Clean Water Assets	\$4,183,198,000		\$4,454,453,000	
Total Loans Financed	\$5,418,910,721		\$5,418,910,721	

Appendix A

Clean Water and Drinking Water Financial Tables

DWSRF FINANCIAL TABLES BY SFY

ANNUAL GRANT AWARDS				
	2018		2017	
Federal DWSRF Grant	\$15,319,000		\$15,451,000	
State Matching Funds	3,063,800		3,090,200	
Total Federal & State Grant Awards	\$18,382,800		\$18,541,200	

ANNUAL BIDDING COMMITMENTS				
	2018		2017	
Binding Loan Commitments Issued	\$133,920,615	20	\$115,645,985	16

ANNUAL DISBURSEMENTS				
	2018		2017	
Drinking Water Interim Loans	\$47,381,967	21	\$51,147,312	23
Pool Program Project Loans	7,912,639	15	39,369,165	31
Total Disbursements	\$55,294,606	36	\$90,516,477	54

FINANCIAL RESULTS FROM PROGRAM INCEPTION				
	2018		2017	
Federal DWSRF Grant	\$525,789,100		\$510,470,100	
State Matching Funds	94,714,620		91,650,820	
Total Federal & State Grant Awards	\$620,503,720		\$602,120,920	

	2018		2017	
Total Drinking Water Assets	\$1,259,971,000		\$1,346,035,000	
Total Loans Financed	\$1,575,306,608		\$1,575,306,608	

Appendix B

SRF Binding Commitments for SFY 2018 by Program

CWSRF BINDING COMMITMENTS FOR SFY 2018				
PRA No.	Government Entity	Agreement Date	Project Description	Commitment Amount
CW-13-10-A	Chatham	12/01/2017	Collection System Extension and Improvements	\$3,147,004
CWP-16-25	Chicopee	08/01/2017	Bay State Road and Clarendon Avenue Area Separation	3,611,695
CWT-17-07	Cohasset	08/01/2017	Community Septic Management Program	250,000
CWP-16-32	Dartmouth	07/01/2017	Installation of New UV Disinfection System	1,899,077
CWT-17-06	Easton	07/01/2017	Community Septic Management Program	500,000
CW-16-33	Easton	12/01/2017	Queset Commons Sewer Extension	3,210,870
CWT-17-31	Essex	12/01/2017	Community Septic Management Program	200,000
CW-17-21	Fall River	12/01/2017	CSO Facilities Plan	1,000,000
CW-17-22	Fall River	12/01/2017	Wastewater Treatment Facilities Plan	2,000,000
CWP-18-03	Fall River	04/01/2018	CSO Abatement Program — Middle Street	5,021,600
CW-16-24	Gloucester	10/01/2017	Rehab of Gloucester Ave and Breezy Pt. Pump Stations	1,365,441
CW-17-25	Gloucester	12/01/2017	Utility Master Plan	1,200,000
CWT-18-01	Hanson	02/01/2018	Community Septic Management Program	500,000
CWP-16-34	Hopedale	08/01/2017	Hopedale WWTF Improvements	5,043,179
CW-16-14	Lawrence	09/01/2017	Sewer System Evaluation Survey	2,700,000
CWP-16-15	Lowell	08/01/2017	CIP Phase - WWTF and Infrastructure Upgrades	1,877,061
CW-16-43	MWRA	12/01/2017	Wastewater Treatment Plant and Sewer Improvements	3,394,837
CW-16-42	MWRA	12/01/2017	Caruso Pump Station	2,194,852
CW-17-34*	MWRA	06/01/2018	Wastewater Treatment Plant and Sewer Improvements	3,204,025
CW-17-35*	MWRA	06/01/2018	Remote Headworks Upgrade	4,786,700
CW-17-36*	MWRA	06/01/2018	Clinton WWTP Phosphorous Removal	3,759,930
CW-17-01	Nantucket	08/01/2017	Shimmo and PLUS Parcels Sewer Extension	1,587,750
CW-16-36	Nantucket	08/01/2017	Shimmo and PLUS Parcels Sewer Extension	14,101,765

Appendix B

SRF Binding Commitments for SFY 2018 by Program

CWSRF BINDING COMMITMENTS FOR SFY 2018				
PRA No.	Government Entity	Agreement Date	Project Description	Commitment Amount
CW-17-20	Nantucket	04/01/2018	I/I and Flow Metering Study	161,235
CW-18-05	Nantucket	05/01/2018	Emergency Sewer Force Main Assessment Project	5,296,200
CW-16-37	New Bedford	07/01/2017	Supplemental WW and SW Plan	1,000,000
CW-17-10	New Bedford	04/01/2018	WW Collection System Investigations Program	2,996,600
CW-17-09	New Bedford	04/01/2018	MS4 Permit Compliance and Reporting	499,700
CWT-18-02	Norton	02/01/2018	Community Septic Management Program	\$500,000
CWP-15-08-A	Norwood	11/01/2017	Underdrain Area Sewer Rehab	414,356
CWP-16-07-A	Plymouth	09/01/2017	Emergency Sewer Force Main Repairs and Rehabilitation	3,986,181
CWP-15-29-A	Revere	02/01/2018	Sewer Rehabilitation	754,103
CWP-16-17	Revere	08/01/2017	Phase VII Construction- I/I, IDDE, P.S. and Drainage	4,526,264
CW-17-28	Revere	05/01/2018	Illicit Connection and Sump Pump Investigations	600,000
CW-17-29	Revere	05/01/2018	Phase IX Field Investigations - I/I and IDDE	1,200,000
CWP-16-31	Southbridge	07/01/2017	Bio-Tower Upgrade/Replacement	1,689,100
CW-17-08	Taunton	09/01/2017	Comprehensive Water Resources Planning	760,000
CW-18-04	Tyngsborough	04/01/2018	Tyngsborough I-I Program	250,000
CW-16-26-B	Uxbridge	09/01/2017	WWTF BNR and Infrastructure Upgrade	3,124,000
CWP-17-30*	West Springfield	06/01/2018	Pump Station Improvement and I/I Reduction Project	4,347,308
Total				\$98,660,833

* Loans used for FFATA reporting

Appendix B

SRF Binding Commitments for SFY 2018 by Program

DWSRF BINDING COMMITMENTS FOR SFY 2018				
PRA No.	Government Entity	Agreement Date	Project Description	Commitment Amount
DW-16-10	Adams Fire District	08/01/2017	Well 4 Pump Station Rehabilitation	\$538,518
DW-17-05	Brockton	12/01/2017	2017 Transmission Main Assessment	500,000
DWP-17-10	Brockton	06/01/2018	Transmission Main and Valve Replacement Project	1,329,778
DW-16-16	Eastham	12/01/2017	Phase 2A Town-Wide Water System	4,000,000
DW-17-01*	Eastham	01/01/2018	Phase 2A Town-Wide Water System	9,364,870
DWP-14-08-A	Fall River	10/01/2017	Water Main Improvements and WTP Residual Handling	139,747
DWP-15-11-A	Fall River	04/01/2018	WTP Improvements	38,750
DWP-17-08*	Fall River	02/01/2018	Water Main Rehabilitation - Phase 17	3,074,306
DWP-16-07	Haverhill	08/01/2017	Transmission Main Improvements	2,636,000
DW-13-05-A	Lawrence	10/01/2017	Water Main Replacement	12,515,007
DWP-16-13	Leominster	09/01/2017	Rehabilitation of Pump Stations	1,500,000
DW-16-23	MWRA	12/01/2017	Low Service Storage	499,811
DW-16-06	MWRA	12/01/2017	SEH Redundancy and Storage	4,045,484
DW-17-15	MWRA	06/01/2018	Wachusett Aqueduct PS	28,249,355
DWP-16-14	New Bedford	07/01/2017	Quittacas WTP Rehabilitation	16,000,000
DWP-17-03*	New Bedford	09/01/2017	Lead Service Line Replacement Program - Phase I	10,200,000
DW-14-10	Norton	05/01/2018	New WTP	10,300,000
DW-16-15	Shrewsbury	07/01/2017	Home Farm Water Treatment Facility Upgrade	12,074,031
DWP-17-04	Webster	11/01/2017	Memorial Beach Wells Water Treatment Plant	10,000,000
DWP-17-13	West Springfield	06/01/2018	Drinking Water System Improvements Project	6,914,958
Total				\$133,920,615

* Loans used for FFATA reporting

Appendix C

Annual Green Bonds Report

JUNE 2018 • FOR THE MASSACHUSETTS CLEAN WATER TRUST



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CONTACT

Massachusetts Clean Water Trust
1 Center Plaza – Suite 430
Boston, MA 02108

SUSAN PEREZ
Executive Director
(617) 367-9333 x816
sperez@tre.state.ma.us

NATE KEENAN
Deputy Director
(617) 367-9333 x508
nkeenan@tre.state.ma.us

MY TRAN
Treasurer
(617) 367-9333 x813
mtran@tre.state.ma.us

A NOTE FROM THE TREASURER

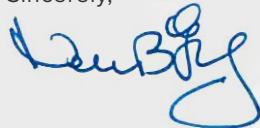
As Chair of the Massachusetts Clean Water Trust's (the Trust) Board of Trustees, I am pleased to submit our first Green Bond Report. Massachusetts has been leading the way in the issuance of Green Bonds since 2013, and the Trust joined this tradition with its 2015 State Revolving Fund Bonds, Series 18, Green Bonds. With the inaugural Green Bond sale combined with the two preceding issuances, over \$643 million have been raised to support local water infrastructure.

The Trust finances water infrastructure projects across the Commonwealth to assist communities in adhering to the Clean Water and Safe Drinking Water Acts. It provides low interest loans to local governments and other eligible entities. Since its establishment, the Trust has financed approximately \$7 billion to nearly three hundred borrowers, serving 97% of the Commonwealth's population.

With its AAA credit rating by all three major credit agencies, this program funds vital infrastructure projects that protect the environment and public health. Access to below-market rate financing makes improvements to water infrastructure more feasible while reducing the overall financial impact on communities and ratepayers.

The Trust is pleased to contribute to this innovative marketplace. And, this report supports the Commonwealth's commitment to transparency and openness. We ask that you let us know if there are any additional ways that we can meet your needs for more information. Your feedback is much appreciated and always welcome.

Sincerely,



Deborah D. Goldberg
Treasurer and Receiver-General
Commonwealth of Massachusetts

INTRODUCTION TO THE TRUST

The Massachusetts Clean Water Trust (the Trust) manages the finances for the Commonwealth's State Revolving Funds (SRFs), the Clean Water and Drinking Water SRFs. The Clean Water SRF was established in 1987 under the Clean Water Act and the Drinking Water SRF was established in 1996 under the Safe Drinking Water Act. The SRFs receive annual federal capitalization grants from the Environmental Protection Agency (EPA) with a 20% match by the Commonwealth. These funds are provided to borrowers, usually cities and towns, to finance wastewater and drinking water infrastructure projects with below market rate loans. When these loans are paid back, the money is then loaned out again, which is how the fund "revolves."

The Trust, in partnership with the Massachusetts Department of Environmental Protection (MassDEP), has issued loans that have served 97% of the Commonwealth's population. MassDEP manages project development and oversight while the Trust manages the flow of money to borrowers. The Trust's SRF Programs utilize a "leveraged" financing model, under which program equity funds are used as a source of security for revenue bonds issued by the Trust. The proceeds from these bonds are used to fund the loans to borrowers for project costs. Massachusetts has capped the Trust's interest rate at 2% or 2.4% - depending on loan terms, while some specific types of projects qualify for 0% interest loans.

The Trust is administered by a three-member board of trustees that is chaired by the Treasurer of the Commonwealth. The Secretary of the Executive Office for Administration and Finance and the Commissioner of the MassDEP serve as trustees. The Board of Trustees approves all financial commitments and program decisions during monthly meetings. Minutes from these meetings can be found on the Trust's website.

Since 2015, the Trust has issued \$643 million of its bonds as Green Bonds in compliance with the federal Clean Water Act and the Safe Drinking Water Act. The Bonds were issued to finance wastewater infrastructure projects under the Clean Water SRF and drinking water infrastructure projects through the Drinking Water SRF, throughout the Commonwealth to comply with the above mentioned acts. The goal of these laws are to improve and maintain water quality, protect the environment and ensure public health.



PROJECT CATEGORIES

WASTEWATER TREATMENT PROJECTS

These projects involve the maintenance, upgrade or construction of wastewater treatment facilities. A wastewater treatment facility receives all the sewage from the municipal government or utility district and treats the water before releasing it back into the environment in accordance with National Pollutant Discharge Elimination System permits. The goal of these projects is to reduce or eliminate pollutants and nutrients found in wastewater resulting in cleaner water ways.

INFILTRATION/INFLOW (I/I) AND SEWER SYSTEM REHABILITATION PROJECTS

These projects involve removing infiltration and inflow (i.e. water other than wastewater) from a sewer system, including construction associated with I/I rehabilitation. I/I is when groundwater or stormwater enters a dedicated wastewater or sanitary sewer system either by direct connections or through damaged parts of sewer pipes. I/I increases the flow to wastewater treatment facilities and leads to back-ups or overflows of the system. Sewer system rehabilitation and I/I correction projects are concerned with removing sources of water that are either illicitly being added to a sewer system, or from sources entering via defective pipes or manholes. Eliminating I/I and replacing sewer systems reduces the occurrences of overflows, meaning less untreated wastewater is released into the environment.

COLLECTOR AND INTERCEPTOR SEWER PROJECTS

These projects involve the physical conveyance of wastewater. Collector sewers collect wastewater from the source, and interceptor sewers convey wastewater to a treatment facility. Extending capacity in an existing sanitary sewer system can help mitigate issues in communities that have insufficient infrastructure to meet local demand. These projects are generally implemented in conjunction with other project categories; such as combined sewer overflow correction which separates stormwater and wastewater collection systems to reduce untreated water being released into surface water bodies.

COMBINED SEWER OVERFLOW CORRECTION PROJECTS

These projects involve the reduction of untreated water discharged from combined sewer systems. Combined sewer systems are sewers that are designed to collect rainwater runoff, domestic sewage, and industrial wastewater in the same pipe. During wet weather events, the combined sewer systems can reach capacity and the excess overflows into surrounding waters, creating a combined sewer overflow (CSO). CSO correction projects work to reduce the amount of untreated water discharged from combined sewer systems. The elimination of CSOs is an EPA and Commonwealth priority goal that will reduce the amount of untreated wastewater that is released into the local environment.

PLANNING PROJECTS

These projects involve developing plans to address water quality and related public health problems. Infrastructure management tracking, capital investment schedules, and the adoption of best management practices are also objectives. For example, comprehensive wastewater management plans provide strategies for addressing wastewater treatment and disposal issues in a city or town. Integrated municipal stormwater and wastewater resource management planning assist municipalities in meeting requirements that arise from distinct wastewater and stormwater programs. Fiscal sustainability and asset management planning assist communities with maintaining replacement schedules and forecasting capital needs in the future.

DRINKING WATER TREATMENT PROJECTS

These projects involve the upgrade, maintenance and construction of water treatment facilities. These projects are meant to improve the overall quality of drinking water and are targeted at removing specific pollutants that are known health risks. Treatment plant upgrades can impact the overall efficiency of a plant's energy consumption. Replacing equipment at the end of its useful life will improve overall system efficiency, and new pumping and filtering equipment are designed with energy efficiency in mind.

DRINKING WATER TRANSMISSION AND DISTRIBUTION PROJECTS

These projects involve the infrastructure that brings raw water to treatment facilities and the infrastructure that conveys treated water for consumption. This includes everything from large transmission mains from reservoirs to the service lines that provide treated water to homes and businesses. Lines at the end of their useful life can lead to inefficiency in water transmission. Older pipes, made of lead or cast iron, can be severe health risks when corrosion occurs. Upgrades to pumping and booster stations make the transmission process more energy efficient and improve the overall efficiency of the system.

DRINKING WATER SOURCE AND STORAGE PROJECTS

These projects involve two different categories. Source water projects are related to untreated water sources – such as rehabilitating surface water in a reservoir or drilling and maintaining wells. Storage projects deal with infrastructure that is related to maintaining and storing treated water before it is distributed into a system.

PROJECT SELECTION PROCESS

Project eligibility is determined by the Clean Water Act and Safe Drinking Water Act. Projects that apply for financing are selected on an annual basis. MassDEP engineers review detailed project specifications and rank them using criteria that measure the severity of the problem, the sensitivity of the environmental hazard and public health risk, and the appropriateness of the proposed solution.

For Clean Water projects, MassDEP emphasizes watershed management priorities, stormwater management, green infrastructure, and encourages communities to undertake projects with meaningful water quality and public health benefits. Drinking Water projects emphasize compliance with federal and state water requirements to protect the public health while addressing the Commonwealth's drinking water needs.

These selection processes result in project lists called Intended Use Plans (IUPs). There is a Clean Water IUP and a Drinking Water IUP. The IUPs establish the Commonwealth's project priorities for the upcoming year.

FREQUENTLY ASKED QUESTIONS

Q. ARE GREEN BOND PROCEEDS SEPARATED FROM TRADITIONAL BOND PROCEEDS?

Yes, all Green Bond proceeds are deposited into segregated Clean Water and Drinking Water accounts within the Project Fund for each individual series of bonds. The accounts are individually tracked for each project internally at the Trust and MassDEP. If it is determined that a project no longer needs funds after loans for a project have been permanently financed with bond proceeds, the remaining bond proceeds will be reallocated to additional green projects. Those new projects will be included in the Green Bond reporting.

Q. HOW OFTEN WILL THE TRUST PREPARE GREEN BOND REPORTS?

The Trust will track the progress of projects and use of proceeds in its Annual Report and now this Green Bond report. The Trust will report on the bonds until the proceeds have been fully expended.

Q. WHERE CAN I FIND YOUR GREEN BOND REPORTS?

You may view this report by visiting the Trust's website. Prior reports were included in the Trust's Annual Report that can also be found on its website. The Trust also posts all annual reports and this Green Bond Report to the MSRB's EMMA website, attached to their associated CUSIPs.

Q. DO YOU MAKE USE OF THIRD-PARTY OPINIONS OR OTHER "GREEN CERTIFICATIONS"?

No, not at this time. The Trust is in constant dialogue with investors and thought leaders in the Green space. Based on continued and consistent feedback, due to our repeat-issuer status and robust reporting regimen, we have determined that third-party opinions are not necessary for our issuances. The Trust reports on the selection of projects, management of proceeds and use of proceeds following a bond sale. Information can be found in the Official Statements, Annual Reports and in this Green Bond Report. The Trust is committed to full disclosure as demonstrated in this report. We will continue to monitor the market and make any necessary changes to our approach as needed.



OUR QUALITY OF LIFE
& HEALTH CANNOT BE
SUSTAINED WITHOUT
CONTINUED & IMPROVED
ACCESS TO CLEAN WATER.
WATER IS OUR LIFELINE.

X

If we did nothing other than provide access to clean water and sanitation, without any other medical intervention, we could save two million lives a year. U.S. cities are spending more dollars on water and wastewater each year, but the investment needs far outweigh local governments' abilities to keep up with aging infrastructure.

THE STATE OF CLEAN WATER

Clean water infrastructure is one of the most vital types of infrastructure in the United States. These systems address both public health and environmental safety. Since 1972, the EPA has recognized these concerns and has worked to limit pollution and wastewater discharges. The Clean Water SRF program was established to address these concerns. To date, the Trust and MassDEP, has provided nearly \$5.5 billion in subsidized below market rate loans for clean water projects. The impact of these projects and investing in Green Bonds supports the clean water initiatives that are vital to our planet and local communities.

According to EPA's 2012 Clean Watershed Needs Survey:



WHAT IS WASTEWATER TREATMENT

According to the EPA, wastewater treatment is the most common form of pollution control in the United States. The collection and treatment of domestic sewage and wastewater is vital to public health and clean water. Sewers collect water from homes, businesses, and industries then transport it to treatment facilities which remove or reduce contaminants such as bacteria, chemicals, nutrients and other pollutants before discharging the water back into local water system. Untreated wastewater can have serious health and environmental consequences that lead to low dissolved oxygen, fish kills, algae blooms and bacterial contamination that can affect more than just the local community. These treatment processes, and their related infrastructure, are vital components of any municipal, state or federal pollution mitigation strategy.

¹ In 2012 dollars

WASTEWATER TREATMENT PROJECTS

Wastewater Treatment projects are eligible for SRF assistance under the Clean Water Act for facilities that provide, or are being upgraded to provide, secondary or advanced wastewater treatment. The distinction between secondary and advanced treatment projects essentially refers to the level of pollutant removal. For example, secondary treatment requires that a 5-day Biochemical Oxygen Demand (BOD5) be less than 30 milligrams per liter (mg/l). BOD5 is the amount of dissolved oxygen needed by organisms to break down organic materials present in a water sample over a period of 5 days and is listed as a pollutant under the Clean Water Act. Advanced treatment requires that the BOD5 level be less than 20mg/l. Advanced treatment facilities also address nitrogen, phosphorous, ammonia, metal and/or synthetic organic removal.

Water treatment facility upgrades or improvements can vary widely depending on the age of the infrastructure in question. These facilities are governed under National Pollutant Discharge Elimination System (NPDES) permits, which determine the level of water treatment required to discharge wastewater. Many of the upgrades, funded by the Trust, help facilities meet their NPDES requirements. These upgrades could include replacing inefficient mechanical equipment, upgrading pollutant removal systems or updating water storage facilities to reduce odor. Replacing equipment at the end of its useful life will improve overall system efficiency, and new pumping and filtering equipment are designed with energy efficiency in mind.

Highlighted Project

MIDDLEBOROUGH (WASTEWATER TREATMENT FACILITY UPGRADES) - \$24,346,341

The Town of Middleborough operates a municipally owned wastewater treatment plant. The plant, built in 1977, operates 24 hours a day, 365 days a year. The plant treats roughly 1.1 million gallons of wastewater each day. The plant recently completed a \$25 million nutrient management upgrade that will allow the town to meet EPA's stringent National Pollutant Discharge Elimination System permit limits – which regulate the amount and type of pollutants that can be discharged into water systems.

These upgrades included a new control building with a supervisory control and data acquisition (SCADA) control room to assist the Wastewater Department in managing its 23 miles of sewer main and six pump stations. Additionally, the upgrade significantly improved the plant's capability to lower the levels of phosphorous and nitrogen that are discharged into the Nemasket River. This water ends in the Mount Hope Bay, a tidal estuary that has struggled with environmental degradation for years.



BORROWER	PROJECT DESCRIPTION	AMOUNT
Billerica	<p>WASTEWATER TREATMENT FACILITY UPGRADES</p> <p>The main objective of this project was to increase the physical and biological capacity of the Letchworth Avenue wastewater treatment facility as well as replace equipment that was beyond its useful life. This effort augmented additional flow and pollutant load of sewerage and the implementation of the capital improvements plan regarding capacity concerns.</p>	\$4,568,100
Charles River Pollution Control District	<p>WASTEWATER FACILITY IMPROVEMENTS PHASE C</p> <p>This project involved upgrades to an advanced wastewater treatment facility that treats wastewater from the communities of Franklin, Medway, Millis and Bellingham. It accepts septage from Norfolk, Sherborn, Dover, Wrentham, Weston, Holliston and Sharon. Upgrades in this phase focused on achieving phosphorus compliance with the district's draft National Pollution Discharge Elimination System permit renewal and achieving overall process and support system reliability through the year 2035.</p>	\$10,600,000
Falmouth	<p>WASTEWATER TREATMENT FACILITY UPGRADE</p> <p>The project addressed the current effluent discharge requirements of the National Pollution Discharge Elimination System permit, which the plant could not currently meet and the needed facility upgrades and improvements at the plant were primarily to meet the nitrogen limit, which requires an average annual total nitrogen effluent limit of 3.0 milligrams per liter. The design capacity of the plant is 1.2 million gallons per day, but flow was restricted to 800,000 gallons per day.</p>	\$4,284,956
Gardner	<p>WASTEWATER TREATMENT PLANT UPGRADE</p> <p>The City of Gardner upgraded their wastewater treatment plant to address aging infrastructure and take proactive measures to meet future discharge permit limits. The projects included modifications to the headworks and grit removal system, upgrades to the sludge handling system, and improvements to the nutrient removal system.</p>	\$4,433,242
Grafton	<p>WASTEWATER TREATMENT PLANT IMPROVEMENTS</p> <p>This construction project included modifications and additions to the Grafton wastewater treatment facility, including the replacement of aged systems that exceeded their useful life as well as the addition of new treatment systems. To achieve compliance with nutrient discharge limits, improvements included modification of the secondary treatment system for advanced nitrogen removal and the construction of a new tertiary treatment system and superstructure with cloth disk filters for phosphorus removal.</p>	\$14,613,300
Great Barrington	<p>WASTEWATER TREATMENT FACILITY UPGRADE AND INFILTRATION AND INFLOW REMOVAL</p> <p>This project included upgrades to the wastewater treatment facility (WWTF) and improvements to the collection system to reduce inflow and infiltration. The treatment plant upgrades replaced or repaired aging equipment, improved system reliability, achieved higher levels of phosphorus removal, and prepared for nitrogen removal upgrades. The WWTF was upgraded to reduce total phosphorus loads discharged to the Housatonic River, which will result in a reduction of eutrophication potential in the river and its receiving body, Long Island Sound.</p>	\$4,210,000
Great Barrington	<p>WASTEWATER TREATMENT FACILITY UPGRADES AND SEWER IMPROVEMENTS</p> <p>This project is part of the long-term solution for consistently meeting all wastewater treatment requirements, including phosphorous removal. It addressed aging infrastructure and improved pumping efficiency and control of the chemical treatment process. This project included an overhaul of the headworks, replacement of the plant water pumps, and electrical system improvements.</p>	\$4,579,305
Leominster	<p>WATER POLLUTION CONTROL FACILITY UPGRADES</p> <p>This project upgraded the aeration system at the wastewater treatment plant. The City of Leominster's secondary wastewater treatment facility has been operational since 1983 with capacity to handle 9.3 million gallons per day. The facility has not had any significant upgrades to this point. The facility discharges to North Nashua River with ultimate discharge to the Atlantic Ocean via the Merrimack River under the EPA National Pollution Discharge Elimination System (NPDES) permit.</p>	\$10,500,000

BORROWER	PROJECT DESCRIPTION	AMOUNT
Marlborough	<p>MARLBOROUGH EASTERLY WASTEWATER TREATMENT PLANT UPGRADES</p> <p>This project consisted of the improvements to the Easterly wastewater treatment facility to reduce effluent phosphorus, replaced aging infrastructure and improved energy efficiency. Secondly this project conducted an infiltration/inflow study of the wastewater collection system to identify, characterize and prioritize deficiencies in the system to reduce peak flows. The upgrades were intended to reduce the phosphorus loads discharged from the facility to help remediate documented nutrient enrichment of the receiving waters and the downstream Sudbury River. The project was consistent with the comprehensive wastewater management plan and regional nutrient reduction goals. The project improved the energy efficiency of the facility.</p>	\$14,626,671
MFN Regional Wastewater District	<p>MFN REGIONAL WASTEWATER DISTRICT LAND TREATMENT</p> <p>This project was for the purchase of two parcels of land that will be used for groundwater disposal for the MFN Regional Wastewater District. The plant had a surface water discharge and needed additional treatment capacity for expanded growth in the three communities based upon findings from their comprehensive wastewater management planning efforts. The Town purchased the first parcel in December 2010 and has reached an agreement for the second parcel.</p>	\$1,012,310
Middleborough	<p>WASTEWATER TREATMENT FACILITY UPGRADES <i>Highlighted Spending Project</i></p>	\$24,346,341
MWRA	<p>CLINTON WASTEWATER TREATMENT FACILITY PHOSPHOROUS REMOVAL</p> <p>After extensive alternatives analysis and pilot testing, MWRA determined that disk filter technology is the most feasible alternative for meeting the current and upcoming discharge phosphorous concentration limits at the Clinton wastewater treatment plant (WWTP). This project installed a full-scale disk filter phosphorous removal system at the WWTP.</p>	\$2,496,267
MWRA	<p>WASTEWATER TREATMENT PLANT UPGRADE</p> <p>These projects were for upgrades to Deer Island Treatment Plant (DITP), and consisted of two groups of activities. 1) DITP Digester and Cryogenics Upgrade: The digester upgrade involved replacing the pumps that send the sludge from DITP to the Fore River Pelletizing Plant. The pumps were replaced with centrifugal pumps with higher flow rates, reducing potential grit settlement. 2) DITP Electrical and Plant Upgrades: are directly related to wastewater processing or control of the processing and are focused on long-term plant reliability. These projects were intended to prevent equipment/system failures that could have resulted in odor problems for the Town of Winthrop and the inability of DITP to meet discharge permit requirements.</p>	\$7,069,573
Westborough	<p>WASTEWATER TREATMENT FACILITY UPGRADES AND SEWER IMPROVEMENTS</p> <p>The Westborough Wastewater Treatment Plant discharges its effluent to the Assabet River under a National Pollutant Discharge Elimination System permit. Westborough is a member of the Assabet River Consortium. The Assabet River is distressed due to severe eutrophication because of excessive nutrients such as phosphorous and nitrogen. The 2005 discharge permit EPA issued to the Town imposes stringent phosphorus and copper limits. This project implemented a construction upgrade of the wastewater treatment plant that enabled it to achieve compliance with the permit.</p>	\$302,305

INFILTRATION/INFLOW (I/I) AND SEWER SYSTEM REHABILITATION PROJECTS

These projects correct sewer system infiltration and inflow problems. Infiltration includes water (usually groundwater) penetrating a sanitary or combined sewer system from the ground through defective pipes or manholes. Inflow includes controlling the penetration of water (usually stormwater) into a system from sump pumps, drains, storm sewers, and other improper entries.

Sewer system rehabilitation projects are to maintain, reinforce, or reconstruct, deteriorating or undersized sewers. The corrective actions are necessary to maintain the functional integrity of the system.

Highlighted Project

REVERE (SEWER REHABILITATION) - \$10,902,107

In 2010, the City of Revere was placed under a MassDEP and EPA consent decree due to excessive sewer blockages that caused raw sewage to discharge into rivers and streams that flow into Boston Harbor and Massachusetts Bay, including Chelsea River, Sales Creek, Belle Isle Inlet and Pine River. These blockages also caused basement backups from its wastewater collection system and violated the City's discharge permit. This project included the repair of existing pipes, sewer spot repairs, sewer replacements, new sewer lines, pump station and sewer cleaning, water pump station improvements, drainage improvements, and additional wastewater metering. Additionally, depth sensors (Smart Covers) were installed to monitor potential sanitary sewer overflow (SSO) locations and take proactive corrective action. The work locations and activities for this construction season were based on the most current cumulative Sanitary Sewer Evaluation Survey (SSES) and system operational data.



BORROWER	PROJECT DESCRIPTION	AMOUNT
Bridgewater	<p>SEWER INSPECTION, CLEANING AND LINING</p> <p>This project inspected, cleaned and lined sewers to control I/I that was using up excess capacity at the wastewater treatment plant. Many of the sewer pipes were old asbestos cement and vitrified clay pipes, some almost 100 years old. The National Pollutant Discharge Elimination System permit required I/I reductions for capacity.</p>	\$781,616
Brockton	<p>SEWER SYSTEM REHABILITATION</p> <p>The focus of the project was to address and remediate high bacteria concentrations during dry and wet weather, as identified in water quality studies, to reduce and eliminate impacts to receiving waters. The City has completed nine sewer system rehabilitation projects and four wastewater treatment facility upgrades to address the issues and mandates within the EPA Administrative Consent Order, which was lifted. The project included both trenchless rehabilitation and open cut repair of prioritized areas to address sources of exfiltration, infiltration and inflow and sections of undersized pipe to improve water quality in Salisbury Brook, Trout Brook, Salisbury Plain River and Beaver Brook.</p>	\$1,704,244
Brockton	<p>SEWER REHABILITATION</p> <p>This on-going sewage collection system construction project addresses sources of water loss, infiltration, inflow, and undersized pipe sections. The areas that will be addressed were identified and prioritized by the initial illicit discharge detection and elimination program and the current sanitary sewer evaluation survey. The project includes pumping, repairs of existing pipe, manhole rehabilitation, and surface restoration.</p>	\$1,356,694
Everett	<p>STORMWATER ILLICIT DISCHARGE DETECTION</p> <p>This loan amount reflects an additional loan for this project. The original loan amount for this project was \$250,000 and was previously financed by the Trust. The project's objective was to perform follow-up investigations in accordance with the City's stormwater management plan. The intent of the investigation was to identify illicit connections and sources of fecal contamination in the drainage system to improve water quality in the region's surface waters.</p>	\$61,076
Framingham	<p>CENTRAL STREET SIPHON/SUDBURY INTERCEPTOR</p> <p>This project was a component of the Capital Improvement Program for the Town's collection system that includes elimination of the two siphons under the Sudbury River and rehabilitation of the Sudbury River interceptor from Central Street continuing south along the Sudbury River to Worcester Road.</p>	\$2,114,587
Lawrence	<p>SEWER SYSTEM REHABILITATION</p> <p>Wastewater from the city of Lawrence is part of the Greater Lawrence Sanitary District (GLSD) system which discharges into the Merrimack River. The current National Pollutant Discharge Elimination System permit became effective in 2005 and required all members of GLSD to develop inflow and infiltration (I/I) control programs to find, document, and eliminate I/I sources within their respective systems. The City of Lawrence completed several of the required tasks and over the past year began portions of the Phase I and II Sewer System Evaluation Survey (SSES) and Capacity, Management, Operations and Maintenance (CMOM) work. This project, sewer system rehabilitation and high priority pipe replacement, included cast-in-place-pipe lining and replacement of sewer mains in areas across the City.</p>	\$8,978,897
MWRA	<p>CARUSO PUMP STATION</p> <p>The purpose of the Caruso Pump Station Improvements project was to replace the standby power generator system and to improve the Heating Ventilation and Air Conditioning system, fire detection/suppression, and security systems to significantly improve the pump station reliability, operations, safety and efficiency.</p>	\$2,031,614
Needham	<p>REPLACEMENT OF RESERVOIR B SEWER PUMP STATION</p> <p>This project consisted of replacing the existing Reservoir B Pump Station building and pumps. Construction included the addition of a new building to house the three new high efficiency pumps, new wet wells, control system, alarms and a new backup generator.</p>	\$78,491

BORROWER	PROJECT DESCRIPTION	AMOUNT
Norwood	<p>WESTOVER AREA SEWER REHABILITATION</p> <p>The project was for the rehabilitation of sewers in the Hawes Brook area of Norwood to reduce excessive infiltration and inflow into the system and to minimize the occurrence of sanitary sewer overflows. The Town is under an EPA Administrative Order that includes implementation of corrective action in the Hawes Brook area. The environmental benefit of this project is the elimination of surcharging and sanitary overflows into Hawes Brook, an impaired water body that is tributary to the Neponset River.</p>	\$110,127
Norwood	<p>MEADOWBROOK AREA SEWER REHABILITATION</p> <p>The objective of this project was to perform comprehensive sewer rehabilitation in a portion of the Meadowbrook sewer area in Norwood to eliminate exfiltration of sanitary sewage into the adjacent stormwater system that ultimately discharges to Meadowbrook (a tributary of the Neponset River). Work was performed in the area tributary to the Meadowbrook outfall at Sunnyside Road, and included the installation of approximately 7,995 linear feet cured-in-place lining in mainline sewer and 287 service laterals, manhole rehabilitation, TV inspection, and protruding tap removal.</p>	\$2,638,952
Norwood	<p>UNDERDRAIN AREA SEWER REHABILITATION</p> <p>The project consisted of a variety of planning measures associated with operation and maintenance of the sanitary sewer and stormwater systems. Work included elements such as infiltration and inflow investigations, sewer system evaluation surveys, development of Capacity, Management, Operation and Maintenance (CMOM) programs, compliance with Phase 2 National Pollutant Discharge Elimination System Stormwater regulations including the implementation of programs, mapping of systems, development of geographic information systems, sampling of outfalls, performing illicit discharge detection programs and all other related work.</p>	\$2,212,267
Palmer	<p>SEWER REPLACEMENT</p> <p>The objective of the Palmer Sewer Replacement project was to replace aging and deteriorated infrastructure that was not functioning as intended. Several sewer reaches contained sags, adverse slopes, cracked pipes and offset joints which impaired carrying capacity of the collection system. The project replaced approximately 22,650 linear feet of sanitary sewer in five district locations in the Town (Brainerd Street, Riverview Street, Chudy Street, South High Street and High Street areas).</p>	\$5,807,217
Quincy	<p>FORT SQUARE PUMPING STATION REHABILITATION</p> <p>The objective of the Fort Square Pump Station Rehabilitation Project was to avoid sanitary sewer overflows (SSOs), which are a threat to public health. The Fort Square Pumping Station is one of Quincy's larger wastewater pumping stations. The pump station was constructed in 1985, and although some upgrades have been made over the years, the station was still using most of its original equipment. Due to the deteriorating condition of the Fort Square Pumping Station, a complete rehabilitation was recommended in order to avoid SSOs.</p>	\$2,787,004
Revere	<p>COLLECTION SYSTEM IMPROVEMENTS</p> <p>This was Phase IV of an ongoing effort to reduce the volume of infiltration and inflow (I/I) within the City of Revere sewage collection system to reduce SSOs and the volume of wastewater conveyed to the Deer Island Sewage Treatment Plant. This phase included main line sewer lining and spot repairs in problem areas identified in the Phase IV Field Investigation throughout Revere. It included manhole lining and the rehabilitation of two of the City's pump stations, as well as the initiation of the Home Sump Pump/Roof Leader Removal Program resulting from the private citizen response to Revere's Sump Pump Amnesty Program.</p>	\$7,218,581
Revere	<p>SEWER REHABILITATION <i>Highlighted Spending Project</i></p>	\$10,902,107
Saugus	<p>SEWER SYSTEM OVERFLOW REDUCTION SUBSYSTEM 5</p> <p>The Town of Saugus entered an Administrative Consent Order (ACO) with the MassDEP in 2005, requiring the Town to address sanitary sewer overflows and excessive infiltration and inflow (I/I). The Town of Saugus has completed several years of I/I removal projects based on the requirements of the ACO. Rehabilitation included manhole rehabilitation, cast-in-place-pipe lining of sewer main and lateral connections, spot repairs and private inflow removal.</p>	\$1,579,841

BORROWER	PROJECT DESCRIPTION	AMOUNT
Taunton	<p>SEWER SYSTEM EVALUATION SURVEYS PHASES 10-12</p> <p>This description is the combination of four separate projects. The work done under this project helped the City stay in compliance with the EPA's Order for Compliance. Under the order, the City was required to submit a plan and schedule by June 2013 for elimination of the CSO outfall. Phases 10-12 entailed both investigation and rehabilitation efforts in the eastern portion of the City's system, which has not been focused on during previous investigations due to its younger age and lower flows than the core area. This project was a cost effective, targeted plan to assess operations and remove sources of I/I in the City's collection system. This project greatly reduced or eliminated the public health problem of combined and sanitary sewer overflows to the Taunton River.</p>	\$14,732,533
Worcester	<p>LAKE AVE SEWER INFILTRATION AND INFLOW</p> <p>This project implemented the recommendations from the Lake Avenue Area Sewer System Evaluation Survey to remove inflow/infiltration from the Lake Avenue area that contributed to surcharging and overflows into Lake Quinsigamond.</p>	\$1,048,196

COLLECTOR AND INTERCEPTOR SEWERS PROJECTS

According to the EPA, millions of gallons of human and industrial waste are sent through complex underground collections systems. These systems operate all day, every day, and most municipal sewer systems are at least 60 years old. Many communities have sewers that are more than 100 years old. Collection systems consist of pipelines, conduits, pumping stations, force mains and other components to collect wastewater and convey it to treatment facilities before being discharged into the environment. Design, operation and maintenance are critical for system efficiency and public health. System expansions can be used to mitigate issues with combined sewer overflows and septic systems.

New Collector Sewers

These are projects associated with new pipes used to collect and carry wastewater from a sanitary or industrial wastewater source to an interceptor sewer that will convey the wastewater to a treatment facility.

New Interceptor Sewers

These are projects for constructing new interceptor sewers and pumping stations that convey wastewater from collection sewer systems to a treatment facility or to another interceptor sewer. This category includes costs for relief sewers, which are designed to handle the excess capacity of an existing system.

Highlighted Project

DRACUT (CONTRACT NO. 32 SEWER EXTENSIONS) - \$4,875,455

This project involved the construction of new sanitary sewers to mitigate the migration of leachate (untreated water runoff from a septic tank that is a known pollutant of groundwater) from failing septic systems into tributaries of the Merrimack River. These sewer systems tied residential homes into the Town's wastewater system. In addition, the project eliminated several direct sewage connections to the local stormwater system. The project reduced negative impacts on natural resources, town conservation land and private drinking water supplies. The project installed approximately 11,000 linear feet of 8-inch diameter gravity sewer, approximately 1,000 linear feet of small diameter pressure sewers, approximately 2,100 linear feet of force mains and two submersible pumping stations within town roads and cross-country areas.



BORROWER	PROJECT DESCRIPTION	AMOUNT
Billerica	<p>CONTRACT 35 SEWERS</p> <p>The project included a sewer extension in the Jones Brook Watershed and Andover Road/Pond Street area of Billerica, outlined in the Town's 2008 comprehensive wastewater management plan. The flow from this area was expected to be approximately 81,000 gallons per day and will be discharged to the Letchworth Avenue wastewater treatment facility which includes secondary and tertiary treatment.</p>	\$9,724,962
Chatham	<p>COLLECTION SYSTEM EXTENSION AND IMPROVEMENTS</p> <p>This sewer collection system extension and improvement project addressed nitrogen loading concerns by further extending the wastewater collection system. This project was the third phase of implementing nitrogen mitigation efforts that began in 2010. The project included installing sewers to additional sections of Chatham and constructing two pump stations capable of handling a total of 68,000 gallons per day of sewage.</p>	\$3,336,119
Dracut	<p>CONTRACT NO. 32 SEWER EXTENSIONS</p> <p><i>Highlighted Spending Project</i></p>	\$4,875,455
Dracut	<p>CONTRACT 27 PETERS POND WEST AREA SEWERS</p> <p>This loan amount reflects an additional loan for this project. The original loan amount for this project was \$5,551,684 and was previously financed by the Trust. The project work involved the construction of 25,200 linear feet of sanitary sewers, 2,800 linear feet of force main and two pump stations in Peters Pond West Area.</p>	\$19,114
Falmouth	<p>SEWER EXTENSION AND NEW RECHARGE SITE</p> <p>The Maravista/Little Pond area of Falmouth has been recommended for sewerage since the Town's 1981 Wastewater Facilities Plan (updated in 2001). A study, completed in January 2006 recommended 100% sewerage of this watershed. The area is densely developed, primarily with very small lots, and high groundwater. The Town's Comprehensive Wastewater Management Plan cites 20% of the properties having septic systems installed after 1995, and a large percentage of those are cesspools. Sewerage will be done in 3 multi-year contracts, encompassing 1,500 parcels. Additionally, a new treated water recharge site is proposed to accommodate the flow from the Little Pond watershed, as required by the new flow limitations to the wastewater treatment facility.</p>	\$32,010,065
Lunenburg	<p>SEWER EXTENSION</p> <p>A Comprehensive Wastewater Management Plan (CWMP) was completed by the Town and Wright-Pierce in four phases. Phase 4 of the CWMP included the need for off-site wastewater management solutions for Sewer Service Zones 6 and 9. Area 6 includes Pratt Street and Rennie Street, which has the most pressing need for a sewer extension. Area 9 includes Pine Grove Road, Sunset Avenue, Harris Avenue, Lakeview Avenue and Cross Road. The Town may pursue the other portions of Sewer Service Zone 9 later, but the listed streets are immediately adjacent to Whalom Lake and have the most pressing need for a municipal sewer extension now.</p>	\$1,216,325
South Essex Sewerage District	<p>MARBLEHEAD REPLACEMENT CROSSING SEWER</p> <p>This project consisted of the replacement of two parallel subaqueous sewer pipelines that carry all the raw wastewater from the Town of Marblehead collection system under Salem Harbor to the South Essex District treatment plan in Salem. Each pipeline is approximately 6,000 feet in length.</p>	\$9,250,000
Taunton	<p>SEWER SYSTEM SEPARATION OF COMBINED MANHOLES AND UPGRADE OF VITAL PUMP STATIONS</p> <p>This loan amount reflects an additional loan for this project. The original loan amount for this project was \$5,705,665 and was previously financed by the Trust. This multi-year project is for the repair and replacement of sewer mains and service laterals, removal of stormwater connections to sanitary sewers, removal of roof leaders and sump pump connections from the sewer system, separation of combined manholes and upgrades to vital pump stations. This project eliminated potential public health threats and nuisances resulting from sewage discharge to the receiving waters and reduced the risk of sewer overflows.</p>	\$180,526

CSO CORRECTION PROJECTS

Combined Sewer Overflows (CSO) are events where a combined sewer system fails to collect rainwater, domestic sewage and industrial wastewater in the same pipe as intended. When these systems exceed their capacity, untreated water can discharge directly into a water body. CSOs are a major source of water pollution for approximately 772 cities in the US that have combined sewer systems. CSO Correction projects are associated with measures used to achieve water quality objectives by preventing or controlling periodic discharges that occur when the capacity of a sewer system is exceeded during a wet weather event.

Highlighted Project

CAMBRIDGE (HURON B SEWER SEPARATION PROJECT) - \$14,000,000

The Huron Ave Contract B and the Concord Ave Contract were part of the Massachusetts Water Resources Authority's (MWRA) Long Term Combined Sewer Overflow (CSO) Control Plan for the Alewife Brook. Sewer separation and stormwater management in these contract areas separated existing combined sewers and provide dedicated sanitary sewers and stormwater drains. The goal of this project was to improve water quality in the Alewife Brook by eliminating combined sewer overflows; protect Fresh Pond Reservoir from potential contaminants; and, control the occurrences of street flooding and sewer and stormwater backups on public and private properties. The sewer separation work included removing existing lamp holes, transferring illicit sanitary services to the sanitary sewer, and providing drain laterals to private properties with illicit storm drain service and sump pump connections. Additionally, this project included transferring driveway drains, area drain laterals, and catch basin laterals from the sanitary sewer to the stormwater drain.



BORROWER	PROJECT DESCRIPTION	AMOUNT
Cambridge	HURON B SEWER SEPARATION PROJECT <i>Highlighted Spending Project</i>	\$14,000,000
Chicopee	COMBINED SEWER OVERFLOW ELIMINATION This project separated over 400 acres and eliminated the combined sewer overflows (CSOs) in these areas. In most cases sewer separation for this project was achieved by providing a new sanitary sewer pipe and utilizing the existing combined sewer pipe for stormwater. The elimination of CSO discharges to the Chicopee River and the creation of additional capacity downstream to accommodate combined sewer flows from other areas within the City will contribute to improved water quality.	\$25,478,178
Fitchburg	COMBINED SEWER SEPARATION This project was the continuation of the City's program to separate combined sewers to eliminate raw sewage discharges during wet weather events. The project eliminated combined sewers by constructing new drainage pipes adjacent to sewer pipes to convey stormwater, which allowed the City to close combined sewer overflows. The project will realize health and safety benefits from reduced odors, improved aesthetic and better water quality in the Nashua River and affected tributaries. This also allowed the City to comply with the Administrative Consent Order issued by the EPA.	\$721,426
Fitchburg	COMBINED SEWER SEPARATION AREA 4D This loan amount reflects an additional loan for this project. The original loan amount for this project was \$13,553,330 and was previously financed by the Trust. The City undertook a series of projects to separate its sanitary sewers from its storm drainage sewers. The scope of work for the projects consisted of separating approximately 24,000 linear feet of combined sewers by installing new drainage pipe (or sanitary sewer pipe), connecting existing catch basins to the separate storm sewer, replacing existing catch basins, and rehabilitating existing combined sewers and manholes as necessary. The existing combined sewer overflow outfalls and any overflow piping within the project area are anticipated to be disconnected from the sanitary system and the existing outfalls will be reused for the stormwater flows from the separate storm drain system.	\$1,231,951
Haverhill	COMBINED SEWER OVERFLOW IMPROVEMENTS, WASTEWATER TREATMENT FACILITY AND SEWER SYSTEM In this project the City addressed combined sewer overflow (CSO) discharges to the Merrimack and Little Rivers. The latest project included CSO improvements based on recommendations from the Long-Term Capital Plan. Capital improvements included: 1) Closing and eliminating 9 existing CSO regulator/ outfalls to combine discharges to 14 remaining CSO outfalls; 2) Raising the regulator/ diversion weir elevations at 5 of the 14 remaining CSO regulator/outfalls to minimize CSO discharges; 3) Constructing improvements to increase the size of the interceptor connector pipe capacity at the Bradford CSO regulators and reconfiguring the Middle Siphon CSO to direct more flow into the interceptors and to reduce the frequency and magnitude of the CSO discharges from these outfalls; 4) Develop standard operating procedure for house-to-house inspections, coordinate inspections with the automatic meter reading (AMR) project; develop recommended modifications, and enter data into item 2; and 5) Replacing the existing centrifuges with new centrifuges for improved biosolids handling at the Haverhill WWTF to maximize the wet weather capacity of the wastewater treatment facility during storm events.	\$8,366,419
Ludlow	COMBINED SEWER OVERFLOW The main objective of this project was the separation of a combined sewer system existing in the Hubbard Street area of the Town of Ludlow. The Hubbard Street sewer separation reduced environmental stresses placed on the Chicopee River due to discharged, untreated sanitary waste. The new sewer system addressed dangers to public health by decreasing backups of the combined stormwater and sanitary waste. The recreational uses of the Chicopee River, which include boating swimming and fishing, will also be protected.	\$503,676

BORROWER	PROJECT DESCRIPTION	AMOUNT
MWRA	<p>COMBINED SEWER OVERFLOWS PHASE 14 AND 16</p> <p>The primary objective of the combined sewer overflow (CSO) control plan is to bring CSO discharges in Boston Harbor and its tributaries into compliance with state and federal requirements. All the projects will be accomplished by constructing new storm drains and allowing the existing combine sewers to function as separate sanitary sewers, or by constructing new sanitary sewers and allowing the existing combined sewer to serve as storm drains. The project resulted in the elimination of CSO discharges at several outfalls.</p>	\$5,650,025
New Bedford	<p>COMBINED SEWER OVERFLOW ABATEMENT</p> <p>This project included the construction of 3,650 feet of new reinforced concrete pipe storm drains, 2000 feet of PVC and fiberglass reinforced thermosetting sewers, 2,650 feet of ductile iron water mains, including precast and cast-in-place concrete structures, valves, hydrants, service connections. Additionally, work included cured-in-place pipe lining of existing sewers and storm drains, and manhole rehabilitation in Coggeshall Street, Jean Street, Mitchell Steer, and Bellville Avenue to facilitate sewer separation activities within the project area.</p>	\$8,063,124

PLANNING PROJECTS

Projects in this category are for developing plans to address water quality and water quality-related public health problems. Planning projects can consist of multiple types of investigations. Field investigations are used to view the state of current water infrastructure assets, and to identify and prioritize design, maintenance and replacement activities. Sensor and field analysis can be used as part of a larger analysis that consist of plans to adopt best management practices and capital improvements. These projects assist municipalities with determining environmental issues that may be affecting local water sources or endangering public health.

For example, comprehensive wastewater management plans provide strategies for addressing wastewater treatment and disposal issues in a municipality or utility district. Integrated municipal stormwater and wastewater resource management planning assist municipalities meet requirements that arise from distinct wastewater and stormwater programs. Fiscal sustainability and asset management planning assist communities with maintaining replacement schedules and forecast capital needs in the future.

Highlighted Project

EVERETT (STORMWATER AND SANITARY SEWER EVALUATION) - \$500,000

The proposed project consists of planning measures associated with the operation and maintenance of the stormwater and sanitary sewer systems. Work includes elements such as the assessment of existing stormwater quantity for various storm event scenarios, development of a stormwater conveyance model based on the existing record information and other sources, and flow monitoring. Additionally, a physical inspection of the system was conducted to ascertain the physical condition of stormwater and sanitary systems.

The environmental benefits from this project will result in the reduction or elimination of public health impacts from flooding, contaminated stormwater, contaminated sanitary sewer overflow. Impacts also include reduced infiltration and inflow, improved stormwater and wastewater collection systems, improved stormwater quality and management, the elimination of illicit connections, improved stormwater recharge and treatment, and the implementation of best management practices.

BORROWER	PROJECT DESCRIPTION	AMOUNT
Andover	<p>LEDGE ROAD LANDFILL CLOSURE PLANNING</p> <p>The project facilitated a landfill closure, groundwater source control and wetlands remediation necessary to mitigate adverse impacts to public health and the environment caused by the Ledge Road Landfill. The project scope included: 1) Additional site investigation; 2) Groundwater source control system pilot study; 3) Massachusetts Environmental Policy Act Compliance; 4) Landfill environmental monitoring; 5) Post closure use evaluation; 6) Mass-DEP review facilitation; 7) Public involvement.</p>	\$675,000
Barnstable	<p>NUTRIENT MANAGEMENT PLANNING PROJECT</p> <p>This project was executed to manage the Town's excess nutrient flow from stormwater and wastewater into fresh bodies of water. The nutrient levels were measured, and a solution was identified for implementation.</p>	\$255,941
Chicopee	<p>INTEGRATED MUNICIPAL STORMWATER AND WASTEWATER RESOURCE MANAGEMENT PLAN</p> <p>The purpose of the Integrated Municipal Stormwater and Wastewater Resource Management Plan is to serve as a planning basis for future phases of combined sewer overflow (CSO) abatement and infrastructural renewal work. Significant portions of the Integrated Plan are devoted to collecting data and modeling to document the actual CSO reduction progress being made by the already completed sewer separation projects, evaluating the effectiveness of those projects, and re-assessing whether to continue full implementation of the currently proposed CSO Long Term Control Plan recommendations.</p>	\$1,000,000
Easthampton	<p>INTEGRATED WATER RESOURCE MANAGEMENT PROJECT</p> <p>This project allows the City of Easthampton to proactively plan for, fund, and implement necessary capital improvements and/or administrative practices related to their drinking water, wastewater and stormwater systems.</p>	\$1,100,000
Everett	<p>STORMWATER AND SANITARY SEWER EVALUATION</p> <p><i>Highlighted Spending Project.</i></p>	\$500,000
Framingham	<p>PHASE 4 SEWER SYSTEM EVALUATION SURVEYS</p> <p>The planning project proposed to continue investigations into the status of the wastewater collection system employing closed circuit TV inspections, manhole inspections, site specific flow monitoring, house-to-house inspections and smoke testing and easements investigations.</p>	\$84,190
Lawrence	<p>CAPACITY MANAGEMENT OPERATIONS AND MAINTENANCE AND SEWER SYSTEM EVALUATION SURVEYS</p> <p>This two-phase project focused mostly on locating sources of inflow in portions of the sanitary sewer system that are separated causing limited drainage from the combined system. This project was part of a cost effective, targeted plan to assess operations and remove sources of inflow and infiltration to Lawrence's collection system. It is expected to greatly reduce public health problems of combined and sanitary sewer overflows to the Merrimack, Spicket and Shawsheen Rivers.</p>	\$3,840,000
Manchester by the Sea	<p>COMPREHENSIVE WASTEWATER MANAGEMENT PLAN</p> <p>The objective of this project supplemented a 1998 town-wide wastewater needs assessment to determine whether or not conventional Title 5 onsite wastewater disposal systems will be effective in disposing of wastewater within a given study area throughout and beyond the 20-year planning period. Solutions to the needs areas will be identified and evaluated as part of the Comprehensive Wastewater Management Plan (CWMP). An investigation into the viability of siting wastewater treatment facility(s) and/or highly treated wastewater effluent disposal facilities will be included. The CWMP document presents recommendations for wastewater management in the identified areas where existing onsite wastewater disposal systems are shown to be inadequate. Specific recommendations considered the appropriateness of utilizing: (1) innovative alternative systems; (2) communal systems; (3) local wastewater collection, treatment, and disposal facilities; and (4) regional wastewater collection treatment and disposal facilities.</p>	\$234,450

BORROWER	PROJECT DESCRIPTION	AMOUNT
Mashpee	<p>COMPREHENSIVE WASTEWATER MANAGEMENT PLAN</p> <p>This project was for the development of a watershed Nitrogen Management Plan for the Town of Mashpee. The plan recommended measures and facilities to comply with the total maximum daily load issued for Popponesset Bay and Waquoit Bay East.</p>	\$79,966
Revere	<p>CAPACITY MANAGEMENT OPERATIONS AND MAINTENANCE PROGRAM</p> <p>The main objective of this project was to continue the progress made by the City of Revere in their efforts to identify, assess, prioritize and implement improvements to their collection system ultimately leading to the reduction of sanitary sewer overflows and sewage back-ups. This Capacity, Management, Operations, and Maintenance (CMOM) Program development and implementation was customized for the City of Revere and allows the city to proactively handle day-to-day collection system operation and maintenance requirements and improve wastewater transport service citywide.</p>	\$300,000
Revere	<p>FIELD INVESTIGATION AND ILLICIT CONNECTION DETECTION</p> <p>This planning project focused on the assessment of the wastewater system along with support of the City's ongoing development of a Geographic Information System (GIS). Further technical support for implementation and use of GIS will be available through the planned scope of work for this planning study. This work allows Revere to continue to identify assess, prioritize and complete improvements to the City's sewer system. Significant components of the planning efforts included field investigations and evaluation of the City's wastewater system. The following field investigations and technical activities were carried out: supplemental flow isolation, closed circuit television inspection, dye testing, smoke testing, and house-to-house inspections. These investigations were an evaluation of the wastewater collection system and provide support for ongoing assessments of Infiltration/Inflow Removal (I/I Removal).</p>	\$1,500,000
Revere	<p>COMPREHENSIVE WASTEWATER MANAGEMENT PLAN COMPREHENSIVE STORMWATER MANAGEMENT SUPPLEMENTAL PLAN</p> <p>Phase VI Field Investigations and Supplemental Comprehensive Wastewater Management Plan supported activities needed to prioritize sewer improvements.</p>	\$1,200,000
Revere	<p>ILLICIT CONNECTION DETECTION PROGRAM</p> <p>This planning project focused on the identification of sources of direct inflow to the sanitary sewer system and planning and coordination activities for inflow removal. This project covered the public information program, and inflow removal prioritization. The effort monitored methods currently being applied under the construction phase. House to house inspections were completed utilizing access provided through the drinking water meter replacement project.</p>	\$700,000
Revere	<p>SANITARY SEWER EVALUATION SURVEY</p> <p>Revere established a multi-year phased Sanitary Sewer Evaluation Survey program that includes Phase I, II, III, IV and V to identify deficiencies within the existing sanitary sewer system. This project included supplemental flow isolation, closed circuit television inspection, dye testing, smoke testing, and house-to-house inspections. The resulting information was integrated into the existing Geographic Information System based sewer system mapping and database program.</p>	\$1,700,000

BORROWER	PROJECT DESCRIPTION	AMOUNT
Revere	<p>ILLICIT CONNECTION DETECTION</p> <p>This was a planning project for the continuing effort to reduce inflow to the wastewater collection system. The planning tasks included: 1) Administration of the sump pump removal; 2) Review hydraulic modeling results to aid in prioritization of removal locations, development of a database for integrating removal status with GIS, and development of a public web based tracking application; 3) Conduct a public information program to support the sump pump removal program; 4) Develop standard operating procedure for house-to-house inspections, coordinate inspections with the automatic meter reading project; develop recommended modifications, and enter data into item 2; and 5) Coordinate the sump pump removal program.</p>	\$800,000
Revere	<p>SANITARY SEWER EVALUATION SURVEY INVESTIGATIONS</p> <p>This project allowed the City of Revere to continue to identify, assess, prioritize and complete improvements to the City's sewer and storm drain systems. The sewer system evaluation survey activities included field investigations and desktop evaluation of the City's municipal wastewater and stormwater systems. The field investigations included TV inspection, dye water testing and smoke testing, which helps to complete the evaluation of the wastewater collection system along with support for ongoing assessment of the stormwater system including illicit discharge detection and elimination in addition to routine maintenance programs currently underway in the City.</p>	\$767,322

THE CITY OF REVERE AND GREEN BONDS

OVER \$33.9 MILLION IN CLEAN WATER LOANS FINANCED WITH GREEN BONDS

The City of Revere had been experiencing sewer blockages and capacity limitations in their wastewater sewers and wastewater treatment plant. The results were wastewater backing up into basements and untreated wastewater being discharged to surface waters. These events led to a violation of National Pollutant Discharge Elimination System (NPDES) permit requirements. In 2010, the City of Revere and the EPA entered a Consent Decree (CD) to remediate these issues.

The CD required the removal of illicit and cross connections to its sanitary system and Municipal Separate Storm Sewer System (MS4) to detect and eliminate sanitary sewer overflows (SSOs). Additionally, the CD required the City to develop and implement a comprehensive wastewater management plan (CWMP) and a comprehensive stormwater management plan (CSMP). The City has launched several initiatives to come into compliance with these terms by the December 31, 2022 deadline.

Detection, Evaluation and Investigations

With \$8.24 million in Green Bond funding, the City has employed measures to evaluate the physical state and function of its wastewater and stormwater infrastructure. These multiphase efforts included using closed circuit TV (CCTV) inspections to assess the internal condition of pipes and locate blockages. Dye water and smoke testing were employed to identify leaks and illicit connections with sump pumps and down spouts. These programs were accompanied with the launch of a sump pump amnesty program that ran until 2015 and replaced illicit home connections at no charge to residents.

A planning program was implemented to allow the City to proactively handle operations, maintenance, and improve wastewater transport services. The City's CWMP and CSMP are continuously supplemented to reflect improvements and are integrated with a new Geographic Information System (GIS) database for improved tracking.

Corrective Measures

The result of these planning measures has led to \$25.68 million in Green Bond construction financing. Like planning, corrective measures were implemented in rolling phases. This included the repair of pipes, sewer replacements, new sewers, the rehabilitation and cleaning of sewers and pump stations, drainage improvements, and additional wastewater metering. Sensors were installed to monitor areas with high potential for SSOs.

These improvements can be technically challenging and cause major disruptions. In 2013, a 100-year-old vitrified clay sewer collapsed as it was being evaluated. The sewer was surrounded by water, electrical, natural gas and data lines. The replacement sewer took nearly seven months, two contractors, and the collaboration of multiple government entities to complete.

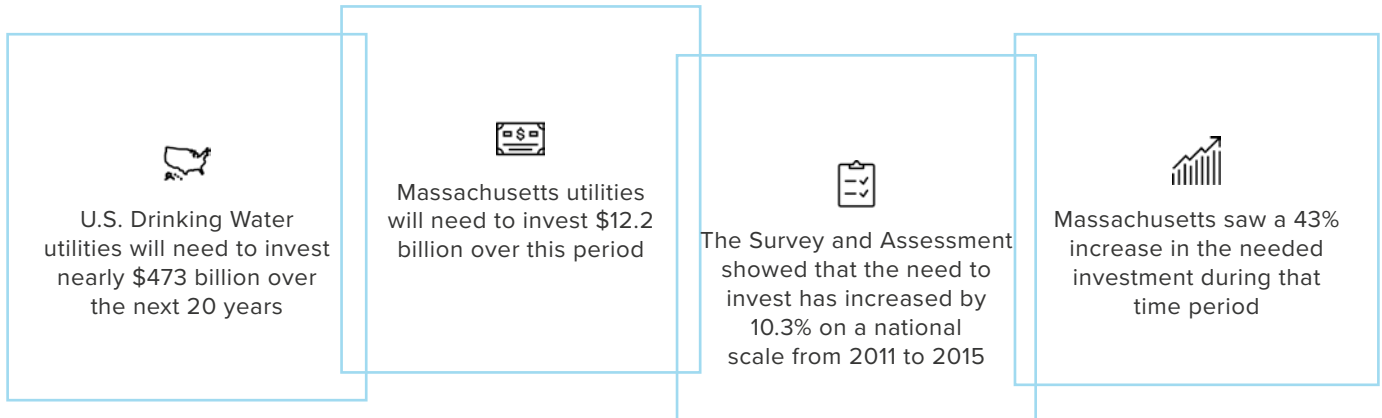
Cost and Benefits

In 2010, the City and the EPA estimated that the activities mandated by the CD would cost between \$50 and \$75 million. This cost has since increased to well over \$100 million. EPA noted that this enforcement action will substantially reduce the release of microbial pathogens, suspended solids, toxins, and nutrient pollutants that are detrimental to public health and the environment. EPA calculated that system improvements will result in a reduction of 1.8 million gallons of untreated water and 4,494 pounds of pollutants being discharged into the environment annually.

DRINKING WATER AS GREEN INVESTMENTS

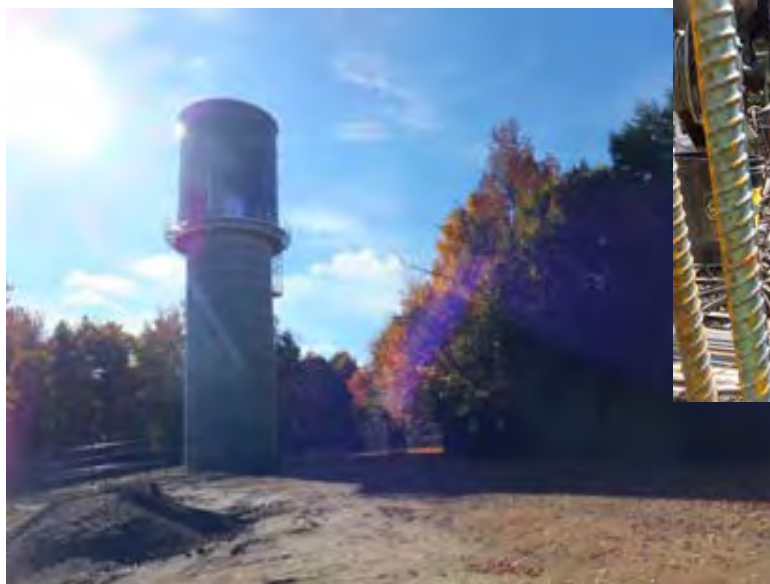
In May of 2001, the American Water Works Association announced that American water utilities were entering the “Replacement Era.” Many utilities need to invest not only in expansion, but also in replacing infrastructure that has reached its useful life. These projects which were funded with Green Bonds, help keep communities safe and ensure that the water received at the tap is clean.

According to the EPA’s Sixth Drinking Water Needs Survey and Assessment, from March of 2018:



Drinking Water challenges range from removing contaminants from raw water to removing lead service lines from older communities. Delivering safe and clean water involves major investments in new technologies that are efficient and effective. The investments in these Green Bonds allow water utilities to replace infrastructure that is over 100 years old in some cases. Projects funded by Green Bonds have helped many residents receive water that is free of toxins and harmful bacteria.

The Trust and MassDEP have proudly supported eligible entities with nearly \$1.6 billion in low-interest loans. These investments have been greatly expanded by investors that recognize the vitality of Drinking Water projects, and recently the importance of Green Bonds.



DRINKING WATER TREATMENT PROJECTS

Treatment projects include the construction, expansion, and rehabilitation of Drinking Water infrastructure that reduces contamination through various treatment processes. Such processes include conditioning water or removing contaminants. Treatment processes include filtration of surface water, pH adjustment, softening, disinfection, waste handling, other treatment needs (i.e., granular activated carbon which filters out chemicals, particularly organic chemicals, aeration, iron/manganese removal), and chemical storage tanks.

Upgrades and maintenance to water treatment plants lead to improved water quality and system efficiency. Replacing equipment that has reached the end of its useful life and upgrading filtering and purifying equipment makes these corrosion control, help keep the public safe from issues related to older cast iron pipes and lead service lines. Upgraded equipment generally leads to more efficient facilities that consume less power and improve worker safety.

Highlighted Project

GLOUCESTER (WATER TREATMENT PLANT UPGRADE) - \$474,127 (\$5,455,188 COMBINED)

This loan is an additional loan for an existing project. The original amount of \$4,981,061 was financed in a previous series. The purpose of this project was to improve the reliability and efficiency of Gloucester's West Gloucester and Babson water treatment plants. The upgrades targeted mechanical and electrical equipment that exceeded its useful life and was therefore inefficient. The upgrade included a backwash water recycle system which significantly reduced wastewater discharged to the Gloucester sewer system. This will reduce the frequency and severity of sanitary system overflows. In addition, safety equipment was updated and installed at both the West Gloucester and Babson water treatment plants. All improvements at the West Gloucester facility allowed for the water treatment plants to provide a constant supply of drinking water more reliably.



BORROWER	PROJECT DESCRIPTION	AMOUNT
Auburn Water District	<p>WEST ST. WATER TREATMENT FACILITY UPGRADE</p> <p>This project focused reducing elevated levels of arsenic in wells 11G and 12G. Arsenic levels were above the Maximum Containment Level of 0.01 milligrams per liter. In addition, measures were taken to address iron and manganese levels that were above secondary maximum contaminant levels. The 2012 samples from the West Street Wells (combined water) were 0.021 milligrams per liter. These wells were taken offline in May 2013 until arsenic removal upgrades were completed.</p>	\$2,688,952
Falmouth	<p>LONG POND WATER TREATMENT FACILITY</p> <p>The Town of Falmouth currently relies on Long Pond for 50 to 60% of its water supply needs. The Long Pond Treatment Facility operates under a filtration waiver and only provides chlorination and pH adjustment. Increasing algae blooms in Long Pond and organic loading from the surrounding forest are resulting in degraded water quality. The Town also has an extension to install a second disinfection method to comply with the EPA's Long Term 2 of the Enhanced Surface Water Treatment Rule (LT2). As of September, the Town has exceeded a trihalomethane Locational Running Annual Average under Stage 2 of the Disinfection By-Products Rule. The Town needs to invest significant money to comply with the LT2 rule which will not solve its trihalomethane problems. A proper surface water treatment facility is required to provide a long-term solution to the Town's water quality problems.</p>	\$31,446,880
Gloucester	<p>WATER TREATMENT PLANT UPGRADE</p> <p><i>Highlighted Spending Project</i></p>	\$474,127
Harwich	<p>WATER TREATMENT PLANT</p> <p>The project included the construction of a 1 million gallon per day iron and manganese removal facility at the Water Department's Well No. 10 site, located off North Westgate Road in Harwich. All chemical treatment remained in the existing pump house and the new facility is for water polishing only.</p>	\$1,875,541
Marlborough	<p>MILLHAM WATER TREATMENT PLANT IMPROVEMENTS</p> <p>The purpose of the Long Term 2 Enhanced Surface Water Treatment Rule (LT2) is to reduce disease incidence associated with Cryptosporidium and other pathogenic microorganisms in drinking water. There were three positive results for cryptosporidium during the 24-month sampling period. On November 30, 2010, MassDEP notified Marlborough that the Millham Water Treatment Plant has a 2-log or 99-percent removal/inactivation of cryptosporidium. Under the new LT2 requirements, an additional 1-log removal/inactivation is required for a total of 3-log or 99.9% removal/inactivation of cryptosporidium.</p>	\$4,809,184

DRINKING WATER TRANSMISSION AND DISTRIBUTION PROJECTS

These projects are for the purpose of installing, replacing, or rehabilitating transmission lines that carry drinking water from the source to the treatment plant or from the treatment plant to the consumer. Items such as pipes for raw and finished water transmission, service lines, valves, backflow prevention, water meters, and pumping stations may be components of these projects.

Replacing or repairing transmission lines improve water quality, system pressure and reliability. Additionally, the replacement and relocation of lines may be needed to improve the overall efficiency of a system that was designed for a smaller and less expansive community. The older practice of grouping transmission lines can lead to water distribution issues if one begins to leak and causes physical damage to the surrounding soil and adjacent transmission lines. Replacement of lead service lines reduces the risk of lead exposure and removes public safety risk.

Highlighted Project

SPRINGFIELD WATER AND SEWER COMMISSION (SOUTH WATER TRANSMISSION MAIN REPLACEMENT) - \$21,645,275

The Springfield Water and Sewer Commission (SWSC) provides drinking water to the residents of the City of Springfield and the Town of Ludlow. SWSC provides wholesale drinking water to Agawam, East Longmeadow, and Longmeadow. SWSC provides partial water service or peak service to Southwick, Westfield, and West Springfield. The Commission has three main water transmission lines that use gravity to feed water into the distribution system. The southmost line, a 54 and 48-inch diameter steel line, was installed in 1928. After years of spending millions of dollars on emergency repairs, SWSC determined that replacement was necessary. This transmission line was vital to providing uninterrupted service for the region.

The project replaced six miles of pipeline through multiple wetlands and required extensive site preparation for vegetation removal. Construction was completed in three phases. Each phase involved installing a section of pipe as well as related valves and infrastructure. The section was then pressure tested, disinfected, and tested for water quality. In June 2016, the final section of pipe was brought back into service. SWSC believes that the new South Transmission Main will reliably supply water for the next 80 to 100 years.



BORROWER	PROJECT DESCRIPTION	AMOUNT
Barnstable	<p>HYANNIS WATER SYSTEM IMPROVEMENTS</p> <p>The project included the replacement of approximately 4,000 feet of the 6-inch cast iron and asbestos-cement pipe with 8-inch ductile iron water main, and 500 feet of 2-inch pipe with 6-inch ductile iron water main. A three-phase cleaning and lining of a 16-inch water main from water tanks down to Main Street was completed.</p>	\$2,418,547
Eastham	<p>WATER SYSTEM PHASE I</p> <p>This loan amount reflects an additional loan for this project. The original loan amount for this project was \$24,985,403 and was previously financed by the Trust. Eastham's drinking water is currently supplied by small community public water systems and individual private wells. There is no municipal water supply system and sampling indicated impaired water quality, the consequence of which has been a plan to put the Town on a public water system that meets the standards of the Safe Drinking Water Act. The first phase of water system development included the construction of two well fields, a storage tank, and 45 miles of water distribution piping.</p>	\$2,304,545
Fall River	<p>AIRPORT ROAD HIGH SERVICE AREA IMPROVEMENTS</p> <p>The project created a high service area at the Airport Road Industrial Park. The tank was replaced with a taller tank to improve pressures in the new high service area. A new booster pump station was constructed, and water mains were replaced and upgraded to connect the new pump station and tank to the existing system.</p>	\$4,006,171
Fall River	<p>WATER MAIN IMPROVEMENTS</p> <p>This project included the replacement of approximately 14,200 linear feet of cast iron water mains and 23 lead services. This addressed water quality and reliability issues and is the fifteenth year of Fall River's annual cast iron water main and lead service replacement program.</p>	\$2,219,602
Fall River	<p>WATER MAIN IMPROVEMENTS AND WATER TREATMENT PLANT RESIDUAL HANDLING</p> <p>The project included the replacement of approximately 19,000 linear feet of cast iron water mains and 19 lead service lines. A new sanitary grinder pump station was installed for the discharge of domestic sewage from the City's water treatment plant and the replacement of the residuals pump station and associated electrical and control systems.</p>	\$3,157,717
Holden	<p>WATER MAIN INSTALLATION AND SUPERVISORY CONTROL AND DATA ACQUISITION IMPROVEMENTS</p> <p>This project included the replacement of approximately 4,500 linear feet of existing water main to improve water quality, system pressure, and reliability. Also included in the project were water supervisory control and data acquisition system improvements (hardware, software and a programmable logic controller for system monitoring).</p>	\$525,000
Lawrence	<p>WATER MAIN REPLACEMENT</p> <p>This project involved the replacement of approximately 45,000 linear feet of water mains, broken and malfunctioning hydrants, and valves.</p>	\$9,186,062
Lowell	<p>REDUNDANT TRANSMISSION MAIN</p> <p>This project included the construction of a new 36-inch diameter redundant treated water transmission main. This allowed the Lowell Regional Water Utility to continue to supply water and fire protection to the entire distribution system in the event of a break in the existing 36-inch main transmission pipe in the water treatment plant.</p>	\$3,520,254
Malden	<p>WATER DISTRIBUTION SYSTEMS IMPROVEMENTS</p> <p>This project consists of two contracts, 2014-H/W-1 and 2014 H/W-2, which replaced over 15,000 feet of old unlined cast iron water mains which are severely tuberculated, with new cement lined ductile iron pipe along with the replacement of hydrants and inoperable valves. This has resulted in better water quality and flow in the system.</p>	\$1,811,870
Manchester by the Sea	<p>WATER SYSTEM IMPROVEMENTS</p> <p>The project included the replacement of 5,400 feet of water main and lead service lines to improve capacity and water quality. The existing 6-inch diameter water main was replaced with new 12-inch water main and existing 8 and 14-inch water main with new 16-inch water main. The water main replacement was on Pine Street from Pleasant to Central Streets and from Rockwood Heights to Moses Hill Roads.</p>	\$1,440,000

BORROWER	PROJECT DESCRIPTION	AMOUNT
Medway	WATER MAIN REPLACEMENT This project addressed the replacement of aging water mains and accessory equipment in various streets in the community. The replacement of these old mains helped improve water quality with respect to disinfection, circulation, volume and system pressure.	\$1,216,667
Merrimac	WATER MAIN REPLACEMENT The Town of Merrimac, in conjunction with MassDOT reconstructed a one-mile segment of Main Street (Route 110) through the State Transportation Improvement Plan. Running beneath the roadway was an aging 12-inch diameter water main in need of replacement to ensure stability and improve water distribution. This project replaced that water main as a part of the larger MassDOT roadway and infrastructure improvement project providing efficiency and collaboration.	\$860,000
MWRA	SOUTHERN SPINE DISTRIBUTION MAINS This project required cleaning, rehabilitation and repair of 20 miles of old water mains which are currently functioning at 50% of their original capacity. In addition, inoperable valves were replaced in the system. The mains begin in Brookline and end at the Blue Hills Reservoir in Quincy. The mains serve the Southern High and Southern Extra High System communities of Boston, Brookline, Milton, Quincy, Norwood and Canton.	\$806,874
MWRA	WACHUSETT AQUEDUCT PUMPING STATION This project was for the construction of an emergency pump station from the Wachusett Aqueduct to the Carroll Water Treatment Plant (CWTP). The pump station provides redundancy in the event of failure at the Cosgrove Tunnel or Intake and for the inspection/rehabilitation of the Cosgrove Tunnel. The pump station can deliver 240 million gallons per day of raw water to the CWTP during a planned or emergency shutdown of the Cosgrove Tunnel. This flow rate represents the full water demand from CWTP during the fall, winter, and spring low-flow seasons and mitigates potential disruption of service to Northborough, Southborough, Marlborough, and Westborough State Hospital.	\$12,404,988
MWRA	LOWER HULTMAN AQUEDUCT REHABILITATION The work included the construction of interconnections between the Metro West Tunnel and the Hultman Aqueduct, as well as rehabilitation of the aqueduct that includes replacement or repair of air relief structures, blow-off valves, culverts beneath the aqueducts and replacement of existing valves.	\$3,516,897
MWRA	WESTON AQUEDUCT SUPPLY MAINS AND SEC 36/101 MWRA conducted improvements to the distribution system necessary for constructing a redundant main to prevent the loss of water to several communities, including Waltham, in the event the primary main fails.	\$11,296,507
New Bedford	TRANSMISSION MAIN IMPROVEMENTS This project included work on twin 36-inch cast iron transmission mains that convey potable water from the City's 75-million-gallon High Hill finished water reservoir to the eastern and central sections of New Bedford. The 103-year-old mains are interconnected in many places and cannot be isolated because of their significant disrepair. The mains are within 7 feet of each other, so a prolonged failure of one would likely cause failure to the other. These transmission mains are critical components which would cause catastrophic consequences to the City should they fail. The work consisted of installing new valves, blow offs, air release assemblies, hydrants and temporary piping.	\$4,466,812
Quincy	WATER SYSTEM INFRASTRUCTURE REHABILITATION This loan amount reflects an additional loan for this project. The original loan amount for this project was \$8,115,595 and was previously financed by the Trust. The project consisted of four contracts: 1) Replacement of water meter and installation of automated meter reading system; 2) Replacement of existing 6-inch and 8-inch diameter water distribution mains and service connections; 3) Installation of a supervisory control and data acquisition system and security improvements; 4) Improvements to the Penns Hill, Ricciuti Drive, West Street and Roosevelt Booster Pump Stations.	\$233,275

BORROWER	PROJECT DESCRIPTION	AMOUNT
Revere	<p>WATER METERS AUTOMATIC METER READING SYSTEM</p> <p>The Automatic Meter Reading (AMR) system fully replaced the aging residential water meter system throughout the City with approximately 10,000 new residential meters, plus a citywide fixed based AMR system. The system provides automated readings of every new meter in the system which will minimize or eliminate the need for mobile or hand readings. This program is vital for Revere to improve the City's water conservation. 18.6% of Revere's water was unaccounted for, which was well above the Massachusetts Standard of 10%. The new AMR program is more sophisticated and reliable system for the City.</p>	\$6,370,373
Springfield Water and Sewer Commission	<p>SOUTH WATER TRANSMISSION MAIN REPLACEMENT</p> <p>Highlighted Spending Project.</p>	\$21,645,275
Taunton	<p>PUMP STATION AND WATER MAIN REPLACEMENT</p> <p>The project involved the replacement of approximately 10,000 linear feet of water main throughout the City of Taunton's water distribution system. The project involved the construction of a new pumping station on Harris Street to replace the original station constructed in 1876.</p>	\$6,663,446
Uxbridge	<p>RT. 122 WATER MAIN REPLACEMENT</p> <p>This ongoing project consists of replacing a water main on Route 122 that does not meet system pressures. This main on Route 122 has experienced breaks and is considered a critical component to the Town's system and would affect 5,000 consumers should it lose transmission.</p>	\$3,186,000
Webster	<p>WATER MAIN</p> <p>The project included the construction of approximately 4,500 feet of new water main in Rawson Road Reservoir Access Road, Rawson Road, and sections of Gore Road. 75 linear feet cured-in-pipe liner was installed as well as a Tideflex Mixing System for the Rawson Road Water Tank. The project reduces the probability of future failures and reduces the risk of system contamination, iron and manganese water quality disturbances and the loss of water from storage.</p>	\$170,246

DRINKING WATER SOURCE AND STORAGE

These projects are used for developing or improving sources of water used in public water systems. This includes costs for constructing or rehabilitating surface water intake structures, drilled wells, wellhead pumps and spring collectors. Having multiple sources of raw water are a standard precaution in making sure water supplies are not endangered or cut off. Source protection and testing are necessary to confirm that raw water quality can be properly purified at the intended water treatment plant. Excessive amounts of toxins or pollutants in raw water can cause efficiency issues once it reaches a water treatment plant. Pumping, well maintenance and water extraction must be monitored to ensure that water quality at the source is not impacted by these activities.

Storage projects in this category aim to provide finished water storage for public water systems. Examples may include systems involving elevated and ground level storage for treated water and covers for existing storage. Storage tanks and the systems they employ are vital components of a water distribution system. Tanks are used to ensure water supply when there may be issues with supply lines or when maintenance is being performed. Upgraded systems that chlorinate water or monitor water quality are more efficient with advanced systems, meaning that water quality is more consistent and requires less human maintenance.

Highlighted Project

PAXTON (MAPLE STREET ELEVATED TANK) - \$1,370,000

The Town of Paxton distributes more than 97 million gallons of water to approximately 3,680 people annually. Paxton purchases pretreated water from the nearby City of Worcester and uses two large storage tanks as part of their distribution process. The 80-year-old Maple Street water tank needed to be replaced with a smaller, more efficient tank. The original tank did not have an internal mixing system which can lead to water being stored longer than is recommended. Aging water can lead to the lessening of chlorine residual, a cause of bacterial growth. The new tank contains an internal mixing system and a booster chlorination system that will allow Paxton to mitigate issues and maintain water quality.

The Maple Street Tank is the primary tank for the northern portion of the system, which includes the faculty and student population of Anna Maria College and a senior housing complex. Having two storage tanks provides extra storage that allows the Town to take one tank offline for routine maintenance or for adequate water storage in the event of an emergency. In November 2012, the City of Worcester experienced a large water main break that shut off the water supply for hours. Paxton's sole source of water comes from the City. However, Paxton could sustain water supply and water pressure because of the two tanks.



BORROWER	PROJECT DESCRIPTION	AMOUNT
Eastham	<p>WATER SYSTEM PHASE I</p> <p>The project was the first phase in the development of a town-wide water system that included the construction of two well fields, a storage tank, and 45 miles of water distribution piping. Previously, individual private wells were the main source of drinking water to residents and businesses, as there was no municipal water supply system. Sampling indicated some impaired water quality and resulted in the Town's decision to construct a public water system that meets safety standards.</p>	\$10,402,720
Lynn Water and Sewer Commission	<p>LOW SERVICE RESERVOIR IMPROVEMENTS</p> <p>The project included the rehabilitation of the Low Service Reservoir by replacing its cover and lining to address potential public health concerns due to the aging system.</p>	\$1,297,810
MWRA	<p>LOW SERVICE STORAGE</p> <p>This project was for the construction of a 20-million-gallon potable water storage tank in the Town of Stoneham in its terminal reservoir at the northeast extremity of the MWRA water service to metropolitan Boston. The project provides improved storage (16-20 million gallons) but also provides surge relief, protect MWRA and community mains, allows for more efficient use of the existing MWRA distribution system and provides emergency backup relief to 21 communities in the Northern Intermediate High and Northern High Systems.</p>	\$10,474,691
Paxton	<p>MAPLE ST. ELEVATED TANK</p> <p>Highlighted Spending Project.</p>	\$1,370,000
Plainville	<p>TANK REHABILITATION</p> <p>This project addressed deficiencies in the East Bacon Street Tank relating to its overflow structure. The tank was due for recoating to extend its useful life. This project included tank recoating and modifications to the vent and overflow structures.</p>	\$666,593
Stockbridge	<p>WATER SYSTEM IMPROVEMENTS</p> <p>Stockbridge used two 150,000-gallon steel storage tanks constructed in 1908 and 1947, and one 600,000-gallon concrete tank completed in 2010. Tank inspection results indicated that the older steel tanks have coating failure and corrosion. This project involved the replacement of two steel tanks with a single 300,000-gallon concrete tank. This project included replacement of the Church Street Water Main which was known to be severely corroded.</p>	\$1,800,000
Turner Falls Fire District	<p>HANNEGAN BROOK WELL PUMP STATION</p> <p>This project involved the construction of a pump station and chemical feed systems to bring the Hannegan Brook Well on line as a backup water supply source for the Turners Falls Water Department. The project not only serves as the backup for the system but assists the Department in reducing the vulnerability to the Town of Irving water supply and the Montague Center Water District, since both of these systems rely on a single well and use Turners Falls Water Department as their backup.</p>	\$780,677

**APPENDIX A
SERIES 18 PROJECTS ¹**

BORROWER	LOAN NO.	PROJECT NAME	AMOUNT	LOAN DRAWN	PROGRAM	CATEGORY
Acton Water Supply District	DWP-12-19	New Water Treatment Plant	\$726,554 ³	100%	DW	Drinking Water Treatment
Barre	DW-11-15	Well #3 Evaluation	\$63,800	100%	DW	Drinking Water Planning and Design
Bellingham	DW-13-11	New Water Treatment Plants	\$1,259,831 ³	100%	DW	Drinking Water Treatment
Belmont	CW-12-17	Illicit Connection Elimination	\$2,300,000	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Billerica	CW-12-08	Sewer Extension and Pump Station Improvements	\$9,000,000	100%	CW	Collector and Interceptor Appurtenances
Billerica	CW-12-18	Wastewater Treatment Facility Improvements	\$11,361,364	100%	CW	Drinking Water Treatment
Billerica	CW-10-24	Phase I Pump Station Upgrade	\$1,497,797 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Boston	CWP-14-02	Gardner St. Landfill Closure	\$4,110,181 ³	100%	CW	NPS Sanitary Landfills
Bridgewater	CW-14-17	Sewer Inspection, Cleaning and Lining	\$122,523 ³	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Brockton	DWP-12-26	Water System Improvement Program	\$1,912,312	100%	DW	Drinking Water Transmission and Distribution
Chatham	CW-12-21	Collection System Extension and Improvements	\$3,847,853	100%	CW	Collector and Interceptor Appurtenances
Cherry Valley and Rochdale Water District	DW-12-01	Modification to Water Treatment Plant	\$555,588 ²	100%	DW	Drinking Water Treatment
Chicopee	CWP-12-22	Combined Sewer Overflow	\$2,886,337 ²	100%	CW	Combined Sewer Overflow Correction
Chicopee	CWP-13-21	Wastewater Treatment Facility and Stormwater Improvements	\$14,845,991	100%	CW	Combined Sewer Overflow Correction
Clinton	CW-11-22	Stormwater Management Plan	\$120,000	100%	CW	Planning
Dartmouth	CWP-11-19	Infiltration/Inflow and Sanitary Sewer Evaluation Sewer	\$288,057	100%	CW	Planning
Dartmouth	CW-12-16	Wastewater Treatment Facilities Upgrades	\$9,847,478	100%	CW	Wastewater Treatment
Dracut	CW-12-11	Collection Sewers	\$9,220,005 ²	100%	CW	Collector and Interceptor Appurtenances
Everett	CW-10-20-A	Stormwater/Wastewater Capital Improv.	\$661,967	100%	CW	Stormwater Infrastructure
Fairhaven	DWP-12-10	Boston Hill Tank Rehab and Main Replacement	\$741,116 ²	100%	DW	Drinking Water Source and Storage
Fall River	CWP-13-02	Combined Sewer Overflow Abatement Program	\$12,668,331	100%	CW	Combined Sewer Overflow Correction
Fall River	DWP-12-03	Water System Master Plan Update	\$112,499	100%	DW	Drinking Water Planning and Design
Fall River	DWP-12-06	Water Main Improvements, Phase 12	\$2,384,078 ²	100%	DW	Drinking Water Transmission and Distribution
Fitchburg	CWP-12-01	Combined Sewer Separation	\$5,575,799	100%	CW	Combined Sewer Overflow Correction
Fitchburg	CWP-12-02	Chemically Enhanced Primary Treatment Upgrade	\$7,143,406	100%	CW	Drinking Water Treatment
Framingham	CW-09-17	East Framingham Sewer Improvements	\$3,515,998	100%	CW	Collector and Interceptor Appurtenances
Gloucester	DWP-11-19	Water System Improvements	\$9,866,524	100%	DW	Drinking Water Transmission and Distribution
Gloucester	DWP-12-05	Water Transmission Improvements	\$2,522,368	100%	DW	Drinking Water Transmission and Distribution
Gloucester	DWP-12-02	Water Treatment Plant Upgrade	\$4,482,909	100%	DW	Drinking Water Treatment
Greater Lawrence Sanitary District	CWP-11-13	Wastewater Treatment Plant improvements	\$1,980,741 ²	100%	CW	Drinking Water Treatment
Greater Lawrence Sanitary District	CWP-11-14-A	New Force Main for Riverside Pumping Station	\$548,890 ²	100%	CW	Drinking Water Treatment
Haverhill	CWP-12-14	Combined Sewer Overflow/Flood Control Improvements	\$3,851,669 ²	100%	CW	Stormwater Infrastructure
Holliston	DW-11-11	Well No. 4 Replacement and Treatment Plant Upgrade	\$2,500,000	100%	DW	Drinking Water Treatment
Ipswich	CW-10-09-A	Wastewater Solids Handling and UV Disinfection Upgrade	\$2,246,791	100%	CW	Drinking Water Treatment
Kingston	DWP-12-15	Trackle Pond Water Treatment Facility	\$4,366,113 ²	100%	DW	Drinking Water Treatment
Lawrence	DWP-12-09	Water Meter Replacement	\$3,163,833 ²	100%	DW	Drinking Water Restructuring
Lawrence	DWP-12-08	Valve Replacement	\$1,579,087 ²	100%	DW	Drinking Water Transmission and Distribution
Lynn Water and Sewer Commission	CWP-10-26	Wind Turbine Project	\$907,374	100%	CW	Stormwater Infrastructure

¹ Series 18 projects have been fully drawn and will no longer appear in Green Bond reporting.

² Amount was reduced following the completion of the project. Excess funds were reallocated to additional green projects and are listed within the Series 18 table.

³ Amount reflects Series 18 Bond proceeds reallocated from excess funds of completed Series 18 projects.

BORROWER	LOAN NO.	PROJECT NAME	AMOUNT	LOAN DRAWN	PROGRAM	CATEGORY
Malden	DWP-11-16	Water Distribution System Planning	\$270,899	100%	DW	Drinking Water Planning and Design
Malden	DW-10-07	Water Main Replacement Projects	\$378,173 ²	100%	DW	Drinking Water Transmission and Distribution
Malden	DWP-12-04	Water Main Replacement Projects	\$5,946,761 ²	100%	DW	Drinking Water Transmission and Distribution
Malden	CWP-13-25	Sewer Improvements	\$3,698,538 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Marion	CW-13-07	Wastewater and Stormwater Improvement	\$2,625,585 ²	100%	CW	Stormwater Infrastructure
Marlborough	CW-11-21-A	Marlborough Easterly Wastewater Treatment Facility Upgrades	\$20,000,000	100%	CW	Drinking Water Treatment
Medway	DW-13-13	Water Main Replacement	\$1,501,102	100%	DW	Drinking Water Transmission and Distribution
Monroe	CW-11-03	Wastewater Treatment Facility Repairs	\$159,463 ²	100%	CW	Planning
MWRA	CW-13-32	Combined Sewer Overflow Phase 14	\$15,000,000	100%	CW	Combined Sewer Overflow Correction
MWRA	DW-12-17	Low Service Storage	\$5,000,000	100%	DW	Drinking Water Source and Storage
MWRA	CW-12-10	Nut Island Headworks Electrical and Conveyor Improvement	\$2,000,000	100%	CW	Drinking Water Treatment
MWRA	CW-12-24	Electrical Upgrades	\$1,977,802	100%	CW	Drinking Water Treatment
MWRA	CW-12-25	Wastewater Treatment Plant and Sewer Improvements	\$2,912,188	100%	CW	Drinking Water Treatment
MWRA	CW-12-26	Deer Island Treatment Plant Improvements	\$5,113,812	100%	CW	Drinking Water Treatment
MWRA	CW-13-30	Nut Island Headworks Electrical and Conveyor Improvement	\$840,982	100%	CW	Drinking Water Treatment
MWRA	DW-12-20	NHS - Revere and Malden Pipeline	\$600,000	100%	DW	Drinking Water Transmission and Distribution
MWRA	DW-12-21	Northern Low Service Area Rehabilitation	\$600,000	100%	DW	Drinking Water Transmission and Distribution
MWRA	DW-12-22	New Connecting Mains	\$1,000,000	100%	DW	Drinking Water Transmission and Distribution
MWRA	DW-12-23	Lower Hultman Aqueduct Rehabilitation	\$1,600,000	100%	DW	Drinking Water Transmission and Distribution
MWRA	DW-12-24	Southern Spine Distribution Mains	\$240,342	100%	DW	Drinking Water Transmission and Distribution
MWRA	DW-13-22	Lower Hultman Aqueduct Rehabilitation	\$1,800,000	100%	DW	Drinking Water Transmission and Distribution
MWRA	DW-13-23	New Connecting Mains	\$666,666	100%	DW	Drinking Water Transmission and Distribution
MWRA	DW-13-24	Low Service Storage	\$2,500,000	100%	DW	Drinking Water Source and Storage
Nantucket	CW-12-09	Sewer Replacement for I/I removal	\$4,999,200	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Newburyport	DW-10-09-B	Water Treatment Facility Upgrade and Water Distribution	\$296,527 ²	100%	DW	Drinking Water Treatment
North Attleborough	CW-10-31-A	Wastewater Treatment Facility Upgrade and I/I Removal	\$10,910,182 ²	100%	CW	Drinking Water Treatment
Pembroke	CW-10-39-A	Capping of Hobonock Street Landfill	\$98,393	100%	CW	NPS Sanitary Landfills
Pittsfield	CW-09-22-A	Energy Efficiency, Photovoltaic and CHP Installation	\$4,100,000	100%	CW	Stormwater Infrastructure
Randolph	DWP-13-14	Water System Improvements	\$1,961,620 ²	100%	DW	Drinking Water Transmission and Distribution
Revere	CW-13-08	Winthrop Ave. Emergency Sewer Replacement	\$1,810,760 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Revere	CWP-12-12	Sanitary Sewer Evaluation Sewer Construction	\$5,750,051 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Revere	CWP-11-25	Sanitary Sewer Evaluation Sewer Phase 3 and SWSMP	\$1,273,774	100%	CW	Planning
Saugus	CW-12-07	Sewer System Rehabilitation	\$362,443 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Saugus	CWP-13-05	SSO Reduction Subsystem 6	\$1,455,461 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Shrewsbury	CW-12-20	Sewer Interceptor and Pump Station	\$3,821,859 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Taunton	CWP-10-36-A	Sewer Extensions	\$503,058 ²	100%	CW	Collector and Interceptor Appurtenances
Taunton	CWP-12-27	Phases 8 - 9 Sanitary Sewer Evaluation Sewer and Pump Station Upgrades	\$4,688,669	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Webster	DWP-13-15	Water Main	\$1,657,267	100%	DW	Drinking Water Transmission and Distribution
Wellfleet	CW-10-11	Comprehensive Wastewater Management Plan	\$200,000	100%	CW	Planning
West Springfield	DWP-11-23-A	Water Transmission Main and Wellfield	\$566,384	100%	DW	Drinking Water Transmission and Distribution
Westborough	CW-08-22-A	Infiltration/Inflow Analysis - Sanitary Sewer Evaluation Survey	\$98,280	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Westfield	DWP-12-18	Water Main Replacement	\$2,350,948 ²	100%	DW	Drinking Water Transmission and Distribution
Worcester	CW-13-06	Lake Avenue Area Sewer System Evaluation Survey	\$561,500	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation

**APPENDIX B
SERIES 19 PROJECTS ¹**

BORROWER	LOAN NO.	PROJECT NAME	AMOUNT	LOAN DRAWN	PROGRAM	CATEGORY
Andover	CW-11-24	Ledge Road Landfill Closure Planning	\$675,000	100%	CW	Planning
Auburn Water District	DW-14-01	West St. Water Treatment Facility Upgrade	\$2,688,952	87.53%	DW	Drinking Water Treatment
Barnstable	DWP-13-01	Hyannis Water System Improvements	\$2,418,547	84.22%	DW	Drinking Water Transmission and Distribution
Bridgewater	CW-14-17	Sewer Inspection, Cleaning and Lining	\$781,616 ³	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Brockton	CWP-14-30	Sewer System Rehabilitation	\$1,704,244	86.02%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Cambridge	CWP-13-03-A	Huron B Sewer Separation Project	\$14,000,000	93%	CW	Combined Sewer Overflow Correction
Charles River Pollution Control District	CW-13-09-A	Wastewater Treatment Facility Improvements Phase C	\$8,741,935	100%	CW	Wastewater Treatment
Chatham	CW-13-10	Collection System Extension and Improvements	\$3,336,119	86.36%	CW	Collector and Interceptor Appurtenances
Dracut	CW-13-24	Contract No. 32 Sewer Extensions	\$4,693,582	100%	CW	Collector and Interceptor Appurtenances
Dracut	CWS-08-18-A	Contract 27 Peters Pond West Area Sewers	\$19,114	100%	CW	Collector and Interceptor Appurtenances
Fall River	DWP-13-06	Airport Road High Service Area Improvements	\$4,006,171	100%	DW	Drinking Water Transmission and Distribution
Fall River	DWP-14-08	Water Main Improvements and Water Treatment Plant Residual Handling	\$3,157,717 ²	100%	DW	Drinking Water Transmission and Distribution
Fall River	DWP-15-10	Water Main Improvements	\$2,219,602 ³	100%	DW	Drinking Water Transmission and Distribution
Falmouth	CWP-14-23	Sewer Extension and New Recharge Site	\$11,140,583	100%	CW	Collector and Interceptor Appurtenances
Falmouth	DWP-14-04	Long Pond Water Treatment Facility	\$16,126,207	100%	DW	Drinking Water Treatment
Falmouth	CWP-14-22	Wastewater Treatment Facility Upgrade	\$4,284,956	99.55%	CW	Wastewater Treatment
Fitchburg	CWP-12-01-A	Combined Sewer Separation	\$721,426	100%	CW	Combined Sewer Overflow Correction
Framingham	CW-09-11	Central Street Siphon/Sudbury Interceptor	\$2,114,587	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Framingham	CW-09-30-A	Phase 4 Sanitary Sewer Evaluation Survey	\$84,190	100%	CW	Planning
Gloucester	DWP-12-02-A	Water Treatment Plant Upgrade	\$474,127	100%	DW	Drinking Water Treatment
Great Barrington	CW-12-23	Wastewater Treatment Facility Upgrade and Infiltration/Inflow Removal	\$4,210,000	100%	CW	Wastewater Treatment
Harwich	DWP-13-02	Water Treatment Plant	\$1,875,541 ²	100%	DW	Drinking Water Treatment
Holden	DW-13-12	Water Main Installation and SCADA Improvements	\$525,000	100%	DW	Drinking Water Transmission and Distribution
Lawrence	DWP-13-05	Water Main Replacement	\$9,186,062	100%	DW	Drinking Water Transmission and Distribution
Leominster	CW-10-41	Water Pollution Control Facility Upgrades	\$8,000,000	100%	CW	Wastewater Treatment
Leominster	CW-10-41-A	Water Pollution Control Facility Upgrades	\$2,500,000	100%	CW	Wastewater Treatment
Lowell	DWP-13-04	Redundant Transmission Main	\$3,520,254 ²	100%	DW	Drinking Water Transmission and Distribution
Ludlow	CW-08-05-A	Combined Sewer Overflow	\$503,676	100%	CW	Combined Sewer Overflow Correction
Lunenburg	CW-14-29	Sewer Extension	\$1,216,325 ²	100%	CW	Collector and Interceptor Appurtenances
Malden	DWP-13-18	Water Distribution Systems Improvements	\$1,811,870 ²	100%	DW	Drinking Water Transmission and Distribution
Marlborough	DW-14-02	Millham Water Treatment Plant Improvements	\$4,809,184	100%	DW	Drinking Water Treatment
Marlborough	CW-11-21-B	Marlborough Easterly Wastewater Treatment Plant Upgrades	\$14,626,671 ²	100%	CW	Wastewater Treatment
Medway	DW-13-13-A	Water Main Replacement	\$1,216,667 ²	100%	DW	Drinking Water Transmission and Distribution
Merrimac	DW-12-14	Water Main Replacement	\$860,000	100%	DW	Drinking Water Transmission and Distribution
MFN Regional Wastewater District	CW-10-07-A	MFN Regional Wastewater District Land Treatment	\$1,012,310	100%	CW	Wastewater Treatment
MWRA	CW-13-32-F	Combined Sewer Overflow Phase 14	\$2,611,847	100%	CW	Combined Sewer Overflow Correction
MWRA	DW-14-14	Low Service Storage	\$3,000,000	100%	DW	Drinking Water Source and Storage
MWRA	DW-13-21-B	Southern Spine Distribution Mains	\$806,874	100%	DW	Drinking Water Transmission and Distribution
MWRA	DW-14-11	Weston Aqueduct Supply Mains and Sec 36/101	\$6,876,818	100%	DW	Drinking Water Transmission and Distribution
MWRA	DW-14-13	Lower Hultman Aqueduct Rehabilitation	\$3,000,000	100%	DW	Drinking Water Transmission and Distribution

¹ Series 19: Amount and Loan Drawn sections are accurate as of July 31, 2018

² Amount was reduced following the completion of the project. Excess funds were reallocated to additional green projects and are listed within the Series 19 table.

³ Amount reflects Series 19 Bond proceeds reallocated from excess funds of completed Series 19 projects.

BORROWER	LOAN NO.	PROJECT NAME	AMOUNT	LOAN DRAWN	PROGRAM	CATEGORY
MWRA	CW-14-37	Deer Island Treatment Plant: Digester and Cryogenics Upgrade	\$6,255,873	100%	CW	Wastewater Treatment
MWRA	CW-14-38	Deer Island Treatment Plant: Electrical and Plant Upgrades	\$813,700	100%	CW	Wastewater Treatment
Needham	CW-11-11-A	Replacement of Reservoir B Sewer Pump Station	\$78,491	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
New Bedford	CWP-14-19	Combined Sewer Overflow Abatement	\$8,063,124	100%	CW	Combined Sewer Overflow Correction
Norwood	CW-11-12-A	Westover Area Sewer Rehabilitation	\$110,127	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Norwood	CWP-13-19	Meadowbrook Area Sewer Rehabilitation	\$2,638,952	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Palmer	CWP-13-23	Sewer Replacement	\$5,807,217 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Paxton	DW-14-07	Maple St. Elevated Tank	\$1,370,000	100%	DW	Drinking Water Source and Storage
Quincy	DW-09-12-A	Water System Infrastructure Rehabilitation	\$233,275	100%	DW	Drinking Water Transmission and Distribution
Quincy	CWP-13-26	Fort Square Pumping Station Rehabilitation	\$2,787,004	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Revere	CWP-13-16	Collection System Improvements	\$7,218,581	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Revere	CW-13-17	Field Investigation and Illicit Connection Detection	\$1,500,000	100%	CW	Planning
Revere	CWP-12-13	Sanitary Sewer Evaluation Survey Investigations	\$767,322	100%	CW	Planning
Saugus	CWP-14-08	SSO Reduction Subsystem 5	\$1,579,841	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
South Essex Sewerage District	CW-13-33	Marblehead Replacement Crossing Sewer	\$9,250,000	100%	CW	Collector and Interceptor Appurtenances
Springfield Water and Sewer Commission	DWP-13-16	South Water Transmission Main Replacement	\$21,645,275	98.29%	DW	Drinking Water Transmission and Distribution
Taunton	CWP-11-17-A	Sewer System Separation of Combined Manholes and Upgrade of Vital Pump Stations	\$180,526	100%	CW	Collector and Interceptor Appurtenances
Taunton	DWP-13-07	Pump Station and Water Main Replacement	\$6,663,446	100%	DW	Drinking Water Transmission and Distribution
Taunton	CWP-13-18	Sanitary Sewer Evaluation Survey Phases 10-12	\$6,295,244	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Taunton	CWP-14-26	Sanitary Sewer Evaluation Survey Phases 10-12	\$4,021,122	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Turners Falls Fire District	DWP-13-17	Hannegan Brook Well Pump Station	\$780,677 ²	100%	DW	Drinking Water Source and Storage
Webster	DWP-13-15-A	Water Main	\$170,246 ²	100%	DW	Drinking Water Transmission and Distribution
Westborough	CW-07-19	Wastewater Treatment Plant Upgrade	\$302,305	100%	CW	Wastewater Treatment
Worcester	CWP-13-20	Lake Ave Sewer Infiltration/Inflow	\$1,048,196	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation

**APPENDIX C
SERIES 20 PROJECTS ¹**

BORROWER	LOAN NO.	PROJECT NAME	AMOUNT	LOAN DRAWN	PROGRAM	CATEGORY
Barnstable	CW-04-31-R	Nutrient Management Planning Project	\$255,941	100.00%	CW	Planning
Billerica	CW-14-21	Contract 35 Sewers	\$9,724,962	89.25%	CW	Collector and Interceptor Appurtenances
Billerica	CW-14-20	Wastewater Treatment Facility Upgrades	\$4,568,100	97.91%	CW	Wastewater Treatment
Brockton	CWP-15-22	Sewer Rehabilitation	\$1,356,694	89.15%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Charles River Pollution Control District	CW-13-09-B	Wastewater Treatment Facility Improvement Phase C	\$1,858,065	88.54%	CW	Wastewater Treatment
Chicopee	CW-14-05	Combined Sewer Overflow	\$25,478,178	93.52%	CW	Combined Sewer Overflow Correction
Chicopee	CW-13-22	Integrated Municipal Stormwater and Wastewater Resource Management Plan	\$1,000,000	99.65%	CW	Planning
Dracut	CW-13-24-A	Contract No. 32 Sewer Extensions	\$181,873	100%	CW	Collector and Interceptor Appurtenances
Eastham	DW-16-02	Water System Phase I	\$10,402,720	92.68%	DW	Drinking Water Source and Storage
Eastham	DWP-15-01-A	Water System Phase I	\$2,304,545	98%	DW	Drinking Water Transmission and Distribution
Easthampton	CW-14-13	Integrated Wastewater Resource Management Plan	\$1,100,000	95.68%	CW	Planning
Everett	CW-08-14-A	Stormwater Illicit Discharge Detection	\$61,076	87.62%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Everett	CW-14-24	Stormwater/Sewer Evaluation	\$500,000	100%	CW	Planning
Falmouth	CWP-14-23-A	Sewer Extension and New Recharge Site	\$20,869,482	74.95%	CW	Collector and Interceptor Appurtenances
Falmouth	DWP-15-02	Long Pond Water Treatment Facility	\$15,320,673	100%	DW	Drinking Water Treatment
Fitchburg	CWP-13-01-A	Combined Sewer Separation Area 4D	\$1,231,951	98.69%	CW	Combined Sewer Overflow Correction
Gardner	CWP-15-21	Wastewater Treatment Plant Upgrade	\$4,433,242	91.15%	CW	Wastewater Treatment
Grafton	CW-15-14	Wastewater Treatment Plant Improvements	\$14,613,300	100%	CW	Wastewater Treatment
Great Barrington	CWP-15-24	Wastewater Treatment Facility Upgrades and Sewer Improvements	\$4,579,305	99.64%	CW	Wastewater Treatment
Haverhill	CWP-14-15	Combined Sewer Overflow Improvements, Wastewater Treatment Facility and Sewer System	\$8,366,419	98.56%	CW	Combined Sewer Overflow Correction
Lawrence	CW-14-16	Sewer System Rehabilitation	\$8,978,897	73.05%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Lawrence	CW-13-13	Capacity Management Operations and Maintenance Program and Sanitary Sewer Evaluation Survey	\$3,840,000	100%	CW	Planning
Lynn Water and Sewer Commission	DW-13-19	Low Service Reservoir Improvements	\$1,297,810	100%	DW	Drinking Water Source and Storage
Manchester by the Sea	DW-14-03	Water System Improvements	\$1,440,000	100%	DW	Drinking Water Transmission and Distribution
Manchester by the Sea	CW-14-31	Comprehensive Wastewater Management Plan	\$234,450	100%	CW	Planning
Mashpee	CW-00-50-C	Comprehensive Wastewater Management Plan	\$79,966	97.59%	CW	Planning
Middleborough	CWP-14-32	Wastewater Treatment Facility Upgrades	\$24,346,341	99.41%	CW	Wastewater Treatment
MWRA	CW-15-27	Combined Sewer Overflow Phase 16	\$3,038,178	100%	CW	Combined Sewer Overflow Correction
MWRA	DW-15-13	Low Service Storage	\$7,474,691	100%	DW	Drinking Water Source and Storage
MWRA	DW-15-04	Wachusett Aqueduct Pump Station	\$12,404,988	100%	DW	Drinking Water Transmission and Distribution
MWRA	DW-15-12	Lower Hultman Aqueduct Rehabilitation	\$516,897	100%	DW	Drinking Water Transmission and Distribution
MWRA	DW-15-14	Weston Aqueduct Supply Mains and Sec 36/101	\$4,419,689	100%	DW	Drinking Water Transmission and Distribution
MWRA	CW-15-30	Caruso Pump Station	\$2,031,614	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
MWRA	CW-15-32	Clinton Wastewater Treatment Plant Phosphorous Removal	\$2,496,267	100%	CW	Wastewater Treatment
New Bedford	DWP-14-05	Transmission Main Improvements	\$4,466,812	100.00%	DW	Drinking Water Transmission and Distribution
Norwood	CWP-15-08	Underdrain Area Sewer Rehabilitation	\$2,212,267	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Plainville	DWP-15-09	Tank Rehabilitation	\$666,593	95.41%	DW	Drinking Water Source and Storage
Revere	DWP-13-09	Water Meters AMR System	\$6,370,373	95.51%	DW	Drinking Water Transmission and Distribution

¹ Series 20: Amount and Loan Drawn sections are accurate as of July 31, 2018

BORROWER	LOAN NO.	PROJECT NAME	AMOUNT	LOAN DRAWN	PROGRAM	CATEGORY
Revere	CWP-15-29	Sewer Rehabilitation	\$10,902,107	89.94%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Revere	CW-13-14	Capacity Management Operations and Maintenance Program	\$300,000	100%	CW	Planning
Revere	CW-14-11	Comprehensive Wastewater Management Plan/CSMP Supplemental Plan	\$1,200,000	100%	CW	Planning
Revere	CW-14-25	Illicit Connection Detection Program	\$700,000	100%	CW	Planning
Revere	CW-15-18	Sanitary Sewer Evaluation Survey	\$1,700,000	95.93%	CW	Planning
Revere	CW-15-19	Illicit Connection Detection Program	\$800,000	100%	CW	Planning
Stockbridge	DW-15-08	Water System Improvements	\$1,800,000	83.16%	DW	Drinking Water Source and Storage
Taunton	CW-14-26-A	Sanitary Sewer Evaluation Survey Phases 10-12	\$4,320,918	95.71%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Taunton	CWP-13-18-A	Sanitary Sewer Evaluation Survey Phases 10-12	\$95,249	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Uxbridge	DW-14-12	Rt. 122 Water Main Replacement	\$3,186,000	78.44%	DW	Drinking Water Transmission and Distribution



**M A S S A C H U S E T T S
C L E A N W A T E R T R U S T**

1 Center Plaza, Suite 430
Boston, MA 02108

