



MASSACHUSETTS
CLEAN WATER TRUST

Annual Report

Massachusetts

Clean Water Trust

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

September **2023**

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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) 2023. The Trust's 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 communities across the Commonwealth.

The Massachusetts SRF's finances essential infrastructure projects that enhance ground and surface water resources, ensure the safety of drinking water, protect public health, and develop resilient communities. With interest rates on the rise, access to below-market rate financing makes a critical difference for funding improvements to water infrastructure while reducing the overall budgetary impact on communities and ratepayers.

In SFY 2023, the Massachusetts SRF Programs provided communities approximately \$708 million in commitments for low interest rate loans on 149 projects, which will support an estimated 4,250 construction and engineering jobs, stimulating the economy while improving the environment and public health. To date, approximately \$3.1 billion in federal grants and state matching funds have supported over \$8.6 billion in water infrastructure planning and construction projects through a leveraged financing program.

SFY 2023 HIGHLIGHTS

Bipartisan Infrastructure Law (BIL): Increased funding from the BIL has expanded the annual SRF funding and programs. These new grants have resulted in a tremendous increase in loan forgiveness for projects that are vital to health and safety across the Commonwealth. This report reflects the impact on Lead and PFAS mitigation and expanded funding for both the Clean Water SRF and Drinking Water SRF.

American Rescue Plan Act (ARPA) Funds: The Trust was awarded two rounds of ARPA funding from the Massachusetts legislature totaling over \$200 million. The funds were quickly committed to projects across the Commonwealth as loan forgiveness and will provide a substantive amount of cost savings for critical infrastructure.

Lead Service Line (LSL) Planning: Two newly developed programs provide grant funds or direct technical assistance to communities to create LSL inventories and LSL replacement programs. In SFY 2023, the Trust committed to 64 projects providing nearly \$15 million in grants. 48 of these projects, accounting for nearly \$11.2 million or 80% of grant funds, went to disadvantaged communities. These investments are critical to help identify any LSLs in water systems as the first step towards removing all LSLs in Massachusetts.

Asset Management Planning (AMP) Grants: The fourth round of this program was completed resulting in over \$3.7 million in grants supporting \$6.3 million in total project costs. The 35 AMP projects assisted communities in gathering information on the current condition of their existing infrastructure. This data can be used to develop accurate capital improvement plans and assist utilities with long term planning. As of the end of SFY 2023, the Trust provided \$8.7 million in grants supporting nearly \$15 million in total project costs for 88 projects since the beginning of the program in 2019.

Zero Percent Interest PFAS Mitigation Loans: The Commonwealth has continued its commitment to assisting communities by reducing financing costs of PFAS mitigation projects. In SFY 2023, the program committed funding to 9 projects totaling \$63.9 million, saving communities an estimated \$14.5 million in loan interest beyond the already below-market rate offered for all projects. As of the end of SFY 2023, this program has committed funding to 23 projects totaling \$192.1 million, saving communities an estimated \$43.6 million in loan interest.

School Water Improvement Grants (SWIG): This program has expanded support to private schools, early education facilities and non-residential daycares. As of the end of SFY 2023, the Trust provided \$400,000 to MassDEP to expand school water testing and technical support to private schools and provided nearly \$1.7 million in grants to replace 565 fixtures with detectable lead in 227 facilities serving 110,203 children in the Commonwealth.

I am proud to say the activities of the Trust and MassDEP have been constant, committed, and innovative. The prompt and thorough use of BIL and APRA resources have provided extensive additional funding that have leveraged to improve and innovate the Commonwealth's SRF programs. These investments will have a long-term impact for the Commonwealth that pays dividends in the years to come.

I would like to sincerely express my appreciation for the EPA Region 1 staff for their efforts during SFY 2023, and congratulations to the Trust and MassDEP for a job well done. To communities in the Commonwealth, thank you for your commitment to this vital mission. Without your dedication, our program would not be a success.

I look forward to continuing this critical work together.

Thank you,



Deborah B. Goldberg
Chair, Massachusetts Clean Water Trust
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Introduction

The Massachusetts Clean Water Trust (the Trust), in collaboration with the Massachusetts Department of Environmental Protection (MassDEP), helps communities build or replace water quality infrastructure that enhances ground and surface water resources, ensures the safety of drinking water, protects public health, and develops resilient communities.

It accomplishes these objectives by providing low-interest loans and grants to cities, towns, and water utilities through the Massachusetts State Revolving Funds (SRFs). The SRF programs are partnerships between the United States Environmental Protection Agency (EPA) and the Commonwealth of Massachusetts. SRFs function like an environmental infrastructure bank by financing water infrastructure projects in cities and towns across the Commonwealth.

The Trust and MassDEP administer the two SRFs, the Clean Water (CW) and Drinking Water (DW) SRFs. The Trust manages the flow of funds to borrowers while MassDEP manages the development and oversight of projects. The SRFs receive funding from the EPA in the form of annual capitalization grants, supplemented by state matching grants, and the repayment of loans. When loans to local governments are repaid, the funds are then loaned out again, which is how the fund “revolves.”

The Trust uses a “leveraged financing model” which allows the Trust to finance more projects than the funding from the federal and state grants. Bonds are issued in the capital markets and are secured by borrower repayments and reserve funds. The proceeds from bonds provide capital for new below market rate loans to borrowers for water infrastructure. This model has allowed the Trust to finance approximately \$8.6 billion in water infrastructure projects from approximately \$3.1 billion in federal grants and state matching funds.

The Trust is administered by a three-member Board of Trustees that is chaired by the Treasurer and Receiver General of the Commonwealth. The Secretary of the Executive Office for Administration and Finance and the Commissioner of MassDEP serve as trustees. During monthly meetings, the Board of Trustees approves all financial commitments and program decisions. All Board of Trustees materials can be found on the Trust’s website along with all pertinent information for borrowers, investors, and residents of Massachusetts.

ABOUT THIS REPORT

The EPA requires reporting on both programs through the CWSRF Annual Report and the DWSRF Biennial Report. The federal reporting requirements for the two programs have been combined into this report, which covers the state fiscal year 2023 (SFY 2023), ending June 30, 2023. The content of this report is divided into four sections. To comply with the federal reporting requirements¹, each section will label reported information by the specific SRF program.

The first section, *SRF Financial Report*, covers loans made and financial assistance provided through both the CWSRF and DWSRF programs throughout the SFY. The second section, *Grant and Incentive Programs*, provides updates on programs the Trust is proud to be offering Commonwealth communities. The third section, *Program Specific Reporting*, discusses EPA grant requirements and outlines how the Trust and MassDEP meet those federal requirements. The fourth section, *State Revolving Fund Financial Summary*, explains how the Trust finances these projects.

FOOTNOTES

¹40 CFR § 35.3570(a)(4)



SRF Financial Report

CLEAN WATER AND DRINKING WATER ANNUAL SUMMARY

The Trust continues to provide subsidized financing for projects that focus on the development and rehabilitation of wastewater and drinking water infrastructure with the aim of promoting sustainability, green infrastructure, and to protect the environment and public health. The CWSRF and DWSRF programs provide additional subsidies to designated Disadvantaged Communities.

The Bipartisan Infrastructure Law (BIL)

In 2021, President Biden signed the Bipartisan Infrastructure Law (BIL), officially the Infrastructure Investment and Jobs Act of 2021, into law. BIL was a historic investment in American infrastructure by the United States Congress and will have a substantial impact on Massachusetts. BIL created five new SRF specific grants that will be available each year until 2026. The report will show in Binding Commitments all projects receiving financing in SFY 2023 and the increase in available financing is due to BIL funding. However, due to project delays and an increase in administrative requirements, the final determination for which 2022 IUP projects will receive BIL funding and what percentage of BIL loan forgiveness will be available to those projects will be made in SFY 2024 and reported in next year's Annual Report. However, the Trust is proud to be able to report that the BIL Lead Service Line (LSL) Replacement Grant has been committed to funding grants to communities and that will be reported on in Section 2: *Grant and Incentive Programs*.

The BIL created two new CWSRF federal grants:

- 1. CWSRF Supplemental Grant:** The grant functions like the base CWSRF grant.
- 2. CWSRF Emerging Contaminants (EC) Grant:** Funds must be used for projects that remediate known EC under the Clean Water Act. The Trust's Board of Trustees has opted to transfer the full amount of the 2022 grant funds to the DWSRF EC Grant to help meet the increasing demand from EC projects on the DWSRF.

The BIL created three new DWSRF federal grants:

- 1. DWSRF Supplemental Grant:** This grant functions like the base DWSRF grant.
- 2. DWSRF (LSL) Replacement Grant:** The grant funds are dedicated for the replacement of LSL, and the identification and planning for removal of LSL.
- 3. DWSRF Emerging Contaminants Grant (DWSRF EC):** Funds must be used for projects that remediate known EC under the Safe Drinking Water Act. These funds are specifically utilized for remediation of Per- and polyfluoroalkyl substances (PFAS).

Below are the new BIL grants for Massachusetts. The federal investment over the five grants years is substantial and will allow the Trust to finance more projects and to provide more loan forgiveness to eligible projects.

CWSRF	Base		Supplemental		EC ^c	
	FFY	Appropriation	State Match	Appropriation	State Match	Appropriation
2022 ^a		\$39,285,000	\$7,857,000	\$60,428,000	\$6,042,800	\$3,175,000
2023 ^a		25,469,000	5,093,800	70,769,000	7,076,900	7,220,000
2024 ^b		53,946,000	10,789,200	77,228,841	15,445,768	7,220,000
2025 ^b		53,946,000	10,789,200	83,656,543	16,731,309	7,220,000
2026 ^b		53,946,000	10,789,200	83,656,543	16,731,309	7,220,000
Total		\$226,592,000	\$45,318,400	\$375,738,926	\$62,028,085	\$32,055,000

FOOTNOTES

^a Amounts reflect actual grant allotments received by the Trust.

^b Amounts are estimated and subject to change. Specifically, the base CWSRF grants do not account for any congressionally directed spending that have significantly reduced 2022 and 2023 grant allotments. Estimates of EC are based on 2023 allotments.

^c Emerging Contaminant and Lead Grants do not require state matching funds.

DWSRF	Base		Supplemental		EC ^c	LSL ^c
	FFY	Appropriation	State Match	Appropriation	State Match	Appropriation
2022 ^a	\$16,260,000	\$3,252,000	\$41,750,000	\$4,175,000	\$17,531,000	\$65,783,000
2023 ^a	10,602,000	2,120,400	45,206,000	4,520,600	16,404,000	33,700,000
2024 ^b	25,526,000	5,105,200	49,332,433	9,866,487	16,404,000	33,700,000
2025 ^b	25,526,000	5,105,200	53,438,337	10,687,667	16,404,000	33,700,000
2026 ^b	25,526,000	5,105,200	53,438,337	10,687,667	16,404,000	33,700,000
Sub-Total	\$103,440,000	\$20,688,000	\$243,165,107	\$39,937,421	\$83,147,000	\$200,583,000

FOOTNOTES

^a Amounts reflect actual grant allotments received by the Trust.

^b Amounts are estimated and subject to change. Specifically, the base DWSRF grants do not account for any congressionally directed spending that have significantly reduced 2022 and 2023 grant allotments. Estimates of EC and LSL are based on 2023 allotments.

^c Emerging Contaminant and Lead Grants do not require state matching funds.

LOAN PROGRAMS

Most of the Trust's loans are subsidized at a 2% rate of interest, as set by statute. However, the Commonwealth has identified priority projects or priority policy goals to award a higher amount of subsidy generally through offering lower interest rates or 0%. The subsidies used for interest rate reduction have typically been funded by the Commonwealth through contract assistance and are not counted as additional subsidies for the purposes of federal reporting. The following loan programs work to further various program or state goals by incentivizing projects to move forward by providing interest rates below the currently subsidized 2% interest rate. For a list of all projects in SFY 2023, please see Appendix B.

0% Interest Rate Interim Loans

Through the Trust's interim loan program, funds are available to projects throughout the year to provide construction financing, like a bond anticipation note. Borrowers can enter a short-term loan with the Trust 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. This change to the program makes interim loans from the Trust the least expensive way for local communities to access capital during construction.

0% Interest Rate Nutrient Enrichment Reduction Loans

This loan program is for CWSRF loans. Due to Massachusetts' geographic location and population distribution, many communities are coastal or on rivers that flow into saltwater bodies. This leads to wastewater pollution and additional nitrogen being deposited into saltwater areas. An increase in nitrogen in affected saltwater bodies can create algae blooms which negatively affect animal habitats, cause fish kills, and cause a reduction in shellfish. The decrease in water quality is both an environmental and economic issue for coastal communities. This 0% interest rate loan program helps further incentivize communities to move forward with these projects by providing access to low-cost financing.

0.5% Housing Choice Community Loan Reduction

The Commonwealth has focused on creating affordable housing throughout the state. The Trust has joined with other state agencies in providing incentives to communities to participate in the Housing Choice Initiative by providing a 0.50% interest rate reduction to both CWSRF and DWSRF loans. Loans cannot have less than 0% interest rate. The Commonwealth's goal is to produce 135,000 new housing units statewide by 2025.

0% Interest Rate PFAS Remediation Loans

The Board of Trustees approved a 0% interest rate loan program for projects that remediate PFAS in public water supplies. PFAS are a family of chemicals widely used to manufacture common consumer goods and can be found in some legacy firefighting foams. Adverse health effects in humans exposed to elevated levels of PFAS may include hepatic, cardiovascular, endocrine, immune, reproductive, and developmental effects. These CWSRF and DWSRF loans help communities that have identified PFAS in their water to complete the remediation projects that are vital to providing clean drinking water to residents.

Comparison of Loan Interest Rates	CWSRF	DWSRF
Interim Loan	0%	0%
Standard Interest Rate	2%	2%
Extended Term (up to 30 Years) ^a	2.20%	2.20%
Housing Choice	1.50%	1.50%
Nutrient Enrichment Reduction Loans	0%	N/A
PFAS Loans	0%	0%

FOOTNOTES

^aRate current as of the closing of Series 24, December 14, 2022.

Binding Commitments

A binding commitment is a legal obligation by the Trust to provide subsidized financing to a community for an eligible project and it defines the terms and timing for assistance through the SRF program. In SFY 2023, the Trust continued to expand its programs by providing binding commitments for 52 CWSRF projects totaling \$510 million and 97 DWSRF projects totaling \$197.7 million. Please see Appendix B for a complete list of SFY 2022 binding commitments.

Binding Commitments by Program and SFY

Dollar amounts in millions

SFY		2023		2022 ^a	
Program	Grant	Amount	Projects	Amount	Projects
CWSRF	Base/Supplemental	\$510.0	52	\$437.0	47
DWSRF	Base/Supplemental	93.4	20	155.1	21
	LSL ^b	14.1	64	N/A	N/A
	EC ^b	90.2	13	N/A	N/A
	DWSRF Total	\$197.7	97	\$117.1	21

FOOTNOTES

^aSFY 2022 numbers reflect reported Binding Commitments from EPA National Information Management System (NIMS) Reports published 1/2023.

^bLSL and EC grants made available by BIL first year FFYs 2022 and 2023.



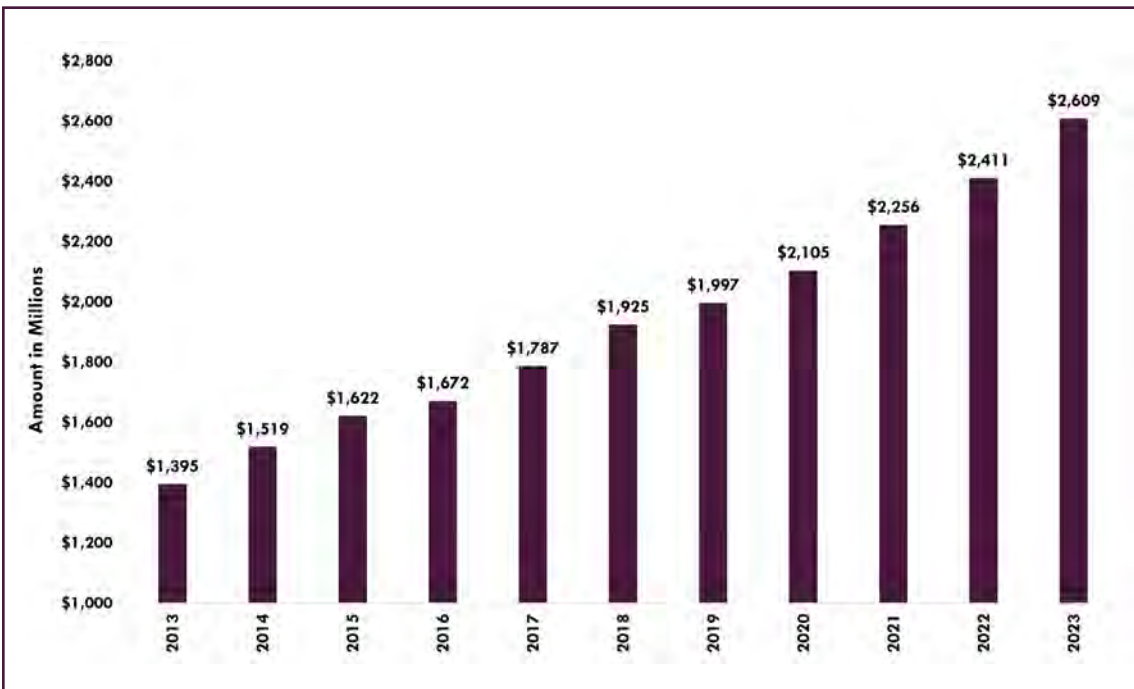
CWSRF Cumulative Binding Commitments by SFY^a



FOOTNOTES

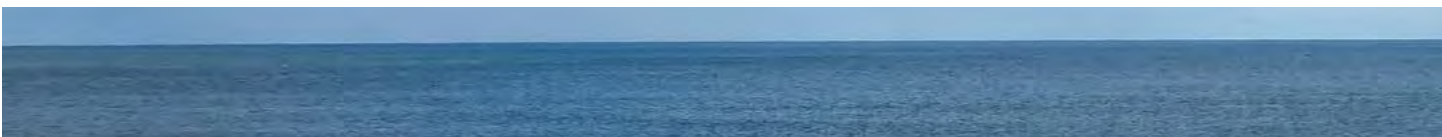
^a CWSRF Cumulative Binding Commitments by SFY chart reflects Binding Commitment data collected from the EPA CWSRF NIMS database. <https://www.epa.gov/sites/default/files/2021-02/documents/ma.pdf>

DWSRF Cumulative Binding Commitments by SFY^a

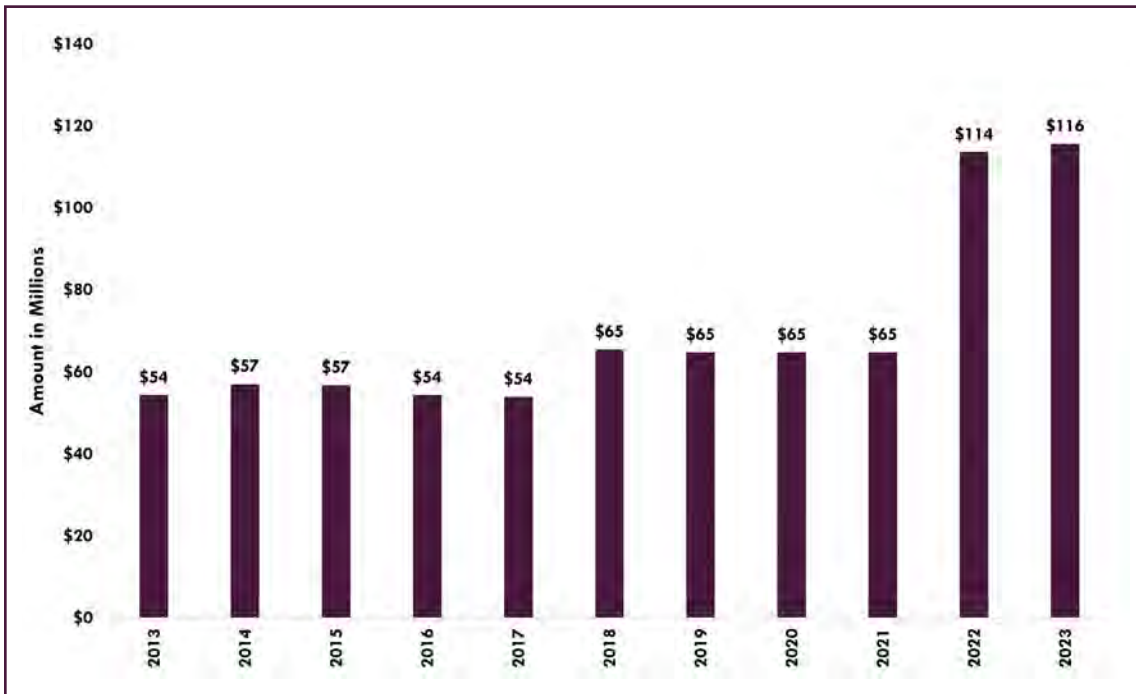


FOOTNOTES

^a DWSRF Cumulative Binding Commitments by SFY chart reflects Binding Commitment data collected from the EPA CWSRF NIMS database. <https://www.epa.gov/system/files/documents/2023-06/Massachusetts%20DNIMS%202022.pdf>



CWSRF Grants by Federal Fiscal Year (FFY)



CWSRF Grants by Year

Dollar amounts in millions

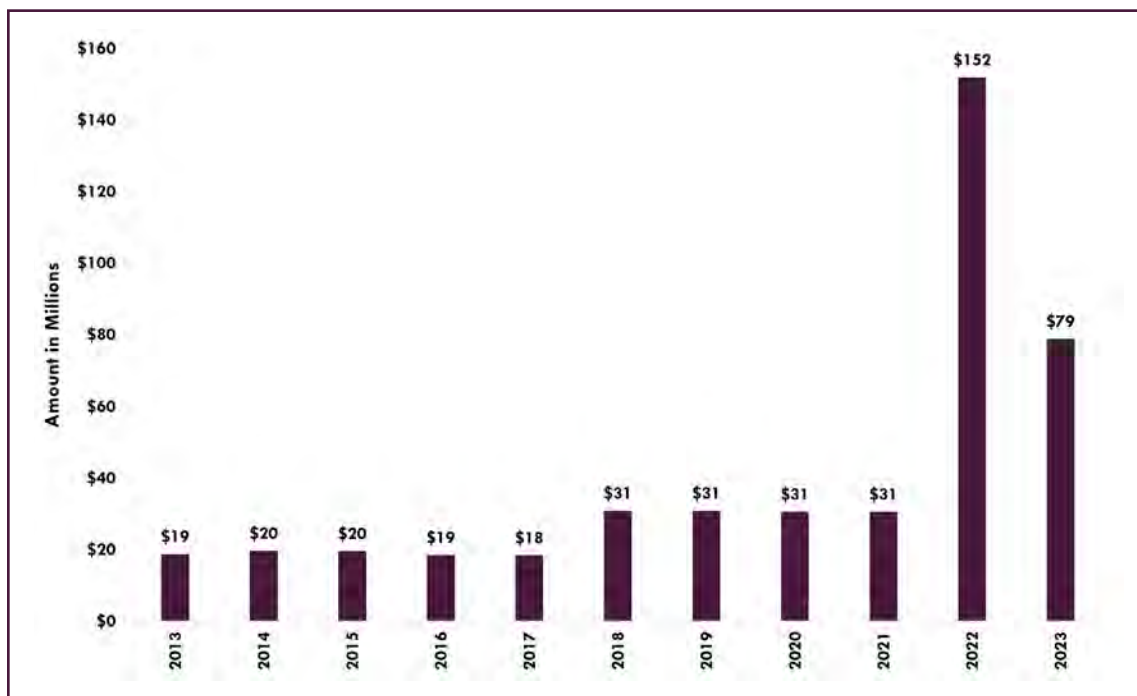
FFY	2023	2022
CWSRF Grants	Amount	Amount
Base	\$30.6	\$47.2
Supplemental	77.8	66.4
EC	7.2	-- ^a
Total	\$115.6	\$113.6

FOOTNOTES

^a The CWSRF EC Grant in the amount of \$3.2 million was transferred to the DWSRF to meet an increased need in funding for vital public health drinking water projects.



DWSRF Grants by Federal Fiscal Year (FFY)



DWSRF Grants by Year

Dollar amounts in millions

FFY	2023	2022
DWSRF Grants	Amount	Amount
Base	\$12.7	\$19.5
Supplemental	49.7	45.9
LSL	- ^a	65.8
EC	16.4	20.7 ^b
Total	\$78.8	\$151.9

FOOTNOTES

^a The Trust will receive this grant in SFY 24 for \$33.7 million

^b The CWSRF EC Grant in the amount of \$3.2 million was transferred to the DWSRF to meet an increased need in funding for vital public health drinking water projects.

Disbursements

During SFY 2023, 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 amounts in millions

SFY	CWSRF		DWSRF	
	Amount	Loan	Amount	Loan
2023	\$314.40	164	\$135.2	77
2022	\$220.80	130	\$118.70	58

Additional Subsidy

During SFY 2023, the Trust committed \$117.4 million in loan forgiveness to 45 projects with costs totaling \$690.9 million, equating to an average of 17% loan forgiveness per project. The Trust accomplished this by being able to award two types of loan forgiveness to projects on the calendar year 2021 Intended Use Plan (IUP). The first type of funding is ARPA funding which was applied by project type to all 2021 projects. The second type of loan forgiveness was mandated by the federal grants and designated for Disadvantaged Communities. The detail and methodology for applying loan forgiveness for both types of funding is detailed below.

American Rescue Plan Act Funding (ARPA)

In December 2021, the Trust received \$86.6 million in American Rescue Plan Act (ARPA) funding from the Massachusetts State Legislature through Chapter 102 of the Acts of 2021. In November 2022, the Trust received an additional \$115.0 million in ARPA funding from of the Act Relating to Economic Growth and Relief for the Commonwealth.

At its December 2022 and February 2023 Board Meetings, the Board of Trustees approved ARPA funds for specific project types and for disadvantaged communities in the amount of \$117.4 million to 45 projects that are expected to be under construction in the spring or summer of 2023. The following table shows how loan forgiveness is distributed to specific types of projects. See Appendix C for detailed loan forgiveness amounts related to 2021 projects. ARPA loan forgiveness and Disadvantaged Community loan forgiveness are voted and approved at the same time.



Project Highlight

Massachusetts Development Finance Agency
Devens Water Treatment Plant Project
Series 25A Loan Amount: \$21,840,000
UNSDG Alignment: 3, 6, 12

Background

The Devens Regional Enterprise Zone (Devens) is a 4,400-acre former military facility located in north-central Massachusetts, bordering Worcester and Middlesex Counties, 30 miles northwest of Boston, and situated near the Nashua River. The Massachusetts Development Finance Agency (MassDevelopment) is the designated state agency responsible for the reuse, redevelopment, and operation of Devens. As part of this responsibility, MassDevelopment is responsible for providing all municipal services and serves a drinking water population of approximately 6,100 people. The Devens water system serves residential, commercial, industrial, and municipal users in Devens and includes approximately 354 service connections.

Per- and polyfluoroalkyl substances (PFAS) are a family of chemicals widely used to manufacture common consumer goods and can be found in some legacy firefighting foams. PFAS has been called the “forever chemical” as it stays in the environment for a long duration and does not breakdown easily. In February 2018, PFAS levels were found to have a combined total above 70 parts per trillion (ppt) and exceeded the existing guidance of safe levels of PFAS. In October 2020, MassDEP published its PFAS public drinking water standard or Massachusetts Maximum Contaminant Level of 20 ppt. In March 2023, the Environmental Protection Agency proposed to set a Maximum Contaminant Level of 4 ppt for PFOA and 4 ppt for PFOS.

The Devens water system consists of three primary well sources; Patton, Shabokin, and MacPherson Wells, the Grove Pond wellfield, two storage tanks and approximately 47 miles of water mains. Beyond the exceedance of PFAS, the finished water from the Patton and Shabokin Wells exceeded the Secondary Maximum Contaminant Level for iron and manganese. Further, system inspections found that a plan to transfer water from the Patton Well to a treatment facility near the Shabokin Well using the existing asbestos-cement (AC) water mains had to be abandoned because the AC pipe was degraded and would require extensive rehabilitation.

The Project

Pilot studies demonstrated that GreensandPlus™ filtering media is successful at removing high concentrations of iron and manganese and a PFAS treatment pilot systems using Granular Activated Carbon (GAC) and Ion Exchange (IX) contact chambers sites were successfully removing PFAS from source water. This project includes the construction of two 1.44 million gallons a day (MGD) water treatment plants (WTP) located at the Patton and the Shabokin well sites. The Patton WTP will treat source water from the existing well, while the Shabokin WTP will treat source water from the existing Shabokin Well and the future Sheridan Well.

The new treatment facilities will include a GreensandPlus™ pressure filtration system for iron and manganese removal, GAC filters followed by IX contact chambers for PFAS removal. The WTPs will also have new chemical feed systems, a backwash recycling system, a settled solids waste system, baffled clearwell and the required ancillary equipment and controls. Also included is construction of a new finished water main for the Patton WTP, new raw water, and finished water mains for the Shabokin WTP, and site restoration and miscellaneous work and cleanup necessary to provide complete and fully operational WTPs.

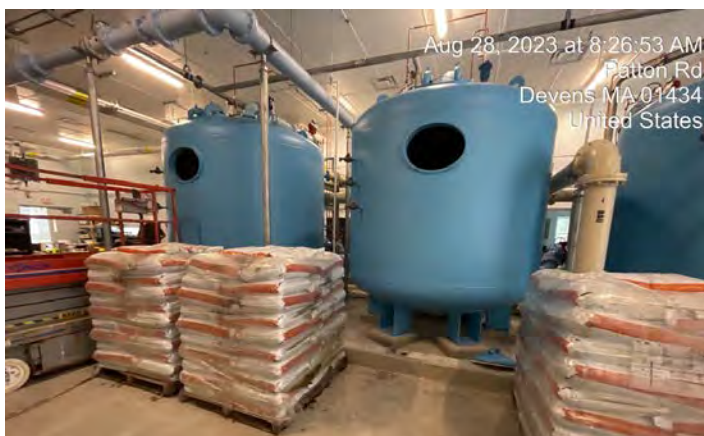
Environmental and Public Health Impact

The project will implement energy efficiency measures that include new water saving fixtures, the addition of variable frequency drive pumps, energy efficient heat, ventilation and air conditioning equipment, energy efficient lighting, and optimized chemical feed systems. These improvements will have energy savings for the facilities and lower the overall carbon footprint of the water distribution system.

By constructing new WTPs to remove iron, manganese and PFAS concentrations, public health and safety will be improved and since the reliability and water quality from the well sources could not be guaranteed which could negatively impact public health and causes safety concerns. The ingestion of elevated levels of manganese has been identified as a public health risk and MassDEP's recent Office of Research & Standards guideline for manganese which closely follows the US EPA Health Advisory for manganese. Humans are exposed to PFAS by consuming contaminated drinking water and adverse health effects in humans exposed to high levels of PFAS may include hepatic, cardiovascular, endocrine, immune, reproductive, and developmental effects. Also, studies have found that exposure to sufficiently elevated levels of PFAS may cause developmental effects in fetuses during pregnancy and in breast-fed infants.

Economic Impact

The Devens water treatment project is estimated to cost just over \$27 million. Because this project was tackling PFAS mitigation it was eligible for two incentive programs offered by the Trust. First, all 2021 Drinking Water PFAS mitigations projects were awarded 20% loan forgiveness using American Rescue Plan Act funds. This will save MassDevelopment nearly \$5.5 million in loan principal. Second, this project is eligible for the 0% PFAS Mitigation Loan program which will save the community approximately \$6 million in loan interest over the twenty-year loan term, totaling \$11.5 million in savings. Providing these incentives allows public water providers to address serious public health dangers while reducing the impact on local rate payers.



Above: Photographs from the Patton Road site.

Loan Forgiveness Percentage by Project Category

Loan Categories	SRF Program	Grant Percentage
PFAS Remediation Projects	DWSRF	20%
Loans to Small Drinking Water Systems	DWSRF	15%
All Other Drinking Water Projects	DWSRF	10%
Combined Sewer Overflow (CSO) Projects	CWSRF	15%
Nutrient Enrichment Reduction Projects	CWSRF	15%
All other Wastewater Projects	CWSRF	7.5%

Disadvantaged Community Loan Forgiveness

Additional subsidy in the form of loan forgiveness is dedicated to communities that would not otherwise be able to afford projects, as required by the federal grants. Loan forgiveness reduces the total principal and interest costs paid over the life of a loan. The Trust chooses to apply all subsidy funds to communities that are deemed Disadvantaged Communities. The Trust uses the methodology detailed below to identify Disadvantaged Communities, as outlined by the Water Resources Reform and Development Act (WRRDA) of 2014 for the CWSRF, and the America's Water Infrastructure Act of 2018 (AWIA) for the DWSRF.

The Trust's formula, which was approved by EPA Region 1, considers the per capita income, population trend from 2010-2020 and the employment rate for each municipality to develop an adjusted per capita income (APCI). Each municipality is then ranked against the State's APCI. Communities that fall below the State APCI are sorted into three tiers.

$$\text{APCI} = \text{Per Capita Income} * \text{Employment Rate} * \text{Population Change}$$

Per Capita Income: (PCI) (as listed on the most recent data tables of the Massachusetts Department of Revenue): PCI is a widely accepted metric of an ability to afford the cost of infrastructure projects.

Employment Rate: (as listed on the most recent calendar year data tables of the Massachusetts Department of Revenue): The percentage of the workforce employed. Higher employment rates suggest that a community has more residents able to afford the cost of infrastructure than a community with lower employment rates.

Population Change: The percentage of gain or loss, according to the census data, in a municipal population between 2010 and 2020. An increase in population suggests that the community is experiencing growth, which provides a larger rate payer base to support infrastructure costs. A loss of population suggests negative growth and leaves fewer taxpayers and rate payers to absorb the burden of the infrastructure cost.

Disadvantaged Community Tier Designation

Tier 1	APCI equal to or more than 80% of the State APCI, but less than 100% of the State APCI
Tier 2	APCI equal to or more than 60% of the State APCI, but less than 80% of the State APCI
Tier 3	APCI less than 60% of the State APCI



Loan Forgiveness by Program and Affordability Tier

Tier	CWSRF	DWSRF
1	3.3%	6.6%
2	6.6%	13.2%
3	9.9%	19.8%

Number of Eligible Communities by Affordability Tier and SFY

Tier	2023	2022
1	61	64
2	92	93
3	87	83
Not Eligible	111	111
Total	351	

Loan Forgiveness Committed and Disbursed

Using the two sources of funding and the methodology listed above, the Trust awarded additional subsidies totaling \$117.4 million to 45 projects with costs totaling \$690.9. The distribution by program and amount disbursed are listed in the table below. The amount of loan forgiveness provided demonstrates that the Trust has met the federal requirements for loan forgiveness for the 2021 grant.

Finally, as stated previously, with passage of BIL, the Trust has been working to meet new additional subsidy requirements while also committing to a process that is transparent as possible. Due to project delays, and an increase in administrative requirements, the Trust has not voted on loan forgiveness in SFY 2023 for projects associated with the 2022 BIL and base grants. The Trust expects to meet the additional subsidy requirements for the first year of BIL grants and will report the results in the SFY 2024 Annual Report.

Additional Subsidy Committed and Expended by Grant Year

Dollar amounts in millions

EPA Grant Year	CWSRF			DWSRF		
	Awarded	Expended	% Expended	Awarded	Expended	% Expended
2021	\$77.3	\$58.5	75.7%	\$40.1	\$28.9	71.9%
2020	\$14.3	\$14.1	99.0%	\$12.0	\$12.0	100%
2019	\$8.1	\$8.0	99.0%	\$12.8	\$12.8	100%



Project Highlight

Town of Spencer

Wastewater Treatment Facility Upgrades Project

Series 25B Loan Amount \$40,116,057

(\$36,866,257 and \$3,249,800)

Disadvantaged Community: Tier 3

UNSDG Alignment: 3, 6, 9, 10, 11, 12



Background

The Town of Spencer is a rural community located in central Massachusetts, 12 miles west of the City of Worcester and 57 miles west of the City of Boston. The Town's wastewater treatment facility (WWTF) services approximately 1,600 residential and commercial connections with a maximum capacity of 1.08 million gallons per day (MGD). The WWTF was originally constructed in 1946 and has had major upgrades in the 1960s and 1980s with smaller modifications being made in the interim. It is a uniquely designed plant in that it incorporates constructed wetlands for tertiary treatment prior to discharging to the Cranberry River. Further, residents of the Town were concerned that these constructed wetlands and discharges impact the quality of water downstream, including recreational water bodies such as Lake Quacumquasit and Quaboag Pond.

The current WWTF, with many of its major components dating back to the 1980s, cannot meet the increased discharge requirements for the Spencer's 2019 National Pollutant Discharge Elimination System (NPDES) discharge permit. The WWTF would be unable to comply with more stringent total phosphorus requirements. Additionally, the facility was unable to comply with copper discharge requirements which have led to the town being under a US Environmental Protection Agency (EPA) administrative order. Finally, while not currently limited under NPDES requirements the town and planners are anticipating future total nitrogen requirements that the WWTF would not be able to meet. The Town must meet these new NPDES requirements by December 2024.

The Project

This project involves upgrading the WWTF to meet more stringent phosphorous and copper permit requirements, achieve nitrogen removal goals, improve safety for plant workers, and upgrade aging infrastructure. The main components of this project include the following activities. Abandoning the constructed wetlands discharge process for more modern and effective treatment processes. Upgraded influent screening and grit removal systems will be installed to increase solid materials removal such as paper and plastic while also increasing screening capacity during high flow events.

Influent pumps will be replaced from the current four pump system that is at the end of its useful life to a more efficient and dynamic two pump system. With the abandonment of the constructed wetlands, a new tertiary treatment system is required to meet NPDES discharge permit requirements for phosphorous and copper removal. A new tertiary treatment building will be constructed to house rapid mix tanks for chemical addition, chemical storage facilities, disc filters, ultraviolet disinfection, and flow meters. The basement of the facility will house return activated sludge pumps, waste activated sludge pumps, and a new plant water pumping system.

Finally, The WWTF accepts septage and brewery waste, which represents a significant amount of influent loading. This project will reuse existing infrastructure to provide flow measurement capabilities, add septage screening, separate storage tanks for septage and industrial/brewery waste, the ability to discharge septage to rotary drum thickeners or plant influent for load management, and adequate storage to handle multiple days of septage acceptance. Two abandoned primary clarifier tanks will be repurposed to handle septage storage and fitted with removable covers for odor control purposes.

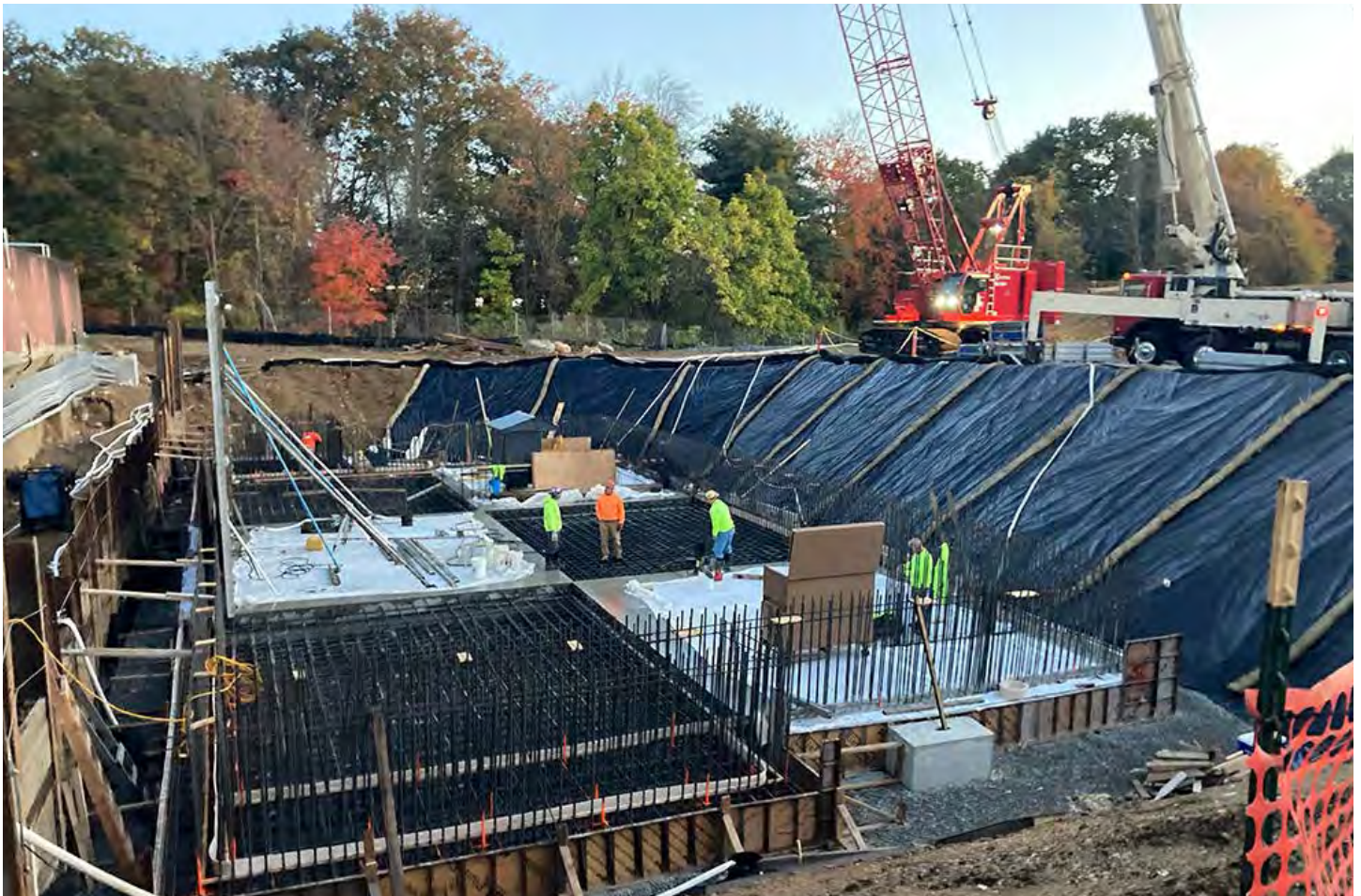
Environmental Impact and Public Health Impact

Elevated levels of phosphorous are known to negatively impact aquatic life by accelerating algal growth, which impacts water quality, aquatic food resources and habitats, and decreases the oxygen available to fish and other aquatic life. Some algal blooms produce elevated toxins and bacteria growth that can make humans and animals sick. In addition, high concentrations of copper produced by the plant can also be toxic to aquatic life.

Reducing nitrogen, phosphorous and copper will ensure that the local water bodies, wetlands, and several endangered species are not harmed by the WWTF discharges. Improvements at the WWTF will improve water quality by limiting nutrient discharges and bypass events. Additionally, occasional secondary treatment bypass events result in flows being diverted directly to the constructed wetlands where untreated wastewater is lost to groundwater. There are residents in the area on private wells and residents downstream that live on Quaboag Pond and Quacumquisit Pond and there is fishing activity along the Cranberry River and downstream waterbodies. The public health risk to drinking water and recreational activities due to discharges will be greatly diminished with the completion of this project.

Economic Impact

The total projected cost of the WWTF upgrade is approximately \$47 million and the Town will save approximately \$23.6 million in total debt service by utilizing the Trust's financing. Through the CWSRF program, the Town can take advantage of two programs for savings on the loan. First, Spencer is a tier 3 Disadvantaged Community and is eligible for loan forgiveness of 9.9% or \$3.8 million. This project was eligible for an additional 7.5% or \$2.8 million in loan forgiveness from American Rescue Plan Act (ARPA) funds. In total, Spencer received approximately \$6.6 million in loan forgiveness. Second, this project was eligible for the 0% Interest Rate Nutrient Enrichment Reduction loan program. In interest savings alone, Spencer will save nearly \$17 million in interest costs over the thirty-year loan term.



Above: Photograph of the Spencer Aeration Tank.

Grant and Incentive Programs

ASSET MANAGEMENT PLANNING (AMP) GRANT PROGRAM

Asset management for water, wastewater, and stormwater utilities is a systematic approach to physical infrastructure cataloging, process management and criticality tracking that allows the utility to make informed financial decisions that are most likely to achieve long-term sustainability and deliver consistent cost-efficient service.

The Trust launched its AMP grant program in 2019, providing \$1.9 million in grant funding, each subsequent year produced expanded interest in the program, and the Trusts Board authorized increased funding to meet the demand. The purpose of this grant program is to assist eligible applicants with completing, updating, or implementing an asset management program for wastewater, drinking water, stormwater utilities or any combination of the three. Finally, the program is aimed at assisting applicants with meeting federally required Fiscal Sustainability Planning.

The Trust provides a maximum grant award of \$150,000 or 60% of the total project cost, whichever is less. The applicant provides the remaining amount with a cash contribution, or a cash contribution along with an in-kind services (IKS) contribution as a local match. The IKS contribution is limited to 50% of the total local match. Small systems may use an IKS contribution of up to 70% of the local match. Projects may use CWSRF or DWSRF loans with a maximum term of five years to finance the entire local contributions.

In SFY 2022, the Trust and MassDEP updated the program eligibility to include cybersecurity assessments. This allows communities to have a professional review of their infrastructure's network security and make recommendations and policy changes. Additionally, the Trust updated the AMP grant's list of prequalified engineers to include new recipients and has changed the policy to allow firms to apply on a rolling basis. This will better serve the program by allowing the list of prequalified engineers to expand as needed.

AMP grants applications are requested through the annual SRF project solicitation. In SFY 2023, the Trust executed 35 agreements totaling approximately \$3.7 million in grants which helped to fund nearly \$6.4 million in AMP activities. See Appendix D for SFY 2023 AMP projects.

LEAD SERVICE LINE (LSL) PLANNING PROGRAM

Two newly developed programs provide grant funds or direct technical assistance to communities to create LSL inventories and LSL replacement programs. This program provides grants to communities for LSL identification and removal planning projects to assist public water suppliers (PWSs) to comply with Lead and Copper Rule Revisions (LCRRs). LCRRs require all PWSs to complete a full inventory of service lines connected to its distribution system, regardless of if they are owned or controlled by the water system by October 16, 2024. Additionally, the results of the LSL inventory must be accessible to the public. Further, PWSs must also submit a plan to MassDEP by the 2024 deadline detailing how the PWS will prioritize, fund, and fully remove LSLs connected to its distribution system.

To help our communities meet this deadline, the Trust is utilizing DWSRF LSL grant funds to provide grants to communities designated as Disadvantaged Communities, and the Trust will use remaining Water Infrastructure Funding Transfer Act (WIFTA) to provide grants to non-disadvantaged communities. In SFY 2023, the Trust committed to 64 projects providing nearly \$15 million in grants. 48 of these projects, accounting for nearly \$11.2 million or 80% of grant funds, went to Disadvantaged Communities. See Appendix B for SFY 2023 projects, those designated as "LSP".

LSL Grants were coupled with direct technical assistance from MassDEP's Drinking Water Program (DWP) which helped with these same activities. Additional information on these projects can be found in the DWSRF Set-Aside reporting in the sections below.

THE SCHOOL WATER IMPROVEMENT GRANT (SWIG) PROGRAM

On January 8, 2020, the Trust's Board of Trustees approved the pilot round of the SWIG program. The goal of the SWIG program is to reduce lead in school drinking water to the lowest levels possible by incentivizing public and private schools, early education facilities and non-residential daycares to test their drinking water fixtures then remediate any lead exceedances that are detected. It accomplishes this by providing funds to purchase and install point-of-use filtered water bottle filling stations to replace drinking water fixtures that tested above the remediation lead action level of 1 part per billion.

SWIG provides \$3,000 per fixture that tests positive for lead that is eligible to be replaced. The funding covers the purchase of bottle filling stations, installation, and post installation testing of the units. It allows the organization to use the remaining funds for future operation and maintenance costs. SWIG was launched in concert with MassDEP's expanded version of the Assistance Program for Lead Testing in School Drinking Water using funds from the EPA's Lead Testing in School and Child Care Program Drinking Water Grant.

In SFY 2023, the Trust awarded \$306,000 in grants to 44 facilities serving over 17,535 students throughout the Commonwealth. Since the inception of the program, the Trust has awarded \$1.7 million in grants to replace 565 fixtures in 227 facilities serving over 110,203 students throughout the Commonwealth. See Appendix D for SFY 2023 projects.

Private School Sampling

In April 2022, the Trust's Board of Trustees voted to reserve \$400,000 to fund sampling and testing in private schools throughout the Commonwealth. These funds are to be used to offer free technical assistance and sampling to facilities that were originally not included in the previous and current free water sampling programs. With this investment, the Commonwealth has shown its commitment to ensuring safe drinking water in facilities that serve those most at risk of health problems from consuming lead in drinking water.

In SFY 2023, MassDEP provided technical assistance to 17 facilities, expending \$12,920.

CAPE COD AND ISLANDS WATER PROTECTION FUND (CCIWPF)

The CCIWPF was started by a recommendation from the update to the 208 Plan funded by the Trust and developed by the Cape Cod Commission to address nitrogen flowing into the watersheds on Cape Cod. The CCIWPF is a mechanism to raise revenue from tourism on Cape Cod and dedicate the funds to wastewater infrastructure projects financed by the Trust. It was created pursuant to Chapter 337 of the Acts of 2018 "Act Regulating and Insuring Short Term Rentals (the "Act"). The legislation added an optional 2.75% local excise tax on traditional lodging and short-term rentals for communities on Cape Cod. This excise tax may only be collected by communities participating in the CCIWPF and may only be deposited to the fund managed by the CCIWPF Management Board. The Board is comprised of representatives from each Cape Cod community. The Trust acts as custodian for this fund and moves funds at the direction of the Board. See Appendix B SFY 23 for CCIWPF projects.



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.

Green Project Reserve (GPR)

For the 2022 CWSRF grant, Congress required that at least 10% of the grant be used to finance “green infrastructure, water or energy efficiency improvements, or other environmentally innovative activities.” In its 2022 CWSRF IUP, MassDEP identified 2 projects totaling \$54 million that are either entirely or partially green. Given the project advancement timeline, and that many construction projects are only partially green, MassDEP is now working to review the schedules of values to extract the green portions of the projects. Once these values are calculated, they will be reported in the Office of Water State Revolving Funds (OWSRF) Database and in the next Annual SRF Report.

For the 2021 CWSRF Grant, Congress required that at least 10% of the grant be used to fund green projects, requiring a minimum of \$5.2 million. MassDEP confirmed 12 projects (16 loans) with a total project cost of \$107.6 million and green project value of \$62.4 million. MassDEP has confirmed that the Massachusetts CWSRF has met or exceeded the 2021 CWSRF Grant Green Project Reserve requirements. It will continue collaborating with communities to meet this annual requirement in the future. See Appendix E for 2021 CWSRF Green Project Reserve projects.

Transfer of Funds to the Drinking Water State Revolving Fund (DWSRF)

Section 302 of the 1996 Safe Drinking Water Act Amendments allows states the flexibility to move 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 level of DWSRF grant funding for Massachusetts is insufficient to meet the state’s demand for project financing. The DWSRF grant requires more funds be given away as additional subsidy and provides up to 31% as set-aside funds to be used. As a result, a sizable portion of the DWSRF does not revolve back into the Trust, which limits the program’s capacity growth.

In contrast, the CWSRF annual grant requires 10% of the annual amount to be given away as additional subsidy and 4% to be used for program administration. This has allowed a substantial portion of the CWSRF to revolve annually, thereby increasing program capacity. To address this funding insufficiency, the Trust transfers the limited amount allowed from the CWSRF to the DWSRF annually allowing for modest increases in the capacity of the DWSRF and reducing the imbalance in the ability to provide financing. Further, the Trust’s Board of Trustees has taken the opportunity to leverage additional BIL funding to increase the DWSRF’s capacity.

CWSRF Grant Transfer History

Transferred Funds by FFY Grant		
Grant Year	Transfer Amount	Transfer Date
2022 ^a	\$3,175,000	05/04/2023
2021	8,501,790	10/8/2021
2020	8,431,170	10/08/2020
2019	8,425,890	11/7/2019
2018	8,505,420	11/15/2018
2017	5,055,270	9/21/2017
2016	5,098,830	12/15/2016
2015	5,389,890	12/3/2015
2014	5,425,530	12/4/2014
2013	5,180,670	6/12/2014
Total	\$63,189,460	

FOOTNOTES

^a FFY2022 Transfers was limited to CWSRF EC in SFY 2023. The total transfer is projected to be \$22,318,300 which will be completed in SFY 2024. The amounts will be comprised of \$5,365,800 from the CWSRF Base grant, \$13,777,500 from the CWSRF BIL Supplemental grant and \$3,175,000 from the CWSRF EC grant.

Administrative Expenses

For SFY 2023, \$2.2 million of annual CWSRF grant administration federal funds were spent by MassDEP. These costs were associated with construction management of the CWSRF program. An additional \$3.7 million was spent from the Trust's Administrative Fund to supplement MassDEP administrative costs for both the CWSRF and DWSRF programs.

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

A requirement associated with the DWSRF program establishes that states are required to commit 15% of total available funds for loans to small systems. The EPA defines a small system as a "public water system that regularly serves 10,000 or fewer persons." The total DWSRF funds available for the 2022 IUP was \$363 million, of which approximately \$54.5 million would be required for small system loan assistance. As reported in the DWSRF National Information Management System (NIMS), the Trust committed to \$46.6 million in small system financing. Due to delays, 2 projects are still in pending status with loan amounts for approximately \$15.9 million. Once committed, the Trust will have committed nearly \$62.5 million, which will exceed 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. set-aside discussion below is further broken down by which grant the activities correspond to.

Drinking Water State Revolving Fund (DWSRF) Base

MassDEP continues to use set-aside funds as outlined in the annual IUP. The following sections describe the basic programs and accomplishments. Additional information about MassDEP's Drinking Water Program (DWP) activities can be found in these reports:

- DWP's Safe Drinking Water Act Annual Compliance Report

<https://www.mass.gov/doc/2022-safe-drinking-water-act-annual-compliance-report/download>

- DWP's Safe Drinking Water Act Assessment Advisory Committee's Annual Report to the Legislature

<https://www.mass.gov/doc/safe-drinking-water-act-assessment-advisory-committee-annual-report-to-the-legislature-for-2022/download>

4% Administration

MassDEP uses 3 full-time equivalent (FTE) staff members to help 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 payments, data management and administrative support functions.

2% Small System Technical Assistance

MassDEP uses 1.75 FTE staff members for municipal services support. These FTEs provided training and technical assistance (compliance and operational issues) to small systems throughout the Commonwealth. MassDEP partnered with outside training and technical assistance providers, such as the Massachusetts Rural Water Association, New England Water Works Association, and EPA's Environmental Finance Center, to aid small water systems. 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. Highlights from MassDEP and its partners from SFY 2023 include:

- Provided in-person or virtual assistance to approximately 30 public water suppliers (PWS) on topics such as permitting, emergency response, PFAS, and cybersecurity.
- Conducted training on cybersecurity, water operation career exploration, lead in drinking water, regulatory updates, and well operations.



10% State Program Management

MassDEP used approximately 8.5 FTE staff members to administer DWSRF program activities. FTE staff were involved in 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. Technical assistance was prioritized for small and disadvantaged communities.

Highlights of the programs in SFY 2023 include:

Sanitary Survey Program

MassDEP's DWP is responsible for evaluating the technical, financial, and managerial capability of community, non-transient non-community, and transient non-community PWSs. During last year, the DWP completed 474 evaluations on existing systems, including the largest PWS – the Massachusetts Water Resources Authority.

Sanitary Surveys Completed in SFY 2023	
Types of Public Water Systems	Total # of Surveys Completed
Community Systems	191
Non-Transient Non-Community System	80
Transient Non-Community Systems	203
Totals	474

Operator Certification

The DWP has an active operator certification program. The program activities have been integrated into daily staff activities. Program activities range from chairing the Board of Certification of Operators of Drinking Water Supply Facilities to providing general and specialized assistance for drinking water operators at all levels. There are over 3,000 licensed operators in Massachusetts holding over 5,400 licenses. All operators will be required to renew their licenses prior to December 31, 2023. DWP participates in the New England Water Works Association certification committee and the annual Water Professionals International meeting. DWP is leading an effort to revise the Board's training policy to incorporate new online training platforms and simplify the approval process.

Lead in Schools and Early Education and Care Facilities

The DWP has a longstanding program to support the voluntary testing of drinking water in schools and childcare facilities for lead. The most recent iteration, the Expanded Assistance Program was launched in January 2020 and continued through SFY 2023. The program offers testing services to all public and private schools that have not participated in previous assistance programs. A particular focus of the program is increasing knowledge and testing in environmental justice (EJ) communities. DWP has conducted several outreach efforts and training in EJ communities. The program is supported by USEPA Water Infrastructure Improvements for the Nation (WIIN) Act grants and Trust funding for private school testing. The program works closely with the Trust's SWIG Program on outreach and in assisting bottle filling station testing prior to being brought into service. Finally, MassDEP expanded its pilot program with additional PWSs to support comprehensive testing of schools and childcare facilities ahead of requirements of the USEPA Lead and Copper Rule Revisions. PWSs serving EJ communities are prioritized.

PFAS

The DWP continued to aid PWSs as they sampled water for PFAS. If sampling results yielded PFAS levels above the MassDEP maximum contaminant level (MCL) for six PFAS compounds (PFAS6), the DWP supported PWSs that implemented PFAS treatment systems.

Capacity Development

While conducting sanitary surveys on public water systems, MassDEP staff identified 1,588 technical, financial, or managerial deficiencies and provided corrective action assistance to ensure compliance. MassDEP continues to conduct trainings and programs to assist with the technical, financial, and managerial abilities of public water systems.

15% Source Water Protection and Capacity Development

MassDEP used 12.5 FTEs from the 15% Source Water Protection and Capacity Development set-aside to administer DWSRF program activities. These programs include activities such as land acquisition and conservation easement programs, source water protection, wellhead protection, and technical and financial capacity implementation.

Highlights of the programs in SFY 2023 include:

Wellhead Protection Program

MassDEP provided technical assistance to PWSs for wellhead protection compliance, the development of protection plans, and determining monitoring waiver eligibility. In addition, MassDEP obtained a 2-year grant from the United States Geological Survey to identify and locate all wells in the state (irrigation, monitoring, domestic, thermal, etc.) by reviewing the Massachusetts well driller database. The well driller program includes well completion reports for all 200,000 plus wells in its database. Old wells often have erroneous well locations. This grant is to assist with updating geographic information. Accurate well location data will benefit several programs (e.g., PFAS), with the goal of protecting groundwater quality and quantity.

Source Protection Support

The registration of 18 new small PWSs, along with continuing the implementation and monitoring of the chemical monitoring waiver program has incentivized source protection. It has also promoted preparedness and sustainability. Source protection technical assistance was provided during the 474 sanitary surveys that were completed throughout the year. DWP staff represent MassDEP on the State Pesticide Board, Vegetation Management Panel and as an alternate on State Reclamation and Mosquito Control Board. In addition, MassDEP participates as a member of the New England Interstate Water Pollution Control Commission (NEIWPC) Source Water Protection workgroup and the Joint Association of State Drinking Water Administrators and Ground Water Protection Council's National Source Water Protection workgroup.

Registration of New Small PWSs in SFY 2023	
Types of Public Water Systems	Number of Systems
Community Systems	6
Non-Transient Non-Community System	4
Transient Non-Community Systems	8
Totals	18

DWSRF Supplemental Set-Asides

MassDEP continues to use set-aside funds as outlined in the annual IUP. The following sections describe the activities funded through the supplemental set-asides.

4% Administration

MassDEP uses 9 FTE staff members to help 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 payments, data management and administrative support functions.

2% Small System Technical Assistance

MassDEP uses 1.25 FTE staff members for municipal services support. These FTEs provided training and technical assistance (compliance and operational issues) to small systems throughout the Commonwealth. MassDEP partnered with outside training and technical assistance providers, such as the Massachusetts Rural Water Association, New England Water Works Association, and EPA's Environmental Finance Center, to aid small water systems. 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.



10% State Program Management

MassDEP used set-asides for contract services to support DWP administer DWSRF program activities. These contract services provided approximately 10 FTEs to assist with:

- **PWS support:** fiscal management, grant support, implementation support for new regulations, data management, and other drinking water program activities;
- **PWS technical assistance:** Safe Drinking Water Act requirements and Massachusetts drinking water regulations and support for small and disadvantaged communities, LSL replacement inventory, unregulated contaminants and the SRF process;
- **PWS information management:** reporting and database maintenance and improvement; and,
- **PWS technical assistance:** Safe Drinking Water Act requirements and Massachusetts drinking water regulations and support for electronic submission of data to DWP, including supporting PWS and DEP in submittal of Annual Statistical Report and Water Quality Monitoring Reports and the development of training programs to support DWP staff and PWS in the proper submission of electronic data.

15% Source Water Protection and Capacity Development

MassDEP used 4 FTE staff members and contract services from the 15% Source Water Protection and Capacity Development set-aside to administer DWSRF program activities. These activities included:

Wellhead Protection Program

MassDEP provided technical assistance to PWSs for wellhead protection compliance, the development of protection plans, and determining monitoring waiver eligibility. In addition, MassDEP obtained a 2-year grant from the United States Geological Survey to identify and locate all wells in the state (irrigation, monitoring, domestic, thermal, etc.) by reviewing the Massachusetts well driller database. The well driller program includes well completion reports for all 200,000 plus wells in its database. Old wells often have erroneous well locations. This grant is to assist with updating geographic information. Accurate well location data will benefit several programs (e.g., PFAS), with the goal of protecting groundwater quality and quantity.

Contract Services

Contract services included:

- **Statewide Well Location Parcel Matching:** activities focus on the Safe Drinking Water Act requirements and Massachusetts Drinking Water Regulations in protecting the groundwater quality in the Commonwealth by acquiring as many accurate locations as possible for the 200,000+ wells currently housed in the Well Driller database.
- **Hydrogeological services:** activities focus on the Safe Drinking Water Act requirements and Massachusetts Drinking Water Regulations in protecting the groundwater quality and quantity in the Commonwealth by reviewing the hydrogeologic components of New Source Approvals, Zone II delineations, Groundwater Discharge Permits near Public Water Supplies, and potential contamination threats to Public Water Supplies.

DWSRF Lead Service Line (LSL) Grant Set-Asides

4% Administration

The Trust allocated the 4% Administration set-aside funds towards the LSL Planning Grant Program.

2% Small System Technical Assistance

MassDEP used set-asides for contract services to support DWP administer DWSRF program activities. The contract services supported the Assistance for Small Community Water Systems and Non- Transient, Non-Community Systems - LSL Planning Program. This program works with small community and non-transient non-community PWS to conduct service line inventories and develop LSL replacement plans, if necessary. These deliverables are required to be completed as part of USEPA's Lead and Copper Rule Revisions. In SFY 2023, 18 communities have signed up for assistance under this program which has expended \$25,200.

10% State Program Management

The Trust allocated the 10% Administration set-aside funds towards the LSL Planning Grant Program.

15% Source Water Protection and Capacity Development

The Trust allocated 66% of the 15% set-aside funds towards the LSL Planning Grant Program.

DWSRF Emerging Contaminant (EC) Grant Set-Asides

All DWSRF EC Grant funds were used to support planning and construction projects. No set-asides were taken from this 2022 grant.

PROGRAM CERTIFICATION

Extended Term Financing

The Trust continues to offer extended term financing up to 30 years for construction projects 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 upon current market conditions near the time of the loan closing. For SFY 23, the interest rate for a 30-year loan was 2.20%.

American Iron and Steel (AIS)

MassDEP has incorporated the 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 (FFATA)

In compliance with the 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.fsrs.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

In October 2019, EPA issued a Recipient/Applicant Information Notice (RAIN-2019-G10) that temporarily waived the requirements of Subpart D of 40 CFR Part 33, and permanently suspended the EPA DBE certification program. The Trust maintained the DBE goals previously approved by EPA Region 1. The current DBE goals are 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 by the proponent to achieve those goals.

Compliance with Federal Crosscutters

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 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.



State Revolving Fund Financial Summary

ANNUAL FINANCIAL SUMMARY

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

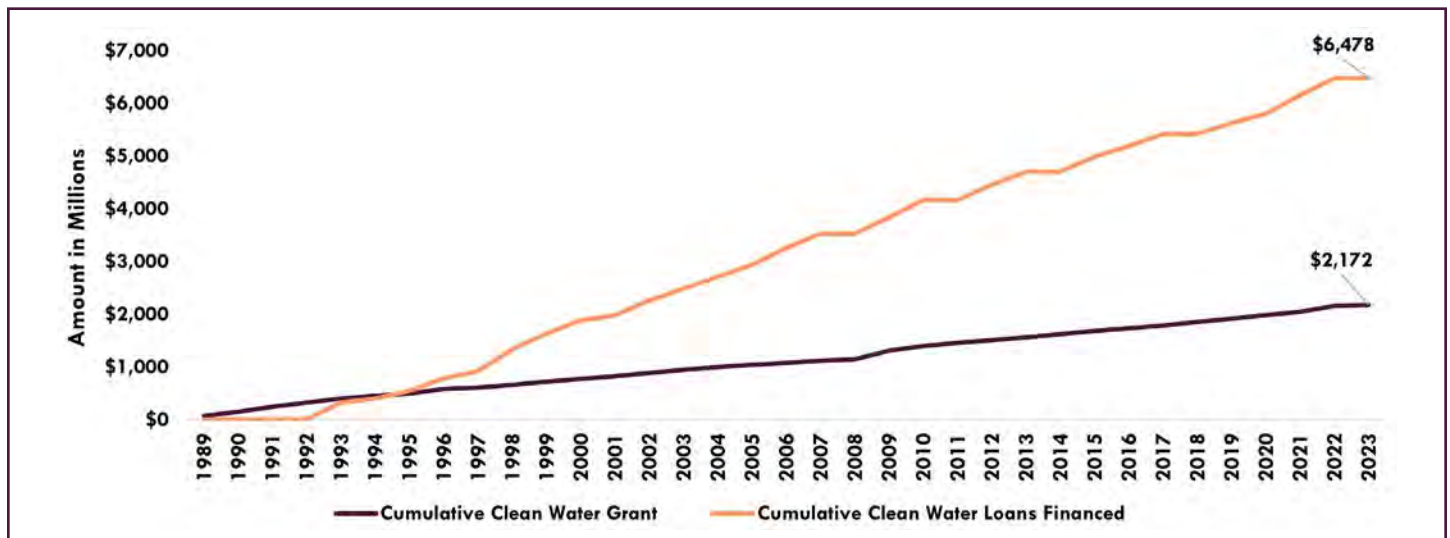
Leveraged Financing Model

The SRF loan program receives funding from the EPA in the form of annual grants, supplemented by state matching funds and the repayment of funds from borrowers. The Trust's SRF loan program utilizes a "leveraged financing model" which allows the Trust to provide funding in excess of the federal grants and state matching funds. Bonds are issued in the capital markets and are secured by loans or, in some instances, reserves funded by SRF Program Funds. The proceeds from bonds are used to provide capital to finance loans to local cities, towns, and other eligible borrowers for project costs.

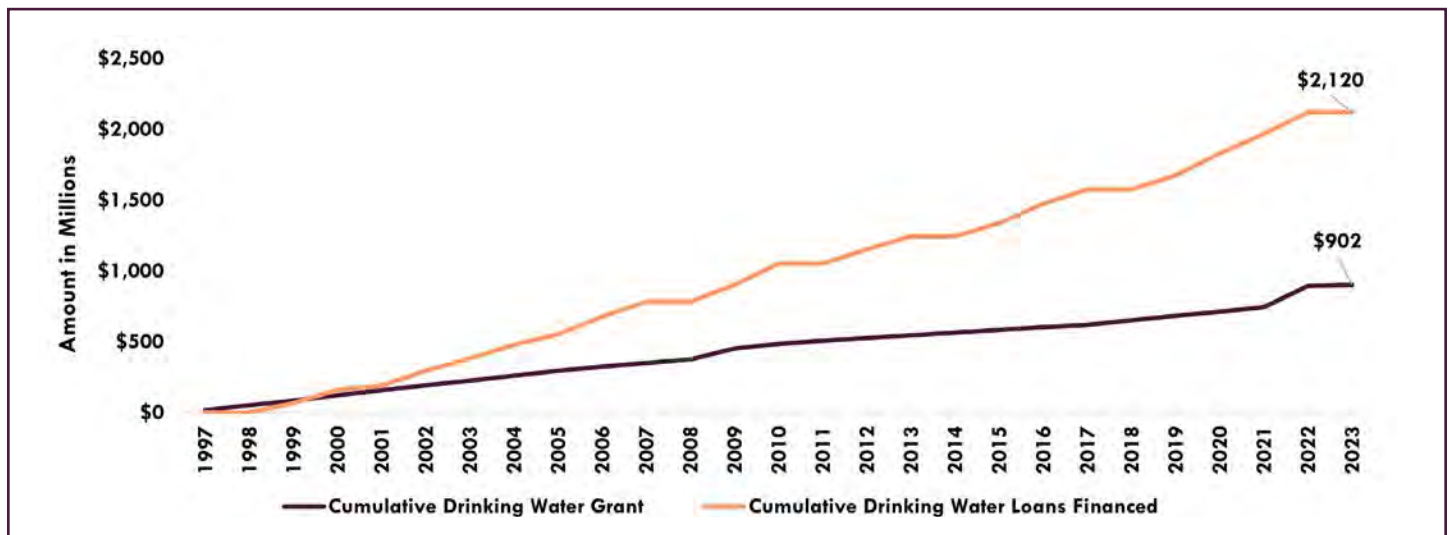
The leveraged structure of the Trust's program permits the Trust to substantially increase the amount available to finance eligible project costs across the Commonwealth. Each dollar of federal grant and associated state matching funds contributed to the program results in at least three dollars of project 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. The annual grant amounts include all federal grant awards received, and the respective state matching funds provided within the SFY.

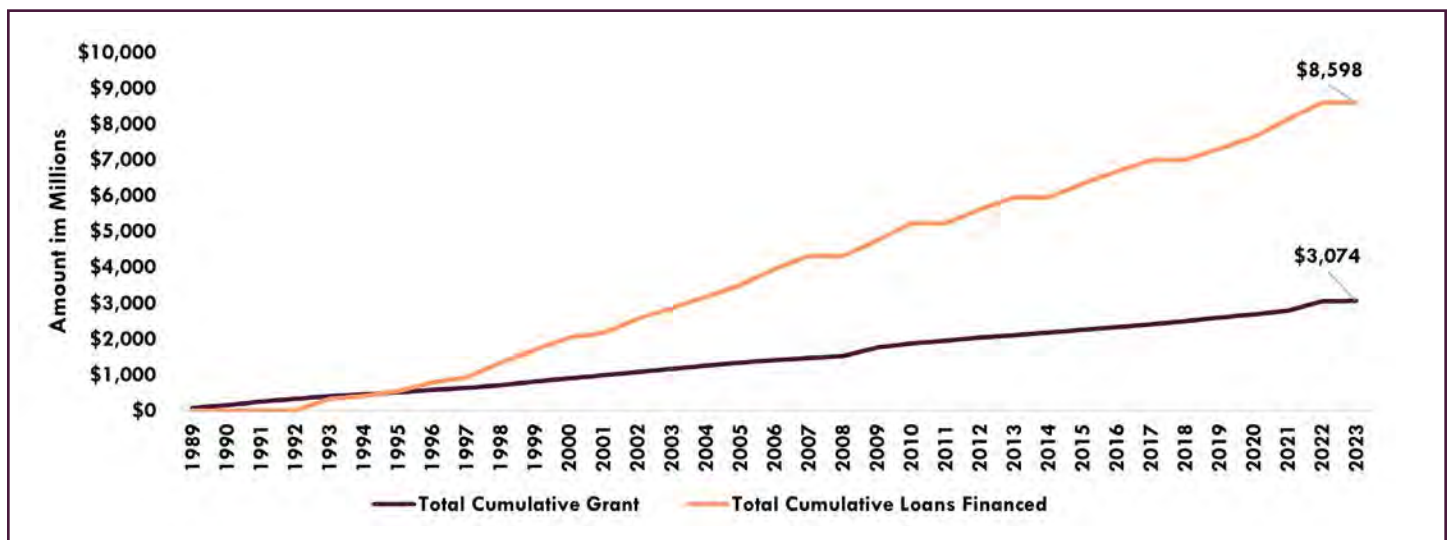
CWSRF Grant Amount Compared to Cumulative Loan Amounts by SFY



DWSRF Grant Amount Compared to Cumulative Loan Amounts by SFY



Combined Cumulative Loans Compared to Combined Cumulative Grants



The Trust's lending and bond issuance programs are structured to ensure adequate cash flows for financing 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 finance either direct loans to borrowers or invests in reserve funds. Direct loans 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 loan repayments from borrowers, interest earnings on debt service reserve funds pledged to secure such bonds, and subsidy payments provided by the Commonwealth in the form of contract assistance.

Pledged Loans

The Trust uses its SRF Program Funds rather than bond proceeds to finance certain loans to borrowers. These loans are pledged as additional security to SRF Bonds. As the loans are repaid, the interest payments on those loans are applied to debt service on the bonds, thus providing the borrowers' interest rate subsidy. Since 2012, the Trust has used the pledged loan approach. As of June 30, 2023, the Trust has \$710.9 million in pledged direct loans outstanding.

CWSRF. As of June 30, 2023, the Trust has \$525.8 million of pledged loans outstanding.

DWSRF. As of June 30, 2023, the Trust has \$185.1 million of pledged loans outstanding.

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, and by augmenting annual additional subsidy in the form of loan forgiveness. This reduces the borrower's overall loan repayment obligation.

Commonwealth contract assistance for interest rate reduction pays the difference between the market rate of the bonds and the subsidized interest rate on the loans of 2% or less. 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. As of June 30, 2023, the Trust has received \$1.3 billion in contract assistance with a future commitment of \$144.0 million, for a total cumulative commitment by the Commonwealth of \$1.4 billion. Commonwealth contract assistance contributed 8.9% toward SFY 2023 debt service, totaling \$23.8 million in assistance applied.

DWSRF. As of June 30, 2023, the Trust has received \$199.8 million in contract assistance with a future commitment of \$30.9 million, for a total cumulative commitment by the Commonwealth of \$230.7 billion. Commonwealth contract assistance contributed 6.9% toward SFY 2023 debt service, totaling \$7.1 million in assistance applied.

Deallocation of Funds

As the Trust makes principal payments on its SRF Bonds, the amount of its program assets pledged to the bonds is reduced proportionately, or deallocated, according to each bond's scheduled cash flows. These released funds are available to cure borrower payment defaults, if any. If not needed to cure a default, the deallocated funds are released to the SRF Program Funds and are then available to be disbursed to new loans, thus assuring the perpetual nature of the revolving fund.

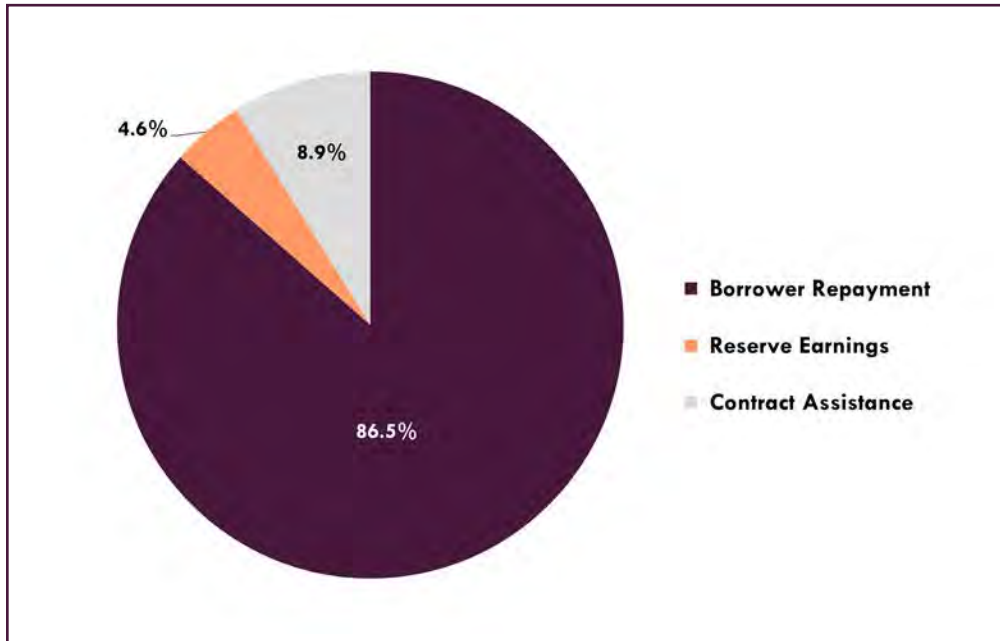
Borrower Repayments

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 the general equivalent of 2%. Series 24 which closed December 2022, had a subsidized interest rate of 2.2% for extended term financing loans.

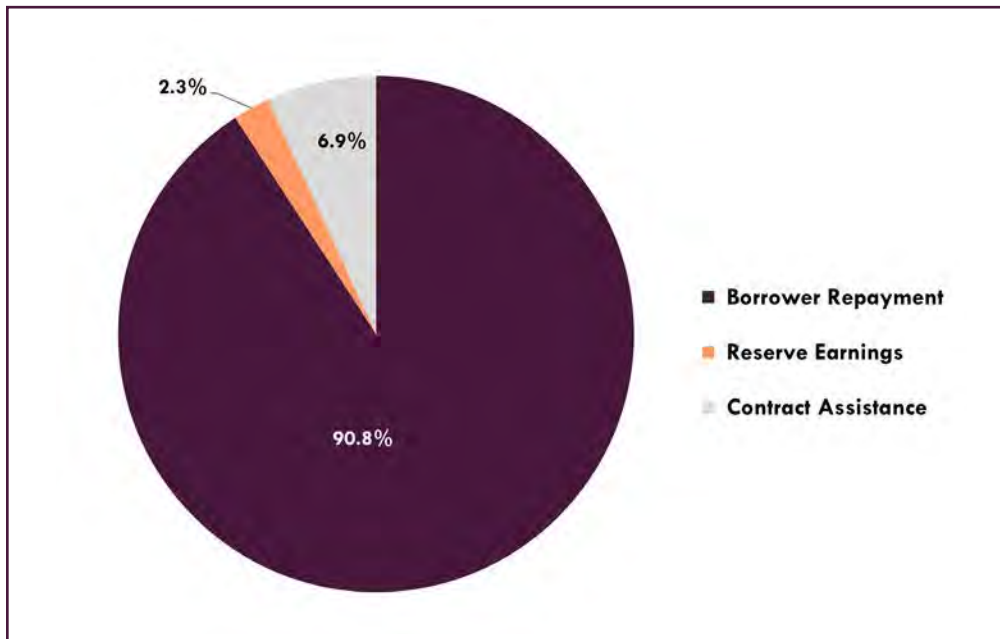
CWSRF. In SFY 2023, borrower principal and interest loan repayments accounted for approximately 86.5% of debt service, totaling \$230.2 million.

DWSRF. In SFY 2023, borrower principal and interest loan repayments accounted for approximately 90.8% of debt service, totaling \$94.4 million.

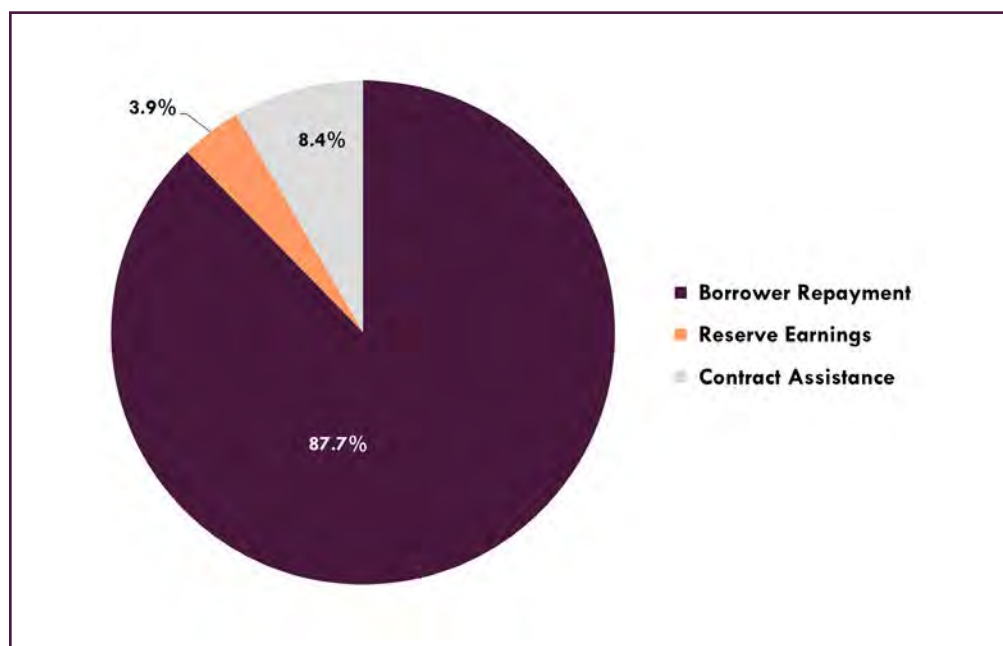
Total Sources of Debt Service Payments for CWSRF SFY 2023



Total Sources of Debt Service Payments for DWSRF SFY 2023



Total Sources of Debt Service Payments for SFY 2023



Reserve Funds

In the past, the Trust had pledged a portion of its SRF Program Funds to establish debt service reserve funds to secure a series of its SRF Bonds. The investment earnings from these reserve funds are used to pay a portion of the debt service on the related SRF Bonds while the fund balances are available as additional security and recycled back to the SRF Program Fund after debt service obligations have been met.

Summary of Debt Service Reserve Fund Balance as of June 30, 2023

Dollar amounts in millions

Investment Type	CWSRF	DWSRF	Total
Guaranteed Investment Contracts	\$173.8	\$22.5	\$196.3
US Treasuries and Agencies	78.6	21.8	100.4
Total	\$252.4	\$44.3	\$296.7

Interest Earnings

Earnings on these investments are applied to pay a portion of the debt service on the related series of SRF Bonds. 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 SRF Program Fund.

Debt Service Reserve Fund Interest Earnings

Dollar amounts in millions

SFY	CWSRF		DWSRF	
	Percent of Debt Service	Total Amount	Percent of Debt Service	Total Amount
2023	4.6%	\$12.2	2.3%	\$2.4
2022	5.3%	\$14.2	2.9%	\$3.0

Appendix A: Financial Tables

CLEAN WATER AND DRINKING WATER FINANCIAL TABLES

Clean Water SRF	2023		2022	
	Annual Grant Awards		Annual Grant Awards	
Federal Clean Water SRF Grant	\$99,713,000		\$53,946,000	
State Matching Funds	12,170,700		13,899,800	
Total Federal & State Grant Awards	\$111,883,700		\$67,845,800	

Annual Binding Commitments				
Binding Loan Commitments Issued	\$510,012,116	52	\$354,454,164	47

Annual Disbursements				
Clean Water Interim Loans	\$275,723,899	123	\$181,153,202	91
Project Loans Financed	38,651,867	41	39,681,982	39
Total Disbursements	\$314,375,766	164	\$220,835,184	130

Financial Results from Program Inception				
Federal Clean Water SRF Grant	\$1,827,041,761		\$1,727,328,761	
State Matching Funds	344,924,792		332,754,092	
Total Federal & State Grant Awards	\$2,171,966,553		\$2,060,082,853	
Total Loans Financed	\$6,478,299,670		\$6,159,881,999	

Drinking Water SRF	2023		2022	
	Annual Grant Awards		Annual Grant Awards	
Federal Clean Water SRF Grant	\$144,499,000		\$25,763,000	
State Matching Funds	6,641,000		7,474,400	
Total Federal & State Grant Awards	\$151,140,000		\$33,237,400	

Annual Binding Commitments				
Binding Loan Commitments Issued	\$198,108,033	97	\$117,075,729	21

Annual Disbursements				
Drinking Water Interim Loans	\$113,630,091	42	\$103,697,369	37
Project Loans Financed	21,537,026	35	14,991,171	21
Total Disbursements	\$135,167,117	77	\$118,688,540	58

Financial Results from Program Inception				
Federal Drinking Water SRF Grant	\$772,907,100		\$628,408,100	
State Matching Funds	129,306,420		122,665,420	
Total Federal & State Grant Awards	\$902,213,520		\$751,073,520	
Total Loans Financed	\$2,120,728,921		\$1,967,990,125	

Appendix B: Binding Commitments by Program for SFY 2023

CWSRF Binding Commitments for SFY 2023				
Loan No.	Borrower	Agreement Date	Project Description	Commitment Amount
CW-21-41	Acton (H)	9/1/2022	Acton Middle Fort Pond Brook WWTF Upgrades	\$3,466,850
CWP-21-24	Adams *	7/1/2022	WWTF Capital Improvements	6,829,620
CWP-21-24-A	Adams	7/1/2022	WWTF Capital Improvements	597,000
CWP-21-49	Barnstable (H)(CC)*	7/1/2022	Route 28 East Sewer Expansion Project	18,814,176
CWP-21-49-A	Barnstable (H)(CC)	7/1/2022	Route 28 East Sewer Expansion Project	1,112,000
CWT-23-01	Bellingham	2/1/2023	Community Septic Management Program	400,000
CW-22-56	Boston Water and Sewer Commission (H)	5/1/2023	South Boston Sewer Separation	20,145,084
CWP-21-32	Bridgewater (H)(NE)*	8/1/2022	Wastewater Treatment Facility Upgrades – Phase I	35,321,000
CWP-21-32-A	Bridgewater (H)(NE)	8/1/2022	Wastewater Treatment Facility Upgrades – Phase I	4,792,070
CWP-22-34	Brockton (H)	6/1/2023	2023 Sewer System Rehabilitation	2,173,452
CW-21-38	Chatham (NE)(CC)	8/1/2022	Chatham Stormwater Improvement Projects - 2021	3,598,348
CW-21-46	Chatham (NE)(CC)	10/1/2022	Chatham Queen Anne Pumping Station Upgrade 2021 PE	2,818,173
CW-21-33	Duke County	10/1/2022	Martha's Vineyard Airport WWTF Upgrades	10,971,561
CWT-22-21	Easton	10/1/2022	Community Septic Management Program	500,000
CWP-21-50	Fall River (H)*	8/1/2022	Wilson Road Sewer Pump Station Replacement	2,026,795
CWP-22-58	Fitchburg	5/1/2023	CSO 010, 032, 045, 083 Separation/Rehabilitation	7,511,358
CWP-22-58-A	Fitchburg	5/1/2023	CSO 010, 032, 045, 083 Separation/Rehabilitation	1,414,590
CWP-22-35	Framingham (H)	6/1/2023	Worcester Road Sewer Pumping Station Replacement	9,919,928
CW-22-31	Franklin (H)	6/1/2023	BSI Rehab & Replacement with New BS Pump Station	33,000,000
CWP-21-53	Great Barrington	7/1/2022	Wastewater Pump Station Upgrades Project	4,508,962
CWP-21-40	Haverhill (H)*	7/1/2022	Sewer System Improvements	8,240,908
CWP-21-40-A	Haverhill (H)	7/1/2022	Sewer System Improvements	753,965
CWP-21-36	Hudson	12/1/2022	Wastewater Treatment Facility Phase 2 Upgrades	20,600,483
CW-22-57	Littleton (H)	6/1/2023	Littleton Sewer System Expansion	29,438,000
CWP-22-69	Lynn Water and Sewer Commission (H)	6/1/2023	West Lynn Sewer Separation - Phases 3, 4, & 5	25,000,000
CWT-23-02	Marion	4/1/2023	Community Septic Management Program	200,000
CWP-21-16	Mashpee (NE)(CC)*	10/1/2022	Mashpee WRRF and Collection System - Phase 1	47,455,300
CWP-21-16-A	Mashpee (NE)(CC)	10/1/2022	Mashpee WRRF and Collection System - Phase 1	6,502,700
CW-22-05	Massachusetts Water Resources Authority (MWRA)	11/1/2022	DITP Asset Protection Phase 3	21,924,275
CW-22-06	MWRA	11/1/2022	Nut Island HW Odor Control & HVAC - Contract 7548	2,565,399
CW-22-07	MWRA	11/1/2022	Facility Asset Protection	15,848,326
CW-22-08	MWRA	11/1/2022	DITP Clarifier 2	1,000,000

CWSRF Binding Commitments for SFY 2023

Loan No.	Borrower	Agreement Date	Project Description	Commitment Amount
CW-22-09	MWRA	11/1/2022	CHE008 Pipeline Replacement Improvement	1,570,000
CW-22-61	New Bedford	4/1/2023	Phase 1 - Sewer System Evaluation Survey Program	1,730,000
CW-22-73	New Bedford	6/1/2023	Phase 3 Illicit Connection Identification Program	1,521,200
CWP-21-52	Orange	7/1/2022	North Main Street Water and Sewer Replacement	1,405,855
CWP-18-12-D	Pittsfield (NE)	12/1/2022	Wastewater Treatment Plant Nutrient Removal	508,975
CWP-21-37	Quincy (H)*	7/1/2022	Quincy FY22 Sewer Improvements	3,747,482
CWP-21-37-A	Quincy (H)	7/1/2022	Quincy FY22 Sewer Improvements	375,450
CWP-21-35	Revere *	8/1/2022	Phase 12 Construction- I/I, IDDE, P.S. & Drainage	4,665,788
CWP-21-35-A	Revere	8/1/2022	Phase 12 Construction- I/I, IDDE, P.S. & Drainage	875,000
CWT-22-14	Rowley	9/1/2022	Community Septic Management Program	200,000
CWP-21-48	Spencer (NE)*	9/1/2022	WWTF Upgrades Project	43,463,606
CWP-21-48-A	Spencer (NE)	9/1/2022	WWTF Upgrades Project	3,249,800
CWP-21-39	Springfield Water & Sewer Commission (SWSC)*	7/1/2022	SWSC Locust Transfer and Flow Optimization	27,620,000
CWP-21-39-A	SWSC	7/1/2022	SWSC Locust Transfer and Flow Optimization	2,625,375
CWP-21-43	Taunton (H)(NE)*	8/1/2022	Wastewater Treatment Facility Upgrade - Phase 2	49,793,748
CWP-21-44	Taunton (H)(NE)*	8/1/2022	Main Lift Pump Station Improvements Phase 3	10,460,456
CWP-22-53	Taunton (H)	6/1/2023	2023 Sewer & Drain Improvements	2,137,058
CWP-22-53-A	Taunton (H)	6/1/2023	2023 Sewer & Drain Improvements	362,000
CWP-22-54	Taunton (H)	6/1/2023	2023 Pump Station Improvements	4,000,000
CWT-22-22	Taunton	10/1/2022	Community Septic Management Program	250,000
Total Clean Water Binding Commitments SFY 2023				\$510,012,116

FOOTNOTES

* Loans used for FFATA Reporting

(H) - Housing Choice Communities

(NE) Nutrient Enrichment Reduction Loans

(CC) Cape Cod and Islands Water Protection Fund Loan

DWSRF Binding Commitments for SFY 2023

Loan No.	Borrower	Agreement Date	Project Description	Commitment Amount
DW-23-01	Acton Water Supply District (EC)	5/1/2023	PFAS Treatment at North Acton WTP	\$1,000,000
DWL-23-15	Adams Fire District (LSP)	6/1/2023	Water Service Inventory and Planning	50,000
DWL-22-18	Agawam (LSP)	10/1/2022	LSL Inventory & Planning Project	540,000
DWP-22-15	Amherst (H)	4/1/2023	Centennial Water Treatment Plant Replacement	15,000,000
DWL-22-55	Auburn Water District (LSP)	12/1/2022	LSL Planning Project	230,000
DWL-23-10	Avon (LSP)	3/1/2023	Lead Service Line Inventory & Replacement Plans	75,000
DWL-22-24	Ayer (LSP)	4/1/2023	Lead Service Line Inventory and Planning project	130,000
DWL-22-61	Billerica (LSP)	1/1/2023	Service Line Inventory & Lead Replacement Plan	680,000
DWL-22-17	Blackstone (LSP)	5/1/2023	LSL Inventory & Planning Project	50,000
DW-22-30	Blandford	12/1/2022	Water Main Replacement & Storage Evaluation	75,000
DWP-21-21	Braintree	12/1/2022	Tri-Town Regional Water Treatment Plant	7,500,000
DWP-22-51	Braintree (EC)	12/1/2022	Tri-Town Regional Water Treatment Plant	10,000,000
DWL-22-54	Brockton (LSP)	12/1/2022	Lead Service Line Replacement Program - Phase I	576,800
DWP-22-13	Brockton (H)	11/1/2022	Transmission Main Replacement Project	9,332,000
DWL-23-14	Brookline (LSP)	4/1/2023	Water Service Line Inventory and Planning Project	99,900
DW-22-03	Burlington (H)(EC)	4/1/2023	Mill Pond Water Treatment Plant - PFAS	14,090,350
DWL-23-53	Cherry Valley & Rochdale Water District (LSP)	6/1/2023	Service Line Inventory and LSL Replacement Plan	110,000
DWL-23-24	Cheshire (LSP)	4/1/2023	Water Service Inventory - Lead Service Replacement	123,500
DWL-23-36	Chester (LSP)	5/1/2023	Water Service Inventory and Lead Replacement Plan	136,000
DWL-23-44	Chicopee (LSP)	6/1/2023	Lead Service Line Inventory and Replacement Plan	311,500
DWL-23-28	Dalton Fire District (LSP)	5/1/2023	Lead Service Line Inventory and Replacement Plan	196,400
DWL-23-51	Dedham-Westwood Water District (LSP)	6/1/2023	Water Service Line Inventory	907,400
DWL-22-58	Deerfield Fire District (LSP)	12/1/2022	Deerfield Fire District LSL Inventory	89,869
DWP-21-17	Dighton Water District	7/1/2022	Main Street Water Main Replacement	3,850,000
DWL-22-63	Douglas (LSP)	1/1/2023	Lead Service Line Inventory and Replacement Plan	200,000
DWL-23-27	Dracut Water Supply District (LSP)	5/1/2023	Water Service Inventory and Replacement Plan	230,500
DWL-23-21	Dudley (LSP)	4/1/2023	Water Service Inventory and LSL Replacement Plan	200,000
DWP-21-16	Dudley	7/1/2022	Dudley PFAS Water Treatment Plant	11,288,220
DWP-22-49	East Brookfield	6/1/2023	Water Storage Improvements	7,869,027
DWL-23-13	East Longmeadow (LSP)	4/1/2023	LSL Planning	161,700
DWP-21-10	Eastham *	7/1/2022	Eastham Water System - Phase 2D	9,886,625
DWL-23-37	Erving (LSP)	5/1/2023	Lead Service Line Replacement Plan	121,500
DWL-23-46	Everett (LSP)	6/1/2023	Lead Service Line Inventory	150,000
DWL-23-50	Fairhaven (LSP)	6/1/2023	Service Line Inventory and LSL Replacement Plan	100,000
DWA-22-22	Fall River (H)	12/1/2022	Water System Geodatabase and Mapping	55,000
DWL-22-12	Fall River (LSP)	8/1/2022	Lead Service Line Inventory & Revised Replacement	750,000

DWSRF Binding Commitments for SFY 2023

Loan No.	Borrower	Agreement Date	Project Description	Commitment Amount
DWP-22-11	Fall River (H)	8/1/2022	Wilson Road Booster Pumping Station	1,841,575
DWL-23-47	Falmouth (LSP)	6/1/2023	Service Line Inventory and LSL Replacement Plan	128,000
DWL-23-02	Fitchburg (LSP)	2/1/2023	LSL Inventory & Replacement	140,000
DWP-22-40	Fitchburg	12/1/2022	Oak Hill Water Storage Tank Replacement	3,300,000
DWL-23-07	Franklin (LSP)	2/1/2023	LSL Inventory & Replacement and replacement plan	119,000
DWL-23-31	Greenfield (LSP)	5/1/2023	Water Service Inventory and Lead Replacement Plan	200,000
DWL-23-43	Hadley (LSP)	6/1/2023	Lead Service Line Inventory	145,770
DWL-22-60	Hamilton (LSP)	12/1/2022	LSL Planning Project	100,000
DWL-23-30	Harvard (LSP)	5/1/2023	Water Service Inventory and LSL Replacement Plan	111,250
DWL-23-11	Haverhill (LSP)	3/1/2023	Lead Service Line Inventory Planning	750,000
DWP-21-15	Haverhill (H)(LSL)*	7/1/2022	Phase 3 - Transmission Main Improvements	7,362,750
DWP-21-22	Holbrook	12/1/2022	Tri-Town Regional Water Treatment Plant	2,400,000
DWP-22-53	Holbrook (EC)	12/1/2022	Tri-Town Regional Water Treatment Plant	3,200,000
DWL-22-66	Hudson (LSP)	1/1/2023	Lead Service Line Inventory and Replacement Plan	300,000
DWL-23-08	Lanesborough Fire and Water District (LSP)	3/1/2023	Water Service Inventory & Replacement Plan	179,300
DWL-23-29	Lee (LSP)	5/1/2023	Water Service Inventory and Replacement Plan	182,800
DWP-22-38	Leicester Water Supply District	6/1/2023	Water System Interconnection with Worcester	5,179,421
DWL-23-40	Lincoln (LSP)	5/1/2023	Lead Service Line Inventory	43,000
DWL-23-39	Littleton (LSP)	5/1/2023	Service Line Inventories and LSL Replacement Plan	174,000
DWP-21-14	Lowell (H)	7/1/2022	Transmission Main Connection	6,344,000
DWL-23-41	Lunenburg Water District (LSP)	6/1/2023	Service Line Inventories and LSL Replacement Plan	253,000
DWL-23-09	Lynn Water & Sewer Commission (LSP)	3/1/2023	Lead Service Line Inventory and Replacement Plan	522,000
DWL-23-17	Marion (LSP)	4/1/2023	LSL Inventory & Replacement Project	75,000
DW-22-07	Massachusetts Water Resources Authority (MWRA)	11/1/2022	SEH Redundancy and Storage	2,000,000
DW-22-08	MWRA	11/1/2022	Weston Aqueduct Supply Main Rehabilitation	6,000,000
DW-22-09	MWRA	11/1/2022	Northern Intermediate High Section 89 Replacement	1,000,000
DWL-23-55	Maynard (LSP)	6/1/2023	Service Line Inventory and LSL Replacement Plan	200,000
DWL-22-64	Medway (LSP)	1/1/2023	Lead Service Inventory & Replacement Plan	140,000
DWL-22-59	Melrose (LSP)	2/1/2023	Lead Service Line Planning	165,000
DWL-23-22	Methuen (LSP)	4/1/2023	Lead Service Line Inventory	870,000
DWL-22-14	Millis (LSP)	9/1/2022	Millis Lead Service Inventory & Replacement Plan	139,000
DWL-23-04	Milton (LSP)	2/1/2023	Lead Service Line Inventory & Replacement Program	300,000
DWP-21-18	New Bedford *	8/1/2022	Braley Station Transmission Main Reinforcement	5,022,975
DWP-22-20	North Attleborough (H)(EC)	6/1/2023	McKeon WTF PFAS Treatment Facility	7,250,061
DWL-22-56	Norwood (LSP)	12/1/2022	Norwood LSL Planning	150,000
DWP-22-04	Orange	7/1/2022	North Main Street Water Main Replacement	1,120,955

DWSRF Binding Commitments for SFY 2023

Loan No.	Borrower	Agreement Date	Project Description	Commitment Amount
DWP-21-23	Randolph	12/1/2022	Tri-Town Regional Water Treatment Plant	5,100,000
DWP-22-52	Randolph (EC)	12/1/2022	Tri-Town Regional Water Treatment Plant	6,800,000
DWL-23-33	Raynham Center Water District (LSP)	5/1/2023	Water Service Inventory and LSL Replacement Plan	137,500
DW-22-36	Scituate	5/1/2023	Stearn's Meadow Water Treatment Plant	2,368,763
DWL-23-32	Shirley (LSP)	5/1/2023	Lead Service Line Inventory & Replacement Planning	34,900
DWL-23-49	Somerset (LSP)	6/1/2023	Service Line Inventory and LSL Replacement Plan	75,000
DWP-22-43	Somerset	1/1/2023	Booster Pump Station & High Service Area Rehab	1,353,540
DW-22-05	Sudbury Water District (H)(EC)	12/1/2022	Raymond Road Water Treatment Plant PFAS Treatment	3,311,392
DWL-23-05	Swampscott (LSP)	2/1/2023	Lead Service Line Inventory and Replacement Plan	163,700
DWL-23-26	Templeton Municipal Light & Water Plant (LSP)	5/1/2023	Water Service Inventory and LSL Replacement Plan	200,000
DWP-22-26	Townsend (EC)	6/1/2023	PFAS Water Treatment Improvements	14,900,000
DWL-23-45	Turners Falls (LSP)	6/1/2023	Lead Service Line Inventory	26,400
DWL-23-38	Tyngsboro Water District (LSP)	5/1/2023	Water Service Inventory and Lead Replacement Plan	89,200
DWL-23-20	Ware (LSP)	4/1/2023	Water Service Inventory - Lead Service Replacement	200,000
DWL-23-03	Warren Water District (LSP)	2/1/2023	Lead Service Line Inventory & Replacement Plan	200,000
DWL-22-65	Wayland (LSP)	4/1/2023	Lead Service Line Inventory and Replacement Plan	139,200
DWL-22-57	Webster (LSP)	12/1/2022	LSL Planning Project	200,000
DWL-23-35	West Springfield (LSP)	5/1/2023	Lead Service Line Inventory and Replacement Plan	150,400
DWL-23-06	Westborough (LSP)	2/1/2023	Lead Service Line Inventory and Replacement Plan	100,000
DWL-23-48	Westminster (LSP)	6/1/2023	Lead Service Line Inventory & Replacement Planning	56,800
DWL-23-34	Wilbraham (LSP)	5/1/2023	Water Service Inventory and Replacement Plan	160,000
DWL-23-19	Winchester (LSP)	4/1/2023	Water Service Inventory & Planning	58,000
DWP-22-35	Winthrop (LSL)	4/1/2023	Revere,Crest,& Grovers Ave. St. Dist. Improvements	4,890,101
DWL-22-62	Yarmouth (LSP)	2/1/2023	Lead Service Line Inventory and Replacement Plan	452,650
DWP-23-18	Yarmouth (EC)	6/1/2023	Yarmouth Well 4&5 Package PFAS Treatment System	3,365,339
Total Drinking Water Binding Commitments SFY 2023				\$198,108,033

FOOTNOTES

- * Loans used for FFATA Reporting
- (BC) - Base Capitalization
- (EC) - DWSRF Emerging Contaminants - PFAS
- (H) - Housing Choice Communities
- (LSL) - DWSRF Lead Service Line Replacement Loan
- (LSP) - Lead Service Line Planning Project - Grant

Appendix C: Loan Forgiveness By Program and SFY

2021 CWSRF Projects Receiving Disadvantaged Community Loan Forgiveness					
Borrower	Loan Number	Loan Amount	ARPA Loan Forgiveness	Disadvantaged Community Loan Forgiveness	Total Loan Forgiveness
Abington	CWP-21-01	\$6,155,564	\$461,667	\$203,134	\$664,801
Acton	CW-21-41	3,466,850	260,014	-	260,014
Adams	CWP-21-24	6,829,620	378,713	499,901	878,614
Barnstable	CWP-21-42	2,761,225	315,000	69,300	384,300
Barnstable	CWP-21-49	18,814,176	2,822,126	620,868	3,442,994
Barnstable	CWP-21-49-A	1,112,000	166,800	36,696	203,496
Bridgewater	CWP-21-32	35,321,000	2,649,075	2,331,186	4,980,261
Bridgewater	CWP-21-32-A	4,792,070	359,405	316,277	675,682
Chatham	CW-21-46	2,818,173	396,258	-	396,258
Chatham	CW-21-38	3,598,348	539,752	-	539,752
Dukes County	CW-21-33	10,971,561	940,605	-	940,605
Fall River	CWP-21-50	2,026,795	152,010	200,653	352,663
Fall River	CWP-21-06	47,329,000	3,549,675	4,685,571	8,235,246
Fall River	CWP-21-06-A	4,500,000	337,500	445,500	783,000
Great Barrington	CWP-21-53	4,508,962	300,300	132,132	432,432
Haverhill	CWP-21-40	8,240,908	527,775	464,442	992,217
Hudson	CWP-21-36	14,923,500	1,119,263	492,476	1,611,739
Lawrence	CWP-21-25	2,625,000	196,875	259,875	456,750
Lynn Water and Sewer Commission	CWP-21-22	70,328,732	4,264,454	5,629,079	9,893,533
Mashpee	CWP-21-16	47,455,300	7,118,295	1,566,025	8,684,320
Mashpee	CWP-21-16-A	6,502,700	975,405	214,589	1,189,994
Massachusetts Water Resources Authority	CW-21-56	32,062,963	2,404,722	-	2,404,722
Millbury	CWP-21-21	1,000,000	75,000	66,000	141,000
Orange	CWP-21-52	1,405,855	105,439	139,180	244,619
Quincy	CWP-21-37	3,747,482	281,061	247,334	528,395
Quincy	CWP-21-37-A	375,450	28,159	24,780	52,939
Revere	CWP-21-35	4,665,788	349,934	461,913	811,847
Revere	CWP-21-35-A	875,000	65,625	86,625	152,250
Spencer	CWP-21-48	43,463,606	2,843,685	3,753,664	6,597,349
Springfield Water and Sewer Commission	CWP-21-11	33,692,134	2,526,910	3,335,521	5,862,431
Springfield Water and Sewer Commission	CWP-21-39	27,620,000	1,776,742	2,345,300	4,122,042
Taunton	CWP-21-43	49,793,748	3,000,000	3,960,000	6,960,000
Taunton	CW-21-44	10,460,456	675,000	891,000	1,566,000
Whitman	CWP-21-17	12,898,480	967,386	851,300	1,818,686
Total		\$527,142,446	\$42,930,630	\$34,330,321	\$77,260,951

2021 DWSRF Projects Receiving Disadvantaged Community Loan Forgiveness

Borrower	Loan Number	Loan Amount	ARPA Loan Forgiveness	Disadvantaged Community Loan Forgiveness	Total Loan Forgiveness
Braintree	DW-21-21	\$7,500,000	\$1,500,000	\$495,000	\$1,995,000
Dighton Water District	DWP-21-17	3,850,000	577,500	254,100	831,600
Dudley	DWP-21-16	11,288,220	2,257,644	1,490,045	3,747,689
Eastham	DWP-21-10	12,966,625	1,944,994	1,711,595	3,656,589
Haverhill	DWP-21-15	7,362,750	684,868	904,025	1,588,893
Holbrook	DW-21-22	2,400,000	480,000	316,800	796,800
Hudson	DWP-21-04	5,608,461	1,121,692	370,158	1,491,850
Littleton	DW-21-01	24,534,937	4,906,987		4,906,987
Lowell	DWP-21-14	6,344,000	507,550	1,004,949	1,512,499
Mansfield	DW-21-02	4,545,824	909,165		909,165
Massachusetts Development Finance Agency	DW-21-05	27,300,000	5,460,000		5,460,000
Massachusetts Water Resources Authority	DW-21-28	9,872,250	987,225		987,225
Natick	DW-21-24	3,000,000	600,000		600,000
New Bedford	DWP-21-18	5,022,975	350,000	693,000	1,043,000
Randolph	DW-21-23	5,100,000	1,020,000	673,200	1,693,200
Springfield Water and Sewer Commission	DWP-21-03	11,573,681	1,008,900	1,997,622	3,006,522
Westfield	DWP-21-06	15,548,617	2,965,490	2,935,835	5,901,325
Total		\$163,818,340	\$27,282,015	\$12,846,329	\$40,128,344



Appendix D: Program Project Tables

Asset Management Planning Grants for SFY 2023				
Community	Loan/Grant Number	Agreement Date	Project Cost	Grant Amount
Abington-Rockland Joint Water Works	DWA-22-39	11/2/2022	\$93,750	\$56,250
Acton	CWA-22-11	8/3/2022	210,600	126,600
Agawam	CWA-22-15	9/7/2022	200,000	120,000
Arlington	CWA-22-51	11/2/2022	246,000	147,600
Avon	CWA-22-27	12/14/2022	80,115	48,069
Avon	DWA-22-10	6/1/2022	250,000	150,000
Billerica	CWA-22-10	6/29/2022	44,500	26,700
Blandford	DWA-22-29	11/2/2022	231,750	139,000
Bolton	CWA-22-16	10/5/2022	100,000	60,000
Chelmsford Water District	DWA-22-06	10/5/2022	412,575	150,000
Douglas	CWA-22-20	10/5/2022	126,500	75,900
Edgartown	CWA-22-18	10/5/2022	162,500	97,500
Erving	CWA-22-42	11/2/2022	142,500	85,500
Fall River	DWA-22-22	12/14/2022	250,000	150,000
Fitchburg	CWA-22-70	12/14/2022	250,000	150,000
Greenfield	CWA-22-37	12/14/2022	146,057	87,634
Lincoln	DWA-22-16	10/5/2022	111,250	66,750
Longmeadow	CWA-22-26	11/2/2022	250,000	150,000
Lunenburg	CWA-22-19	10/5/2022	130,000	78,000
Marshfield	CWA-22-60	12/14/2022	260,000	150,000
Mashpee	CWA-22-29	12/14/2022	100,000	60,000
Methuen	CWA-22-45	11/2/2022	200,000	120,000
Millis	CWA-22-72	12/14/2022	250,000	150,000
Montague	CWA-22-04	6/1/2022	250,000	150,000
North Brookfield	CWA-22-13	9/7/2022	184,077	110,446
Northfield	CWA-22-47	11/2/2022	117,430	70,458
Plainville	CWA-22-17	10/5/2022	250,000	150,000
Rutland	CWA-22-62	12/14/2022	128,750	77,250
Saugus	CWA-22-23	10/5/2022	250,000	150,000
South Essex Sewerage District	CWA-22-12	10/5/2022	187,500	112,500
Stow	CWA-22-25	11/2/2022	48,000	28,800
Taunton	DWA-22-42	12/14/2022	194,264	116,558
Templeton	DWA-22-19	11/2/2022	120,000	72,000
Westminster	CWA-22-24	11/2/2022	250,000	150,000
Winchendon	CWA-22-64	12/14/2022	125,000	75,000
Total			\$6,353,118	\$3,708,515

School Water Improvement Grant Recipients for SFY 2023

Organization	Award Fixtures	Grant Amount	Date Awarded
Easton Public Schools	2	\$6,000	11/2/2022
Four Rivers Charter Public School	3	\$9,000	12/14/2022
Hampden-Wilbraham Regional School District	2	\$6,000	3/6/2023
Haverhill Public Schools	10	\$30,000	12/14/2022
Immaculate Conception School	2	\$6,000	1/11/2023
Mariposa Child-Care Center Inc	1	\$3,000	10/5/2022
Our Future Learning Center Inc	4	\$12,000	2/8/2023
PACE Head Start	3	\$9,000	10/5/2022
Springfield Public Schools	70	\$210,000	5/3/2023
St John the Evangelist School	3	\$9,000	1/11/2023
St Stanislaus Kostka School	2	\$6,000	4/5/2023
Total	102	\$306,000	



Appendix E: Program Specific Reporting Project Tables

2021 Intended Use Plan Green Project Reserve Projects					
Borrower Name	State Tracking Number	Project Names	Current Agreement Amount	Total Current GPR Amount	% Green Funding
Fall River	CWP-21-06	Wastewater Treatment Facility Improvements	\$47,329,000	\$2,100,000	4%
Fitchburg	CW-21-07	CSO 010, 032, 045, 083 Separation/Rehabilitation	1,048,700	1,048,700	100%
Haverhill	CWP-21-40-A	Sewer System Improvements	753,965	753,965	100%
Haverhill	CWP-21-40	Sewer System Improvements	8,240,908	8,240,908	100%
Lawrence	CWP-21-25	Sewer and Drainage System Improvements	2,625,000	2,625,000	100%
Millbury	CWP-21-21	Year 1 to 4 Sewer Rehabilitation Project	1,000,000	1,000,000	100%
Orange	CWP-21-52	North Main Street Water and Sewer Replacement	1,405,855	1,405,855	100%
Quincy	CWP-21-37-A	Quincy FY22 Sewer Improvements	375,450	375,450	100%
Quincy	CWP-21-37	Quincy FY22 Sewer Improvements	3,747,482	3,747,482	100%
Quincy	CW-21-09	Stormwater Drainage and Management Planning Study	3,180,000	3,180,000	100%
Revere	CWP-21-35-A	Phase 12 Construction- I/I, IDDE, P.S. & Drainage	875,000	875,000	100%
Revere	CWP-21-35	Phase 12 Construction- I/I, IDDE, P.S. & Drainage	4,665,788	4,665,788	100%
Revere	CW-21-34	Phase 13 Investigations- I/I and IDDE	1,500,000	1,500,000	100%
Weymouth	CW-21-28	Weymouth Stormwater Master Plan	\$591,000	\$591,000	100%
Springfield Water & Sewer Commission	CWP-21-39-A	SWSC Locust Transfer and Flow Optimization	2,625,375	2,625,375	100%
Springfield Water & Sewer Commission	CWP-21-39	SWSC Locust Transfer and Flow Optimization	27,620,000	27,620,000	100%
Total			\$107,583,523	\$62,354,523	



Appendix F: Sewer Overflow and Stormwater Reuse Municipal Grants Program Annual Report

SEWER OVERFLOW AND STORMWATER REUSE MUNICIPAL GRANTS PROGRAM ANNUAL REPORT

Introduction

The Massachusetts Clean Water Trust (the Trust) and the Massachusetts Department of Environmental Protection (MassDEP) are pleased to present to the US Environmental Protection Agency (EPA) the following Massachusetts Sewer Overflow and Stormwater Reuse Municipal Grants Program (OSG) Annual Report.

Overview

The OSG program is intended to address local governments' infrastructure needs for combined sewer overflows (CSO), sanitary sewer overflows (SSO), and stormwater management.

Below, this report will address:

1. Key achievements of outputs and outcomes from Commonwealths proposed OSG workplan;
2. Any changes or delays from the original workplan timeline; and
3. Any additional pertinent information regarding project characteristics, milestones, and environmental & public health benefits achieved because of awarded OSG grants.

Information will be provided as of the end of state fiscal year 2023 (SFY 2023), which ended on June 30, 2023. This report is made in accordance with 2 CFR §200.329.

The Trust in coordination with MassDEP proposed using the grant funds to make subgrants to eligible municipal entities for qualifying projects that are listed in the 2022 Intended Use Plan (IUP) for the Clean Water State Revolving Fund (CWSRF) as proposed in the MA OSG Work Plan. The Trust did not use any of the OSG allotment/award for administrative costs; these funds included Federal Fiscal Year 2020 and 2021 allotments.

Source	Funds
Federal Grant(s) (2020 and 2021)	\$1,744,000
20% State Cost Share	436,000
Total	\$2,180,000

Achievement of Outputs and Outcomes

The Trust and MassDEP prioritized the projects for OSG subgrants by selecting projects from applicants that were:

1. Implementing a Long-Term Control Plan for CSOs or SSOs; and,
2. Listed on the 2022 CWSRF IUP. MassDEP ensured that projects met the established criteria as described in CWA section 221(a)(1).

Below is the list of projects identified as being eligible to receive OSG funding as a minor portion of the overall funding in conjunction with SRF loans. Additionally, the Grantees are repeat borrowers from the State Revolving Fund and a majority have reported on subrecipient requirements in accordance with federal grant conditions in recent years.

Grantee	Status	Loan Number	Amount	Project Description
Chicopee	Proceeding to Construction	CWP-22-39	\$7,300,000	South Fairview Sewer Separation Project- Phase A
Fall River	Not Proceeding			
Fitchburg	Proceeding to Construction	CWP-22-58	\$8,925,948	Sewer Separation and Rehabilitation
Lynn Water and Sewer Commission	Proceeding to Construction	CWP-22-69	\$25,000,000	West Lynn Sewer Separation- Phases 3, 4, & 5
New Bedford	Waiting on Construction Contract	CWP-22-63	\$28,840,000	Pumping Station Improvements

FOOTNOTES

² This number is based on the engineer's best estimates and final bids are expected at the end of October 2023.

Achievement of Outputs and Outcomes

The Trust and MassDEP prioritized the projects for OSG subgrants by selecting projects from applicants that were:

Changes and Delays of Note

As shown above, the Trust has projects to draw down the 2020 and 2021 OSG Grants, even with the project for Fall River not proceeding and a delay in receiving the final bids for New Bedford. The Trust has yet to apply the grant funding because of the delay to the New Bedford project. Traditionally, the Trust approves loan forgiveness and grants to projects for an IUP year once all project costs are known. This allows the funding to be allocated equitably to all qualifying projects. Once all costs are known, the Trust expects to be able to allocate funding to these projects and to have it spent within SFY2024. After discussion with EPA and now understanding EPA's intent of expeditiously spending the grant funds, in future years, the Trust will look to implement a new method to demonstrate that these funds being put to use quickly and efficiently.

Green Project Reserve

In compliance with CWA section 221(f)(2)(A), at least 20% of the Commonwealth's Federal grant was applied to projects with green infrastructure, water and energy efficiency improvements, or other resource conservation activities. All the projects listed categorically meet this criteria.

CSOs are a major water pollutant in Massachusetts and the cost to manage or eliminate the discharges is estimated to exceed \$1 billion. Due to Massachusetts' historic nature, and like many older cities across the country, 19 sewer authorities in the Commonwealth have wastewater systems designed to carry both sanitary sewage and stormwater in the same pipes through combined systems. Most of these systems are located in Disadvantaged Communities. The Commonwealth has a number of approaches to address discharges of untreated and partially treated sewage to Massachusetts waters. These approaches include funding to implement projects to reduce or eliminate such discharges, and notification measures to make the public aware when waterbodies are affected.

Financially Distressed and Rural Communities

All of the projects listed above qualify as Financially Distressed Communities based on the Trust's Disadvantaged Communities list and all score in the most at need tier of communities in the Commonwealth. However, there are not sufficient projects to meet the Rural Communities requirement but, as previously discussed with EPA, the projects above were listed on the 2022 IUP and were solicited in July of 2021. At that time, the legislation governing the OSG grant and the EPA guidance did not include the requirement to direct a certain percentage of the grant to rural or disadvantaged communities. The changes to the OSG grant occurred with the passage of the Infrastructure and Jobs Act in November of 2021. Massachusetts decided to apply for the OSG using current projects instead of soliciting for new projects in order to accommodate EPA's request to apply quickly for the grant to put these funds to use on SRF projects moving forward. Massachusetts is using the 2% Technical Assistance Set-Aside from the CWSRF Grant to develop a small, rural and disadvantaged community technical assistance program. The Trust and MassDEP are hopeful this program will create a pipeline of projects that will better meet the OSG program requirements in future grant years.

Conclusion

The Trust and MassDEP look forward to reporting the use of these funds in the next Annual Report and relating the positive environmental outcome of these vital projects in our most at need communities. Massachusetts appreciates EPA Region 1's assistance and guidance as the first year of OSG funding is put to work in our communities.





MASSACHUSETTS
CLEAN WATER TRUST

Annual Green Bonds and Sustainability Bonds Report

September **2023**

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A Note from the Treasurer

As Chair of the Massachusetts Clean Water Trust (the Trust) Board of Trustees, and in keeping with the Commonwealth of Massachusetts' and the Trust's policy of openness and transparency, I am pleased to submit the 2023 Annual Green Bonds and Sustainability Bonds Report.

The Trust has issued seven Green Bond series totaling nearly **\$1.3 billion** to support **384** local water infrastructure projects, and two series of Sustainability Bonds totaling over **\$352.5 million** in support of **91** projects. By the issuance of Green and Sustainability Bonds, the Trust is once again demonstrating their commitment to an innovative finance program.



The projects financed by these bonds enhance ground and surface water resources, ensure the safety of drinking water, protect public health, and develop resilient communities. The impact of these investments may not always be visible to the public, but it is felt in every glass of water poured, in restored water bodies, and in homes and businesses that receive safe and reliable water.

These designations help provide investors with an Environmental, Social, and Corporate Governance (ESG) focus, an opportunity to invest in bonds that support critical public health infrastructure that both supports needed environmental improvement and helps the communities most in need within the Commonwealth.

Sustainability. The Trust was one of the first to leverage the Sustainability Bonds designation for water infrastructure through the State Revolving Fund program. Sustainability Bonds finance projects that meet the same standards as Green Bonds but have the additional impact of serving communities that have socio-economic challenges. The bonds finance projects in our most at need communities. As this ESG marketplace continues to mature, the Trust commits to transparent and accurate reporting for the bond label to continue to instill investor confidence.

AAA Credit Rating. With its AAA credit rating by all three major credit agencies, the Trust provides low interest loans to local governments and other eligible entities for water infrastructure projects across the Commonwealth. Since its establishment, the Trust has financed approximately **\$8.6 billion** for nearly three hundred borrowers, serving **97%** of the Commonwealth's population.

Commitment. The Trust is committed to transparency and constant improvement. This can be found in its industry leading issuances to the improved accessibility to its documents from the preliminary official statements to this very report. We are pleased to contribute to this innovative marketplace and stay committed to improving our communications. We ask that you let us know if there are any additional ways that we can meet your information needs. Your feedback is much appreciated and always welcome.

Finally, I am deeply thankful to the staff of the Trust and our program partners, the Massachusetts Department of Environmental Protection (MassDEP and EPA Region 1, for their tireless work and commitment to the communities of the Commonwealth. The Trust and MassDEP are constantly innovating and remain dedicated to the mission of serving our communities.

Sincerely,

A handwritten signature in black ink, appearing to read 'Deborah B. Goldberg', written in a cursive style.

Deborah B. Goldberg

Treasurer and Receiver-General
Commonwealth of Massachusetts

mass.gov/treasury

Introduction to the Trust

The Massachusetts Clean Water Trust (the Trust), in collaboration with the Massachusetts Department of Environmental Protection (MassDEP), helps communities build or replace water infrastructure that enhances ground and surface water resources, ensures the safety of drinking water, protects public health, and develop resilient communities. It accomplishes these objectives by providing low-interest loans and grants to cities, towns, and water utilities through the Massachusetts State Revolving Funds (SRFs).

The Trust and MassDEP administer two SRFs, the Clean Water (CW) and Drinking Water (DW) SRFs. The CWSRF was established in 1987 under the Clean Water Act and the DWSRF was established in 1996 under the Safe Drinking Water Act. The Trust manages the flow of funds to borrowers while MassDEP manages project development and oversight.

SRFs receive funding from the United State Environmental Protection Agency (EPA) in the form of annual capitalization grants. The SRFs function as an environmental infrastructure bank making loans to local governments with the federal funds and once those loans are paid back, the funds are then loaned out again, which is how the fund “revolves.”

The Trust uses a “leveraged financing model” to provide more funding to projects than the federal and state grants. Bonds are issued in the capital markets and are secured by borrower repayments and reserve funds. The proceeds from bonds are used to provide capital for new, below-market rate loans to borrowers for water infrastructure projects. This model has allowed the Trust to finance approximately \$8.6 billion in projects from nearly \$2.9 billion in federal grants and state matching funds.

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 MassDEP serve as Trustees. During monthly meetings, the Board of Trustees approves all financial commitments, agreements, and program decisions. All Board of Trustees materials can be found on the Trust’s website along with all pertinent investor information, including this report.

About this Report

This report covers the Trust’s activity during State Fiscal Year (SFY) 2023 and is separated into three sections. The first section, “The Trust’s Bonds,” details the Trust’s process for issuing Green Bonds and Sustainability Bonds. It covers program-specific project categories, project selection and an overview of the Trust’s operations. The second and third sections provide full project descriptions from the Trust’s Series 24 issuance, organized by the CWSRF and DWSRF programs. Projects associated with Series 24 Sustainability Bonds are shaded in light orange. The appendices at the end of this report list all loans by Green Bonds and Sustainability Bonds series that are still being funded. Additional information such as the percentage of project funding drawn, and loan numbers are included. Readers should note that the main report sections are organized by projects that, in certain cases, were financed by multiple loans spanning multiple bond series.

For full project descriptions for previous bond series, please review previous editions of the Green Bond Report, the Trust’s Annual Reports, or the specific bond series’ official statements. All reports and documents may be found on the Trust’s website under “Investor Resources”: www.mass.gov/orgs/the-massachusetts-clean-water-trust.



Section I · The Trust's Bonds

In SFY 2023, the Trust successfully issued two series of bonds – Series 24A Green Bonds and Series 24B Sustainability Bonds. This was the Trust’s seventh issuance of Green Bonds and the second issuance of Sustainability Bonds. This section will describe the Trust’s approach to issuing Green Bonds and how the Trust has adopted the International Capital Market Association (ICMA) 2021 *Green Bond Principles* framework for project selection. Further, this section details how Sustainability Bonds are designated and their distinction from Green Bonds. Finally, the section will describe how the Trust maps projects to United Nations Sustainable Development Goals (UN SDGs)

Series 23 and 24 departed from the way the Trust has traditionally issued Green Bonds. The Trust made the decision to include all projects associated with the issuances. Previous practice limited project disclosure to those directly funded through bond proceeds and did not include projects that were financed with the Trust’s equity and pledged to secure the Trust’s bonds. Series 23 and 24 included all projects, whether they were bond funded or funded by Trust equity. Tables found in this report that detail the number of projects or loans for previous issuances reflect the policy that was in place at the time of issuance and should be considered individually.

GREEN BONDS

Since 2015, the Trust has issued over \$1.27 billion of its bonds as Green Bonds in compliance with the federal Clean Water Act and the Safe Drinking Water Act. Consistent with the “Green Bond” classification, the proceeds are dedicated to projects that promote pollution prevention, sustainable water, wastewater management, energy efficiency or other environmentally sustainable purposes in alignment with ICMA’s *Green Bond Principles*. The Green Bonds were issued to finance 384 loans for 318 water infrastructure projects through the CWSRF and DWSRF programs.

Green Bonds Issued			
Series	Year	Issue Amount	Total Loans
Series 18	2015	\$228,155,000	81
Series 19	2016	207,805,000	66
Series 20	2017	207,350,000	51
Series 21	2018	163,460,000	38
Series 22	2019	191,610,000	44
Series 23A	2021	141,945,000	48
Series 24A	2022	137,095,000	56
Totals		\$1,277,420,000	384

SUSTAINABILITY BONDS

The Trust issued Sustainability Bonds due to the projects’ adherence to the same environmental standards of the Green Bonds and the designation of certain borrowers as “Disadvantaged Communities” under the acts. These projects represent communities that are identified as the most disadvantaged in relation to other communities in the Commonwealth.

The purpose of labeling the bonds as “Sustainability Bonds” is to allow investors to invest directly in bonds that finance projects in Disadvantaged Communities and are environmentally beneficial projects that meet ICMA’s 2021 Green Bond Principles, Social Bond Principles, Sustainability Bond Guidelines, and the United Nations Sustainable Development Goals. Projects designated as “Sustainability Bonds” are made up exclusively from Disadvantaged Community projects ranked as Tier 3, those most in need, according to the Trust’s Annual Affordability Calculation as detailed below. Sustainability Bonds were issued to finance 91 loans for 68 water infrastructure projects through the CWSRF and DWSRF programs.

Sustainability Bonds Issued			
Series	Year	Issue Amount	Total Loans
Series 23B	2021	\$209,495,000	44
Series 24B	2022	143,060,000	47
Totals		\$352,555,000	91

THE TRUST'S DISADVANTAGED COMMUNITY PROGRAM

The Clean Water Act and the Safe Drinking Water Act define a Disadvantaged Community as a municipality most in need as identified by a state's affordability criteria. SRFs are required to provide additional subsidies to Disadvantaged Communities, calculated as an annual percentage of the CWSRF and DWSRF capitalization grants. Massachusetts awards this subsidy in the form of loan forgiveness, reducing the principal obligation that must be repaid on eligible loans. Additionally, the Trust applies further loan forgiveness through a state matching component to this federal requirement.

The Trust uses the Affordability Calculation for an adjusted per capita income (APCI) metric as its affordability criteria. This approach identifies communities that are the most in need of additional financial assistance to construct needed infrastructure improvements. In addition to determining financial need, the metric uses publicly available, transparent sources of data. Pursuant to EPA guidance, the criteria must be based upon income, unemployment data, population trends, and other data determined relevant by the state. The Trust uses the following formula to calculate the affordability tiers.

Adjusted Per Capita Income (APCI) = Per Capita Income * Employment Rate * Population Change

PER CAPITA INCOME (as listed on the most recent data tables of the Massachusetts Department of Revenue): Per Capita Income is a widely accepted metric of an ability to afford the cost of infrastructure projects.

EMPLOYMENT RATE (as listed on the most recent calendar year data tables of the Massachusetts Department of Revenue): The percentage of the workforce employed. Higher employment rates suggest that a community has more residents able to afford the cost of infrastructure than a community with lower employment rates.

POPULATION CHANGE: The percentage of gain or loss, according to the US Census data, in a municipal population between 2010 and 2020. Increase in population suggests that the community is experiencing growth, which provides a larger rate payer base to support infrastructure costs. Loss of population suggests negative growth and leaves fewer taxpayers and rate payers to absorb the burden of the infrastructure cost.

Based on the APCI formula described above, the Trust calculates APCI for the state and its 351 individual municipalities annually. Communities that fall below the Commonwealth's APCI are assigned into the three (3) affordability tiers based on a community's APCI as a percentage of the Commonwealth's APCI. The table below shows how the tiers are broken down.

Disadvantaged Community Tier Designation	
Tier 1	APCI equal to or more than 80% of the State APCI, but less than 100% of the State APCI
Tier 2	APCI equal to or more than 60% of the State APCI, but less than 80% of the State APCI
Tier 3	APCI less than 60% of the State APCI

PROJECT SELECTION

The Trust's loan process is dictated by an annual list of projects it commits to finance called the Intended Use Plan (IUP). MassDEP compiles two IUPs annually, one for each SRF program. Project eligibility is determined by the Clean Water Act and Safe Drinking Water Act for the CWSRF and DWSRF, respectively. Projects that apply for financing are selected during an annual solicitation process which is open July through August.

MassDEP compiles the annual IUPs using this rigorous selection process that establishes the Commonwealth's priorities for the upcoming year. MassDEP engineers review detailed project specifications and rank them using an established set of criteria that measures the severity of the problem, the sensitivity of the environmental hazard, the public health risk, and the appropriateness of the proposed solution.

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

PROJECT FUNDING

The Trust, MassDEP, and EPA have entered into a Revolving Fund Operating Agreement for the CWSRF and DWSRF. These agreements establish rules, procedures, and activities to be followed by the EPA and the Trust in administering federal grants. To date, the Trust has been awarded approximately \$1.7 billion in federal grants and \$318.9 million in state matching funds for the CWSRF program. Approximately \$602.9 million in federal grants and \$115.2 million in state matching funds have been awarded to the DWSRF program. Additionally, the Commonwealth appropriated \$30 million for funding or securing financing solely for local Community Septic Management Programs.

PROJECT CATEGORIES

The SRF programs fund or finance a wide range of projects. 11 categories of projects are eligible to receive CWSRF assistance and six categories are eligible to receive DWSRF assistance. To streamline the content of this report, the Trust has consolidated similar and related categories while omitting categories with no current projects. Below is an overview of the categories listed within this report.

CLEAN WATER CATEGORIES

Wastewater Treatment Projects

These projects involve the maintenance, upgrade, or construction of wastewater treatment facilities (WWTF). A WWTF receives all the sewage from a municipality or utility district service area then treats the water before releasing it back into the environment in accordance with National Pollutant Discharge Elimination System (NPDES) permits. The goal of these projects is to reduce or eliminate pollutants and nutrients found in wastewater for 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 systems. Sewer system rehabilitation and I/I correction projects are concerned with removing sources of water that are either illicitly adding to a sewer system, or from sources entering via defective pipes or utility access holes. 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 gather wastewater from the source. 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 (CSO) 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 all in the same pipe. During wet weather events, combined sewer systems can reach capacity and the excess overflows into surrounding waters, creating a CSO. CSO correction projects work to reduce the amount of untreated water discharged from combined sewer systems. Eliminating CSOs is an EPA and Commonwealth priority goal because it will reduce the amount of untreated wastewater that is released into the local environment.

Non-Point Source (NPS) Sanitary Landfill

These projects involve the reduction of NPS pollution from landfills by capping, installing leachate collection systems or repairing insufficient or damaged landfill systems. NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, depositing them into ground and surface waters.

NPS Decentralized Wastewater Treatment Systems

These projects involve the rehabilitating or replacing residential onsite wastewater treatment systems or clustered systems. Failed onsite systems are a leading source of groundwater and nutrient enrichment in waterways. This category contains the projects related to the community septic management program

Stormwater Infrastructure

These projects involve techniques for managing stormwater to prevent or reduce non-point source pollutants from entering surface waters or ground waters. This includes designing and installing stormwater management systems for conveying, collecting, storing, discharging, recharging, or treating stormwater. These systems aim to reduce the overall impact of excess water on an existing system during wet weather events.

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 common objectives. For example, comprehensive wastewater management plans provide strategies for addressing wastewater treatment and disposal issues in a community. Integrated municipal stormwater and wastewater resource management planning assists communities with meeting requirements that arise from distinct wastewater and stormwater programs. Fiscal sustainability and asset management planning assists communities with maintaining replacement schedules and forecasting capital needs.

DRINKING WATER CATEGORIES

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 to remove 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. New pumping and filtering equipment is designed with energy efficiency in mind.

Drinking Water Transmission and Distribution Projects

These projects involve the infrastructure that brings untreated 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 distinct 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 for maintaining and storing treated water before it is distributed into a system.

Drinking Water Planning and Design Projects

These projects involve the activities needed to plan, design, and/or study drinking water infrastructure. Such projects are essential for maintaining and improving the key infrastructure that protects public health and water quality.

UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS PROJECT MAPPING

The United Nations Sustainable Development Goals (UN SDGs) are 17 goals adopted as part of the ‘2030 Agenda for Sustainable Development.’ The goals were adopted by all United Nations member states in 2015. The UN SDGs are meant to provide a blueprint for combating poverty, spurring economic growth, and improving health and education while ensuring both climate and environmental sustainability. In reference to the 2022 International Capital Market Association’s *Green and Social Bonds: A High-Level Mapping to the Sustainable Development Goals*, the Trust intends for the proceeds from the designated bonds to be used in a manner that is expected to be consistent with the following UN SDGs.

While the Trust intends for projects financed with Green Bonds and Sustainability Bonds to adhere to the applicable UN SDGs as detailed below, the Trust does not guarantee that such criteria will ultimately be met, either in substance or with respect to any timelines set forth in the UN SDGs.

MAPPING GREEN BONDS

Consistent with the “Green Bond” classification, the proceeds from the Green Bonds will be dedicated to projects that promote pollution prevention, sustainable water and wastewater management, energy efficiency, or other environmentally sustainable purposes in alignment with ICMA’s 2021 *Green Bond Principles*.

Goal 3: Ensure healthy lives and promote well-being for all at all ages

3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

Goal 6: Ensure availability and sustainable management of water and sanitation for all

6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all.

6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.

6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.

6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate.

6.b Support and strengthen the participation of local communities in improving water and sanitation management.

Goal 12: Ensure sustainable consumption and production patterns

12.2 By 2030, achieve the sustainable management and efficient use of natural resources.

12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.

Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development

14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.

14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience and take action for their restoration in order to achieve healthy and productive oceans.



Programs	Project Category	UN SDG Alignment
CWSRF Eligible Projects	Wastewater Treatment	6.3, 6.4, 12.4
	Collector and Interceptor Sewers	6.3, 6.4, 14.1
	Combined Sewer Overflow Correction	6.3, 6.b, 12.2, 14.1
	Infiltration/Inflow and Sewer System Rehabilitation	6.3, 6.b, 14.1
	NPS Sanitary Landfill	6.3, 6.b, 12.2, 12.4, 14.1, 14.2
	NPS Decentralized Wastewater Treatment Systems	6.3, 6.b, 12.4
	Stormwater Infrastructure	6.3, 6.b, 12.2, 14.1, 14.2
	Planning	6.3, 6.4, 6.5, 6.b, 12.2, 14.1
DWSRF Eligible Projects	Drinking Water Treatment	6.1, 6.4, 6.5, 12.4
	Drinking Water Transmission and Distribution	6.1, 6.4, 12.2
	Drinking Water Source and Storage	6.1, 12.2, 12.4
	Drinking Water Planning and Design	6.1, 6.4, 6.5, 6.b, 12.2, 12.4

MAPPING SUSTAINABILITY BONDS

Projects financed as 'Sustainability Bonds' will generally adhere to the UN SDGs as detailed in this report. In addition, the projects financed by the Series 23B Bonds all fall into the Tier 3 Disadvantaged Communities as determined at the time of project approval.

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.

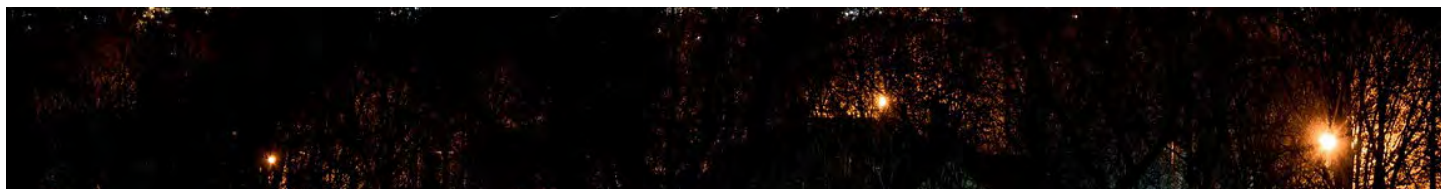
Goal 10: Reduce inequality within and among countries

10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status.

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable

11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums.

11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all.



A Look at Series 24

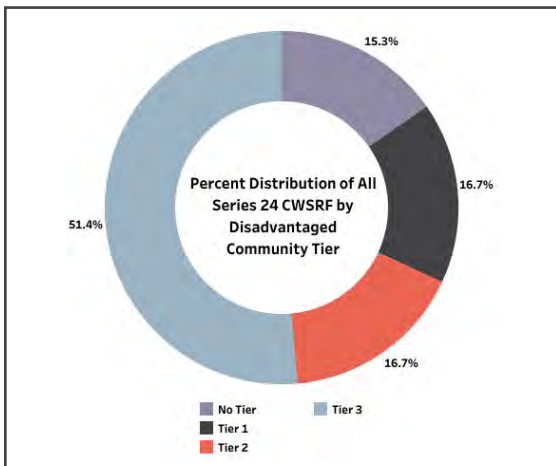
THE DATA

Series 24 is composed of 103 projects with 64% being CWSRF projects and 36% DWSRF projects. The following charts illustrate the distribution of Series 24 projects in each of the CWSRF and DWSRF project categories, first by financing amount and then by number of projects. When examined together, these charts provide a detailed illustration of the composition of each program in Series 24.

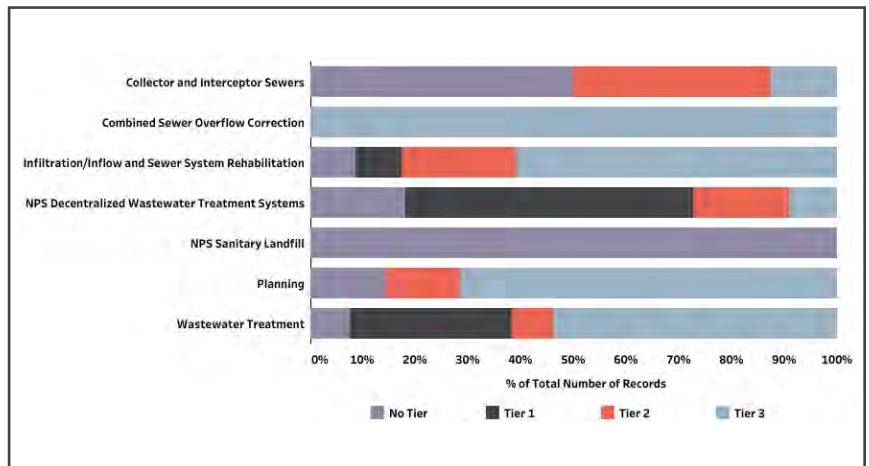
The following charts show the distribution of Series 24 funds to CWSRF and DWSRF programs by Disadvantaged Community tiers.

- **\$373.1 million** or 79.2% of all Series 24 loans went to a Disadvantaged Community.
- **\$189.3 million** of all Series 24 loans were made to Tier 3 Disadvantaged Communities.
- **86.3%** of the Tier 3 allocation went to CWSRF Disadvantaged Community projects.
- **85%** of Planning project funding went to Disadvantaged Communities.
- Approximately **72%** of I/I and Sewer System Rehabilitation project funding went to Disadvantaged Communities, with 47.7% going to Tier 3 Disadvantaged Communities.

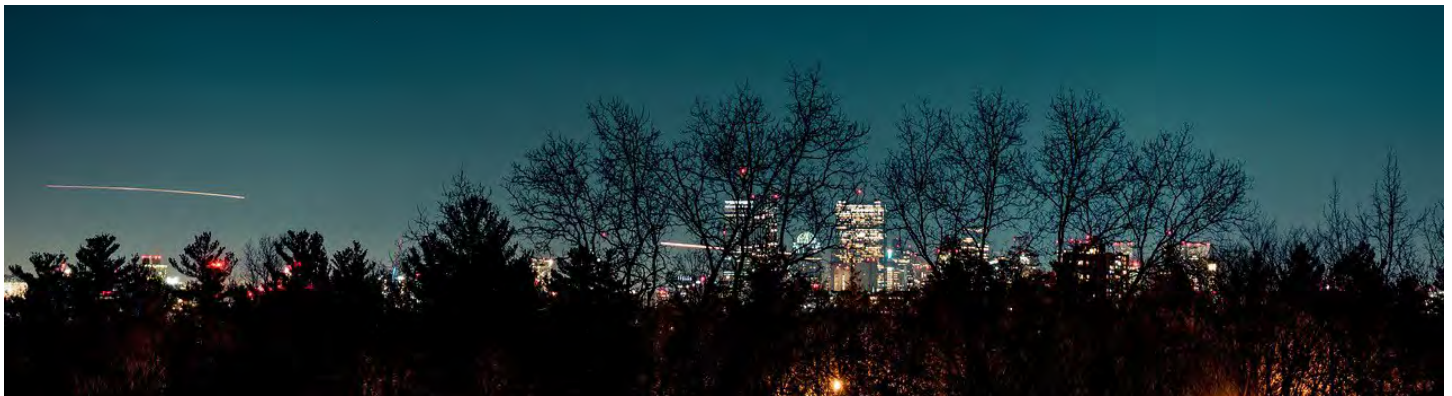
Percent Distribution of All Series 24 CWSRF by Disadvantaged Community Tier



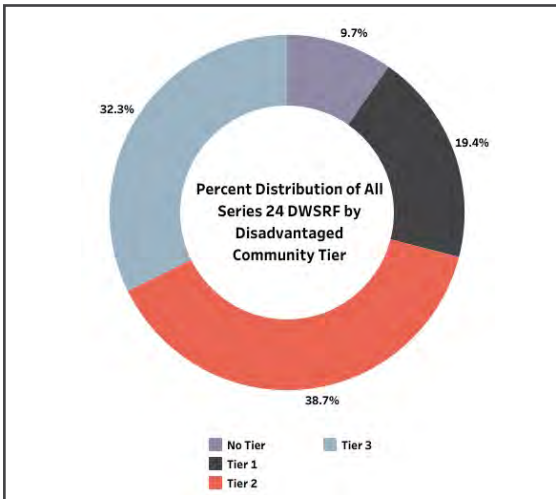
Percent Distribution of CWSRF in each Project Category by Disadvantaged Community Tier



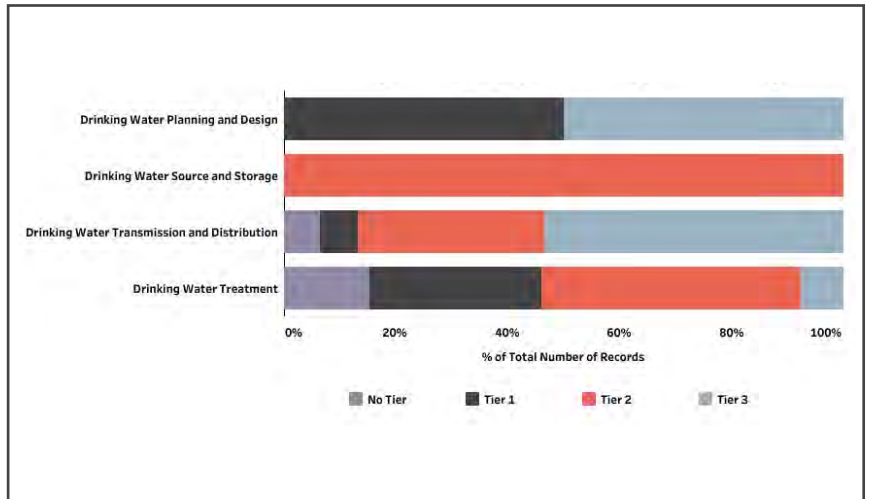
- Approximately **33%** of Disadvantaged Community funding was allocated to DWSRF projects, but this is proportionate to the size of the DWSRF portfolio.
- **90.3%** of total DWSRF loan funds went to Disadvantaged Communities, a 34% increase from the previous series. Most of this increase is seen in Tier 3 funding, which increased 65% from the previous series.
- **100%** of Drinking Water Planning project funds went to Tier 3 Disadvantaged Communities. These projects are intended for drinking water improvement in densely populated neighborhoods in Tier 3 Disadvantaged Communities.



Percent Distribution of All Series 24 DWSRF by Disadvantaged Community Tier



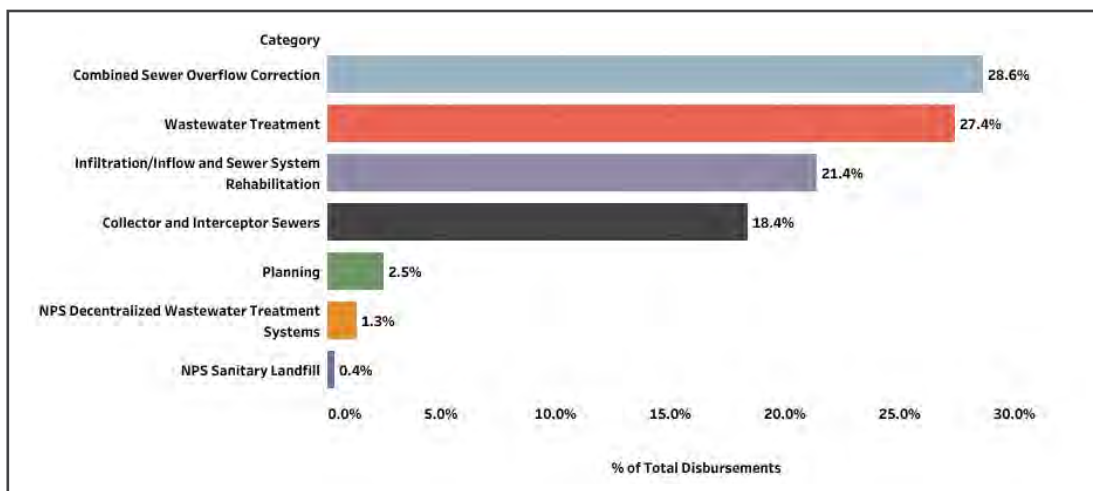
Percent Distribution of DWSRF in each Project Category by Disadvantaged Community Tier



SERIES 24 DATA HIGHLIGHTS

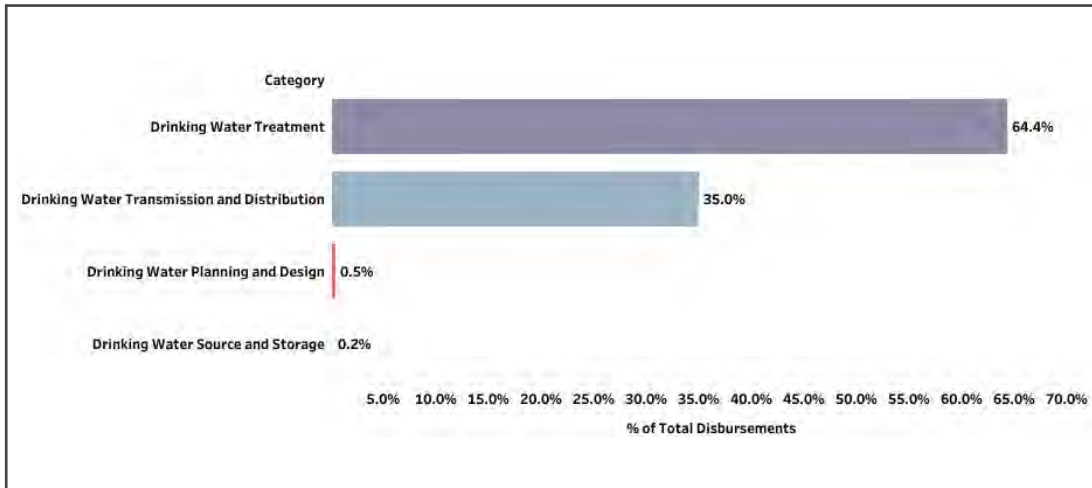
- Wastewater Treatment projects received **18.5%** of total funding and encompasses 27.4% of CWSRF funding. This percentage of total funding is down significantly from Series 23 but remains a significant portion of the CWSRF funding.
- I/I and Sewer System Rehabilitation projects that received CWSRF funding and project distributions are proportionate to each other, **21.4% and 31.9%**, respectively, meaning the average amount of funding for each project is similar but still larger than projects in other categories.
- CSO Correction projects account for **28.6%** of CWSRF Series 24 funding and only 12.5% of the number of projects. These projects tend to be in early industrialized communities, where the cost of repair is disruptive and expensive. Based on the forementioned statistics, the projects in this category tend to receive substantial amounts of financing to help these communities reduce the amount of untreated water released into the environment.
- Collector and Interceptor Sewer projects account for **7.6%** of CWSRF project funding and 11.1% of the total number of CWSRF projects.
- NPS Sanitary Landfill was the least represented category of projects in CWSRF Series 24, with only one project accounting for **0.4%** of funding.
- NPS Decentralized Wastewater Treatment Systems has the third largest portfolio of projects, but only accounts for **1.3%** of CWSRF funding.
- Planning projects, unlike the other categories, are less costly per project as they do not require the procurement of physical infrastructure. While Planning projects account for approximately 10% of the total number of projects, they only occupy **2.5%** of total CWSRF funding.

Series 24 CWSRF Funding Distribution by Project Category



- Drinking Water Treatment projects account for approximately **one-third** of the Series 24 DWSRF projects but represent nearly **60%** of project funding.
- Drinking Water Transmission and Distribution accounts for most remaining funds. These 15 projects account for more than **35%** of total project funding.
- Drinking Water Planning and Design projects account for **0.5%** of total project funding. Like their CWSRF counterparts, Drinking Water Planning and Design is limited to non-construction activities. Though it should be noted that many projects will build this design work into their DWSRF projects.
- Drinking Water Source and Storage's single project accounts for the last **0.2%** of project funding. These projects focus on improving the infrastructure that maintains and stores treated water prior to its distribution back into the community, as well as rehabilitating surface water in reservoirs and wells.

Series 24 DWSRF Funding Distribution by Project Category



Section II · Series 24 Clean Water State Revolving Fund Projects

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. Water treatment facility upgrades or improvements can vary widely depending on the age of the infrastructure in question. These facilities are governed under the National Pollutant Discharge Elimination System (NPDES), which determines the level of water treatment required to discharge wastewater. Many of the upgrades help facilities meet environmental and public health requirements. Upgrades include replacing inefficient mechanical equipment, upgrading pollutant removal systems, or updating water storage facilities to reduce odor.

Wastewater Treatment Projects			
Total Amount in Dollars (\$)	Total Number of Projects	Total Series 24 Amount in Dollars (\$)	Total Number of Series 24 Projects
\$2,834,524,994	341	\$87,278,017	10

SERIES 24 WASTEWATER TREATMENT IMPACT

- **Bourne, Brockton, Pittsfield,** and **Taunton** are undergoing wastewater treatment upgrades to comply with National Pollutant Discharge Elimination System (NPDES) permit requirements. Upgrades reduce contaminants such as nitrogen from being discharged from wastewater treatment systems.
- **Billerica, Kingston, Leominster, Lowell, Pittsfield, Taunton,** and **Wareham** projects are upgrading wastewater infrastructure that will increase the plant and process efficiency that will reduce energy consumption and reduce costs.
- **Bourne** is constructing new wastewater treatment plants with advanced filtration technology to reduce capacity at a neighboring town's plant and reduce the amount of treated effluent discharging into the Agawam River.

Borrower	Project Description	Amount
Billerica	<p>Wastewater Treatment Facility (WWTF) and Pump Station (PS) Upgrades</p> <p>This project includes the modifications and additions to the existing WWTF aimed at improving functionality, safety, and treatment. Aging chemical tanks are being replaced to maintain a safe environment at the WWTF. An industrial vacuum truck unloading station is being installed to alleviate the currently labor-intensive set up. A new plant-wide emergency generator is being installed, and the existing generator is being removed. Sludge conveyors were installed to improve the ease of hauling sludge. Several buildings were renovated to increase lab space, machine shops and vehicle storage. The Salem Road PS is also being upgraded to replace aging equipment.</p>	\$10,985,731
Bourne	<p>Buzzards Bay Wastewater Treatment Facility (WWTF)</p> <p>The project involves the construction of a new 100,000 gallon per day (gpd) package WWTF with subsurface discharge on town-owned land. The plant was designed using Membrane Bioreactor (MBR) technology. A groundwater discharge permit has been approved for the WWTF. Based on detailed site testing and groundwater modeling, treated effluent will move towards the Cape Cod Canal. Added capacity is needed to handle flows above the 200,000 gpd capacity designated for Bourne in the Wareham WWTF. Existing sewer flows from a portion of Bourne's sewer area will be intercepted and re-directed to the new treatment plant, redirecting treated effluent away from the Agawam River.</p>	\$3,341,513
Brockton	<p>Wastewater Treatment Facility (WWTF) Upgrade</p> <p>This Biological Nutrient Removal project is necessary to enable the Brockton Advanced Water Reclamation Facility (AWRF) to comply with its National Pollutant Discharge Elimination System permit requirement to achieve effluent Total Nitrogen of 450lbs/day seasonally, equivalent to 3 mg/L on an 18 million gpd average flow basis. The improvements anticipated are based on the demonstrated results and findings of a full-scale pilot process train that has been operational for almost two full nitrogen-removal seasons. This project will involve upgrading the AWRF's other six aeration basins to the Bardenpho configuration (a biological process which provides special conditions for both nitrogen and phosphorous removal) and making other AWRF improvements as necessary to support the process upgrade.</p>	\$939,000

Borrower	Project Description	Amount
Billerica	<p>Wastewater Treatment Facility (WWTF) and Pump Station (PS) Upgrades</p> <p>This project includes the modifications and additions to the existing WWTF aimed at improving functionality, safety, and treatment. Aging chemical tanks are being replaced to maintain a safe environment at the WWTF. An industrial vacuum truck unloading station is being installed to alleviate the currently labor-intensive set up. A new plant-wide emergency generator is being installed, and the existing generator is being removed. Sludge conveyors were installed to improve the ease of hauling sludge. Several buildings were renovated to increase lab space, machine shops and vehicle storage. The Salem Road PS is also being upgraded to replace aging equipment.</p>	\$10,985,731
Bourne	<p>Buzzards Bay Wastewater Treatment Facility (WWTF)</p> <p>The project involves the construction of a new 100,000 gallon per day (gpd) package WWTF with subsurface discharge on town-owned land. The plant was designed using Membrane Bioreactor (MBR) technology. A groundwater discharge permit has been approved for the WWTF. Based on detailed site testing and groundwater modeling, treated effluent will move towards the Cape Cod Canal. Added capacity is needed to handle flows above the 200,000 gpd capacity designated for Bourne in the Wareham WWTF. Existing sewer flows from a portion of Bourne's sewer area will be intercepted and re-directed to the new treatment plant, redirecting treated effluent away from the Agawam River.</p>	\$3,341,513
Brockton	<p>Wastewater Treatment Facility (WWTF) Upgrade</p> <p>This Biological Nutrient Removal project is necessary to enable the Brockton Advanced Water Reclamation Facility (AWRF) to comply with its National Pollutant Discharge Elimination System permit requirement to achieve effluent Total Nitrogen of 450lbs/day seasonally, equivalent to 3 mg/L on an 18-million gpd average flow basis. The improvements anticipated are based on the demonstrated results and findings of a full-scale pilot process train that has been operational for almost two full nitrogen-removal seasons. This project will involve upgrading the AWRF's other six aeration basins to the Bardenpho configuration (a biological process which provides special conditions for both nitrogen and phosphorous removal) and making other AWRF improvements as necessary to support the process upgrade.</p>	\$939,000
Kingston	<p>Kingston Wastewater Treatment Plant (WWTP) Expansion</p> <p>This project involves expanding the Kingston WWTP to create capacity for flows from multiple proposed private housing and economic development projects. Though there were a number of these project within the Town which were limited by the capacity of the plant, the largest of these was the redevelopment of the Kingston Collection Mall to support a mixed-use development to include hotel, residential, and commercial space. The project will also provide a private, 55+ residential community with the opportunity to connect to municipal sewer as their private WWTP is near the end of its useful life.</p>	\$15,955,530
Leominster	<p>Aeration Basin and Secondary Clarifier Upgrade</p> <p>This is a nutrient removal project that consists of an evaluation of Leominster's water pollution control facility's aeration and secondary clarifier systems. All systems will be upgraded with new premium motors equipped with variable frequency drives for optimum efficiency. A new dissolved oxygen (DO) control system and supervisory control and data acquisition upgrades will be installed to maintain proper DO levels in the aeration basin to facilitate aeration zones and increase nutrient removal.</p>	\$11,649,712
Lowell	<p>Capital Improvement Program (CIP) Phase – Wastewater Treatment Facility (WWTF) and Infrastructure Upgrades</p> <p>This project implements improvements to the WWTF as part of an ongoing phased CIP. The focus of the work includes equipment in the WWTF and six wastewater pump stations, which had outlived their expected service life and are no longer reliable. These improvements address equipment life cycle and maintenance requirements and improve overall reliability for treatment of sewage and wet weather flow.</p>	\$4,121,168
Orleans	<p>Downtown Area Collection System and Wastewater Treatment Facility (WWTF)</p> <p>The construction project includes a new collection system, Pump Station (PS), WWTF, and effluent disposal for the downtown area consisting of about 1,087 users to address water quality in various estuaries. In general, the project includes multiple factors, including WWTF influent screening and flow measurement, flow equalization, biological process sequencing batch reactors, effluent filters, post equalization, effluent pumps, UV disinfection, odor control, septage receiving and processing, solids storage and thickening, and effluent disposal. The project also includes the construction of about 30,800 linear feet (lf) of 8" to 12" gravity sewers and appurtenances, about 2,000 lf of 1-1/2" to 2-1/2" low pressure sewers and appurtenances, about 9,200 lf of 8" effluent force main, 3 PS, and about 9,200 lf of 6" and 8" force mains and appurtenances for the estimated flow of 250,000 gallons per day.</p>	\$14,852,300

Borrower	Project Description	Amount
Pittsfield	<p>Wastewater Treatment Plant (WWTP) Nutrient Removal</p> <p>This project upgrades the WWTP to achieve compliance with National Pollutant Discharge Elimination System permit limits and an administrative order issued by the EPA. The project optimizes the nitrogen removal process and results in reductions of phosphorus and aluminum discharges to the Upper Housatonic River area of critical environmental concern and remediate documented nutrient enrichment in the downstream Wood's Pond impoundment. Four major component projects are necessary to achieve compliance: tertiary treatment upgrade, sludge dewatering upgrade, nitrogen removal upgrade (Phase I), and secondary clarifiers upgrade. The project components are consistent with the plant needs and energy efficiency improvements identified in the recently updated WWTP facilities plan.</p>	\$5,300,640
Taunton	<p>Wastewater Treatment Facility (WWTF) Upgrade - Phase 1</p> <p>This project was part of a complete upgrade to the Taunton WWTF that are necessary to meet the requirements of the new National Pollutant Discharge Elimination System permit. The facility will expand hydraulically to reduce combined sewer overflows. This project encompasses solids handling improvements.</p>	\$12,023,423
Wareham	<p>Process Upgrades at the Wareham Pollution Control Facility (WPCF)</p> <p>This project will construct denitrifying filters, a lined equalization lagoon and lined and a covered raw wastewater lagoon. The lagoons will provide equalization during wet weather events. The new filters will provide redundancy and the covered lagoon will reduce odors at the WPCF.</p>	\$8,109,000



CITY OF TAUNTON



LOAN NUMBER: CWP-20-21 | **SERIES 24 LOAN AMOUNT:** \$12,023,423
TOTAL LOAN AMOUNT: \$29,983,598 | **LOAN FORGIVENESS AMOUNT:** \$2,968,376
DISADVANTAGED COMMUNITY TIER: 3 | **UN SDG:** 3, 6, 9, 10, 11, 1

PROJECT OVERVIEW

According to the United States Environmental Protection Agency (EPA), a combined sewer overflow (CSO) is when a combined sewer system collects rainwater runoff, domestic sewage, and industrial wastewater in one pipe. If the amount of stormwater and wastewater that is collected is too much for a wastewater treatment facility (WWTF) to handle, then there will be overflow into nearby waterbodies. When CSOs happen, communities become subject to National Pollution Discharge Elimination System (NPDES) permits.

In 2015, the EPA and MassDEP issued a NPDES permit to the City of Taunton which has led to new requirements that need to be met. The NPDES permit limits the amount of nitrogen that is to be discharged into the Taunton River. To meet this nitrogen level limit, Taunton needs to remediate CSOs, expand the capacity and treatment level of its WWTF. These upgrades will improve water quality in the Taunton River, and subsequently in Mt. Hope Bay and Narragansett Bay, all waterbodies that have been severely impacted by untreated sewer discharges.

Taunton's WWTF was upgraded to handle a higher peak hydraulic capacity of 25 MGD of wastewater. The first phase of this comprehensive upgrade project focuses on solids handling. Two new centrifuges and gravity thickeners are being installed. Centrifugal thickening technology for wastewater treatment has been used since the 1930s to separate wastewater solids from liquid to produce solid "cake." This technology, which allows for rapid processing, leads to improved wastewater treatment with very little residuals left behind.

Because this wastewater treatment facility upgrade project has the primary focus of nutrient enrichment reduction, this loan was issued with 0% interest and received nearly \$3 million in loan forgiveness. With loan forgiveness and no interest, Taunton will save just over \$15.4 million over the 30-year life of the loan. Further, Taunton is finalizing the last two phases of this project which focus on nitrogen removal and pump station equipment respectively and will likely see additional savings from reduced interest and loan forgiveness in the years to come.

NPS DECENTRALIZED WASTEWATER TREATMENT SYSTEMS

The NPS decentralized wastewater treatment systems projects are comprised of the Community Septic Management Program (CSMP). The CSMP provides loans to the Commonwealth's cities and towns for assisting homeowners in the repair or replacement of failed septic systems. These projects help eliminate contamination from failing septic systems which are a leading source of groundwater pollution that causes contaminated drinking water, tainted shellfish beds, weed choked lakes and ponds, and polluted beaches. With the CSMP, the Trust issues low-interest rate loans to communities who, in turn, issue loans directly to homeowners for up to 20 years. Loans to homeowners are secured through a betterment on their properties. This program allows municipalities to provide access to capital for home septic repair or replacement at a subsidized interest rate. The program is funded within the CWSRF program as NPS projects.

Community Septic Management Projects			
Total Amount in Dollars (\$)	Total Number of Projects	Total Series 24 Amount in Dollars (\$)	Total Number of Series 24 Projects
\$135,670,671	430	\$4,270,410	11

SERIES 24 COMMUNITY SEPTIC MANAGEMENT PROGRAM IMPACT

- Repair and replacement of failing septic systems can be a vital component for reducing pollution. This is especially important to communities with little wastewater infrastructure. For example, **Cape Cod** contains roughly 145,000 developed parcels. 74% of these homes and businesses are not connected to a wastewater treatment system and utilize septic systems. Septic Nitrogen loading accounts for roughly 80% of the water quality degradation of Cape Cod.

Community Septic Management Program	
Borrower	Amount
Bridgewater	\$400,000
Concord	\$300,000
Easton	\$500,000
Hanson	\$200,000
Kingston	\$200,000
Lakeville	\$960,000
Middleborough	\$500,000
Millville	\$160,410
Plymouth	\$300,000
Taunton	\$250,000
Westport	\$500,000

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 utility access holes. 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 maintain, reinforce, or reconstruct deteriorating or undersized sewer systems. Corrective actions are necessary to maintain the functional integrity of the system.

Infiltration/Inflow (I/I) and Sewer System Rehabilitation Projects

Total Amount in Dollars (\$)	Total Number of Projects	Total Series 24 Amount in Dollars (\$)	Total Number of Series 24 Projects
\$1,001,780,546	353	\$68,074,622	17

SERIES 24 INFILTRATION/INFLOW (I/I) AND SEWER SYSTEM REHABILITATION PROJECT IMPACT

- **Brockton, Chicopee, Fall River, Massachusetts Water Resources Authority, Nahant, Quincy, Revere, Saugus, South Essex Sewerage District, Taunton, Tyngsborough, and Winthrop** are upgrading pumping stations, replacing failing waste water collections mains, or replacing failing mechanical and/or electrical systems that will lead to more efficient wastewater systems while operating with more energy efficient components.
- **Brockton, Dudley, and Revere** implemented illicit discharge detection and elimination activities that removed illicit drain connections from sump pumps, gutters, and the like which increase the volume of water during wet weather events.

Borrower	Project Description	Amount
Brockton	<p>2019 Sewer Rehabilitation Project The Taunton River watershed has bacteria water quality impairments during both wet and dry weather conditions. Most bacteria sources can be eliminated by implementing an Illicit Discharge Detection Elimination (IDDE) program, which finds the sources of bacteria and develops recommendations to remove and eliminate them. The City will continue addressing areas identified through recent IDDE detection procedures and Sewer System Evaluation Study. By implementing these projects, the water quality within the City's receiving watershed has improved.</p>	\$2,597,167
Brockton	<p>Sewer Rehabilitation Project This sewer rehabilitation project included a trenchless rehabilitation and open cut repair of prioritized areas in the City's wastewater collection system to address sources of exfiltration, infiltration and inflow, and sections of undersized pipe. The objective is to reduce flows at the Advanced Water Reclamation Facility (AWRF), allow for more capacity for Brockton residents and surrounding communities, prevent exceedances of the City's National Pollutant Discharge Elimination System permit for the AWRF flows, lower maintenance costs, and improve water quality of surrounding watersheds.</p>	\$1,470,637
Chicopee	<p>Jones Ferry Wastewater Pump Station (PS) Phase II Improvements This project included the replacement and upgrade of numerous pieces of equipment, including the replacement of existing wastewater PS with new submersible pumps, the replacement of the existing entry doors, roof, grating in the wet well, slide gates, and fuel storage tank, replacing the motor control center and upgrading the ventilation system, oil furnace, unit heaters, and monorail system. It also included the installation of new sewage grinders, variable frequency drives, a rock catcher, and a magnetic flow meter. The Jones Ferry PS is critical to the City because it pumps most of the flow that is conveyed to the water pollution control facility in the Connecticut River interceptor. The PS has several critical vulnerabilities, including one pump that is offline due to impeller failure and no existing means to isolate and bypass the PS due to generally aging infrastructure.</p>	\$3,857,686
Dudley	<p>Dudley Infiltration and Inflow (I/I) Mitigation Construction Project The Town of Dudley completed an I/I analysis and is performing a Sewer System Evaluation Survey (SSES). The SSES fieldwork will be the basis for the design of construction projects to remove the identified sources of excessive I/I. These projects could remove as much as 184,400 gallons per day of infiltration and 169,600 gallons of inflow during extreme wet weather events. These projects will protect public health and the environment by reducing the occurrence of sanitary sewer overflows.</p>	\$863,107

Borrower	Project Description	Amount
Fall River	<p>South End Sewer Pump Station (PS) Replacement</p> <p>This project replaced the South End Sewer PS. The PS was constructed in the 1960's. It exceeded its useful life and struggled to keep up with wet weather flows due to high I/I within the sewer system. A new submersible PS was constructed to replace the outdated pumps, piping, and equipment. The PS was constructed with additional capacity to manage wet weather flows, a standby power generator, motor controls, and a Supervisory Control and Data Acquisition system.</p>	\$3,425,557
Massachusetts Water Resources Authority (MWRA)	<p>Northern Intermediate High Section 89 Replacement</p> <p>This construction project will replace approximately 10,500 feet of 48-inch water main, Section 89 in Stoneham, Winchester, and Woburn, the abandonment of Section 29 in Stoneham, and the replacement of valves and appurtenances for approximately 9,000 feet of 36-inch ductile iron water main in Woburn. Replacement of the older pipeline in Section 89 (identified as having a significant risk of catastrophic failure) will ensure that this service area has a redundant means of water supply.</p>	\$8,986,259
Nahant	<p>Sewer Collection System - Repair and Replacement</p> <p>The project involved the sewer pipeline repairs and replacements within the Town to improve water tightness, eliminate infiltration and inflow influences, and the replacement of broken and collapsed sections of the sewer collection system. Sewer utility access hole, force main and pump station repairs and upgrades were also included in the town-wide improvement program. Phase 1 addresses high priority defects identified by a comprehensive town-wide assessment and closed-circuit television pipe inspection program.</p>	\$9,767,852
Quincy	<p>The Strand Pump Station (PS) Upgrade Project</p> <p>The PS was built in the late 1990's and has reached the end of its design life. Recent coastal storms and power outages have caused PS failure. Inundation has led to flooded neighborhoods. Sanitary sewer overflows and water quality concerns from these events are further detailed in this application. The Department of Public Works has also addressed a sewer force main break which indicated the 20-year-old ductile iron sewer force main is corroding and pitting. The project included replacing the standby generator with a more modern, efficient generator, modifying the electrical system to reduce the frequency and duration of power outages, expanding the sewer pumping capacity, replacing the sewer force main with high density polyethylene pipe, and increasing elevation to be above future forecasted base flood elevation.</p>	\$2,724,124
Quincy	<p>Fiscal Year (FY) 2020 Sewer Improvements</p> <p>The City has ongoing infrastructure improvements including rehabilitation, repair, and replacement of coastal utility access holes and sewer piping. The City is proactively implementing Phase IV of the rehabilitation of existing sewer pipe and utility access holes to remove infiltration and inflow of seawater in areas of the City. The City conducted multiple investigations including a Sanitary Sewer Evaluation Survey to identify specific problem areas, which are addressed in this project. To date, the City has completed multiple phases. Phase I was completed for utility access hole rehabilitation, repair, and replacements. Phase II was completed for coastal utility access hole and piping improvements. Phase III was completed for illicit discharge and elimination improvements.</p>	\$3,184,496
Revere	<p>Phase VII Construction - Infiltration and Inflow (I/I), Illicit Discharge Detection and Elimination (IDDE), Pump Station (PS), and Drainage</p> <p>The Phase VII Construction project included the removal of I/I from the City's system. Construction included the redirection of public and private inflow sources discovered during the Phase VI investigations, IDDE source removal, and drainage improvements. Construction also included PS improvements (both wastewater and stormwater), Cured-in-place-pipe lining, sewer spot repairs, new sewer lines, sewer cleaning, and additional wastewater metering.</p>	\$8,556,684
Revere	<p>Phase X Construction - Infiltration and Inflow (I/I), Illicit Discharge Detection and Elimination (IDDE), Pump Station (PS), and Drainage</p> <p>The Phase X Construction project included the removal of I/I from the City's sewer system. Construction included the redirection of public and private inflow sources discovered during Phase X field investigations, IDDE source removal, and drainage improvements. Illicit connections, including sump pumps and roof leaders, were removed from the City's sewer system to remove inflow and increase wastewater capacity. Construction included PS improvements (both stormwater and wastewater), Cured-in-place-pipe lining, sewer spot repairs, replacements, new sewer lines, cleaning, and additional wastewater metering.</p>	\$3,624,587

Borrower	Project Description	Amount
Revere	<p>Phase XI Construction - Infiltration and Inflow (I/I), Illicit Discharge Detection and Elimination (IDDE), Pump Station (PS) and Drainage</p> <p>The Phase XI construction project included the removal of I/I from the City's sewer system. Construction included the redirection of public and private inflow sources discovered during Phase X field investigations, IDDE source removal, and drainage improvements. Illicit connections, including sump pumps and roof leaders, were removed from the City's sewer system to remove inflow and increase wastewater capacity. Construction included PS improvements (both stormwater and wastewater), cured-in-place-pipe lining, sewer spot repairs, replacements, new sewer lines, cleaning, and additional wastewater metering.</p>	\$5,130,346
Saugus	<p>Lincoln Avenue Pump Station (PS) Improvements, Phase 2</p> <p>The Lincoln Avenue PS serves as the main PS for the Town of Saugus to convey wastewater to the Lynn Regional Wastewater Treatment Facility. The station was built in 1982, has a considerable number of deficiencies, and has experienced several failures. Equipment failures have occurred on multiple occasions, seriously affecting the PS' reliability. Some improvements were made in 2018. However, additional upgrades are necessary at the station. variable frequency drive pump replacement, new motors, power cables, control wiring, station controls, programmable logic controllers, alarms, and upgrades to the 42" influent slide gate to the station are amongst the additional improvements.</p>	\$571,162
South Essex Sewerage District	<p>Contract No. 20-1 Danvers Siphon Rehabilitation</p> <p>Rehabilitation of the siphons using cured-in-place-pipe (CIPP) lining will fully restore the structural integrity of the pipelines, remove the current risk of a pipe failure and potential sewage exfiltration, and provide a minimum 50-year extension of the design life. Installation of CIPP in inverted siphons has a low environmental impact and will not require major construction or disturbance to the adjacent residents and environment. The project will repair and replace impacted concrete within all 7 primary clarifiers to ensure long-term structural reliability of the tanks.</p>	\$1,788,940
Taunton	<p>Main Lift Pump Station (PS) Improvements Phase 2</p> <p>The Taunton Wastewater Treatment Facility (WWTF) receives all its flow from the Main Lift PS. Improvements to the station were required to provide reliable operation. This project included new force mains and an influent sewer. The primary goals of the project were to provide more reliable pumping service, increase capacity, and reduce combined sewer overflows to the Taunton River. Previously, when flows exceeded the capacity of the existing Main Lift PS, the system surcharges and excess flow overflows into the river untreated. Debris clogging pumps is now less frequent with the installation of non-clog pumps. This project was done in conjunction with future upgrades to the WWTF.</p>	\$3,802,796
Tyngsborough	<p>Infiltration and Inflow (I/I) Rehabilitation</p> <p>The project addressed pipeline and utility access hole rehabilitations in areas identified as contributing significant I/I. As a regional partner to the Lowell Regional Wastewater Utility, Tyngsborough I/I has a direct impact on its intermunicipal agreement partners.</p>	\$450,677
Winthrop	<p>Town Center - Sewer and Drainage Improvements</p> <p>This project included upgrading existing sanitary sewer and stormwater infrastructure in the Centre Business District. The existing infrastructure was failing and needed to be replaced to increase capacity. Sewer backups and infiltration and inflow (I/I) related to broken and failing sewer mains occur. This project replaced existing sewer main and laterals with new pipe sized for current and future flows. The design improved hydraulics by increasing slope, promoting self-cleansing velocities, and correcting inverse sloped pipe. Drainage system improvements included increasing the capacity of undersized pipes to reduce flooding concerns and convey stormwater flows. Drainage design included tree box filter treatment. Drains have been sized to account for additional runoff.</p>	\$7,272,545



MASSACHUSETTS WATER RESOURCES AUTHORITY



NUT ISLAND HEAD WORKS ODOR CONTROL & HVAC - CONTRACT 7548

LOAN NUMBER: CW-20-46 (CW-19-45, CW-21-56, AND CW-22-06) | **SERIES 24 LOAN AMOUNT:** \$8,986,259

TOTAL SRF LOAN AMOUNT: \$63,614,621 | **UN SDG:** 6, 14

PROJECT OVERVIEW

In the early days of American history, Boston Harbor was revered as a pristine port. However, as the city's population grew throughout the 19th and 20th centuries, the harbor faced extreme challenges as it was marred with waste and contamination. The water was odorous, dangerous to swim in, and unfishable. In 1982, catastrophic levels of pollution struck as over 3 billion gallons of raw sewage coursed through the harbor following equipment failure at the Nut Island Sewerage Treatment Facility in Quincy, Massachusetts. As concerns over conditions mounted, the City of Quincy sued the Commonwealth and the agency operating the water system under the Clean Water Act of 1972.

Among the changes spurred by the growing attention on Boston Harbor was the establishment of the Massachusetts Water Resources Authority (MWRA). As a new, independent agency, MWRA set out to upgrade the water infrastructure and clean up the harbor. In the summer of 1998, MWRA put the Nut Island Headworks into service, replacing the former plant that had been in use since 1952, thus ushering in a new era for waste treatment.

For 25 years, the facility had screened and de-gritted wastewater to remove large objects, sand, and gravel from sewage before it is conveyed to MWRA's Deer Island Treatment Facility for primary and secondary treatment and disinfection. The equipment at this vital facility was beginning to reach the end of its useful life.

In 2016, the system was damaged by a fire that spread from a scrubber vessel to a fan and ductwork, expediting the need for upgrades. This project has allowed improvements to the Nut Island Odor Control System (NIOCS) and HVAC systems at the facility to begin. Through financing from the Trust, these systems are being rehabilitated or replaced to treat air and prevent the release of odors to surrounding areas to meet the requirements of the MassDEP Air Quality Permit. The upgrades ensure a safe environment for workers and the efficient, reliable operations of systems and equipment at Nut Island Headworks, a critical asset of the MWRA wastewater system.

PROJECT IMPACT

The Nut Island Headworks serves 22 communities and treats wastewater from the vast majority of MWRA's southern sewer system, demonstrating a substantial impact in the Boston area. As a wastewater treatment facility for a densely populated area most of Nut Island's operations take place underground, allowing for the land above to be used as a natural space for locals and wildlife to enjoy. The NIOCS ensures that air discharged into the atmosphere is properly treated and safe for the surrounding community, making the flowering perennials and salt water the only scents worth noting on Nut Island.

The ecological impact of the facility cannot be understated. Wastewater that begins at Nut Island Headworks and moves to Deer Island is eventually pelletized to be used as fertilizer at farms and in gardens in Massachusetts. What was once dubbed the "Flounder Capital of the World" after the fish that thrived in the surrounding sludge-riddled waters is now a serene national park with fish populations, including flounder, striped bass, and bluefish returning in balanced numbers.

Today, the Nut Island Headworks serves as a symbol of the progress that has been made with the Boston Harbor cleanup. The Boston Harbor Islands, polluted beyond comprehension just decades ago, are being restored to their former glory. Through continued technological innovation and investment in water infrastructure, exemplified by MWRA at Nut Island Headworks, Boston Harbor will be preserved for future generations to come.

MWRA was issued Trust loan CW-20-46 in the amount of nearly \$9 million. Additional phases of the project were financed under interim loans CW-19-45, CW-21-56, and CW-22-06. As a 2021 wastewater project, MWRA CW-21-56 was awarded \$2.4 million in loan forgiveness thanks to American Rescue Plan Act funds.



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. Most municipal sewer systems are at least 60 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 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 and pumping stations are being built to 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.

Collector and Interceptor Sewer Projects			
Total Amount in Dollars (\$)	Total Number of Projects	Total Series 23 Amount in Dollars (\$)	Total Number of Series 23 Projects
\$ 1,172,561,820	355	\$91,116,508	7

SERIES 24 COLLECTOR AND INTERCEPTOR SEWERS PROJECTS PROJECT IMPACT

- **Chatham, Easton, Harwich, and Tyngsborough** have installed new Collector and Interceptor Sewers to reduce the effects of failing septic systems and ensure that properties have a sanitary alternative that will control pollution being added to the environment. In the cases of Chatham, Easton, and Harwich, regional solutions are being added to reduce non-point source pollution on Cape Cod.
- **Chicopee, Nantucket, and West Springfield** improved, repaired, or expanded their wastewater collection systems to reduce the amount of untreated wastewater being discharged into the environment.

Borrower	Project Description	Amount
Chatham	<p>Phase 1D - Chatham/Harwich Regionalization</p> <p>The collection system extension project allowed the Town to continue moving forward with addressing the nitrogen loading concerns by expanding the wastewater collection system. The towns of Chatham and Harwich successfully executed an intermunicipal agreement for wastewater collection and treatment. The purpose of this project was to provide the infrastructure in the Town to support the connection to Harwich for collection and treatment of their wastewater. The Town of Harwich completed a separate project for their portion of this important regional coalition to address nitrogen total maximum daily loads.</p>	\$5,800,258
Chicopee	<p>Blue Bird Acres Sewer Pump Station (PS) and Force Main</p> <p>This project included sewer rehabilitation measures and other corrective actions in the Meadowbrook Underdrain area to eliminate contamination of surface waters, reduce infiltration and inflow and improve as well as renovate conveyance. The Town is under an EPA administrative order to remediate these issues.</p>	\$1,823,094
Easton	<p>Easton Five Corners Sewer</p> <p>The Five Corners sewer project provided sewer services to the Five Corners needs area in the Town. This needs area was determined to be a high-priority area during the Comprehensive Wastewater Management Plan process that was completed in 2014. The needs area stretches between the intersection of Foundry Street and Robert Drive to the intersections of Foundry Street, Depot Street, and Bay Road. This area includes ponds, wetlands, and two historical districts, all of which are being threatened by failing septic systems. The project consisted of approximately 11,100 linear feet (lf) of gravity sewer, 2,700 lf of force main, and 850 lf of low-pressure sewer. Additionally, the project required the construction of one pump station on a Town-owned parcel. Flows will be conveyed to the Mansfield Water Pollution Control Facility for treatment.</p>	\$10,720,026

Borrower	Project Description	Amount
Harwich	<p>Harwich Sewer Collection System - Phase 2 The Town implemented Phase 2 of their Comprehensive Wastewater Management Plan and installed a sewer collection system in the Pleasant Bay Watershed. After a 400% population increase since 1951, the Town saw water quality issues due to septic systems releasing nutrients which infiltrate into the ground and over fertilized water bodies, resulting in degraded water quality. Wastewater collected in the Pleasant Bay area in Harwich is now being treated at the existing Chatham Water Pollution Control Facility. The towns of Harwich and Chatham signed an intermunicipal agreement to work together to meet their shared goals of the Pleasant Bay total maximum daily load and to protect their resources, which include drinking water supply wells.</p>	\$16,092,328
Nantucket	<p>Surfside Road Area Sewer System Improvements This project involved the upgrade of the Surfside Road Pump Station (PS) and the replacement of approximately 5,400 linear feet of existing gravity sewers tributary to the PS. The purpose of the project is to provide adequate downstream capacity for the sewer expansions needs areas identified in the approved 2014 Comprehensive Wastewater Management Plan update.</p>	\$6,995,000
Tyngsborough	<p>Phase 2 Middlesex Road North The Phase 2 Middlesex Road North project was located on the northern portion of Route 3A in Tyngsborough. There were multiple public groundwater supplies directly abutting the Phase 2 Sewer project area. The T.J. Maxx Plaza Wastewater Treatment Facility (WWTF) is located on the northern-most section of Middlesex Road within the Phase 2 project area and has a groundwater discharge which is a potential threat to the environmental resources in the area. By adding public sewer to the Phase 2 area, the T.J. Maxx Plaza WWTF would come offline, and the plaza would connect into the sewer, eliminating potential harmful groundwater discharge. There are multiple issues with septic systems due to many commercial parcels located in the plaza.</p>	\$10,246,968
West Springfield	<p>Birnie Avenue and Piper Road Area Sewer Project This project involved the installation of approximately 17,000 linear feet (lf) of gravity sewer line, 1,100 lf of force main, and three lift stations. Each lift station will be designed to include energy efficient measures such as premium efficiency motors for the lift pumps. The Town is working to protect and enhance the quality of its water resources, improve wastewater service, and eliminate potential environmental health problems. The project assists nearly 170 homeowners in the ability to decommission their septic systems, especially the 26 systems that have previously failed and others that are aging, by providing a means to which they can dispose of their sewage via the sanitary sewer pipeline.</p>	\$6,789,474



TOWN OF HARWICH



HARWICH SEWER COLLECTION SYSTEM - PHASE 2

LOAN NUMBER: CWP-18-23 | **SERIES 24 LOAN AMOUNT:** \$16,092,328

TOTAL LOAN AMOUNT: \$22,214,467 | **LOAN FORGIVENESS AMOUNT:** \$568,522

DISADVANTAGED COMMUNITY TIER: 2 | **UN SDG:** 3, 6, 14

PROJECT OVERVIEW

The Town of Harwich, and all coastal communities on Cape Cod, are acutely aware of the harm caused by nitrogen pollution. The primary source of nitrogen pollution in Harwich is runoff from septic systems into the Pleasant Bay Watershed. This causes vastly degraded water quality. Because of these issues, the Town completed a construction project to prevent nitrogen from entering the environment. The completed project has resulted in significant reductions of pollution and protects the environmental and economic health of Harwich and all Cape communities. Diverting these pollutants from entering the Watershed was a productive step in implementing Harwich's Comprehensive Wastewater Management Plan (CWMP) and contributed to the goal of meeting the Pleasant Bay Watershed's total maximum daily load and protecting drinking water supply wells.

ENVIRONMENTAL IMPACTS OF NITROGEN POLLUTION

Nitrogen is a beneficial ingredient when used in certain contexts, such as in fertilizers. However, when large quantities enter waterways through non-point source runoff, it can lead to disastrous effects. The main effect is eutrophication, also referred to as algal blooms. Eutrophication damages public health by impairing drinking water wells and harming wildlife.

Excess nitrogen in the environment causes rapid growth in aquatic plants and algae, which use up all the dissolved oxygen in the waterbody. The lack of oxygen kills fish, invertebrates, and aquatic vegetation. Additionally, some of the colonies of algae that grow during these events can produce toxic or harmful effects.

Eutrophication events jeopardize the health and wellbeing of Cape residents and tourists. Human health can be harmed by drinking or swimming in water contaminated by toxic algae, including symptoms such as respiratory irritation, vomiting, skin, eye, and throat irritation, and in extreme cases, seizure or coma. The harm to human health in turn affects the economic health of the Town and surrounding areas. Cape communities depend on tourism to sustain their economies.

Algal blooms shut down beaches and waterways. The blooms also prevent the harvesting of commercial and recreational fish and shellfish. Because of all the associated harms and costs that come from nitrogen pollution, addressing the root cause of the problem on the Cape is imperative.

TECHNICAL OVERVIEW

The Town completed Phase 2 of their CWMP by installing a sewer collection. Harwich saw a 400% population increase since 1951, which has led to the need for sewer wastewater treatment. The newly constructed system transports up to 300,000 gallons of wastewater per day to the neighboring town of Chatham for treatment. The towns of Chatham and Harwich signed an intermunicipal agreement to facilitate the construction and transportation of wastewater. The collection system services approximately 600 homes in Harwich and requires the construction of over 12 miles of gravity sewer pipe, pressure sewer pipe, force main, and six pumping stations. Phase 2 of the CWMP also provided sewer service to the East Harwich Village Center, a commercial district and destination for residents and tourists. The construction of the collection system has already showed positive tangible effects. Since its implementation, 2,872 kilograms per year of nitrogen has been diverted from entering the Pleasant Bay Watershed.

FINANCIAL OVERVIEW

The Town of Harwich was issued a \$22.2 million loan from the Massachusetts Clean Water Trust. The project was awarded numerous subsidies from the Trust. Subsidies included a 0% interest rate and \$568,522 in loan forgiveness from the Trust's Disadvantaged Community Program. The zero percent interest rate compared to the Trust's standard 2% interest rate results in over \$5 million in additional savings. There was over \$5.6 million in additional loan forgiveness awarded from the Cape Cod Islands and Water Protection Fund (CCIWPF), a subsidy that the Clean Water Trust disburses which also reduces the net loan obligation for eligible wastewater infrastructure and pollution remediation projects on the Cape. The subsidies the Trust and CCIWPF provide greatly reduce the financial burden of Harwich residents.



COMBINED SEWER OVERFLOW (CSO) CORRECTION PROJECTS

CSOs 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. 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.

Combined Sewer Overflow (CSO) Correction Projects			
Total Amount in Dollars (\$)	Total Number of Projects	Total Series 23 Amount in Dollars (\$)	Total Number of Series 23 Projects
\$1,603,821,585	163	\$66,956,032	5

SERIES 24 COMBINED SEWER OVERFLOW CORRECTION PROJECT IMPACT

- **Fitchburg, Holyoke, Lynn Water & Sewer Commission, New Bedford, and Springfield Water & Sewer Commission** underwent projects to reduce the amount of untreated sewage discharged into rivers and nearby water bodies during wet weather events. These projects help protect water quality and public health.
- **Springfield Water & Sewer Commission's** CSO project will reduce the amount of untreated water being discharged into the Connecticut River by 40% annually. This project will help reduce the number of pollutants that affect environmentally threatened and endangered animals, while also improving the quality of water that will eventually flow into the Long Island Sound.
- **Lynn Water & Sewer Commission's** project is the first of many sewer separation projects to mitigate CSO discharges into Lynn Harbor. This project involves sewer separation of approximately 260 acres of the western portion of Lynn.

Borrower	Project Description	Amount
Fitchburg	<p>Combined Sewer Overflow (CSO) 007, 011, 039, and 048 Separation and Rehabilitation</p> <p>This nutrient removal project is separating 4,800 linear feet (lf) of combined sewers. It is facilitating the installation of 4,500 lf of new sewers, 1,600 lf of new drains, and the closure of three regulators (CSO 007, 039, and 048). The project includes approximately 2,700 lf of sewer replacement and 18,500 lf of trenchless rehabilitation to reduce infiltration and inflow upstream of the three regulators. This project will reduce nutrient loading to the North Nashua River by removing untreated CSO discharges from these regulators.</p>	\$7,810,236
Holyoke	<p>Jackson Street Area Sewer Separation Project</p> <p>The project consists of sewer separation of combined sewers in the Jackson Street area to eliminate 23 million gallons of annual combined flow that discharged to the Connecticut River from the Jackson Street area outfall. The work includes the construction of 14,400 linear feet (lf) of new sewers and drains and 3,200 lf of sewer lining. Eliminating the Jackson Street outfall will result in a significant improvement to water quality in the Jackson Street area of the Connecticut River. The project is consistent with the City's combined sewer overflow long-term control plan and is being required by an administrative order issued by the EPA and a draft consent decree issued by the U.S. Department of Justice.</p>	\$8,024,306
Lynn Water & Sewer Commission	<p>West Lynn Sewer Separation</p> <p>The Commission entered a third modified consent decree with the EPA to implement a long-term control plan to reduce combined sewer overflow (CSO) discharges to local receiving waters. This project is the first of several projects included in the plan to mitigate CSO discharges into Lynn Harbor. The project involved sewer separation of approximately 260 acres within the western portion of Lynn as well as the installation of a 114 million gallon per day stormwater pump station with a force main out to a new or reconstructed outfall into the Lynn Harbor. The project will significantly reduce sanitary sewer overflows and CSOs which will improve the water quality in nearby water bodies.</p>	\$10,017,036

Borrower	Project Description	Amount
New Bedford	<p>Wastewater Collection System Improvements</p> <p>This project includes several improvements to the City's infrastructure including an interceptor and collector sewer rehabilitation program, a sanitary sewer evaluation survey for high priority areas, a lateral sewer rehabilitation program, and a sewer separation project. The progression of these programs will further the City's efforts to dramatically lessen or eliminate infiltration and inflow issues, reduce combined sewer overflows, reinforce the critical components of the City's sewer system, address capacity management operations and maintenance and regulatory requirements, and eliminate illicit discharges. These programs will address needs identified in the City's integrated plan.</p>	\$3,878,436
Springfield Water & Sewer Commission (SWSC)	<p>York Street Pump Station (PS) and Connecticut River Crossing</p> <p>Consistent with the SWSC Integrated Wastewater Plan, the York Street PS and Connecticut River Crossing project will increase the wet weather flow to the Springfield Regional Wastewater Treatment Facility (WWTF), substantially reducing the volume and frequency of combined sewer overflow (CSO) events from multiple regulators across the Connecticut River CSO system. The project includes a new 62 million gallons per day wastewater pumping station and screening facility, three new pipes crossing under the Connecticut River to the Springfield Regional WWTF, and modification to the Springfield Regional WWTF influent structure.</p>	\$61,386,494



NON-POINT SOURCE (NPS) SANITARY LANDFILL PROJECT

NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff water moves, it picks up and carries away natural and human-made pollutants, finally depositing them into ground and surface waters. Ensuring that landfills are properly capped, maintained, and monitored is necessary to avoid water contaminants leaks into local waters. NPS landfill projects can include purchase, installation, and repair of capping systems (gas venting layer, geosynthetics, barrier layer, top cover, etc.), leachate collection, storage, and treatment systems (onsite or off-site), side slope seepage prevention and control systems, gas condensation systems, monitoring wells and equipment, and stormwater runoff controls.

Non-Point Source (NPS) Sanitary Landfill			
Total Amount in Dollars (\$)	Total Number of Projects	Total Series 24 Amount in Dollars (\$)	Total Number of Series 24 Projects
\$87,673,566	36	\$1,182,752	1

SERIES 24 NON-POINT SOURCE (NPS) SANITARY LANDFILL PROJECT IMPACT

- **Leverett** is reducing the public health risk by providing clean water to homes affected by a leaking landfill.

Borrower	Project Description	Amount
Leverett	<p>Connection to Amherst Waterline The Town connected approximately one dozen houses, that are downhill of the previously contaminated area that extended from the closed and capped Leverett Landfill to the Town of Amherst's public water supply as a permanent solution to a longer-term public health and housing problem. Leverett secured Small Town Housing Choice grant funds to generate plans and design for the project.</p>	\$1,182,752



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 to identify and prioritize design, maintenance, and replacement activities. Sensor and field analysis can be used as part of a larger analysis that consists 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.

Planning Projects			
Total Amount in Dollars (\$)	Total Number of Projects	Total Series 24 Amount in Dollars (\$)	Total Number of Series 24 Projects
\$364,620,336	354	\$8,028,214	7

SERIES 24 PLANNING PROJECTS IMPACT

- **Lawrence** and **Revere** completed analysis projects related to mitigating combined sewer overflows and sanitary sewer overflows, with Illicit Discharge Detection and Elimination programs, sewer inspections via remote camera. These survey methods assist utilities with creating more efficient systems that discharge less untreated water. Upgrading facilitates reduces the amount of energy needed to treat and pump water.
- **Gloucester** and **Sudbury** worked to develop Comprehensive Wastewater Management Plans (CWMP) which evaluate the current state of wastewater disposal and help develop future improvement programs. These plans often review existing conditions and provide roadmaps with alternative options for development into the future. The CWMP is a necessary tool for community leaders to use when deciding contemplating future development or long-term spending for infrastructure.
- **Revere** completed an evaluation study on alternative wastewater connections to the regional wastewater treatment system to evaluate efforts in reducing sanitary sewer overflows.

Borrower	Project Description	Amount
Gloucester	<p>Gloucester Comprehensive Wastewater Management Plan (CWMP) This project is developing a CWMP for the City. The CWMP consists of three phases. Phase I includes an assessment of existing conditions, projection of future wastewater disposal needs, and a needs assessment for the entire City's study area. In Phase II, alternative means of managing the wastewater are developed to address the needs identified in Phase I. Phase III involves a detailed evaluation of the alternatives identified and a recommendation of a specific wastewater management plan. A draft and a final CWMP report will be prepared, submitted, and reviewed for approval by the City and MassDEP.</p>	\$180,000
Lawrence	<p>Sanitary Sewer Evaluation Survey (SSES) Phases VI through VIII This project consists of phases VI through VIII of the annual SSES activities. Phases I through IV were completed in 2014 through 2017, respectively. Phase V is underway. Phases VI through VIII include flow isolation, utility access hole inspections, cleaning and television inspections, smoke testing, and dye testing in a project area that consists of 355,000 linear feet of sanitary sewer ranging from 8-inches to 54-inches in diameter and of approximately 120 utility access holes. The City has periodically experienced surcharging and Sanitary Sewer Overflows into the storm drain system and Combined Sewer Overflows to the Merrimack River. This work is recommended in the 2017 SSES Summary Report and will assist in complying with the federal consent decree.</p>	\$3,000,000
Revere	<p>Phase XI Investigations The Phase XI field investigations, Illicit Discharge Detection and Elimination (IDDE), and illicit connection and sump pump investigation programs are important planning projects for the City of Revere. The investigation programs include IDDE, Closed-Circuit Television of drains and sewers throughout the City, dye testing, smoke testing, wastewater and stormwater pump station inspections, and inspections of private homes and businesses. These programs are used to identify sources of inflow from sump pumps, roof leaders, roof drains, driveway drains, yard drains, and other sources of inflow. The findings of these investigations will be incorporated in the City's future construction projects to address the detected deficiencies.</p>	\$1,500,000

Borrower	Project Description	Amount
Revere	<p>Phase XII Investigations</p> <p>The Phase XII field investigations, Illicit Discharge Detection and Elimination (IDDE), and illicit connections and sump pump investigation programs are important planning projects for the City. The investigation programs use IDDE, closed-circuit television of drains and sewers throughout the City, dye testing, smoke testing, wastewater and storm water pump station inspections, and inspections of private homes and businesses to identify sources of inflow from sump pumps, roof leaders, roof drains, driveways drains, yard drains and other sources of inflow. The findings of these investigations will be incorporated in the City's future construction projects to address the detected deficiencies.</p>	\$1,300,000
Revere	<p>Alternative Wastewater Connections and Storage Evaluation</p> <p>This planning project will focus on the evaluation of alternative connections to the Massachusetts Water Resources Authority's regional system and/or storage requirements to meet the obligations of the consent decree and eliminate sanitary sewer overflows. This planning project includes field investigations, hydraulic modeling, and cost analysis efforts.</p>	\$750,000
Revere	<p>Fats, Oils, and Grease (FOG) Control and Capacity, Management, Operations and Maintenance (CMOM) Equipment Procurement</p> <p>The planning project procured specialized equipment needed as part of the City's ongoing CMOM program, as well as further develop and implement a FOG inspection program throughout the City. The project will evaluate alternative connections to the Massachusetts Water Resources Authority's regional system and/or storage requirements to meet the obligations of the consent decree and eliminate Sanitary Sewer Overflows. The project includes field investigations, hydraulic modeling, and cost analysis efforts. The investigation programs included Illicit Discharge Detections and Elimination, Closed-Circuit Television of drains and sewers throughout the City, dye testing, smoke testing, wastewater and storm water pump station inspections, and inspections of private homes and businesses to identify sources of inflow from sump pumps, roof leaders, roof drains, driveways drains, yard drains and other sources of inflow. The findings of these investigations will be incorporated in the City's future construction projects to address the detected deficiencies.</p>	\$798,214
Sudbury	<p>Comprehensive Wastewater Management Plan (CWMP) Update</p> <p>This project included updates of previous studies being incorporated into a CWMP and completed tasks initiated by bringing the planning into a document. Tasks included updates to needs areas and corresponding flows and loads, reviews, and updates of evaluations for potential wastewater treatment facility siting, on-site investigations for groundwater discharge, and development of public outreach.</p>	\$500,000



Section III · Series 24 Drinking Water State Revolving Fund Projects

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 aim to condition water or remove contaminants. Treatment processes include filtration of surface water, pH adjustment, softening, disinfection, waste handling, and other treatment needs (i.e., granular activated carbon which filters out chemicals, particularly organic chemicals, aeration, and iron and manganese removal) along with chemical storage tanks.

Upgrades and maintenance to water treatment plants leads to improved water quality and system efficiency. Replacing equipment that has reached the end of its useful life along with upgrading filtering and purifying equipment makes these facilities less susceptible to failures that could endanger public health. Additionally, system improvements such as 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 improves worker safety.

Drinking Water Treatment Projects			
Total Amount in Dollars (\$)	Total Number of Projects	Total Series 24 Amount in Dollars (\$)	Total Number of Series 24 Projects
\$1,239,032,224	243	\$98,295,929	13

SERIES 24 DRINKING WATER TREATMENT IMPACT

- **Ayer** and **Barnstable Fire District** completed activities aimed at protecting residents from per- and polyfluoroalkyl substances (PFAS). PFAS are a family of chemicals widely used to manufacture common consumer goods and can be found in some legacy firefighting foams. PFAS has been known to enter drinking water at sites where it was manufactured, used, disposed of, or spilled. PFAS seeps through the soil into groundwater or surface water. Humans are exposed to PFAS by consuming contaminated drinking water. Adverse health effects in humans exposed to high levels of PFAS may include hepatic, cardiovascular, endocrine, immune, reproductive, and developmental effects.
- **Blackstone, Bridgewater, Dracut Water Supply District, Kingston, Peabody, Scituate,** and **West Boylston Water District** underwent projects to reduce manganese concentrations. Drinking water with high levels of manganese may harm brain development in infants and young children. It can also stain laundry, cause scaling in plumbing, and make water look, smell, or taste bad. These upgrades increase the capacity of these facilities while also improving plant efficiency and filtration capabilities.
- **Dartmouth** and **Peabody's** projects were implemented to reduce total trihalomethane (TTHM) levels. TTHM's are a group of disinfection byproducts that form when water disinfectants such as chlorine or ozone react with other naturally occurring chemicals in the water. These chemicals are thought to be carcinogenic to humans.

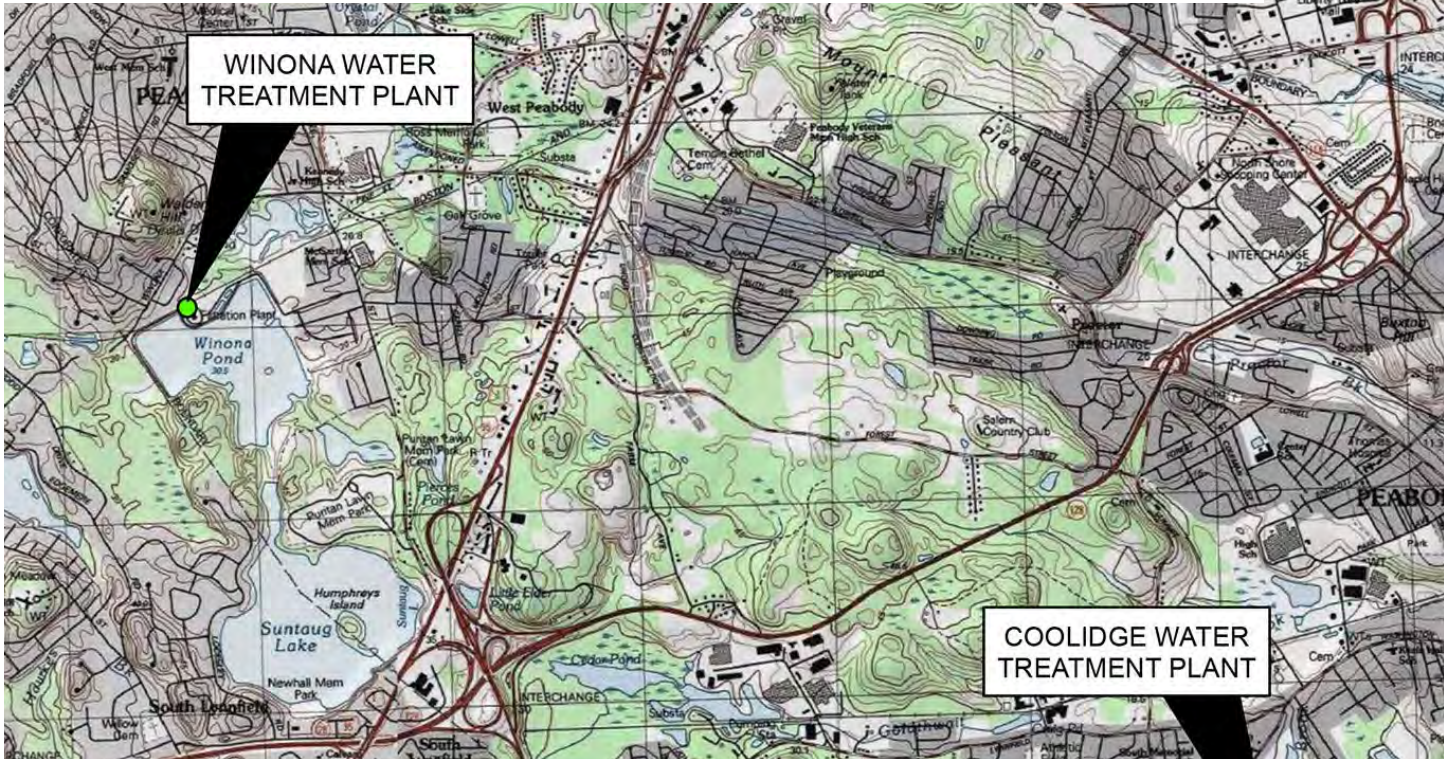
Borrower	Project Description	Amount
Ayer	<p>Spectacle Pond Wellfield Per- and Polyfluoroalkyl Substances (PFAS) Treatment</p> <p>The project constructed a PFAS treatment process for the Spectacle Pond Water Treatment Plant (WTP). This is the second PFAS treatment project implemented in the Town. Both wells No. 1A and 2A exceeded MassDEP's future health advisory levels (HAL) of 20 parts per trillion. The new PFAS treatment process, to be confirmed by bench-scale testing, is designed with anion exchange for its demonstrated effectiveness at the Grove Pond WTP as well as treatment and operational consistency across both WTPs. This treatment addition will lower the total concentration of PFAS below the anticipated HAL.</p>	\$5,253,989

Borrower	Project Description	Amount
Barnstable Fire District	<p>Per- and Polyfluoroalkyl Substances (PFAS) Interim Rehabilitation of Well Pump Station 1</p> <p>As a temporary solution, the District was blending water sources to maintain PFAS concentrations below 20 parts per trillion (ppt) in the water supply. In addition, to meet seasonal water demands and to aid in maintaining PFAS levels below 20 ppt in the blended water, the District completed an interim rehabilitation of Well Pump Station 1, which was offline because it did not contain PFAS compounds.</p>	\$1,362,187
Blackstone	<p>Blackstone Groundwater Treatment</p> <p>The Town is constructing a new Water Treatment Facility (WTF) and water mains to connect to the existing distribution system. The new WTF includes a GreensandPlus filtration system to improve the drinking water quality by reducing high manganese concentrations.</p>	\$5,390,280
Bridgewater	<p>New High Street Water Treatment Facility (WTF)</p> <p>This project included the construction of a 1.62 million gallons per day manganese Greensand water treatment plant to treat elevated iron and manganese levels from the Town's High Street wells. The Town was concerned about the elevated levels of manganese based on the EPA's health advisory. Currently, blended phosphates are added to sequester iron. This practice is not sufficient. The Town is seeking to improve water quality by constructing a new WTF. This project also includes an upgrade to the Town's existing Supervisory Control and Data Acquisition network with a master terminal unit located at the new plant.</p>	\$12,198,813
Dartmouth	<p>Action Plan to Reduce Total Trihalomethane (TTHM) Levels</p> <p>The project included the construction of an in-tank aeration systems in both Allen Street water storage tanks and the modification of all three of the Town's existing water treatment plants by changing the secondary disinfection from free chlorine to chloramines. The Town entered an administrative consent order with MassDEP to reduce TTHM levels in the distribution system. The project improved drinking water quality by reducing TTHM concentration, which will also avoid potential future Stage 2 Disinfection Byproducts Rule violations for high locational running annual averages TTHM.</p>	\$1,174,616
Dracut Water Supply District	<p>Water System Improvements</p> <p>This project reduced iron and manganese levels in the District's Tyngsborough wells to below the secondary maximum contaminant levels and MassDEP Office of Research and Standards Guidelines' limits. The project included a new sole transmission main and a water storage tank to increase capacity to meet current demands and create redundancy.</p>	\$8,343,085
Kingston	<p>Manganese Removal Facility for GH and 1-86 Wells</p> <p>The project involved construction of a new water treatment facility (WTF) for the removal of iron and manganese from two of the Town's wells. The WTF includes pressure filtration with anthracite and GreensandPlus media, chemical feed systems for sodium hypochlorite (oxidation and disinfection) and potassium hydroxide (corrosion control), Supervisory Control and Data Acquisition system controls, emergency back-power, and water main piping to re-route the wells through the new facility prior to the distribution system. The project will improve drinking water quality by removing elevated levels of iron and manganese. It will improve public health protection. It will also improve customer confidence and satisfaction.</p>	\$7,723,970
Peabody	<p>Winona and Coolidge Water Treatment Plant (WTP) Improvements</p> <p>This project includes a full rehabilitation of the City's Winona WTP and additional treatment improvements at the Coolidge WTP to lower the manganese and total trihalomethanes (TTHM) levels. The Winona WTP is being fully renovated with dissolved air flotation and backwash holding tanks with recycle and residuals management improvements. The City is installing aeration systems in Winona Pond and Suntaug Lake for the control of manganese in the raw water. It is performing improvements to the Cedar Grove Clearwell at the Coolidge WTP including installation of aeration for the purposes of stripping TTHMs from the finished water.</p>	\$18,832,825

Borrower	Project Description	Amount
Scituate	<p>Scituate Well 17A Water Treatment Plant (WTP)</p> <p>The goal of the project was to treat raw water from Well 17A for elevated iron and manganese levels. Treating the raw water onsite allowed for the well to pump directly to the distribution system instead of being diverted into a nearby reservoir and treated at the Old Oaken Bucket Pond WTP. Water is now conveying to the treatment plant via an existing 10-inch diameter transmission water main along with a new 6-inch water main before entering the WTP. Raw water is being treated with chemical addition, filtered, and conveyed to a filtered water storage tank. This is where it is being metered and receives additional chemical treatment before entering the distribution system.</p>	\$6,586,387
Springfield Water & Sewer Commission (SWSC)	<p>Clearwell and Backwash Pump Station (PS) Replacement</p> <p>This project is to construct a new 1 million-gallon clearwell and associated backwash PS that will replace old, failing facilities that are needed to maintain reliable operation of the 60 million gallons per day water production. The failing facilities are adversely impacting water quality being produced, contributing to maximum contaminant level exceedances of haloacetic acids that resulted in non-compliance with the Stage 2 Disinfection By-Products Rule.</p>	\$12,030,000
Water Supply District of Acton	<p>Manganese Removal Water Treatment Plant</p> <p>The project included the construction of a new WTP and water mains for the Conant No. 1 and No. 2 wells in accordance with MassDEP requirements. The new WTP includes media filtration, aeration tower, chemical feed, and a clear well water purifier. The completed project improves drinking water quality by reducing high manganese (above MassDEP's Office of Research and Standards Guideline Limit of 0.30 mg/L) and iron concentrations.</p>	\$11,796,097
West Boylston Water District	<p>Manganese Removal Treatment at Oakdale Well</p> <p>The project was crucial for protecting public health in the Town of West Boylston. The project consisted of a new Water Treatment Facility (WTF) to reduce manganese concentrations to acceptable levels from the Oakdale Well. The new WTF lowers manganese levels (which were above the MassDEP Health Advisory Level of 0.3 mg/L), the level associated with potential health implications, to below the Secondary Maximum Contaminant Levels (SMCL) of 0.5 mg/L. The treatment facility consists of a pressure filtration system produced by GreensandPlus, with a sodium hypochlorite feed system to oxidize the manganese.</p>	\$7,603,680



CITY OF PEABODY



WINONA AND COOLIDGE WATER TREATMENT PLANT (WTP) IMPROVEMENTS
LOAN NUMBERS: DWP 19-15, DWP 20-10 | **SERIES 24 LOAN AMOUNT:** \$10,152,825
TOTAL LOAN AMOUNT: \$18,832,825 | **LOAN FORGIVENESS AMOUNT:** \$1,320,000, \$1,416,236
DISADVANTAGED COMMUNITY TIER: 2 | **UN SDG:** 3, 6, 12

PROJECT OVERVIEW

The City of Peabody has a population of roughly 54,000 people and is in the northeast Massachusetts county of Essex. It is a Tier 2 Disadvantaged Community and serves 13,686 water connections with its drinking water infrastructure. The City relies primarily on the Winona and Coolidge water treatment plants (WTP) for their supply of drinking water. The water servicing the Winona WTP is sourced from Winona Pond while the water serving the Coolidge WTP is sourced from Suntaug Lake and Spring Pond. The Ipswich River sources the water for both Suntaug Lake and Winona Pond. In recent years, concerns over the effectiveness of the WTPs arose and were remedied with help from the DWSRF.

TECHNICAL OVERVIEW

The Winona WTP was constructed in 1974. By 2018, water contained detectable levels of manganese, haloacetic acid (HAA5), and total trihalomethanes (TTHM). TTHMs and HHA5s are formed when chlorine reacts with organic matter in water, creating disinfection by-products. TTHM was detected at 110 parts per billion (ppb) in 2018, well above the 80 ppb the established Massachusetts Maximum Contamination Level (MMCL) set by MassDEP. An algal bloom caused the water to smell unpleasant, requiring the City to additionally monitor for cyanobacteria and algae. The Winona WTP was constructed to operate at 5.5 million gallons per day (MGD) but generally operated at only 3 MGD. Treatment systems such as filter media, valves, water pumps, and control panels date back to their construction in 1974. Furthermore, MassDEP categorized Peabody's surface water as susceptible to contamination from the source water, in this case the Ipswich River.

In 2017, Peabody began consultations with the Massachusetts Water Resources Authority (MWRA) with the intention to abandon the Winona WTP and convert to the MWRA's water supply, specifically for the West Peabody High Service System. MWRA constructed a pipeline that would supply Peabody with drinking water. However, due to required minimum annual water purchases, this resulted in the City having to pay an excess of \$1 million in water costs. Relying on MWRA raised the water rates in Peabody by 9%. The Coolidge WTP caught fire in 2017 and sustained severe damage.

Although the WTP was repaired, it could not solely sustain the entire City's drinking water needs.

In May 2018, MassDEP issued a Notice of Noncompliance for the Winona WTP, citing deficiencies in plant mechanical systems. The City requested a cost estimate for WTP repairs. The consultant suggested a recommendation for a full renovation of the Winona WTP and improvements to the Coolidge WTP. This included the need to clean and rehabilitate the lagoons, fully upgrade the plant controls, and rebuild filter media and internals among other concerns. The City determined that providing their own drinking water was more desirable and affordable than remaining on the MWRA's plan.

FINANCIAL IMPACT

In 2019, the Peabody City Council implemented a Clean and Sustainable Water Future Use Plan, a four-step plan to both modernize the water system and bolster its sustainability. In April 2020, the City Council appropriated \$4 million for "financing roadway paving and water system improvements." These improvements included financing the water transmission main and pump stations. The Trust provided \$18.8 million in financing for the project.

Beyond the savings the City receives from no longer relying on MWRA for drinking water, Peabody replacing outdated water pumps with high efficiency pumps saved the City \$25,000 annually in power costs. As a Tier 2 Disadvantaged Community, the City received over \$2.7 million in loan forgiveness. This will save the City over \$3.4 million over the life of the loan.

RENOVATIONS AND FINAL IMPACT

The primary aspect of the Clean and Sustainable Water Future Use Plan was a complete renovation of the Winona WTP. This project includes the complete demolition and reconstruction of the existing equipment, installation of new water treatment equipment and chemical systems, and building an addition for chemical storage totaling 1,000 square feet. An HVAC system, sewers, pump station, and yard piping were installed.

The WTP is being converted to dissolved air flotation to treat heightened algae levels, in-pond aeration that diffuses oxygen into the water supply and improves water quality through circulation, and water tank mixers to remove stratification and circulate the water supply. The flocculation basin is being converted to serve the incoming DAF equipment. To control manganese levels, contractors are installing a new pond aeration system. The filter underdrain systems are being replaced and the gravity filters were converted to granular activated carbon systems to filter contaminants from the water sources.

The new design is more compact than the original layout, providing space for general storage. The WTP laboratory, control room, and administrative spaces are being updated. In addition to the Winona WTP project, new water lines connecting the Coolidge WTP to West Peabody homes and businesses are being installed along with a water booster pump. A water transmission main is also being built, connecting the neighborhood of South Peabody to Route 1.

The entirety of the Clean and Sustainable Water Future Use Plan was completed in 2022 ahead of the originally proposed schedule. In September 2022, Peabody's Department of Public Services received the Utility of the Year award from the New England Water Works Association for their swift completion of the project.



DRINKING WATER TRANSMISSION AND DISTRIBUTION 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 to identify and prioritize design, maintenance, and replacement activities. Sensor and field analysis can be used as part of a larger analysis that consists 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.

Drinking Water Transmission and Distribution Projects			
Total Amount in Dollars (\$)	Total Number of Projects	Total Series 24 Amount in Dollars (\$)	Total Number of Series 24 Projects
\$901,405,791	334	\$53,499,490	15

SERIES 24 DRINKING WATER TRANSMISSION AND DISTRIBUTION PROJECTS IMPACT

- **Chicopee, Deerfield Fire District, Dudley, East Brookfield, Fall River, Holyoke, Massachusetts Water Resources Authority, New Bedford, Taunton, and West Boylston Water District** are upgrading their water conveyance system to increase capacity, replace deteriorated water mains, or run additional mains to provide safe drinking water to residents. Removing leaks from the water distribution system improves system efficiency by ensuring treated water is not lost in the system.
- **Eastham** lacked a municipal water supply system and has been prompted to implement a new system after water quality sampling determined that there were water quality issues with ground water. This first phase of water system development included the construction of two well fields, a storage tank, and 45 miles of water distribution piping.
- **Deerfield Fire District, Fall River, and Taunton's** projects involve the removal of lead service lines and lead goosenecks in their water distribution systems.
- **Dudley, Lawrence, and the Massachusetts Water Resources Authority's** projects repair or replace pump stations which are both vital and energy intensive facilities required to ensure that water distribution systems can maintain pressure and circulate water when demand may be excessive. These facilities are vital when drinking water systems are connected to fire hydrants or are located at elevations higher than the drinking water treatment facility. Improving these stations with modern equipment improves reliability and reduces elasticity cost.

Borrower	Project Description	Amount
Chicopee	<p>Redundant Water Transmission Main The City's source of drinking water is the Chicopee Aqueduct, which is owned and maintained by the Massachusetts Water Resources Authority. The City's transmission main from this source was a single 36-inch diameter cast iron main. When there was no redundant transmission main, a majority of the City was at risk of losing water if the single transmission line went down. Depending on where the damage to the existing main occurred, service could have been lost for an extended period. Construction of the second main allows for repairs and upgrades to be made to the existing main, without interruption in service. The project replaced the existing gaseous chlorine system with a sodium or calcium hypochlorite system to improve safety and performance of the transmission main.</p>	\$123,260
Deerfield Fire District	<p>Greenfield Road Water Main Replacement Project The project consists of replacing approximately 3,800 linear feet of existing water main on Greenfield Road to address water quality complaints from aged, heavily tuberculated water mains. The project includes the replacement of 25 existing lead goose necks on service lines.</p>	\$688,291

Borrower	Project Description	Amount
Dudley	<p>Dudley Drinking Water System Improvements Project</p> <p>This project will allow Dudley to meet maximum-day demands and provide redundancy by connecting a replacement to a pump station. This project also includes replacement of approximately 8,600 linear feet of asbestos concrete water mains and the rehabilitation of two water storage tanks.</p>	\$4,059,754
East Brookfield	<p>Water Main Replacement and Wellhouse Upgrades</p> <p>This project consists of replacing an old and severely tuberculated water main which causes high head loss and discolored water. There are several small upgrades being made to the sole water supply including a variable frequency drive, flow meter, and back-up generator to ensure safe and reliable water supply.</p>	\$3,472,000
Eastham	<p>Phase 2B of Town-Wide Water System</p> <p>The project constructed a municipal water system for the Town of Eastham. The Town relied on individual private or community wells for water supply and onsite systems for wastewater disposal. Long-term monitoring of private wells confirmed that the water quality of these wells is deteriorating. This project will construct part of the remaining water system that will serve all properties in the Town.</p>	\$9,722,989
Eastham	<p>Eastham Water System - Phase 2C</p> <p>The project will construct a municipal water system for the Town of Eastham. The Town has relied on individual private or community wells for water supply and onsite systems for wastewater disposal. Long-term monitoring of private wells confirmed that the water quality of these wells is deteriorating. This project will construct part of the remaining water system that will serve all properties in the Town.</p>	\$11,938,889
Fall River	<p>Phase 19 - Water System Improvements</p> <p>This project continued the City's cast iron water main and lead service replacement program. The Phase 19 water main improvements included the rehabilitation or replacement of approximately 11,390 linear feet of cast iron water mains and lead services to provide safe and reliable drinking water to customers of the City.</p>	\$1,862,773
Fall River	<p>Water Main Rehabilitation - Phase 20</p> <p>This project was part of the annual cast iron water main and lead service replacement program. Phase 20 water main improvements included the rehabilitation or replacement of approximately 11,495 linear feet of cast iron water mains and 19 lead services.</p>	\$1,875,518
Holyoke	<p>Phase 2A Water Main Replacement Project</p> <p>This project included replacement of approximately 6,000 linear feet of cast iron, undersized (4-inch and 6-inch), and aging (100+ years old) water main in downtown. This work was Phase 2A of Holyoke Water Works' Capital Improvement Plan to address high priority water main replacements. The work was also in coordination with the City's combined sewer overflow abatement project happening in the same area. The replacement improved redundancy and reliability in the water distribution system.</p>	\$2,104,387

Borrower	Project Description	Amount
Lawrence	<p>Water Valve Replacement Project This project involves replacing approximately 194 broken and malfunctioning valves ranging in size from 4-inch to 12-inch diameter that were installed in the city prior to 1975.</p>	\$2,193,753
Lawrence	<p>Marston Street Pump Station (PS) Replacement This project is for replacing the Marston Street PS.</p>	\$1,502,938
Massachusetts Water Resources Authority (MWRA)	<p>Sewer Collection System - Repair and Replacement The project involved the sewer pipeline repairs and replacements within the Town to improve water tightness, eliminate infiltration and inflow influences, and the replacement of broken and collapsed sections of the sewer collection system. Sewer utility access holes along with force main and pump station repairs and upgrades were also included in the townwide improvement program. Phase 1 addressed high priority defects identified by a comprehensive townwide assessment and closed-circuit television pipe inspection program.</p>	\$9,798,686
New Bedford	<p>Highway Bridge Crossing Replacement Project The Highway Bridge Crossing Replacement Project continued to remedy system deficiencies and prevent serious threats to New Bedford's water system by replacing four watermains that crossed under three separate bridges and two major highways, Interstate 195 and Route 140. Three of the four water mains were shut down due to leaks. The project replaced the water mains, pipe supports, and hangers. This project was of utmost importance to the City because it can now maintain safe and reliable delivery of water to its customers and protect public health.</p>	\$819,581
Taunton	<p>2018 Water Main Improvements Project The project consisted of removing lead goosenecks and installing new ductile iron water mains. City records indicated that there were no known lead service connections. However, lead goosenecks were used for connections from the water main to service connections in the early part of the 20th century. Lead goosenecks can leach lead into the water, so replacing them lowered potential lead exposure and protects public health. The water mains to which the lead goosenecks were connected were replaced. The water mains are old, unlined cast iron pipes with substantial tuberculation, which can cause dirty water and reduce the hydraulic capacity. The upgrades improved water quality and increased the available fire flow.</p>	\$3,228,606
West Boylston Water District	<p>North Main Street and Laurel Street Water Main Replacement This project involved the replacement of aging infrastructure to protect public health. The water main on North Main Street, Laurel Street, Waushacum Street, and Reed Street was deteriorating and had reached the end of its useful life. The main was suffering from repeat breaks, notably in August 2018. During the repair it was discovered that the water main had lost thickness around the break. The concern was that more of the water main was deteriorating and would continue to suffer from breaks until it was replaced with new ductile iron mains. Additionally, this area of the district's water distribution system had numerous lead goosenecks on customer service lines. These lead goosenecks were eliminated through this water main replacement project.</p>	\$108,065



DRINKING WATER SOURCE AND STORAGE PROJECTS

This project category is for developing or improving sources of water used in public water systems. Project costs include those for constructing or rehabilitating surface water intake structures, drilled wells, wellhead pumps, and spring collectors. Having multiple sources of raw water is a standard precaution to make sure that 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 raw water 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 the 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. This means that water quality is more consistent and requires less human maintenance.

Drinking Water Source and Storage Projects			
Total Amount in Dollars (\$)	Total Number of Projects	Total Series 24 Amount in Dollars (\$)	Total Number of Series 24 Projects
\$241,042,606	127	\$245,835	1

SERIES 24 DRINKING WATER SOURCE AND STORAGE PROJECTS IMPACT

- **West Springfield** is installing a new 300,000-gallon storage tank and improving the transmission infrastructure to ensure the system can meet the demand of the growing Town. Further, the Town is replacing old water meters that were underreporting or not operating to ensure the Town can properly track water.

Borrower	Project Description	Amount
West Springfield	<p>Drinking Water System Improvements Project</p> <p>The project includes a new 300,000-gallon elevated water storage tank, a transmission main from the existing high pressure service area to supply the new pressure zone, and improvements to the existing pump station serving the high-pressure zone to meet increased demand. There is also work being done to replace approximately 2,200 existing meters and a townwide leakage testing plan is being implemented. This will enable the Town to recover costs of under-registering meters and significantly reduce the amount of unaccounted water. It will also ensure adequate water supply for drinking and fire protection.</p>	\$245,835



DRINKING WATER PLANNING AND DESIGN PROJECTS

These projects involve the activities needed to plan for design and/or study drinking water infrastructure. Planning and design projects are essential for maintaining and improving the key infrastructure that protects public health and water quality. These activities may include using geographic information services (GIS) to map infrastructure, develop asset management plans to better track capital cost, and system maintenance. Additionally, these projects may be used to determine system improvement needs related to water loss, emerging contaminants, and numerous other issues that may affect the effectiveness of a system’s ability to provide safe drinking water to a community.

Drinking Water Source and Storage Projects			
Total Amount in Dollars (\$)	Total Number of Projects	Total Series 24 Amount in Dollars (\$)	Total Number of Series 24 Projects
\$11,588,047	21	\$697,542	2

SERIES 24 DRINKING WATER TRANSMISSION AND DISTRIBUTION PROJECTS IMPACT

- **Barnstable** is conducting a critical study of its five wells related to treatment options for contaminants found in the source water. The analysis will assist Barnstable in reducing the current health risk from their drinking water system.
- **Fall River** undertook an extensive asset management planning activity meant to assist the City in compiling an inventory and condition assessment of its drinking water, wastewater, and stormwater systems. The information allows the city to develop realistic risk assessments and provide policy makers with the best data possible when developing capital improvement plans. Further, the City evaluated software and hardware options meant to be deployed with city staff in the field to improve on the ground information and ensure the city is aware of changing conditions in real time.

Borrower	Project Description	Amount
Barnstable	<p>Wells Treatment Pilots, Conceptual Plans, and Layouts</p> <p>This project is a continuation of a previously approved project handling chemical contamination at the five wells; including pilot testing of recommended treatment options, the development of conceptual layouts, planning schedules for design, construction, and capital and operational costs, and recommendations on how to proceed.</p>	\$547,542
Fall River	<p>Fall River Asset Management Plan (AMP)</p> <p>The purpose of this project was to implement a consistent AMP for the City’s water, wastewater, and stormwater utilities. The work included development of an asset inventory, condition assessment and risk analysis of assets of the water system facilities, wastewater pump stations and combined sewer overflow screening and disinfection facilities. The City evaluated, purchased, and implemented a computerized maintenance management system. It also developed a level of service agreement for all three utilities. This work included preparing a written management plan narrative that describes the operation of the AMP to be utilized by the City’s management team moving forward.</p>	\$150,000



Appendix A - Series 24 Projects ¹ - Projects associated with Series 24 Sustainability Bonds are shaded in light orange.

Borrower	Loan No.	Project Name	Amount	Percentage Drawn	Program	Category	DC Tier	UN SDG
Ayer	DWP-20-04	Spectacle Pond Wellfield Per- and Polyfluoroalkyl Substances (PFAS) Treatment	\$5,253,989	93%	DW	Drinking Water Treatment	2	3, 6, 12
Barnstable	DW-20-16	Wells Treatment Pilots, Conceptual Plans, and Layouts	\$547,542	60%	DW	Drinking Water Planning and Design	1	3, 6, 12
Barnstable Fire District	DWP-20-30	Per- and Polyfluoroalkyl Substances (PFAS) Interim Rehabilitation of Well Pump Station 1	\$1,362,187	78%	DW	Drinking Water Treatment	1	3, 6, 12
Billerica	CWP-19-09	Wastewater Treatment Facility (WWTF) and Pump Station (PS) Upgrades	\$9,907,371	92%	CW	Wastewater Treatment	1	3, 6, 12
Billerica	CWP-19-09-A	Wastewater Treatment Facility (WWTF) and Pump Station (PS) Upgrades	\$1,078,360	100%	CW	Wastewater Treatment	1	3, 6, 12
Blackstone	DWP-20-20	Blackstone Groundwater Treatment	\$5,390,280	73%	DW	Drinking Water Treatment	2	3, 6, 12
Bourne	CWP-19-07	Buzzards Bay Wastewater Treatment Facility (WWTF)	\$3,341,513	86%	CW	Wastewater Treatment	1	3, 6, 12
Bridgewater	CWT-20-37	Community Septic Management Program	\$400,000	100%	T5	NPS Decentralized Wastewater Treatment Systems	2	3, 6, 12
Bridgewater	DWP-19-17	New High Street Water Treatment Facility (WTF)	\$12,198,813	84%	DW	Drinking Water Treatment	2	3, 6, 12
Brockton	CWP-18-42-A	Wastewater Treatment Facility (WWTF) Upgrade	\$939,000	30%	CW	Wastewater Treatment	3	3, 6, 9, 10, 11, 12
Brockton	CWP-19-34	2019 Sewer Rehabilitation Project	\$2,264,248	76%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	3, 6, 9, 10, 11, 14
Brockton	CWP-19-34-A	2019 Sewer Rehabilitation Project	\$332,919	55%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	3, 6, 9, 10, 11, 14
Brockton	CWP-20-17	Sewer Rehabilitation Project	\$1,221,060	91%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	3, 6, 9, 10, 11, 14
Brockton	CWP-20-17-A	Sewer Rehabilitation Project	\$249,577	58%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	3, 6, 9, 10, 11, 14
Chatham	CW-18-24	Phase 1D - Chatham/Harwich Regionalization	\$5,800,258	100%	CW	Collector and Interceptor Sewers	-	3, 6, 14
Chicopee	CWP-19-42	Blue Bird Acres Sewer Pump Station (PS) and Force Main	\$1,823,094	85%	CW	Collector and Interceptor Sewers	3	3, 6, 9, 10, 11, 14
Chicopee	CWP-20-31	Jones Ferry Wastewater Pump Station PS Phase II Improvements	\$3,537,236	78%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	3, 6, 9, 10, 11, 14
Chicopee	CWP-20-31-A	Jones Ferry Wastewater Pump Station PS Phase II Improvements	\$320,450	80%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	3, 6, 9, 10, 11, 14
Chicopee	DW-16-04-A	Redundant Water Transmission Main	\$123,260	100%	DW	Drinking Water Transmission and Distribution	3	3, 6, 9, 10, 11, 12
Concord	T5-05-1243-E	Community Septic Management Program	\$300,000	100%	T5	NPS Decentralized Wastewater Treatment Systems	-	3, 6, 12
Dartmouth	DWP-18-05	Action Plan to Reduce Total Trihalomethane (TTHM) Levels	\$1,174,616	100%	DW	Drinking Water Treatment	1	3, 6, 12
Deerfield Fire District	DWP-20-09	Greenfield Road Water Main Replacement Project	\$688,291	99%	DW	Drinking Water Transmission and Distribution	1	3, 6, 12
Dracut Water Supply District	DWP-20-18	Water System Improvements	\$8,343,085	91%	DW	Drinking Water Treatment	1	3, 6, 12
Dudley	CWP-20-14	Dudley Infiltration and Inflow I/I Mitigation Construction Project	\$863,107	87%	CW	Infiltration/Inflow and Sewer System Rehabilitation	2	3, 6, 14
Dudley	DWP-20-25	Dudley Drinking Water System Improvements Project	\$4,059,754	78%	DW	Drinking Water Transmission and Distribution	2	3, 6, 12
East Brookfield	DWP-20-22	Water Main Replacement and Wellhouse Upgrades	\$3,472,000	56%	DW	Drinking Water Transmission and Distribution	2	3, 6, 12
Eastham	DWP-19-06	Phase 2B of Town-Wide Water System	\$9,722,989	91%	DW	Drinking Water Transmission and Distribution	2	3, 6, 12
Eastham	DWP-20-23	Eastham Water System - Phase 2C	\$11,938,889	80%	DW	Drinking Water Transmission and Distribution	2	3, 6, 12
Easton	CW-18-25	Easton Five Corners Sewer	\$10,720,026	100%	CW	Collector and Interceptor Sewers	-	3, 6, 14
Easton	CWT-20-10	Community Septic Management Program	\$500,000	100%	T5	NPS Decentralized Wastewater Treatment Systems	-	3, 6, 12
Fall River	CWP-19-23	South End Sewer Pump Station (PS) Replacement	\$2,911,987	98%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	3, 6, 9, 10, 11, 14
Fall River	CWP-19-23-A	South End Sewer Pump Station (PS) Replacement	\$513,570	82%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	3, 6, 9, 10, 11, 14
Fall River	DWA-19-23	Fall River Asset Management Plan (AMP)	\$150,000	100%	DW	Drinking Water Planning and Design	3	3, 6, 9, 10, 11, 12
Fall River	DWP-19-14	Phase 19 - Water System Improvements	\$1,862,773	90%	DW	Drinking Water Transmission and Distribution	3	3, 6, 9, 10, 11, 12
Fall River	DWP-20-13	Water Main Rehabilitation - Phase 20	\$1,875,518	93%	DW	Drinking Water Transmission and Distribution	3	3, 6, 9, 10, 11, 12
Fitchburg	CWP-20-03	Combined Sewer Overflow (CSO) 007, 011, 039, 048 Separation and Rehabilitation	\$6,756,066	73%	CW	Combined Sewer Overflow Correction	3	3, 6, 9, 10, 11, 12, 14
Fitchburg	CWP-20-03-A	Combined Sewer Overflow (CSO) 007, 011, 039, 048 Separation and Rehabilitation	\$1,054,170	91%	CW	Combined Sewer Overflow Correction	3	3, 6, 9, 10, 11, 12, 14
Gloucester	CW-20-38	Gloucester Comprehensive Wastewater Management Plan (CWMP)	\$180,000	0%	CW	Planning	2	3, 6, 12, 14
Hanson	CWT-18-01-A	Community Septic Management Program	\$200,000	100%	T5	NPS Decentralized Wastewater Treatment Systems	1	3, 6, 12
Harwich	CWP-18-23	Harwich Sewer Collection System - Phase 2	\$16,092,328	97%	CW	Collector and Interceptor Sewers	2	3, 6, 14

Footnotes

¹ Series 24: All Amount and Percentage Completed sections are accurate as of June 30, 2023.

Appendix A - Series 24 Projects ¹ - Projects associated with Series 24 Sustainability Bonds are shaded in light orange.

Borrower	Loan No.	Project Name	Amount	Percentage Drawn	Program	Category	DC Tier	UN SDG
Holyoke	CWP-19-04	Jackson Street Area Sewer Separation Project	\$7,254,309	65%	CW	Combined Sewer Overflow Correction	3	3, 6, 9, 10, 11, 12, 14
Holyoke	DWP-20-11	Phase 2A Water Main Replacement Project	\$2,104,387	86%	DW	Drinking Water Transmission and Distribution	3	3, 6, 9, 10, 11, 12
Kingston	CWP-19-46	Kingston Wastewater Treatment Plant (WWTP) Expansion	\$15,955,530	74%	CW	Wastewater Treatment	1	3, 6, 12
Kingston	DWP-19-20	Manganese Removal Facility for GH and 1-86 Wells	\$7,723,970	100%	DW	Drinking Water Treatment	1	3, 6, 12
Kingston	T5-97-1211-F	Community Septic Management Program	\$200,000	89%	T5	NPS Decentralized Wastewater Treatment Systems	1	3, 6, 12
Lakeville	CWT-22-01	Community Septic Management Program	\$960,000	100%	T5	NPS Decentralized Wastewater Treatment Systems	1	3, 6, 12
Lawrence	CW-19-21	Sanitary Sewer Evaluation Survey (SSES) Phases VI through VIII	\$3,000,000	79%	CW	Planning	3	3, 6, 9, 10, 11, 12, 14
Lawrence	DWP-19-01	Water Valve Replacement Project	\$2,193,753	83%	DW	Drinking Water Transmission and Distribution	3	3, 6, 9, 10, 11, 12
Lawrence	DWP-19-12	Marston Street Pump Station (PS) Replacement	\$1,502,938	100%	DW	Drinking Water Transmission and Distribution	3	3, 6, 9, 10, 11, 12
Leominster	CWP-19-26	Aeration Basin and Secondary Clarifier Upgrade	\$11,649,712	75%	CW	Wastewater Treatment	2	3, 6, 12
Leverett	CW-20-07	Connection to Amherst Waterline	\$1,182,752	100%	CW	NPS Sanitary Landfill	-	3, 6, 12, 14
Lowell	CWP-16-15-A	Capital Improvement Program (CIP) Phase - Wastewater Treatment Facility (WWTF) and Infrastructure Upgrades	\$1,921,168	100%	CW	Wastewater Treatment	3	3, 6, 9, 10, 11, 12
Lowell	CWP-16-15-B	Capital Improvement Program (CIP) Phase - Wastewater Treatment Facility (WWTF) and Infrastructure Upgrades	\$2,200,000	100%	CW	Wastewater Treatment	3	3, 6, 9, 10, 11, 12
Lynn Water & Sewer Commission	CWP-19-27	West Lynn Sewer Separation	\$10,017,036	87%	CW	Combined Sewer Overflow Correction	3	3, 6, 9, 10, 11, 12, 14
Massachusetts Water Resource Authority (MWRA)	CW-20-46	Nut Island HW Odor Control & HVAC - Contract 7548	\$8,986,259	0%	CW	Infiltration/Inflow and Sewer System Rehabilitation	-	3, 6, 14
Middleborough	CWT-20-04	Community Septic Management Program	\$500,000	100%	T5	NPS Decentralized Wastewater Treatment Systems	2	3, 6, 12
Millville	CWT-19-02	Community Septic Management Program	\$160,410	100%	T5	NPS Decentralized Wastewater Treatment Systems	1	3, 6, 12
MWRA	DW-20-33	Northern Intermediate High Section 89 Replacement	\$9,798,686	0%	DW	Drinking Water Transmission and Distribution	-	3, 6, 12
Nahant	CW-20-13	Sewer Collection System - Repair and Replacement	\$9,767,852	68%	CW	Infiltration/Inflow and Sewer System Rehabilitation	-	3, 6, 14
Nantucket	CW-19-32	Surfside Road Area Sewer System Improvements	\$6,995,000	68%	CW	Collector and Interceptor Sewers	-	3, 6, 14
New Bedford	CWP-20-22	Wastewater Collection System Improvements	\$3,666,070	79%	CW	Combined Sewer Overflow Correction	3	3, 6, 9, 10, 11, 12, 14
New Bedford	CWP-20-22-A	Wastewater Collection System Improvements	\$212,366	100%	CW	Combined Sewer Overflow Correction	3	3, 6, 9, 10, 11, 12, 14
New Bedford	DWP-19-24	Highway Bridge Crossing Replacement Project	\$819,581	100%	DW	Drinking Water Transmission and Distribution	3	3, 6, 9, 10, 11, 12
Orleans	CW-19-33	Downtown Area Collection System and Wastewater Treatment Facility (WWTF)	\$14,852,300	100%	CW	Wastewater Treatment	-	3, 6, 12
Peabody	DWP-19-15	Winoma and Coolidge Water Treatment Plant (WTP) Improvements	\$8,680,000	100%	DW	Drinking Water Treatment	2	3, 6, 12
Peabody	DWP-20-10	Winoma and Coolidge Water Treatment Plant (WTP) Improvements	\$10,152,825	88%	DW	Drinking Water Treatment	2	3, 6, 12
Pittsfield	CWP-18-12-B	Wastewater Treatment Plant (WWTP) Nutrient Removal	\$3,100,000	64%	CW	Wastewater Treatment	3	3, 6, 9, 10, 11, 12
Pittsfield	CWP-18-12-C	Wastewater Treatment Plant (WWTP) Nutrient Removal	\$2,200,640	91%	CW	Wastewater Treatment	3	3, 6, 9, 10, 11, 12
Plymouth	CWT-20-02	Community Septic Management Program	\$300,000	100%	T5	NPS Decentralized Wastewater Treatment Systems	1	3, 6, 12
Quincy	CWP-19-28	The Strand Pump Station (PS) Upgrade Project	\$2,724,124	99%	CW	Infiltration/Inflow and Sewer System Rehabilitation	2	3, 6, 14
Quincy	CWP-19-29	Fiscal Year (FY) 2020 Sewer Improvements	\$3,184,496	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation	2	3, 6, 14
Revere	CW-19-40	Phase XI Investigations	\$1,500,000	96%	CW	Planning	3	3, 6, 9, 10, 11, 12, 14
Revere	CW-20-28	Phase XII Investigations	\$1,300,000	76%	CW	Planning	3	3, 6, 9, 10, 11, 12, 14
Revere	CW-20-29	Alternative Wastewater Connections and Storage Evaluation	\$750,000	65%	CW	Planning	3	3, 6, 9, 10, 11, 12, 14
Revere	CW-20-30	Fats, Oils, and Grease (FOG) Control and Capacity, Management, Operations and Maintenance (CMOM) Equipment Procurement	\$798,214	85%	CW	Planning	3	3, 6, 9, 10, 11, 12, 14
Revere	CWP-16-17-A	Phase VII Construction - Infiltration and Inflow (I/I), Illicit Discharge Detection and Elimination (IDDE), Pump Station (PS) and Drainage	\$8,556,684	68%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	3, 6, 9, 10, 11, 14
Revere	CWP-19-39	Phase X Construction - Infiltration and Inflow (I/I), Illicit Discharge Detection and Elimination (IDDE), Pump Station (PS) and Drainage	\$3,624,587	89%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	3, 6, 9, 10, 11, 14

Footnotes

¹ Series 24: All Amount and Percentage Completed sections are accurate as of June 30, 2023.

Appendix A - Series 24 Projects¹ - Projects associated with Series 24 Sustainability Bonds are shaded in light orange.

Borrower	Loan No.	Project Name	Amount	Percentage Drawn	Program	Category	DC Tier	UN SDG
Revere	CWP-20-27	Phase XI Construction - Infiltration and Inflow (I/I), Illicit Discharge Detection and Elimination (IDDE), Pump Station (PS) and Drainage	\$4,290,614	83%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	3, 6, 9, 10, 11, 14
Revere	CWP-20-27-A	Phase XI Construction - Infiltration and Inflow (I/I), Illicit Discharge Detection and Elimination (IDDE), Pump Station (PS) and Drainage	\$839,732	78%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	3, 6, 9, 10, 11, 14
Saugus	CWP-19-31	Lincoln Avenue Pump Station (PS) Improvements, Phase 2	\$571,162	94%	CW	Infiltration/Inflow and Sewer System Rehabilitation	2	3, 6, 14
Scituate	DW-19-18	Scituate Well 17A Water Treatment Plant (WTP)	\$6,586,387	96%	DW	Drinking Water Treatment	-	3, 6, 12
South Essex Sewerage District	CW-20-34	Contract No. 20-1 Danvers Siphon Rehabilitation	\$1,788,940	78%	CW	Infiltration/Inflow and Sewer System Rehabilitation	1	3, 6, 14
Springfield Water & Sewer Commission (SWSC)	CWP-18-18-D	York Street Pump Station (PS) and Connecticut River Crossing	\$55,044,592	57%	CW	Combined Sewer Overflow Correction	3	3, 6, 9, 10, 11, 12, 14
SWSC	CWP-18-18-E	York Street Pump Station (PS) and Connecticut River Crossing	\$6,341,902	83%	CW	Combined Sewer Overflow Correction	3	3, 6, 9, 10, 11, 12, 14
SWSC	DWP-20-01	Clearwell and Backwash Pump Station (PS) Replacement	\$12,030,000	78%	DW	Drinking Water Treatment	3	3, 6, 9, 10, 11, 12
Sudbury	CW-19-16	Comprehensive Wastewater Management Plan (CWMP) Update	\$500,000	99%	CW	Planning	-	3, 6, 12, 14
Taunton	CWP-19-53	Main Lift Pump Station (PS) Improvements Phase 2	\$3,186,512	98%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	3, 6, 9, 10, 11, 14
Taunton	CWP-19-53-A	Main Lift Pump Station (PS) Improvements Phase 2	\$616,284	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	3, 6, 9, 10, 11, 14
Taunton	CWP-20-21	Wastewater Treatment Facility (WWTF) Upgrade - Phase 1	\$12,023,423	63%	CW	Wastewater Treatment	3	3, 6, 9, 10, 11, 12
Taunton	CWT-21-02	Community Septic Management Program	\$250,000	100%	T5	NPS Decentralized Wastewater Treatment Systems	3	3, 6, 9, 10, 11, 12
Taunton	DWP-18-07	2018 Water Main Improvements Project	\$3,228,606	84%	DW	Drinking Water Transmission and Distribution	3	3, 6, 9, 10, 11, 12
Tyngsborough	CW-18-17	Phase 2 Middlesex Road North	\$10,246,968	100%	CW	Collector and Interceptor Sewers	-	3, 6, 14
Tyngsborough	CWP-20-11	Infiltration and Inflow (I/I) Rehabilitation	\$450,677	78%	CW	Infiltration/Inflow and Sewer System Rehabilitation	1	3, 6, 14
Wareham	CWP-20-09	Process Upgrades at the Wareham Pollution Control Facility (WPCF)	\$8,109,000	62%	CW	Wastewater Treatment	3	3, 6, 9, 10, 11, 12
Water Supply District of Acton	DW-19-16	Manganese Removal Water Treatment Plant	\$11,796,097	100%	DW	Drinking Water Treatment	-	3, 6, 12
West Boylston Water District	DWP-19-27-A	North Main Street and Laurel Street Water Main Replacement	\$108,065	88%	DW	Drinking Water Transmission and Distribution	2	3, 6, 12
West Boylston Water District	DWP-20-17	Manganese Removal Treatment at Oakdale Well	\$7,603,680	78%	DW	Drinking Water Treatment	2	3, 6, 12
West Springfield	CWP-19-41	Birnie Avenue and Piper Road Area Sewer Project	\$5,821,644	94%	CW	Collector and Interceptor Sewers	2	3, 6, 14
West Springfield	CWP-19-41-A	Birnie Avenue and Piper Road Area Sewer Project	\$967,830	100%	CW	Collector and Interceptor Sewers	2	3, 6, 14
West Springfield	DWP-17-13-A	Drinking Water System Improvements Project	\$245,835	100%	DW	Drinking Water Source and Storage	2	3, 6, 12
Westport	CWT-18-33	Community Septic Management Program	\$500,000	100%	T5	NPS Decentralized Wastewater Treatment Systems	1	3, 6, 12
Winthrop	CWP-19-05	Town Center - Sewer and Drainage Improvements	\$7,272,545	78%	CW	Infiltration/Inflow and Sewer System Rehabilitation	2	3, 6, 14

Footnotes

¹ Series 24: All Amount and Percentage Completed sections are accurate as of June 30, 2023.

Appendix B - Series 23 Projects¹ - Projects associated with Series 23 Sustainability Bonds are shaded in light orange.

Borrower	Loan No.	Project Name	Amount	Percentage Drawn	Program	Category	DC Tier	UN SDG
Andover	DW-19-13	Distribution System Improvements	\$4,113,418 ²	100%	DW	Drinking Water Transmission and Distribution		6, 12
Auburn Water District	DWP-19-19	Prospect Street Tank Replacement	\$1,579,601 ²	100%	DW	Drinking Water Transmission and Distribution	2	6, 12
Avon	CWT-15-12	Community Septic Management Program	\$400,000	100%	T5	Community Septic Management Program	2	6, 12
Barnstable	DWP-18-10	Maher Treatment Facility Upgrade	\$9,380,220 ²	100%	DW	Drinking Water Treatment	1	6, 12
Barnstable	DWP-19-28	Airport Well and Straightway Facility	\$2,581,555 ²	100%	DW	Drinking Water Treatment	1	6, 12
Billerica	CW-17-15	Sewer Contract 36	\$12,001,477 ²	100%	CW	Collector and Interceptor Sewers	1	6, 14
Billerica	CW-17-15-A	Sewer Contract 36	\$275,000	100%	CW	Collector and Interceptor Sewers	1	6, 14
Billerica	DWP-19-04	Water Treatment Plant (WTP) Upgrades	\$9,293,414 ²	100%	DW	Drinking Water Treatment	1	6, 12
Blackstone	DWP-20-20	Blackstone Groundwater Treatment	\$894,183 ³	100%	DW	Drinking Water Treatment	2	6, 12
Brockton	CWP-18-42	Wastewater Treatment Plant (WWTP) Upgrade	\$5,158,836 ²	100%	CW	Wastewater Treatment	3	6, 9, 10, 11, 12
Brockton	DW-17-05	2017 Transmission Main Assessment	\$500,000	100%	DW	Drinking Water Planning and Design	3	6, 9, 10, 11, 12
Brockton	DWP-18-11	Water Pump Well and Clearwell Rehabilitation	\$2,888,440 ²	100%	DW	Drinking Water Transmission and Distribution	3	6, 9, 10, 11, 12
Cohasset	CWT-17-07	Community Septic Management Program	\$150,000	100%	T5	Community Septic Management Program		6, 12
Dunstable	DW-19-05	Dunstable Water Infrastructure Project	\$2,477,083 ²	100%	DW	Drinking Water Source and Storage		6, 12
Eastham	DWP-16-02-R	Water System Phase I	\$112,586	100%	DW	Drinking Water Transmission and Distribution	2	6, 12
Eastham	DWP-19-06	Phase 2B of Town-Wide Water System	\$1,020,581 ³	100%	DW	Drinking Water Transmission and Distribution	2	6, 12
Eastham	DWP-20-23	Eastham Water System - Phase 2C	\$1,148,767 ³	100%	DW	Drinking Water Transmission and Distribution	2	6, 12
Easton	CWT-17-06	Community Septic Management Program	\$1,000,000	100%	T5	Community Septic Management Program		6, 12
Fall River	CW-18-44	Stafford Square Collection System Evaluation	\$400,000	100%	CW	Planning	3	6, 9, 10, 11, 12, 14
Fall River	CWP-18-03	Combined Sewer Overflows (CSO) Abatement Program-Middle Street	\$2,321,027	100%	CW	Combined Sewer Overflow Correction	3	6, 9, 10, 11, 12, 14
Fall River	CWP-18-35	Hyacinth Street Drainage Improvements	\$1,027,437 ²	100%	CW	Stormwater Infrastructure	3	6, 9, 10, 11, 12, 14
Fall River	CWP-18-36	President Avenue Sewer Pump Station Replacement	\$3,900,675 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11, 14
Fall River	CWP-18-38	Wastewater Treatment Facility (WWTF) Improvements	\$20,876,781 ²	100%	CW	Wastewater Treatment	3	6, 9, 10, 11, 12
Fall River	DWP-17-12	Automatic Meter Reading and Meter Replacement	\$3,336,347 ²	100%	DW	Drinking Water Transmission and Distribution	3	6, 9, 10, 11, 12
Fall River	DWP-18-15	Phase 18- Water System Improvements	\$964,209 ²	100%	DW	Drinking Water Transmission and Distribution	3	6, 9, 10, 11, 12
Fitchburg	CWP-16-10-B	Fitchburg Wastewater Treatment Facility Secondary Systems Upgrade	\$1,691,026	100%	CW	Wastewater Treatment	3	6, 9, 10, 11, 12
Franklin	DW-19-02	Treatment Plant at Well Stations No. 3 and 6.	\$12,299,049 ²	100%	DW	Drinking Water Treatment		6, 12
Gardner	CWP-17-23	Gardner- Sludge Dewatering Replacement Project	\$5,802,527	100%	CW	Wastewater Treatment	3	6, 9, 10, 11, 12
Gardner	CWP-17-23-A	Gardner- Sludge Dewatering Replacement Project	\$530,533	100%	CW	Wastewater Treatment	3	6, 9, 10, 11, 12
Gloucester	CW-17-25	Utility Master Plan	\$1,137,445 ²	100%	CW	Planning	2	6, 12, 14
Greater Lawrence Sanitary District	CWP-15-15	Organics to Energy	\$23,932,410 ²	100%	CW	Wastewater Treatment	3	6, 9, 10, 11, 12
Greater Lawrence Sanitary District	CWP-15-16	Combined Sewer Overflow Abatement Program	\$8,293,586 ²	100%	CW	Wastewater Treatment	3	6, 9, 10, 11, 12
Haverhill	CW-17-14	Haverhill Wastewater Treatment Facility (WWTF) Improvements	\$7,395,624 ²	100%	CW	Wastewater Treatment	2	6, 12
Haverhill	CW-19-12	Combined Sewer Overflow (CSO) Control Plan for the Locke Street CSO Area	\$1,272,845 ²	100%	CW	Planning	2	6, 12, 14
Haverhill	DWP-18-06	Phase 2- Transmission Main Improvements	\$6,806,617 ²	100%	DW	Drinking Water Transmission and Distribution	2	6, 12
Hull	CW-18-20	Facility Plan and Resiliency Plan Update	\$478,890	100%	CW	Planning	1	6, 12, 14
Hull	CW-18-21	Wastewater Treatment Facility (WWTF) Reliability Centered Maintenance (RCM) Assessment	\$332,966	100%	CW	Planning	1	6, 12, 14
Hull	CW-18-22	Sewer System Evaluation Survey (SSES)	\$1,381,171 ²	100%	CW	Planning	1	6, 12, 14
Hull	CWP-18-29	Fiscal Sustainability Plan and Capacity, Management, Operations and Maintenance (CMOM) Upgrades	\$9,768,591 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation	1	6, 14

Footnotes

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Appendix B - Series 23 Projects ¹ - Projects associated with Series 23 Sustainability Bonds are shaded in light orange.

Borrower	Loan No.	Project Name	Amount	Percentage Drawn	Program	Category	DC Tier	UN SDG
Lawrence	CW-14-16-A	Sewer System Rehabilitation	\$442,092	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11, 14
Lawrence	CWP-18-09	Sewer and Drainage Improvements	\$9,394,646 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11, 12, 14
Lawrence	CWP-18-09-A	Sewer and Drainage Improvements	\$3,793,276 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11, 12, 14
Lawrence	CWP-19-06	Sewer and Drainage Improvements	\$4,009,025 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11, 14
Lawrence	CWP-19-06-A	Sewer and Drainage Improvements	\$468,570	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11, 12, 14
Lawrence	DWP-19-03	Distribution System Improvements	\$4,795,508 ²	100%	DW	Drinking Water Transmission and Distribution	3	6, 9, 10, 11, 12
Littleton	DW-20-07	Emergency PFAS Blending Pipeline Project	\$698,250 ²	100%	DW	Drinking Water Treatment		6, 12
Marion	CW-18-37	Wastewater Treatment Plant & Collection System Improvements	\$7,002,294	100%	CW	Wastewater Treatment		6, 12
MWRA	CW-19-50	Wastewater Treatment Plant and Sewer Improvements	\$2,350,379	100%	CW	Wastewater Treatment		6, 12
MWRA	CW-19-49	Facility Asset Protection	\$767,671	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation		6, 14
MWRA	CW-19-51	Remote Headworks Upgrade	\$22,030,256	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation		6, 14
MWRA	CW-20-46	Nut Island HW Odor Control & HVAC - Contract 7548	\$6,191,660 ³	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation		6, 14
MWRA	DW-19-25	Southern Extra High Redundancy and Storage	\$10,896,491	100%	DW	Drinking Water Source and Storage		6, 12
MWRA	DW-19-26	Wachusett Aqueduct Pump Station	\$4,103,509	100%	DW	Drinking Water Transmission and Distribution		6, 12
MWRA	DW-20-31	Southern Extra High Redundancy and Storage	\$7,271,659	100%	DW	Drinking Water Source and Storage		6, 12
MWRA	DW-20-32	Commonwealth Ave Pump Station Redundancy	\$3,018,669	100%	DW	Drinking Water Transmission and Distribution		6, 12
Nantucket	CW-18-05	Emergency Sewer Force Main Assessment Project	\$3,801,862	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation		6, 14
Nantucket	CWT-19-01	Community Septic Management Program	\$1,040,600	100%	T5	Community Septic Management Program		6, 12
New Bedford	CWA-19-17	Asset Management Plan Grant Loan	\$260,000	100%	CW	Planning	3	6, 9, 10, 11, 12, 14
New Bedford	DWP-17-06	Large Meter & Advanced Metering Infrastructure (AMI) Upgrade Program	\$4,681,612 ²	100%	DW	Drinking Water Transmission and Distribution	3	6, 9, 10, 11, 12
New Bedford	DWP-17-07	High Hill Reservoir Rehabilitation	\$13,032,778 ²	100%	DW	Drinking Water Source and Storage	3	6, 9, 10, 11, 12
New Bedford	CW-17-09	MS4 Permit Compliance and Reporting	\$474,700	100%	CW	Planning	3	6, 9, 10, 11, 12, 14
New Bedford	CW-18-31	Wastewater Treatment Plan (WWTP) Facilities Planning	\$2,480,693 ²	100%	CW	Planning	3	6, 9, 10, 11, 12, 14
New Bedford	CWP-17-16	Pumping Station Improvements	\$5,605,384 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11, 14
New Bedford	CWP-17-16-A	Pumping Station Improvements	\$926,670	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11, 14
New Bedford	CWP-17-17	Wastewater Collection System Improvements	\$823,839 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11, 14
Norton	CWP-18-43	West Main Street Sewer Extension Project	\$4,602,841 ²	100%	CW	Collector and Interceptor Sewers	1	6, 14
Peabody	DWP-19-11	Peabody Water Transmission Main and Pump Station	\$3,863,466 ²	100%	DW	Drinking Water Transmission and Distribution	2	6, 12
Peabody	DWP-20-03	Peabody Water Transmission Main and Pump Station	\$4,518,960 ²	100%	DW	Drinking Water Transmission and Distribution	2	6, 12
Pepperell	CWP-18-08	Pepperell Wastewater Treatment Facility (WWTF) Upgrade	\$4,511,146	100%	CW	Wastewater Treatment	1	6, 12
Pepperell	DWP-19-10	Bemis Water Treatment Plant	\$7,734,150 ²	100%	DW	Drinking Water Treatment	1	6, 12
Pittsfield	CWP-18-12	Wastewater Treatment Plant (WWTP) Nutrient Removal	\$50,724,760	100%	CW	Wastewater Treatment	3	6, 9, 10, 11, 12
Pittsfield	CWP-18-12-A	Wastewater Treatment Plant (WWTP) Nutrient Removal	\$7,012,322	100%	CW	Wastewater Treatment	3	6, 9, 10, 11, 12
Plymouth	CWP-16-07-B	Emergency Sewer Force Main Repairs & Rehabilitation	\$13,241,047	100%	CW	Collector and Interceptor Sewers	1	6, 14
Plymouth	CWT-18-46	Community Septic Management Program	\$200,000	100%	T5	Community Septic Management Program	1	6, 12
Revere	CW-18-19	Illicit Connection and Sump Pump Investigation	\$500,000	100%	CW	Planning	3	6, 9, 10, 11, 12, 14
Revere	CW-18-26	Phase X Field Investigations- I/I and IDDE	\$980,000 ²	100%	CW	Planning	3	6, 9, 10, 11, 12, 14
Revere	CWP-17-27-A	Phase VIII - I/I, IDDE, P.S., & Drainage	\$338,475 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11, 14

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Revere	CWP-18-27	Illicit Connection & Sump Pump Removal Program	\$1,315,397 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11, 14
Revere	CWP-18-28	Phase IX Construction- I/I, IDDE, P.S. & Drainage	\$4,252,154 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11, 14
Revere	DW-18-08	Oak Island Water Main Improvements Planning Stage	\$250,000	100%	DW	Drinking Water Planning and Design	3	6, 9, 10, 11, 12
Revere	DWP-17-14	Lead Service Replacement	\$2,950,196 ²	100%	DW	Drinking Water Transmission and Distribution	3	6, 9, 10, 11, 12
Revere	DWP-18-09	Oak Island Water Main Improvements Planning Stage	\$426,641 ²	100%	DW	Drinking Water Transmission and Distribution	3	6, 9, 10, 11, 12
Saugus	CWP-19-30	Comprehensive Sewer System Rehab. Subsystem 1C	\$1,204,682 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation	2	6, 14
Scituate	CWT-18-13	Community Septic Management Program	\$199,222	100%	T5	Community Septic Management Program		6, 12
Southampton	DWP-18-12	Southampton Water System Improvement Project	\$1,590,719	100%	DW	Drinking Water Transmission and Distribution	1	6, 12
Spencer	DWP-18-13	Main Street Looping Water Main	\$1,779,911	100%	DW	Drinking Water Transmission and Distribution	3	6, 9, 10, 11, 12
SWSC	CWP-18-18	York St. Pump Station & Connecticut River Crossing	\$49,107,582	100%	CW	Combined Sewer Overflow Correction	3	6, 9, 10, 11, 12, 14
SWSC	CWP-18-18-A	York St. Pump Station & Connecticut River Crossing	\$5,252,623	100%	CW	Combined Sewer Overflow Correction	3	6, 9, 10, 11, 12, 14
Taunton	CW-17-19	Main Lift Pump Station Improvements	\$9,924,872 ²	100%	CW	Combined Sewer Overflow Correction	3	6, 9, 10, 11, 12, 14
Taunton	CWP-20-21	Wastewater Treatment Facility (WWTF) Upgrade - Phase 1	\$1,120,133 ³	100%	DW	Wastewater Treatment	3	6, 9, 10, 11, 12, 14
Tyngsborough	CW-15-10	Sewer Extension Phase 1	\$9,282,500	100%	CW	Collector and Interceptor Sewers	1	6, 14
Tyngsborough	CW-19-03	Phase 2 Infiltration and Inflow Study	\$441,902 ²	100%	CW	Planning	1	6, 12, 14
Wareham Fire District	DWP-17-09-A	Maple Springs Water Purification Plant	\$7,000,000	100%	DW	Drinking Water Treatment	3	6, 9, 10, 11, 12
West Boylston Water District	DWP-19-27	North Main St. & Laurel St. Water Main Replacement	\$1,419,265 ²	100%	DW	Drinking Water Transmission and Distribution	2	6, 12
West Springfield	CWP-17-30	Pump Station Improv and Infiltration/Inflow (I/I) Reduction Project	\$10,504,644 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation	2	6, 14
West Springfield	CWP-17-30-A	Pump Station Improv and Infiltration/Inflow (I/I) Reduction Project	\$974,973	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation	2	6, 14
Westport	CW-18-30	Integrated Water Resource Management Plan (IWRMP)	\$150,000	100%	CW	Planning	1	6, 12, 14

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MASSACHUSETTS
CLEAN WATER TRUST

Annual Report

Massachusetts

Clean Water Trust

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

September **2023**