

SEPTEMBER 2022

Annual Green Bonds and Sustainability Bonds Report



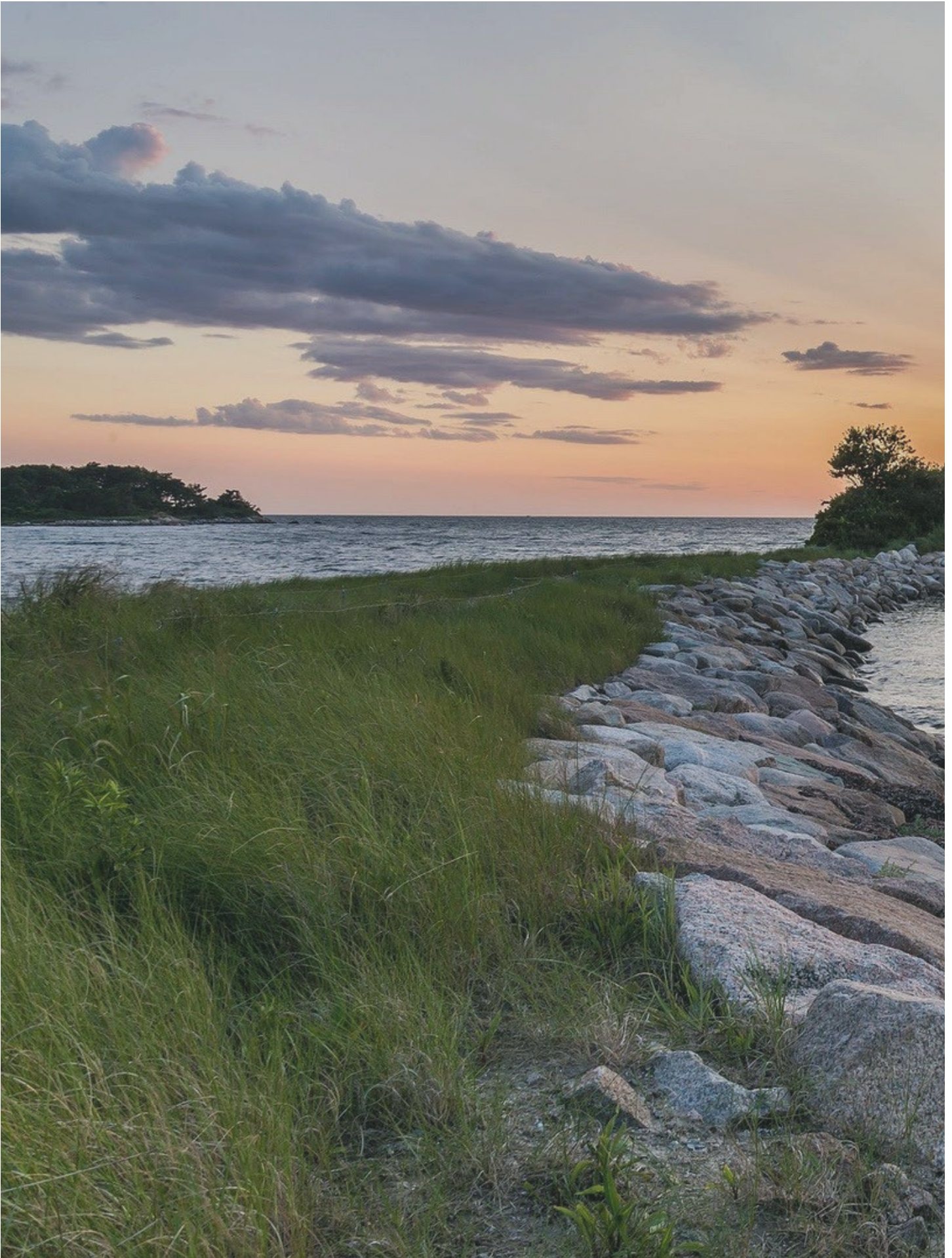


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A Note from the Treasurer

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 2022 Annual Green Bonds and Sustainability Bond Report.



To date, the Trust has completed six Green Bond issuances totaling approximately \$1.1 billion to support 266 local water infrastructure projects, and one issuance of Sustainability Bonds totaling \$209.5 million in support of 44 projects.

The 2021 issuance of Sustainability Bonds was once again the Trust demonstrating their commitment to an innovative finance program with this first in the nation issuance by a State Revolving Fund (SRF) program. Sustainability Bonds finance projects that meet the same standards as the Green Bonds but have the additional impact of serving communities that have socio-economic challenges. This innovative designation provides investors with an Environmental, Social, and Corporate Governance (ESG) focus, an opportunity to invest in bonds that help the communities most in need within the Commonwealth.

Sustainability

The Trust is one of the first to leverage the Sustainability Bonds designation for water infrastructure through the SRF program. This resulted in the Trust being awarded the 2022 '**Sustainability Bond of the Year - US Muni**' by *Environmental Finance*. As this ESG marketplace continues to mature, issuers must commit to transparent and accurate reporting for the bond label to continue to instill investor confidence. The Trust commits to this through consistent reporting now and in the future.

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. These vital projects enhance ground and surface water resources, ensure the safety of drinking water, protect public health, and develop resilient communities. Since its establishment, the Trust has financed approximately **\$8.1 billion** for nearly three hundred borrowers, serving **97%** of the Commonwealth's population. 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.

Commitment

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 and EPA Region 1, for their tireless work and commitment to the communities of the Commonwealth. The Trust has continued to manage well despite the global impact of COVID-19 on finance and supply chains while the SRF programs continue to innovate, remaining dedicated to the mission of serving our communities.

Sincerely,

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. 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 model” to provide funding in excess of 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 **\$8.1 billion** in projects from **nearly \$2.7 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. The Board of Trustees approves all financial commitments, agreements, and program decisions during monthly meetings. 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 is separated into three sections.

Section I

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.

Section II

The second section provides an organized list of project highlights from the Trust’s Series 23 issuance.

Appendix A & B

The appendices at the end of this report list all loans by Green Bonds and Sustainability Bond Series that are still being funded. Additional information, such as the percent of project funding drawn and loan numbers, is included. Readers should note that the main report sections may contain projects that may have been financed by multiple loans spanning multiple bond series.

Full project descriptions for the Series 23 Bonds can be found in the 2021 Green Bond Report. For full descriptions of projects financed in 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 2021, the Trust successfully issued two series of bonds — **Series 23A Green Bonds** and **Series 23B Sustainability Bonds**. This was the Trust's sixth issuance of Green Bonds and their first ever 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) 2018 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 departed from the way the Trust has traditionally issued Green Bonds. When crafting the Preliminary Official Statement for Series 23, the Trust made the decision to include all projects associated with the issuance. Previous practice limited project disclosure to those directly funded through bond proceeds. It did not include projects that were pledged to secure the Trust's bonds and not funded directly through bond proceeds. Series 23 includes all projects, whether they were bond funded or funded by Trust program 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 \$1.1 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 328 loans for 266 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
Totals		\$1,140,325,000	328

Sustainability Bonds

The Trust issued Sustainability Bonds due to the projects' adherence to the environmental standards of the federal Clean Water Act and the Safe Drinking Water Act 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 Green Bond Principles, 2020 Social Bond Principles, 2018 Sustainability Bond Guidelines and the United Nations Sustainable Development Goals. Projects designated as "Sustainability Bonds" are made up exclusively from Disadvantaged Communities ranked as Tier 3, those most in need, according to the Trust's Annual Affordability Calculation as detailed below.

Sustainability Bonds Issued			
Series	Year	Issue Amount	Total Loans
Series 23B	2021	\$209,495,000	44
Totals		\$209,495,000	44

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 grant. 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 in addition to this federal requirement.

The Affordability Calculation is based on an adjusted per capita income (APCI) metric. 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 and MassDEP use 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.

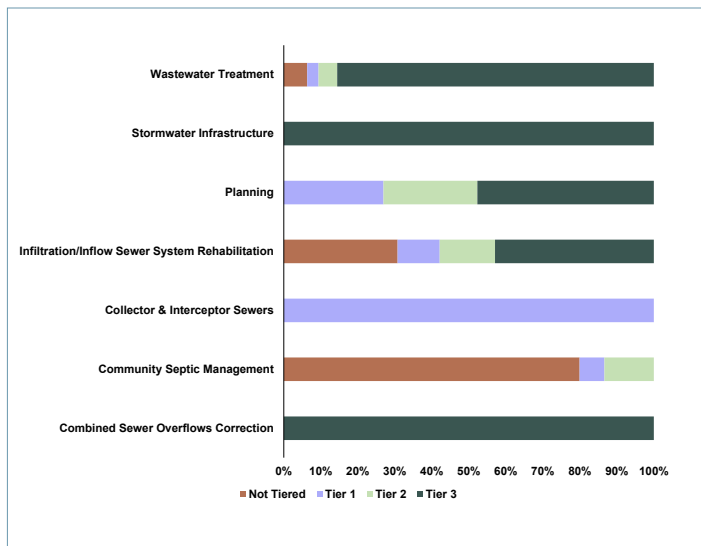
Disadvantaged Community Tier Designation	
Tier 1	APCI equal to or more than 80% of the State APCI, but less than 100% of the State APCI
Tier 2	APCI equal to or more than 60% of the State APCI, but less than 80% of the State APCI
Tier 3	APCI less than 60% of the State APCI

Series 23 Funds Distribution by Disadvantaged Community Tier

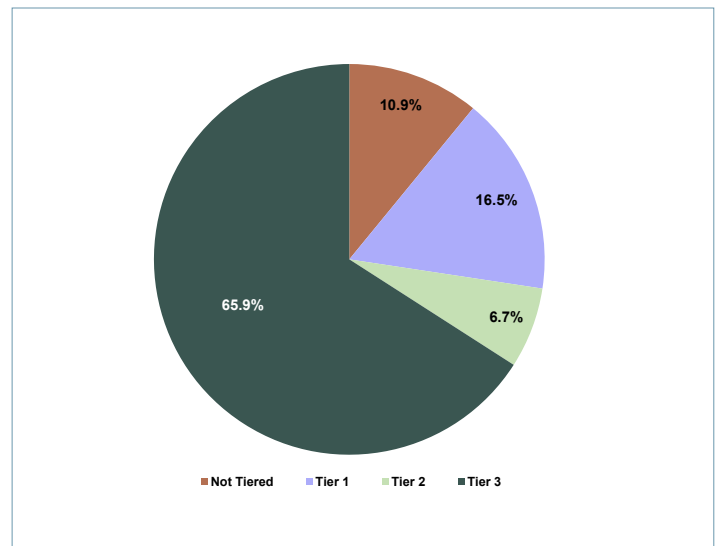
The following charts show the distribution of Series 23 funds to CWSRF and DWSRF programs by Disadvantaged Community tiers.

- **\$407 million** or 82.8% of all Series 23 loans went to a Disadvantaged Community
- **Over \$275 million** or 55% of all Series 23 loans to were made to Tier 3 Disadvantaged Communities.
- **\$231.3 million** was allocated to CWSRF Tier 3 Disadvantaged Community projects.
- The DWSRF program allocated approximately 20% less of its total funding, compared to the CWSRF, to Disadvantaged Communities, but this is skewed by the fact that more than half of the funds allocated to non-Disadvantaged Communities went to three large projects.

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

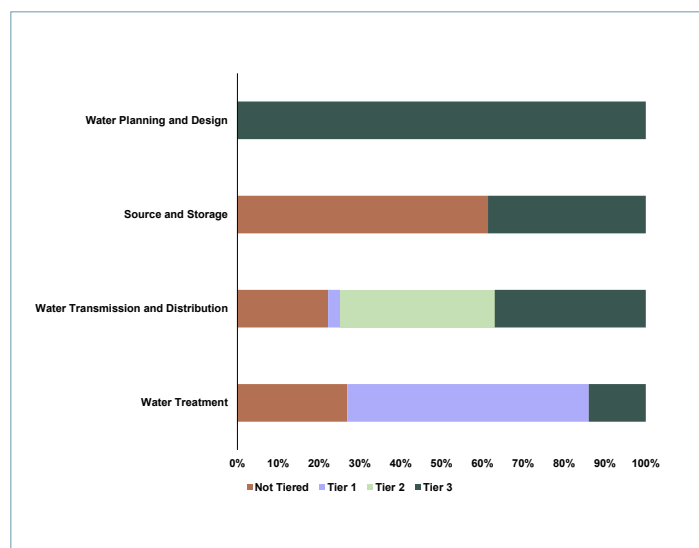


Percent Distribution of All Series 23 CWSRF by Disadvantaged Community Tier



The following data provides a more detailed illustration of the distribution of funds in each SRF program by Disadvantaged Community tier.

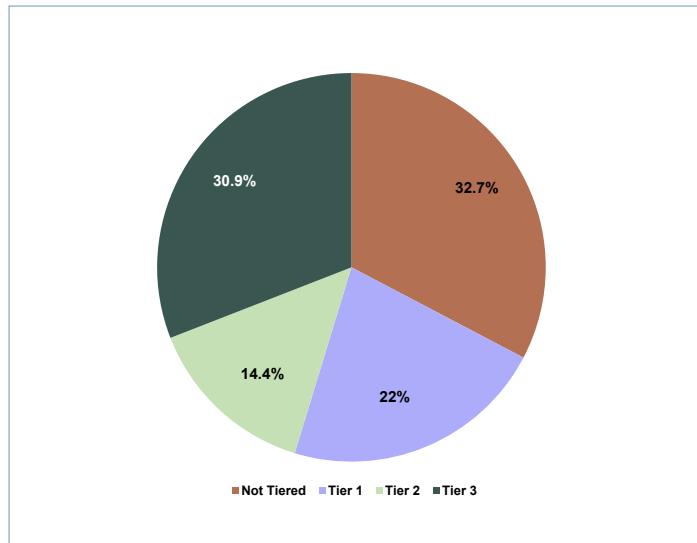
Percent Distribution of DWSRF in each Project Category by Disadvantaged Community Tier



- All **CSO Correction** and **Stormwater Infrastructure** projects target Tier 3 Disadvantaged Communities. These categories of projects are essential to public health and the environmental protection of communities. Most of the projects receiving this funding seek to reduce the amount of untreated sewage discharged into nearby rivers and water bodies. One project with the Springfield Water and Sewer Commission seeks to reduce this discharge into the Connecticut river by 40% annually.

- **85.6%** of all **Wastewater Treatment** projects went to Tier 3 Disadvantaged Communities. These projects are hugely important to the health and environmental impact of the local community. Facilities and treatment process must be upgraded, improved, and replaced to ensure that local demand is met and to reduce the amount impact the community has on local water bodies.
- Nearly **70%** of **I/I and Sewer System Rehabilitation** project funding went to Disadvantaged Communities, with 42.9% going to Tier 3 Disadvantaged Communities.
- **100%** of **Planning project** funding went to Disadvantaged Communities. These projects are integral to ensuring that communities have the information and data necessary to run sustainable to productive wastewater systems. These activities tackle everything from monitoring the performance of sewer flow to developing an improvement program for reducing CSO incidents.

**Percent Distribution of All Series 23 DWSRF
by Disadvantaged Community Tier**



- **67.3%** of total DWSRF loan funds went to Disadvantaged Communities, with the exception of Drinking Water Source and Storage, a majority of funds in each category was allocated to Disadvantaged Communities.
- **61.4%** of DWSRF funding allocated to non-Disadvantaged Communities went to three Drinking Water Source and Storage projects.
- **71.3%** of Drinking Water Treatment and 77.8% of Drinking Water Transmission and Distribution project funding was allocated to Disadvantaged Communities
- **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 – Brockton and Revere.

Project Selection

The Trust's loan process is dictated by an annual list of projects the Trust 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.

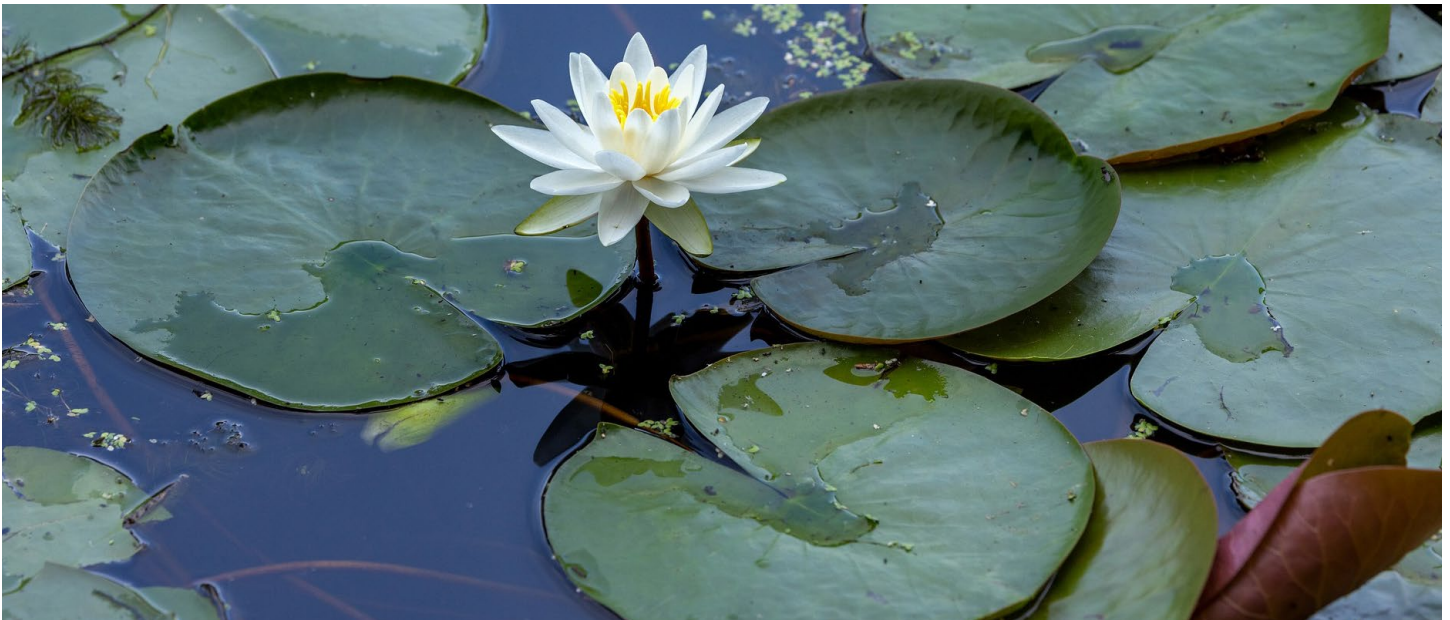
For CWSRF projects, the program emphasizes watershed management priorities, stormwater management, green infrastructure and encourages communities to undertake projects with meaningful water quality and public health benefits. The DWSRF program emphasizes compliance with federal and state water requirements to protect the 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. Eleven categories of projects are eligible to receive CWSRF assistance and six categories are eligible to receive DWSRF assistance. For the purposes of streamlining 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.

The Community Septic Management Program (CSMP)

The Trust will issue loans to the Commonwealth's cities and towns which then issue loans to homeowners to assist with the repair or replacement of failed septic systems. These projects are categorized as non-point source (NPS) projects. These projects help eliminate contamination from failing septic systems which are a leading source of groundwater pollution causing contaminated drinking water, tainted shellfish beds, weed-choked lakes and ponds, and polluted beaches.

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

These projects involve removing infiltration and inflow (i.e. water other than wastewater) from a sewer system, including construction associated with I/I rehabilitation. I/I is when groundwater or stormwater enters a dedicated wastewater or sanitary sewer system either by direct connections or through damaged parts of sewer pipes. I/I increases the flow to wastewater treatment facilities and leads to back-ups or overflows of the system. Sewer system rehabilitation and I/I correction projects are concerned with removing sources of water that are either illicitly 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.

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 June 2020 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 particular 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 2018 Green Bond Principles.

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
	Community Septic Management Program	6.3, 6.b, 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
	Non-Point Source Sanitary Landfill	6.3, 6.b, 12.2, 12.4, 14.1, 14.2
	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.



Section II • Series 23 Project Highlights

Since the Trust did not issue a new series of bonds in 2022, this section of the report will focus on the projects financed in Series 23. The section will first look at all projects financed in Series 23 and then a more detailed project narrative on a number of projects.

The Data

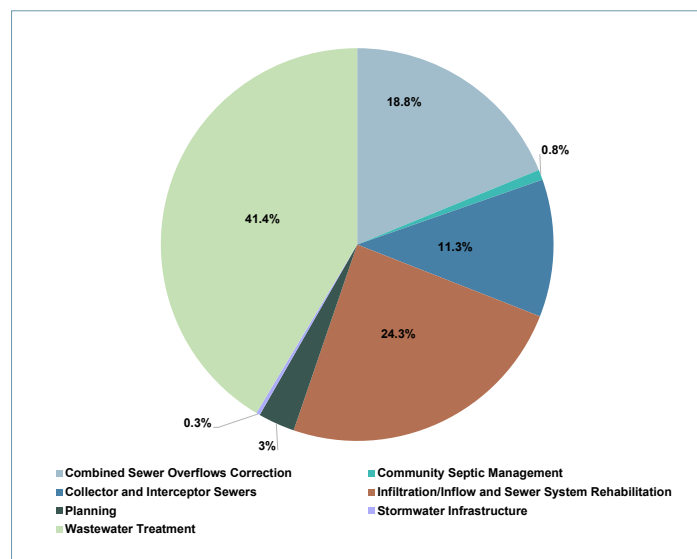
Series 23 is composed of 81 projects, represented by 92 individual loans, with 64% being CWSRF projects and 36% DWSRF projects. The following charts illustrate the distribution of Series 23 projects in each of the CWSRF and DWSRF project categories, first by financing amount and then by number of projects. When examined together, these charts provide a detailed illustration of the composition of each program in Series 23.

CWSRF Projects

In Series 23, the Trust focused on a large variety of projects within the CWSRF, with a specific focus on: Wastewater Treatment, Infiltration/Inflow (“I/I”) and Sewer System Rehabilitation, and Combined Sewer Overflows (“CSO”) Correction projects.

- **Wastewater Treatment** projects received 41.4% of total funding, but only encompasses 21.2% of the total number of CWSRF Series 23 projects. This means an enormous amount of funding is dedicated to the upgrade and improvement of treatment infrastructure to continually reduce or eliminate pollutants in wastewater that is discharged into the environment.
- **I/I and Sewer System Rehabilitation** projects funding and project distributions are proportionate to each other, 24.3% and 26.9% 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 18.8% of CWSRF Series 23 funding and only 5.8% 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 just over 11% of project funding and 7.7% of the total number of projects.
- **Stormwater Infrastructure** was the least represented category of projects in Series 23, with only one project accounting for .3% of funding. This is not a rare occurrence as stormwater infrastructure related activities are often built into almost all other categories including the largest categories of Wastewater Treatment and I/I.
- **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 a 25% of the total number of projects, they only occupy 3% of total funding.

Series 23 CWSRF Funding Distribution by Project Category

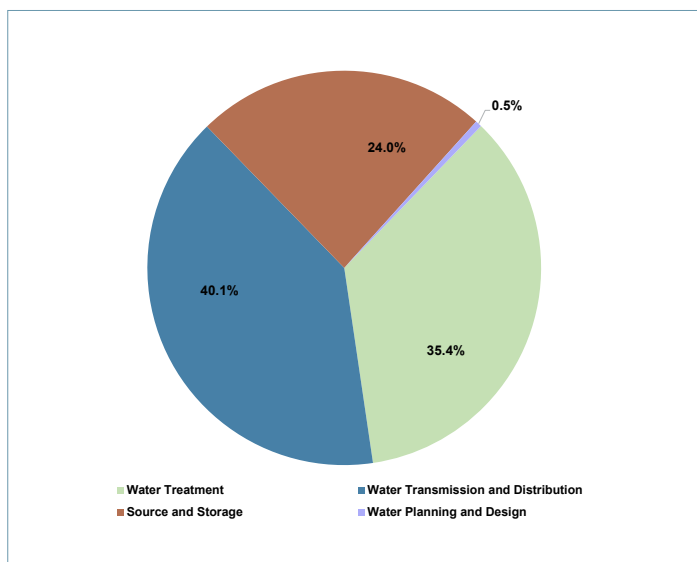


DWSRF Projects

The primary focus of the DWSRF program is to ensure communities in the Commonwealth can affordably improve the overall quality and ensure the safety of their resident's drinking water. The following charts show that the Water Treatment and the Water Transmission and Distribution categories encompass more than 80% of the Series 23 DWSRF number of projects and three quarters of the funding.

- **Drinking Water Treatment** projects account for less than a quarter of the Series 23 DWSRF projects, whereas the
- **Drinking Water Transmission and Distribution** projects accounts for more than 58%. Thus, while both receive virtually the same amount of funding, 35.4% and 40.6% respectively the Water Treatment projects are for more costly on a per project basis.
- **Drinking Water Source and Storage** projects accounts for 10.3% of the total number of Series 23 projects and 24% of the 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.
- **Drinking Water Planning and Design** projects account for nearly 7% of the total number of DWSRF projects in Series 23, they only make up half a percent of total project funding. Similar to their CWSRF counterparts, Drinking Water Planning and Design is limited to non-construction related activities. Though it should be noted that many projects will build this design work into their DWSRF projects.

Series 23 DWSRF Funding Distribution by Project Category



As was noted earlier, Series 23 highlighted all projects connected to the issuance as opposed the previous process of only listing projects receiving bond funds. This change allows the Trust to display a larger set of projects and to demonstrate the total impact of the issuance. This issuance was different in many ways due to the issuance bifurcation and the updated language in the preliminary and final official statements. At its core, it contains the same fundamental values and elements of the Trust's five previous Green Bond issuances.

The remainder of this section details four projects that showcase the variety and impact of the projects financed through the Trust's bonds.





Greater Lawrence Sanitary District

ORGANICS TO ENERGY

LOAN NUMBER: CWP-15-15

LOAN AMOUNT: \$25,290,070

LOAN FORGIVENESS AMOUNT: \$1,597,994

DISADVANTAGED COMMUNITY TIER: 3

UN SDG: 6, 9, 10, 11, 12

PROJECT CATEGORY: Wastewater Treatment



Project Overview

It is hard to imagine uneaten food and cooking scraps being a source of energy sufficient to power a wastewater treatment facility (WWTF). but through innovative thinking, Greater Lawrence Sanitary District (GLSD) did exactly that. GLSD installed a codigestor facility which converts food waste into energy to power the WWTF. GLSD is a regional sewer district that operates a 52 million gallon per day WWTF. GLSD collects, manages, and treats wastewater from a host of municipalities in northern Massachusetts and southern New Hampshire.

In 2014 when MassDEP implemented a statewide ban of the disposal of commercial organic wastes from businesses, GLSD used it as an opportunity for innovation. GLSD began a multi-phase retrofitting of their WWTF to modernize equipment and seize on this newly available energy source by accepting organic waste from businesses. Through this series of SRF financed projects, GLSD has reduced costs and increased efficiency.

The projects have replaced the need for reliance on the electric grid. By generating their own power, GLSD saves almost \$3 million a year compared to previous utility costs. With their new machinery and a “higher octane” waste mix producing gas, the WWTF produces enough pipeline quality natural gas and captured heat energy to power their entire operation. The energy produced by the WWTF’s modifications is done so while emitting 20% less greenhouse gases than the conventional electric grid, all while diverting food waste from landfills.

Technical Overview

Phase 1 began in 2014, implementing improvements intended to control digester foaming incidents, thereby allowing the anaerobic sludge digestion to be expanded to co-digestion in Phase 2. Phase 2 included a biogas metering system upgrade, the addition of a waste blending tank, and mixing system to facilitate acceptance of organic material. High-pressure digester feed pumps were added to manage organic material. A pilot testing program for operating the co-digestion system was implemented.

Phase 3 began in 2016 and started with the installation of underground food acceptance tanks to hold the organic waste and an additional anaerobic digester to control the increased load of material entering the plant. Biogas cleaning capability and combined heat and power (CHP) processes were then installed to govern the increased volume of gas from the anaerobic digesters. The CHP technology captures heat and emissions from the WWTF's existing two 1.6- megawatt cogeneration engines and increases system efficiency. These improvements in efficiency and increased production capacity are enough to virtually remove reliance on the electric grid.

The organic waste is brought from businesses to an auxiliary site where the organic waste is blended into a slurry, transported to the WWTF, and deposited into the underground holding tanks. The preprocessed organic food waste and municipal solids from wastewater treatment processing are then mixed and fed into the WWTF's anaerobic digesters. The combination of the two wastes is a more potent fuel for the digesters than solely that of the municipal solids and produces biogas. The biogas is cleaned to remove impurities and moisture. It is then used to power the WWTF's generators. Heat is recovered from engines and exhaust. It is then used to heat the digesters and reduce reliance on natural gas fueled boilers and furnaces.

Financial Impact

GLSD was issued a \$25,290,070 loan with below-market 2% interest and a 20-year loan term. Interim financing before repayment and during construction was at 0% interest. By completing the organics to energy project, GLSD is no longer reliant on the electric grid, have eliminated their utility expenses, and save almost \$3 million a year in energy costs.

Environmental Impact and Resiliency

The modifications to the WWTF allow for greater resiliency to unforeseen circumstances and climate change. Not only is the WWTF fully energy self-sufficient, but it is also capable of starting up completely disconnected from the electric grid or staying on in the instance of an outage. As Executive Director of GLSD, Cheri Cousens said in March 2022 to *Treatment Plant Operator Magazine*:

“We can start the engines in what we call island mode...We start the engines using natural gas, and we can power the whole plant without being connected to the grid. We have tested it several times...we knew [a local energy supplier] was going to be down for about five days. We proactively went into island mode and ran the engines for that period.”

Final Analysis

The Organics to Energy project undertaken by GLSD modernized their facility, harnessed an untapped source of energy, and increased their resiliency all while diverting food waste from landfills and generating almost \$3 million a year in energy savings and nearly \$1.6 million savings from financing the project using the Trust.





Town of Littleton

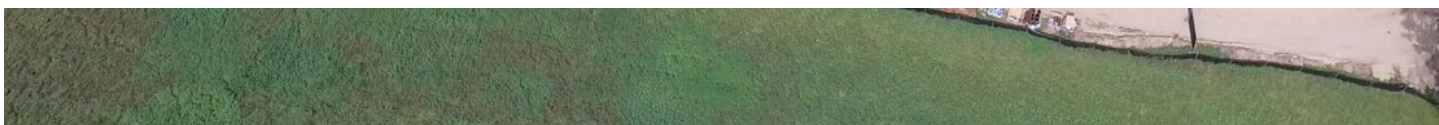
EMERGENCY PFAS BLENDING PIPELINE PROJECT

LOAN NUMBER: DW-20-07

LOAN AMOUNT: \$899,328

UN SDG: 6, 12

PROJECT CATEGORY: Drinking Water Treatment



Project Overview

According to the EPA, per- and polyfluoroalkyl substances (PFAS) are widely used, long lasting chemicals, components of which break down very slowly over time. PFAS are found in water, air, fish, and soil at locations across the nation and the globe. Scientific studies have shown that exposure to some PFAS in the environment may be linked to harmful health effects in humans and animals. Although the full extent of PFAS' public health and environmental impacts are under investigation, PFAS has been identified as an emerging contaminant action item and is being addressed through plants equipped for remediation processes.

Littleton is a town of approximately 10,141 people in the Metro West suburbs of Boston, Massachusetts. In 2019, the town discovered that their Spectacle Pond drinking water wells, the largest supplier of drinking water to the town, contained substantial amounts of PFAS. With MassDEP's newly established PFAS maximum contamination level of 20 parts per trillion (ppt), the town determined that a new treatment plant was necessary. In the meantime, the town had to find a way to supply safe drinking water to its residents and landed on a blending solution.

Blending takes water that contains the contaminant and blends it with water that is free of the PFAS. In Littleton's case, the Spectacle Pond well was taken out of service. The drinking water supply was then blended with the Beaver Brook wells to keep it under the 20 ppt for PFAS. To blend the water, the town had to run temporary water mains from the sources to blend the water.

Although this measure is temporary, it has become part of Littleton's larger effort to remediate PFAS in drinking water. Littleton is in the process of building a \$24.5 million iron, manganese, and PFAS water treatment plant, another Trust financed project. The temporary pipe will remain in service until this treatment plant is placed in service for more long-term PFAS remediation. The town currently anticipates completion of the project in Spring of 2023. The majority of the project costs are for the pipe rental.

Other communities in northern Massachusetts such as neighboring Ayer and nearby Devens are also building treatment plants for PFAS remediation that are being financed by the Trust.



City of Pittsfield

WASTEWATER TREATMENT PLANT (WWTP) NUTRIENT REMOVAL

LOAN NUMBERS: CWP-18-12 and CWP-18-12-A

SERIES 23 LOAN AMOUNT: \$57,737,082

TOTAL SRF LOAN AMOUNT: \$66,759,423

LOAN FORGIVENESS AMOUNT: \$3,721.701

DISADVANTAGED COMMUNITY TIER: 3

UN SDG: 6, 9, 10, 11, 12

PROJECT CATEGORY: Wastewater Treatment



Project Overview

As the third largest municipality in western Massachusetts, Pittsfield is a center for commercial and cultural activities in the Berkshires. The city's nearly 44,000 residents and many visitors are drawn to its iconic sites, like the Gilded Age Colonial Theatre, Herman Melville's historic house, and Tanglewood, the summer home of the Boston Symphony Orchestra.

All this would not be possible without the Housatonic River which flows 149 miles south from the Berkshires to the Long Island Sound. The waterway's main artery starts in southern Pittsfield, with its watershed extending east into the city. A portion of the river in Pittsfield is one of the most biodiverse areas in the state. Thirty-four types of plants and animals in the Upper Housatonic are uncommon or exemplary. The Endangered Species Act protects 161 of its native species. Yet, the river also contains nutrient byproducts from the nearby wastewater treatment plant. This pollution jeopardizes the many plants, animals, and residents that rely on it.

Industrialization in the 18th and 19th centuries augmented the river's role from subsistence farming and fishing. Cities along the Housatonic built dams, mills, and furnaces to further commercial activity. Without the water's ability to power paper mills in the 1800s, Pittsfield may not have its cultural and economic resources of today.

The Housatonic's history as an industrial site continued into the 21st century. General Electric's (GE) facility polluted the river with hazardous polychlorinated biphenyls (PCBs) between 1932 and 1977. This contamination ended when the EPA banned PCBs and entered an agreement with Pittsfield and other parties to begin cleanup. Although the decree treated 20 areas outside of the river, PCB levels will remain high until active remediation is complete in 2025.

Industrial use was only half the problem. Pittsfield's Wastewater Treatment Plant (WWTP) performs a critical function for its many residents and four surrounding towns. To do so, the plant discharges treated water into the Upper Housatonic. Its activities are regulated by a National Pollutant Discharge Elimination System (NPDES) permit co-issued by the EPA and Massachusetts Department of Environmental Protection (MassDEP). Regular examinations ensure the plant complies with the permit. However, it revealed that the Housatonic's water is no longer fishable and swimmable due to PCB contamination.



During a compliance inspection by MassDEP in 2017, certain nutrients were found entering the river in levels higher than the permit allows. Nevertheless, this problem has been documented since a 2003 water quality report supported by MassDEP and the Massachusetts Clean Water Trust. The issue was made worse by the plant releasing increasingly higher levels of aluminum into the water since 2013. Pittsfield's WWTP released an extra 298 micrograms per liter in 2014 alone. Phosphorous was also 0.13 micrograms per liter above the limit by 2016. Nitrogen removal was an additional area of concern due to Pittsfield's role as the greatest discharger of nitrogen into the Housatonic in the Commonwealth.

MassDEP required the city to create a schedule for meeting NPDES permit limits and develop an integrated water resource management plan. Upgrading the plant is just one aspect of that plan, which encompasses maintaining or improving all existing wastewater treatment infrastructure.

The three-year construction plan involved four inter-related steps to be completed. The first step was a more efficient and functional phosphorus and aluminum removal system. To process the subsequent increase in byproducts, new equipment was installed in the sludge dewatering facility. Both steps required demolition and new construction. A secondary clarifiers upgrade was completed which is critical for the aluminum and phosphorous filtration system to work. Finally, the nitrogen removal process at the plant was enhanced. Although the project experienced delays because of unforeseen complications, but the project will cost no more than which the budgeted contingency allows.

Environmental Impact

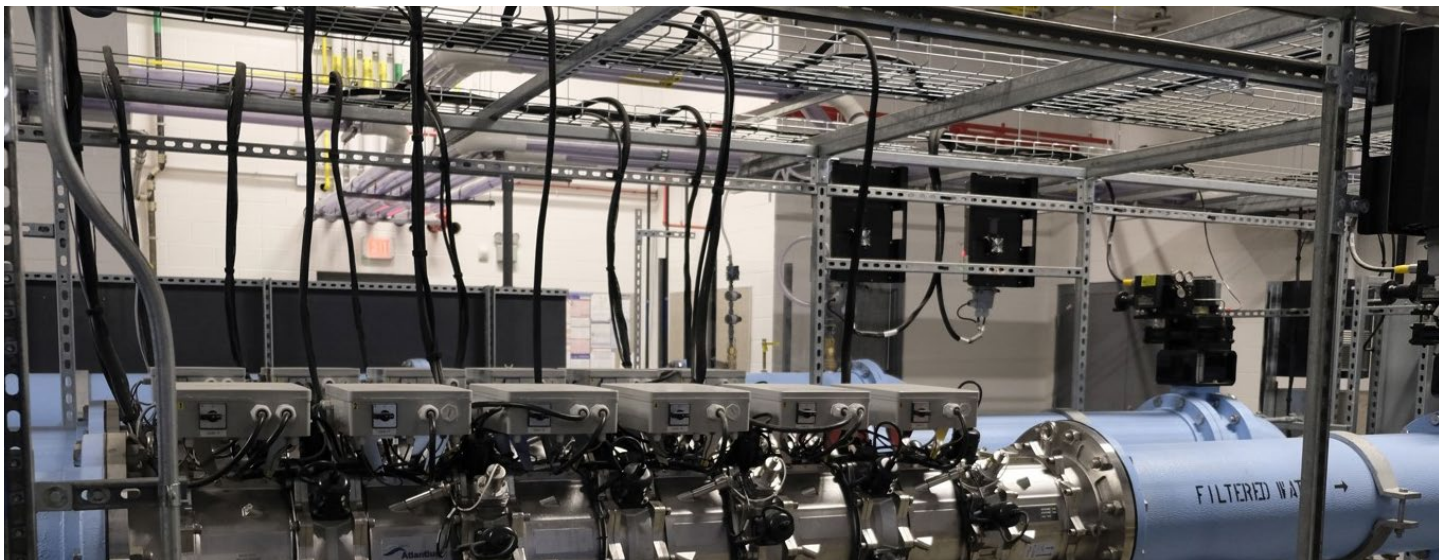
The overall impact of the upgrades is improved nutrient filtration to meet limits set by the EPA. Nutrient removal is crucial to wastewater treatment, particularly when it flows into a productive ecosystem like in Pittsfield. Although nutrients sound beneficial to plant and animal life, too much of it can damage the ecosystem and, as a result, its biodiversity. Aluminum can be toxic for gill-breathing animals like fish. Phosphorous and nitrogen, on the other hand, are a favorite food of algae. These nutrients feed surface algae to the point where they block sunlight from reaching marine life below the water. Even in death, surplus algae cause trouble when the bacteria that decompose it consume the oxygen needed by fish. In some waterways, this eutrophication leads to dead zones and masses of lifeless fish washing onto the shore.

Because the Upper Housatonic River already has two priority conservation areas, reducing excess nutrients will help decrease the ecosystem's vulnerability. Its diverse population of mussels and fish will appreciate the cleaner, more oxygenated water. Removing nutrients will also produce cleaner water for aesthetic and recreational use. Benefits even extend to the Long Island Sound, a tributary of the Housatonic, which has existing nitrogen abundance problems that the Pittsfield WWTP could ameliorate.

Socio-Economic Impact

Completing this project was inspired not only by improving public and environmental health, but also the financial support provided to Pittsfield. The area's high unemployment rate combined with other tumultuous events of the past 20 years led to the Massachusetts Clean Water Trust's affordability calculation results designating the city for the highest level of assistance as a Tier 3 Disadvantaged Community. This designation means that Pittsfield's adjusted per capita income (APCI) is less than 60% of the Commonwealth's APCI.

This multimillion-dollar undertaking, which would be difficult for any community, was assisted by \$66.8 million dollars in a series of four loans from the Trust. These loans, in combination with a 0% interest rate, made this project a more realistic undertaking for Pittsfield. It is estimated that city will save over \$26.4 million in interest over the next 30 years. In addition, \$3.7 million in loan forgiveness was awarded due to the Tier 3 Disadvantaged Community status.



Wareham Fire District

MAPLE SPRINGS WATER PURIFICATION PLANT

LOAN NUMBER: DWP-17-09-A

SERIES 23 LOAN AMOUNT: \$7,000,000

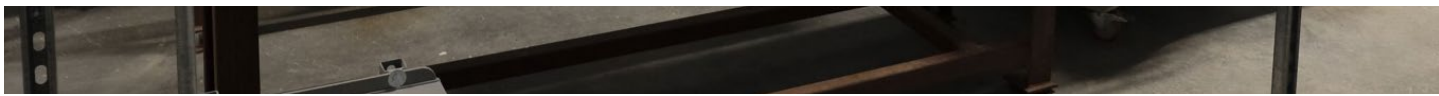
TOTAL LOAN AMOUNT: \$13,346,069

LOAN FORGIVENESS AMOUNT: \$653,904

DISADVANTAGED COMMUNITY TIER: 3

UN SDG: 6, 9, 10, 11, 12

PROJECT CATEGORY: Drinking Water Treatment



Project Summary

Maple Springs is one of several wellfields that the Wareham Fire District relies on to provide water to over 18,500 people within the Town of Wareham, all of which is supplied by groundwater. With wells constructed between 1946 and 1955, Maple Springs has historically produced high iron and manganese concentrations in raw water, characterized by yellowish orange to brownish-black pigmented water.

The presence of such elements can be problematic for infrastructure and those who consume the water. Metal deposits can lead to failures in water distribution requiring costly maintenance. Though not associated with negative health outcomes, excessive amounts of iron and manganese can cause an unpleasant taste in drinking water, including a bitter, metallic, or salty taste. It can also have undesirable cosmetic effects, such as discoloration to sinks, bathtubs, toilets, laundry, and pools. According to the Well House Newsletter, residents of Wareham have long grappled with these effects, with approximately 2,000 pounds of iron and manganese finding its way into the distribution system every year for more than 20 years.

In August of 2018, the District broke ground to construct the Maple Springs Water Purification Plant (MSWPP) to combat iron and manganese concentrations in the water, thus embarking on one of the largest structural endeavors since its opening in 1907. The MSWPP was completed in April of 2021 and now filters water from five of the eight wells in operation, one of which was entirely offline prior to the plant's construction due to high concentrations of manganese. The plant was constructed adjacent to the Maple Springs Corrosion Control Facility, which utilizes lime for pH leveling purposes. The two facilities now work in tandem to ensure that the water flowing out of taps in Wareham is clean, clear, and tasty.

The MSWPP includes several features to improve the quality of water. The primary function of the plant is filtration to gradually remove iron and manganese to comply with the United States Environmental Protection Agency recommendations under the Secondary Treatment Standards. Additionally, the plant uses ultra-violet disinfection to minimize the use of chlorine, thus improving the taste and odor of water. With this, the District was the first entity in the state to meet the Ground Water Rule, a treatment and disinfection regulation to ensure the safety of public water supply sources, without the use of chlorine.

In addition to addressing water quality issues, the MSWPP aids in the District's goal of minimizing costs and cutting carbon emissions by utilizing solar power. Installed to the facility roof in June of 2020 with help from the MassDEP Gap Grant, the solar power system generates approximately 10% of the total energy needed to run the plant. Outside of the MSWPP, the District uses solar energy to power the vast majority of its system-wide water operations, generating approximately 75% of all necessary electricity through solar power.

Future Activities

The MSWPP was constructed to treat 3 million gallons of water per day (MGD), surpassing the District's 2016 average daily consumption of 1.57 MGD. In the future, the District plans to construct a transmission main from the Seawood Springs and Southline wells to the MSWPP to expand the volume of water treated daily. Constructed to handle up to 4.5 MGD, the Plant will be ready to take on the expansion once the time comes.

Disadvantaged Communities Status and Subsidies from the Trust

Utilizing data from 2017, when the Trust approved the initial project, the Town of Wareham's Adjusted Per Capita Income (APCI) was \$ 22,114.90, or 59.2% of the Commonwealth's APCI. The District was subsequently ranked as a Tier 3 Community under the Disadvantaged Community Program, meaning they receive the highest level of loan forgiveness for projects. The construction of the MSWPP received a total of \$653,904 in loan forgiveness.



Appendix A - Series 23 Projects¹

Borrower	Loan No.	Project Name	Amount	Percentage Drawn	Program	Category	DC Tier	UN SDG
Andover	DW-19-13	Distribution System Improvements	\$4,791,300	74.75%	DW	Drinking Water Transmission and Distribution		6, 12
Auburn Water District	DWP-19-19	Prospect Street Tank Replacement	\$1,623,160	97.32%	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	Maier Treatment Facility Upgrade	\$9,754,852	96.16%	DW	Drinking Water Treatment	1	6, 12
Barnstable	DWP-19-28	Airport Well and Straightway Facility	\$2,642,303	97.70%	DW	Drinking Water Treatment	1	6, 12
Billerica	CW-17-15	Sewer Contract 36	\$12,842,593	93.45%	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	\$9,316,240	98.99%	DW	Drinking Water Treatment	1	6, 12
Brockton	CWP-18-42	Wastewater Treatment Plant (WWTP) Upgrade	\$5,412,841 ²	93.38%	CW	Wastewater Treatment	3	6, 9, 10, 11, 12
Brockton	DW-17-05	2017 Transmission Main Assessment	\$500,000 ²	100%	DW	Drinking Water Planning and Design	3	6, 9, 10, 11, 12
Brockton	DWP-18-11	Water Pump Well and Clearwell Rehabilitation	\$2,982,199 ²	95.54%	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	\$2,640,000	93.83%	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
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 ²	100%	CW	Planning	3	6, 9, 10, 11, 12, 14
Fall River	CWP-18-03	Combined Sewer Overflows Abatement Program-Middle Street	\$2,321,027 ²	100%	CW	Combined Sewer Overflow Correction	3	6, 9, 10, 11, 12, 14
Fall River	CWP-18-35	Hyacinth Street Drainage Improvements	\$1,126,248 ²	91.23%	CW	Stormwater Infrastructure	3	6, 9, 10, 11, 12, 14
Fall River	CWP-18-36	President Avenue Sewer Pump Station Replacement	\$3,930,559 ²	97.49%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11, 14
Fall River	CWP-18-38	Wastewater Treatment Facility Improvements	\$21,018,115 ²	98.29%	CW	Wastewater Treatment	3	6, 9, 10, 11, 12
Fall River	DWP-17-12	Automatic Meter Reading and Meter Replacement	\$3,336,416 ²	92.27%	DW	Drinking Water Transmission and Distribution	3	6, 9, 10, 11, 12
Fall River	DWP-18-15	Phase 18- Water System Improvements	\$1,135,800 ²	84.89%	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 ²	100%	CW	Wastewater Treatment	3	6, 9, 10, 11, 12
Franklin	DW-19-02	Treatment Plant at Well Stations No. 3 and 6.	\$12,579,500	97.16%	DW	Drinking Water Treatment		6, 12
Gardner	CWP-17-23	Gardner- Sludge Dewatering Replacement Project	\$5,802,527 ²	100%	CW	Wastewater Treatment	3	6, 9, 10, 11, 12
Gardner	CWP-17-23-A	Gardner- Sludge Dewatering Replacement Project	\$530,533 ²	100%	CW	Wastewater Treatment	3	6, 9, 10, 11, 12
Gloucester	CW-17-25	Utility Master Plan	\$1,200,000	94.79%	CW	Planning	2	6, 12, 14
Greater Lawrence Sanitary District (GLSD)	CWP-15-15	Organics to Energy	\$25,290,070 ²	94.63%	CW	Wastewater Treatment	3	6, 9, 10, 11, 12
GLSD	CWP-15-16	Combined Sewer Overflow Abatement Program	\$8,739,493 ²	94.90%	CW	Wastewater Treatment	3	6, 9, 10, 11, 12
Haverhill	CW-17-14	Haverhill Wastewater Treatment Facility Improvements	\$7,408,631	99.82%	CW	Wastewater Treatment	2	6, 12
Haverhill	CW-19-12	Combined Sewer Overflow Control Plan for the Locke Street CSO Area	\$1,534,800	56.07%	CW	Planning	2	6, 12, 14
Haverhill	DWP-18-06	Phase 2- Transmission Main Improvements	\$7,448,730	90.27%	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 Reliability Centered Maintenance Assessment	\$332,966	100%	CW	Planning	1	6, 12, 14
Hull	CW-18-22	Sewer System Evaluation Survey	\$1,436,820	96.13%	CW	Planning	1	6, 12, 14
Hull	CWP-18-29	Fiscal Sustainability Plan and Capacity, Management, Operations and Maintenance Upgrades	\$9,831,151	99.36%	CW	Infiltration/Inflow and Sewer System Rehabilitation	1	6, 14
Lawrence	CW-14-16-A	Sewer System Rehabilitation	\$442,092 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11, 14
Lawrence	CWP-18-09-A	Sewer and Drainage Improvements	\$4,053,890 ²	93.57%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11 12, 14
Lawrence	CWP-18-09	Sewer and Drainage Improvements	\$9,398,438 ²	99.96%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11 12, 14
Lawrence	CWP-19-06-A	Sewer and Drainage Improvements	\$468,570 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11 12, 14

Footnotes

¹ Series 23: All Amount and Percentage Completed sections are accurate as of July 31, 2022

² Projects associated with the Series 23 Sustainability Bonds are shaded in light green

Appendix A - Series 23 Projects¹

Borrower	Loan No.	Project Name	Amount	Percentage Drawn	Program	Category	DC Tier	UN SDG
Lawrence	CWP-19-06	Sewer and Drainage Improvements	\$4,009,400 ²	99.99%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11, 14
Lawrence	DWP-19-03	Distribution System Improvements	\$4,817,343 ²	98.62%	DW	Drinking Water Transmission and Distribution	3	6, 9, 10, 11, 12
Littleton	DW-20-07	Emergency PFAS Blending Pipeline Project	\$899,328	76.63%	DW	Drinking Water Treatment		6, 12
Marion	CW-18-37	Wastewater Treatment Plant & Collection System Improvements	\$7,002,294	96.63%	CW	Wastewater Treatment		6, 12
Massachusetts Water Resources Authority (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	DW-20-31	Southern Extra High Redundancy and Storage	\$7,271,659	100%	DW	Drinking Water Source and Storage		6, 12
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-20-32	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 ²	100%	CW	Planning	3	6, 9, 10, 11, 12, 14
New Bedford	DWP-17-06	Large Meter & Advanced Metering Infrastructure (AMI) Upgrade Program	\$5,109,695 ²	88.84%	DW	Drinking Water Transmission and Distribution	3	6, 9, 10, 11, 12
New Bedford	DWP-17-07	High Hill Reservoir Rehabilitation	\$13,093,376 ²	91.52%	DW	Drinking Water Source and Storage	3	6, 9, 10, 11, 12
New Bedford	CW-17-09	MS4 Permit Compliance and Reporting	\$474,700 ²	100%	CW	Planning	3	6, 9, 10, 11, 12, 14
New Bedford	CW-18-31	Wastewater Treatment Plan (WWTP) Facilities Planning	\$2,500,000 ²	94.97%	CW	Planning	3	6, 9, 10, 11, 12, 14
New Bedford	CWP-17-16	Pumping Station Improvements	\$6,158,058 ²	91.03%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11, 14
New Bedford	CWP-17-16-A	Pumping Station Improvements	\$926,670 ²	100%	CA	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11, 14
New Bedford	CWP-17-17	Wastewater Collection System Improvements	\$1,387,889 ²	59.36%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11, 14
Norton	CWP-18-43	West Main Street Sewer Extension Project	\$4,693,231	98.07%	CW	Collector and Interceptor Sewers	1	6, 14
Peabody	DWP-20-03	Peabody Water Transmission Main and Pump Station	\$5,299,756	79.86%	DW	Drinking Water Transmission and Distribution	2	6, 12
Peabody	DWP-19-11	Peabody Water Transmission Main and Pump Station	\$4,340,000	84.61%	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	\$7,939,000	96.23%	DW	Drinking Water Treatment	1	6, 12
Pittsfield	CWP-18-12-A	Wastewater Treatment Plant (WWTP) Nutrient Removal	\$7,012,322 ²	100%	CW	Wastewater Treatment	3	6, 9, 10, 11, 12
Pittsfield	CWP-18-12	Wastewater Treatment Plant (WWTP) Nutrient Removal	\$50,724,760 ²	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 ²	87.59%	CW	Planning	3	6, 9, 10, 11, 12, 14
Revere	CW-18-26	Phase X Field Investigations- I/I and IDDE	\$1,000,000 ²	98%	CW	Planning	3	6, 9, 10, 11, 12, 14
Revere	CWP-17-27-A	Phase VIII - I/I, IDDE, P.S., & Drainage	\$373,953 ²	90.51%	CW	Infiltration/Inflow and Sewer System Rehabilitation	3	6, 9, 10, 11, 14
Revere	CWP-18-27	Illicit Connection & Sump Pump Removal Program	\$1,564,017 ²	84.10%	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	\$4,415,387 ²	96.30%	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 ²	93.76%	DW	Drinking Water Planning and Design	3	6, 9, 10, 11, 12
Revere	DWP-17-14	Lead Service Replacement	\$2,974,273 ²	99.19%	DW	Drinking Water Transmission and Distribution	3	6, 9, 10, 11, 12
Revere	DWP-18-09	Oak Island Water Main Improvements Planning Stage	\$706,453 ²	60.15%	DW	Drinking Water Transmission and Distribution	3	6, 9, 10, 11, 12
Saugus	CWP-19-30	Comprehensive Sewer System Rehab. Subsystem 1C	\$1,310,267	91.94%	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

Footnotes

¹ Series 23: All Amount and Percentage Completed sections are accurate as of July 31, 2022

² Projects associated with the Series 23 Sustainability Bonds are shaded in light green

Appendix A - Series 23 Projects¹

Borrower	Loan No.	Project Name	Amount	Percentage Drawn	Program	Category	DC Tier	UN SDG
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 ²	100%	DW	Drinking Water Transmission and Distribution	3	6, 9, 10, 11, 12
Springfield Water & Sewer Commission (SWSC)	CWP-18-18-A	York St. Pump Station & Connecticut River Crossing	\$5,252,623 ²	100%	CW	Combined Sewer Overflow Correction	3	6, 9, 10, 11 12, 14
SWSC	CWP-18-18	York St. Pump Station & Connecticut River Crossing	\$49,107,582 ²	100%	CW	Combined Sewer Overflow Correction	3	6, 9, 10, 11 12, 14
Taunton	CW-17-19	Main Lift Pump Station Improvements	\$10,274,800 ²	96.59%	CW	Combined Sewer Overflow Correction	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	\$500,000	88.38%	CW	Planning	1	6, 12, 14
Wareham Fire District	DWP-17-09-A	Maple Springs Water Purification Plant	\$7,000,000 ²	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	\$1,485,764	95.52%	DW	Drinking Water Transmission and Distribution	2	6, 12
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
West Springfield	CWP-17-30	Pump Station Improv and Infiltration/Inflow (I/I) Reduction Project	\$10,645,852	98.67%	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

Footnotes

¹ Series 23: All Amount and Percentage Completed sections are accurate as of July 31, 2022

² Projects associated with the Series 23 Sustainability Bonds are shaded in light green

Appendix B - Series 22 Projects¹

Borrower	Loan No.	Project Name	Amount	Percentage Drawn	Program	Category
Adams Fire District	DWP-18-04	Chemical Feed and SCADA Upgrades	\$745,324 ²	100%	DW	Drinking Water Treatment
Brockton	CW-16-27	Sewer Flow Monitoring Program	\$1,100,000	100%	CW	Planning
Brockton	CW-16-28	Stormwater Management Plan	\$400,000	100%	CW	Planning
Brockton	DWP-17-10	Transmission Main and Valve Replacement Project	\$1,265,651 ²	100%	DW	Drinking Water Transmission and Distribution
Chatham	CW-13-10-A	Collection System Extension and Improvements	\$833,556 ³	100%	CW	Collector and Interceptor Sewers
Chicopee	CWP-16-25	Phase 5B Sewer Separation Project	\$502,438 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Dartmouth	CWP-16-32	Installation of New UV Disinfection System	\$1,847,652 ²	100%	CW	Wastewater Treatment
Dedham-Westwood Water District	DW-16-08	Bridge Street Water Treatment Plant Upgrades	\$8,841,400	100%	DW	Drinking Water Treatment
Eastham	DW-17-01	Phase 2A Town-Wide Water System	\$7,685,012	100%	DW	Drinking Water Transmission and Distribution
Fall River	CW-17-21	CSO Facilities Plan	\$990,756 ²	100%	CW	Planning
Fall River	CWP-18-07-A	Cress Brook Drainage Improvements	\$699,886	100%	CW	Stormwater Infrastructure
Fall River	DWP-17-08	Water Main Rehabilitation - Phase 17	\$2,930,713	100%	DW	Drinking Water Transmission and Distribution
Gloucester	DWP-18-03	Babson WTP Raw Water Systems Improvements	\$1,787,575 ²	100%	DW	Drinking Water Transmission and Distribution
Gloucester	CWP-17-24	Rehabilitation of DPW amd Goose Cove Sewer Pump Station	\$938,642 ³	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Goshen	CWP-18-11	Goshen Landfill Cap Repair	\$601,596 ²	100%	CW	NPS Sanitary Landfills
Haverhill	DWP-16-05-A	Haverhill Water Treatment Plant Upgrades	\$31,094,762	100%	DW	Drinking Water Treatment
Lawrence	CW-16-14	Sewer System Evaluation Survey	\$2,700,000	100%	CW	Planning
Lawrence	DW-13-05-A	Water Main Replacement	\$11,987,626 ²	100%	DW	Drinking Water Transmission and Distribution
Leominster	DWP-16-13	Rehabilitation of Pump Stations	\$1,450,565	100%	DW	Drinking Water Transmission and Distribution
Lowell	CWP-16-13	West St. Flood Protection, Storage and Stations	\$11,229,703 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Lowell	CWP-16-15	CIP Phase - WWTF and Infrastructure Upgrades	\$12,666,941	100%	CW	Combined Sewer Overflow Correction
Massachusetts Water Resources Authority (MWRA)	CW-18-39	Facility Asset Protection	\$1,070,733	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
MWRA	CW-18-40	Remote Headworks Upgrade	\$28,727,859	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
MWRA	CW-18-41	Wastewater Treatment Plant and Sewer Improvements	\$2,971,701	100%	CW	Wastewater Treatment
MWRA	DW-16-06-A	SEH Redundancy and Storage	\$14,355,913	100%	DW	Drinking Water Source and Storage
MWRA	DW-18-16	Wachusett Aqueduct PS	\$5,363,933	100%	DW	Drinking Water Transmission and Distribution
Nantucket	CW-16-35	Sea Street Pump Station Upgrade	\$5,872,292 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Nantucket	CW-17-01	Shimmo & PLUS Parcels Sewer Extension	\$1,574,994 ²	100%	CW	Collector and Interceptor Sewers
New Bedford	CW-17-10	Supplemental WW and SW Plan	\$4,643,181 ²	100%	CW	Planning
New Bedford	DWP-16-14	Quittacas WTP Rehabilitation	\$8,912,740	100%	DW	Drinking Water Treatment
New Bedford	DWP-17-03	Lead Service Line Replacement Program - Phase I	\$5,698,174	100%	DW	Drinking Water Transmission and Distribution
New Bedford	DWP-16-14	Quittacas WTP Rehabilitation	\$667,428 ³	100%	DW	Drinking Water Treatment
Norton	DW-14-10	New WTP	\$10,300,000	100%	DW	Drinking Water Treatment
Revere	CW-17-28	Illicit Connection & Sump Pump Removal Investigations	\$558,900 ²	100%	CW	Planning
Revere	CW-17-29	Phase IX Field Investigations-I/I and IDDE	\$1,200,000	100%	CW	Planning
Revere	CWP-17-26	Illicit Connection & Sump Pump Removal Program	\$640,013 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Revere	DW-13-09-A	Water Meters AMR System	\$513,643 ²	100%	DW	Drinking Water Transmission and Distribution
Saugus	CW-16-09-A	Sewer System and Pump Station Rehab/Improvements	\$823,388 ²	100%	CW	Infiltration/Inflow and Sewer System Rehabilitation
Taunton	CW-17-08	Comprehensive Water Resources Planning	\$759,166 ²	100%	CW	Planning
Tyngsborough	CW-18-04	Tyngsborough I-I Program	\$250,000	100%	CW	Planning

Footnote

¹ Series 22: All Amount and Percentage Completed sections are accurate as of July 31, 2022.

² Amount was reduced following the completion of the project. Excess funds were reallocated to additional green projects and are listed within the Series 22 table

³ Amount reflects Series 22 Bond Proceeds reallocated from excess funds of completed Series 22 projects

Appendix B - Series 22 Projects¹

Borrower	Loan No.	Project Name	Amount	Percentage Drawn	Program	Category
Upper Blackstone Water Pollution Abatement District (UBWPAD)	CWP-16-39-B	Nutrient Removal Improvements	\$1,866,665 ²	100%	CW	Wastewater Treatment
UBWPAD	CWP-16-39-A	Nutrient Removal Improvements	\$14,993,853 ²	100%	CW	Wastewater Treatment
Wareham Fire District	DWP-17-09	Maple Springs Water Purification Plant	\$6,346,096	100%	DW	Drinking Water Treatment
Wayland	DW-18-01	Wayland 2018 Water Main Improvements	\$700,000	100%	DW	Drinking Water Transmission and Distribution
Webster	DWP-17-04	Memorial Beach Wells Water Treatment Plant	\$9,653,132 ²	100%	DW	Drinking Water Treatment
West Springfield	DWP-17-13	Drinking Water System Improvements Project	\$6,697,067 ²	100%	DW	Drinking Water Source and Storage
Whatley	DW-16-11	Manganese Removal	\$420,487 ²	100%	DW	Drinking Water Treatment

Footnote

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³ Amount reflects Series 22 Bond Proceeds reallocated from excess funds of completed Series 22 projects

SEPTEMBER 2022

Annual Green Bonds and Sustainability Bonds Report



MASSACHUSETTS
CLEAN WATER TRUST